

FASSA EPOXY 300 COMP.A

Sigurnosno-tehničkog lista, datum: 29/05/2025 Opis version 3

ODJELJAK 1.: Identifikacija tvari/smjese i podaci o društvu/poduzeću**1.1. Identifikacijska oznaka proizvoda**

Identifikacija preparata:

Trgovačko ime: FASSA EPOXY 300 COMP.A

Trgovački kod: 1223

UFI: Q3QW-WAS1-C00X-AG4T

1.2. Utvrđene relevantne uporabe tvari ili smjese i uporabe koje se ne preporučuju

Preporučana upotreba: Epoksidna smola

Nepreporučljiva upotreba: Nije namijenjeno potrošačima

1.3. Podaci o dobavljaču koji isporučuje sigurnosno-tehnički list

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1.4. Broj telefona za izvanredna stanja

+3851 2348 342

ODJELJAK 2.: Identifikacija opasnosti**2.1. Razvrstavanje tvari ili smjese****Uredba (EC) br. 1272/2008 (CLP)**

Skin Irrit. 2 Nadražuje kožu.

Eye Irrit. 2 Uzrokuje jako nadraživanje oka.

Skin Sens. 1A Može izazvati alergijsku reakciju na koži.

Repr. 1B Može štetno djelovati na plodnost ili naškoditi nerođenom djetetu ako dođe u dodir s kožom ili se proguta.

Aquatic Chronic 2 Otrovno za vodeni okoliš s dugotrajnim učincima.

Fizikalno-kemijski učinci štetni po ljudsko zdravlje i okoliš:

Nema ostalih rizika

2.2. Elementi označivanja**Uredba (EC) br. 1272/2008 (CLP):****Piktogrami i oznaka opasnosti**

Opasnost

Oznake upozorenja

H315 Nadražuje kožu.

H317 Može izazvati alergijsku reakciju na koži.

H319 Uzrokuje jako nadraživanje oka.

H360 Može štetno djelovati na plodnost ili naškoditi nerođenom djetetu ako dođe u dodir s kožom ili se proguta.

H411 Otrovno za vodeni okoliš s dugotrajnim učincima.

Oznake obavijesti

P201 Prije uporabe pribaviti posebne upute.

P261 Izbjegavati udisanje prašine/dima/plina/magle/pare/aerosola.

P273 Izbjegavati ispuštanje u okoliš.

P280 Nositi zaštitne rukavice/zaštitno odijelo te zaštitu za oči/zaštitu za lice.

P308+P313 U SLUČAJU izloženosti ili sumnje na izloženost: zatražiti savjet/pomoć liječnika.

Posebna osiguranja:

EUH205 Sadrži epoksidne sastojke. Može izazvati alergijsku reakciju.

Sadrži:

oksiran, mono[(C12-14-alkiloksi)metil]-derivati

reakcijska smjesa 2,2'-[metilenbis(4,1-fenilenoksimetilen)]dioksiran i 2-(2-[4-(oksiran-2-ilmetoksi)]fenoksi)oksiran i 2,2'-[metilenbis(2,1-fenilenoksimetilen)]dioksiran

bis[4-(2,3-epoksipropoksi)fenil]propan

Posebne odredbe prema Prilogu XVII REACH-a i naknadnih amandmana:

Niti jedan

2.3. Ostale opasnosti

Bez PBT-a, vPvB-a ili endokrinih disruptora prisutnih u koncentraciji > = 0,1 %.

Nema ostalih rizika

ODJELJAK 3.: Sastav/informacije o sastojcima

3.1. Tvari

Ne primjenjuje se.

3.2. Smjese

Identifikacija preparata: FASSA EPOXY 300 COMP.A

Opasni sastojci u smislu CLP Uredbe koja se odnosi na razvrstavanje:

Količina	Naziv	Ident. Broj.	Klasifikacija	Broj registriranih slučajeva:
≥20 - <30 %	bis[4-(2,3-epoksipropoksi)fenil]propan	CAS:1675-54-3 EC:216-823-5 Index:603-073-00-2	Skin Irrit. 2, H315 Eye Irrit. 2, H319 Skin Sens. 1, H317 Aquatic Chronic 2, H411 Specifične granične vrijednosti koncentracije: 5% ≤ C < 100%: Skin Irrit. 2 H315 5% ≤ C < 100%: Eye Irrit. 2 H319	01-2119456619-26-xxxx
≥10 - <20 %	reakcijska smjesa 2,2'-[metilenbis(4,1-fenilenoksimetilen)]dioksiran i 2-(2-[4-(oksiran-2-ilmetoksi)]fenoksi)oksiran i 2,2'-[metilenbis(2,1-fenilenoksimetilen)]dioksiran	EC:701-263-0	Skin Irrit. 2, H315; Skin Sens. 1A, H317; Aquatic Chronic 2, H411	01-2119454392-40-xxxx
≥5 - <10 %	oksiran, mono[(C12-14-alkiloksi)metil]-derivati	CAS:68609-97-2 EC:271-846-8 Index:603-103-00-4	Skin Irrit. 2, H315; Skin Sens. 1, H317; Repr. 1B, H360F	01-2119485289-22-xxxx
≥0.3 - <0.5 %	titanijev dioksid	CAS:13463-67-7 EC:236-675-5 Index:022-006-00-2	Carc. 2, H351	01-2119489379-17-xxxx
≥0.3 - <0.5 %	Reaktivna smjesa etilbenžen, m-ksilen i p-ksilen	EC:905-562-9	Flam. Liq. 3, H226 Acute Tox. 4, H312 Acute Tox. 4, H332 Skin Irrit. 2, H315 Eye Irrit. 2, H319 STOT SE 3, H335 STOT RE 2, H373 Asp. Tox. 1, H304 Aquatic Chronic 3, H412 Procjena akutne toksičnosti: ATE - Dermalno: 1100mg/kg t.m. ATE - Udisanje (Pare): 11mg/l	01-2119555267-33-xxxx
≥0.05 - <0.1 %	butanon	CAS:78-93-3 EC:201-159-0	Flam. Liq. 2, H225; Eye Irrit. 2, H319; STOT SE 3, H336, EUH066	01-2119457290-43-xxxx

≥0.05 - <0.1 % etil-acetat	CAS:141-78-6 EC:205-500-4 Index:607-022-00-5	Flam. Liq. 2, H225; Eye Irrit. 2, H319; STOT SE 3, H336, EUH066	01-2119475103-46-xxxx
≥0.05 - <0.1 % 2-metoksi-1-metiletil-acetat	CAS:108-65-6 EC:203-603-9 Index:607-195-00-7	Flam. Liq. 3, H226; STOT SE 3, H336	01-2119475791-29-xxxx
≥0.05 - <0.1 % Quaternary ammonium compounds, benzyl(hydrogenated tallow alkyl)dimethyl, chlori	CAS:61789-72-8 EC:263-081-3	Acute Tox. 4, H302; Skin Corr. 1B, H314; Eye Dam. 1, H318; Aquatic Acute 1, H400; Aquatic Chronic 1, H410, M-Chronic:1, M-Acute:10	01-2119970169-28-xxxx
≥0.005 - <0.025 n-butil-acetat %	CAS:123-86-4 EC:204-658-1 Index:607-025-00-1	Flam. Liq. 3, H226; STOT SE 3, H336, EUH066	01-2119485493-29-xxxx
≥0.005 - <0.025 Kristalni silicijev dioksid, kvarc % (udisljiv dio)	CAS:14808-60-7 EC:238-878-4	STOT RE 1, H372	Izuzeto
≥0.005 - <0.025 ksilen %	CAS:1330-20-7 EC:215-535-7 Index:601-022-00-9	Flam. Liq. 3, H226 Acute Tox. 4, H312 Acute Tox. 4, H332 Skin Irrit. 2, H315 Eye Irrit. 2, H319 STOT SE 3, H335 STOT RE 2, H373 Asp. Tox. 1, H304 Procjena akutne toksičnosti: ATE - Dermalno: 1100mg/kg t.m. ATE - Udisanje (Pare): 11mg/l	01-2119488216-32-xxxx
≥0.005 - <0.025 etilbenzen %	CAS:100-41-4 EC:202-849-4 Index:601-023-00-4	Flam. Liq. 2, H225; Acute Tox. 4, H332; STOT RE 2, H373; Asp. Tox. 1, H304	01-2119489370-35-xxxx

Napomena: bilo koji podatak u stupcu EC# koji počinje brojem „9” jest EC # Provisional List Number (privremeni broj popisa) koji dostavlja agencija ECHA do objave službenog Europskog popisa tvari. Dodatne informacije o broju CAS tvari: Reaktivna smjesa etilbenzen, m-ksilen i p-ksilen: Sljedeća tvar identificira se brojem CAS u zemljama koje ne podliježu odredbama Uredbe REACH ili pravilnicima koji se još nisu ažurirali novim nomenklaturama otapalā: CAS 1330-20-7.

ODJELJAK 4.: Mjere prve pomoći

4.1. Opis mjera prve pomoći

U slučaju kontakta sa kožom:

Smjesta skinuti zagađenu odjeću i ukloniti je na bezbjedan način.

Odmah oprati obilnom količinom tekuće vode i eventualno sapunom dijelove tijela koji su došli u dodir s proizvodom, čak i u slučaju da samo sumnjate da je došlo do kontakta.

Oprati čitavo tijelo (istuširati se ili okupati).

U slučaju kontakta sa očima:

U slučaju kontakta sa očima, ispirati oči vodom neko vrijeme, držati otvorene kapke, a potom zatražiti pomoć oftalmologa.

Zaštititi neozlijeđeno oko.

U slučaju gutanja:

Ne poticati povraćanje, obratiti se liječniku i pokazati listić o sigurnosti i oznaku kemijskog rizika.

U slučaju udisanja:

Izloženu osobu treba iznijeti na svjež zrak, držati je na toplom, a ista mora mirovati.

4.2. Najvažniji simptomi i učinci, akutni i odgođeni

Simptomi i učinci su u skladu s očekivanjima od opasnosti kako je prikazano u 2. odjeljku.

4.3. Navod o potrebi za hitnom liječničkom pomoći i posebnom obradom

U slučaju nesreće ili slabosti smjesta se obratiti liječniku (ako je moguće, pokazati upute za uporabu ili sigurnosni list).

ODJELJAK 5.: Mjere za suzbijanje požara

5.1. Sredstva za gašenje

Prikladna sredstva za gašenje požara:

CO₂, aparati za gašenje požara prahom, pjena, raspršivanje vode.

Sredstva za gašenje požara koja ne treba koristiti iz bezbjednosnih razloga:

Voda u mlazovima.

5.2. Posebne opasnosti koje proizlaze iz tvari ili smjese

Sagorijevanjem se oslobađaju teški dimovi.

Ne udisati plinove nastale eksplozijom i/ili izgaranjem (ugljikov monoksid i ugljikov dioksid, dušikove okside).

5.3. Savjeti za gasitelje požara

Koristiti prikladne dišne aparate.

Posebno pokupiti zaprljanu vodu, koja je korištena za gašenje požara. Ne bacati ovu vodu u kanalizacionu mrežu.

Neoštećene spremnike skloniti iz prostora neposredne opasnosti, ukoliko se to može izvršiti na bezbjedan način.

ODJELJAK 6.: Mjere kod slučajnog ispuštanja

6.1. Osobne mjere opreza, zaštitna oprema i postupci za izvanredna stanja

Za osobe koje se ne ubrajaju u interventno osoblje:

Koristiti sredstva za osobnu zaštitu.

Ukloniti osobe na sigurno mjesto.

Konzultirati mjere zaštite opisane u točkama 7. i 8.

Za interventno osoblje:

Koristiti sredstva za osobnu zaštitu.

6.2. Mjere zaštite okoliša

Spriječiti prodiranje u tlo/dublje slojeve zemlje. Spriječiti ulivanje u površinske vode ili u kanalizacionu mrežu.

U slučaju izlaska plina ili prodiranja u vodene tokove, tlo ili kanalizacionu mrežu, obavijestiti nadležna tijela.

6.3. Metode i materijal za sprečavanje širenja i čišćenje

Materijal je prikladan za skupljanje: inertni upijajući materijal (npr. pijesak, vermikulit)

Nakon što je proizvod sakupljen, isprati onečišćeno područje i predmete s vodom.

Zadržati vodu kojom ste izvršili pranje, pa je eliminirati.

6.4. Uputa na druge odjeljke

Pogledati također i paragrafe 8. i 13.

ODJELJAK 7.: Rukovanje i skladištenje

7.1. Mjere opreza za sigurno rukovanje

Izbjegavati dodir s kožom i očima, udisanje para i maglica.

Ne koristite prazne spremnike prije no što ih očistite.

Prije prijenosa proizvoda, uvjeriti se da u spremnicima nema ostataka nekompatibilnih tvari.

Savjeti o općoj higijeni na radnom mjestu:

Kontaminirana odjeća se smjesta mora zamijeniti prije ulaska u menze.

Ne konzumirati hranu i piće na radnom mjestu.

Pogledati i paragraf 8. u svezi sa preporučenim napravama za zaštitu.

7.2. Uvjeti sigurnog skladištenja, uzimajući u obzir moguće inkompatibilnosti

Čuvati spremnike dobro zatvorene na hladnom i dobro prozračenom mjestu daleko od izvora topline.

Držati podalje od hrane, pića i krmiva.

Inkompatibilne tvari:

Vidi točku 10.5

Upute za prostorije za skladištenje:

Aдекватно prozračene prostorije.

7.3. Posebna krajnja uporaba ili uporabe

Preporuke

Vidi točku 1.2

Specifične otopine za industrijski sektor

Nema posebne upotrebe

ODJELJAK 8.: Nadzor nad izloženosti/osobna zaštita

8.1. Nadzorni parametri

Granične vrijednosti izloženosti na mjestu rada

titanijev dioksid

CAS: 13463-67-7	OEL Tip	ACGIH	Dugoročno 0.2 mg/m3 Napomene: Nanoscale particles - A3 - (R) URT irr, Pneumoconiosis
			Dugoročno 2.5 mg/m3 Napomene: Finescale particles - A3 - (R) URT irr, Pneumoconiosis
	OEL Tip	MAK	Austrija
			Dugoročno 5 mg/m3; Kratkoročno 10 mg/m3 Napomene: Respirable fraction
	OEL Tip	MAK	Njemačka
			Dugoročno 0.3 mg/m3; Kratkoročno 2.4 mg/m3 Napomene: Respirable fraction, except ultrafine particles , Multiplied by the material density
	OEL Tip	VLEP	Belgija
			Dugoročno 10 mg/m3

OEL Tip	VLEP	Francuska	Dugoročno 11 mg/m ³ Napomene: Inhalable aerosol
OEL Tip	VLEP	Rumunjska	Dugoročno 10 mg/m ³ ; Kratkoročno 15 mg/m ³
OEL Tip	TLV	Bugarska	Dugoročno 10 mg/m ³
OEL Tip	VLA	Španjolska	Dugoročno 10 mg/m ³ Napomene: Inhalable fraction
OEL Tip	SUVA	Švicarska	Dugoročno 3 mg/m ³ Napomene: Respirable aerosol
OEL Tip	WEL	U.K.	Dugoročno 10 mg/m ³ Napomene: Inhalable fraction
			Dugoročno 4 mg/m ³ Napomene: Respirable fraction
OEL Tip	GVI	Hrvatska	Dugoročno 10 mg/m ³ Napomene: Inhalable fraction
			Dugoročno 4 mg/m ³ Napomene: Respirable fraction
OEL Tip	NDS	Poljska	Dugoročno 10 mg/m ³ Napomene: Inhalable fraction
OEL Tip	IPRV	Litva	Dugoročno 5 mg/m ³
OEL Tip	RV	Latvija	Dugoročno 10 mg/m ³
OEL Tip	NGV/KG V	Švedska	Dugoročno 5 mg/m ³ Napomene: inhalable aerosol

Reaktivna smjesa etilbenžen, m-ksilen i p-ksilen

OEL Tip	ACGIH		Dugoročno 20 ppm Napomene: A4, BEI - URT and eye irr, CNS impair
OEL Tip	UE		Dugoročno 221 mg/m ³ - 50 ppm; Kratkoročno 442 mg/m ³ - 100 ppm Napomene: Skin
OEL Tip	MAK	Austrija	Dugoročno 221 mg/m ³ - 50 ppm; Kratkoročno 442 mg/m ³ - 100 ppm
OEL Tip	MAK	Njemačka	Dugoročno 220 mg/m ³ - 50 ppm; Kratkoročno 440 mg/m ³ - 100 ppm Napomene: Skin
OEL Tip	VLEP	Belgija	Dugoročno 221 mg/m ³ - 50 ppm; Kratkoročno 442 mg/m ³ - 100 ppm Napomene: Additional indication "D" means that the absorption of the agent through the skin, mucous membranes or eyes is an important part of the total exposure. It can be the result of both direct contact and its presence in the air.
OEL Tip	VLEP	Francuska	Dugoročno 221 mg/m ³ - 50 ppm; Kratkoročno 442 mg/m ³ - 100 ppm Napomene: Skin
OEL Tip	VLEP	Italija	Dugoročno 221 mg/m ³ - 50 ppm; Kratkoročno 442 mg/m ³ - 100 ppm Napomene: Skin
OEL Tip	VLEP	Rumunjska	Dugoročno 221 mg/m ³ - 50 ppm; Kratkoročno 442 mg/m ³ - 100 ppm
OEL Tip	TLV	Bugarska	Dugoročno 221 mg/m ³ - 50 ppm; Kratkoročno 442 mg/m ³ - 100 ppm Napomene: Skin
OEL Tip	TLV	Češka	Dugoročno 200 mg/m ³ - 45.4 ppm; Kratkoročno 400 mg/m ³ - 90.8 ppm Napomene: Skin
OEL Tip	VLA	Španjolska	Dugoročno 221 mg/m ³ - 50 ppm; Kratkoročno 442 mg/m ³ - 100 ppm
OEL Tip	ÁK	Mađarska	Dugoročno 221 mg/m ³ ; Kratkoročno 442 mg/m ³ Napomene: Skin
OEL Tip	MAC	Nizozemska	Dugoročno 210 mg/m ³ - 47.5 ppm; Kratkoročno 442 mg/m ³ - 100 ppm Napomene: Skin
OEL Tip	VLE	Portugal	Dugoročno 221 mg/m ³ - 50 ppm; Kratkoročno 442 mg/m ³ - 100 ppm Napomene: Skin
OEL Tip	SUVA	Švicarska	Dugoročno 220 mg/m ³ - 50 ppm; Kratkoročno 440 mg/m ³ - 100 ppm
OEL Tip	WEL	U.K.	Dugoročno 220 mg/m ³ - 50 ppm; Kratkoročno 441 mg/m ³ - 100 ppm Napomene: Skin
OEL Tip	GVI	Hrvatska	Dugoročno 221 mg/m ³ - 50 ppm; Kratkoročno 442 mg/m ³ - 100 ppm Napomene: Skin

butanon CAS: 78-93-3	OEL Tip	AGW	Njemačka	Dugoročno 220 mg/m ³ - 50 ppm; Kratkoročno 440 mg/m ³ - 100 ppm Napomene: Skin
	OEL Tip	NDS	Poljska	Dugoročno 100 mg/m ³ ; Kratkoročno 200 mg/m ³ Napomene: Skin
	OEL Tip	MV	Slovenija	Dugoročno 221 mg/m ³ - 50 ppm; Kratkoročno 442 mg/m ³ - 100 ppm Napomene: Skin
	OEL Tip	IPRV	Litva	Dugoročno 221 mg/m ³ - 50 ppm; Kratkoročno 442 mg/m ³ - 100 ppm Napomene: Skin
	OEL Tip	ACGIH		Dugoročno 75 ppm; Kratkoročno 150 ppm Napomene: BEI Skin - URT irr, CNS and PNS impair
	OEL Tip	UE		Dugoročno 600 mg/m ³ - 200 ppm; Kratkoročno 900 mg/m ³ - 300 ppm
	OEL Tip	MAK	Austrija	Dugoročno 295 mg/m ³ - 100 ppm; Kratkoročno 590 mg/m ³ - 200 ppm Napomene: Skin
	OEL Tip	MAK	Njemačka	Dugoročno 600 mg/m ³ - 200 ppm; Kratkoročno 600 mg/m ³ - 200 ppm Napomene: Skin
	OEL Tip	VLEP	Belgija	Dugoročno 600 mg/m ³ - 200 ppm; Kratkoročno 900 mg/m ³ - 300 ppm
	OEL Tip	VLEP	Francuska	Dugoročno 600 mg/m ³ - 200 ppm; Kratkoročno 900 mg/m ³ - 300 ppm
	OEL Tip	VLEP	Italija	Dugoročno 600 mg/m ³ - 200 ppm; Kratkoročno 900 mg/m ³ - 300 ppm
	OEL Tip	VLEP	Rumunjska	Dugoročno 600 mg/m ³ - 200 ppm; Kratkoročno 900 mg/m ³ - 300 ppm
	OEL Tip	TLV	Bugarska	Dugoročno 590 mg/m ³ ; Kratkoročno 885 mg/m ³
	OEL Tip	TLV	Češka	Dugoročno 600 mg/m ³ - 200 ppm; Kratkoročno 900 mg/m ³ - 300 ppm
	OEL Tip	VLA	Španjolska	Dugoročno 600 mg/m ³ - 200 ppm; Kratkoročno 900 mg/m ³ - 300 ppm
	OEL Tip	ÁK	Mađarska	Dugoročno 600 mg/m ³ ; Kratkoročno 900 mg/m ³ Napomene: Skin
	OEL Tip	MAC	Nizozemska	Dugoročno 590 mg/m ³ - 197 ppm; Kratkoročno 900 mg/m ³ - 300 ppm Napomene: Skin
	OEL Tip	VLE	Portugal	Dugoročno 600 mg/m ³ - 200 ppm; Kratkoročno 900 mg/m ³ - 300 ppm
	OEL Tip	SUVA	Švicarska	Dugoročno 590 mg/m ³ - 200 ppm; Kratkoročno 590 mg/m ³ - 200 ppm
	OEL Tip	WEL	U.K.	Dugoročno 600 mg/m ³ - 200 ppm; Kratkoročno 899 mg/m ³ - 300 ppm Napomene: Skin
etil-acetat CAS: 141-78-6	OEL Tip	GVI	Hrvatska	Dugoročno 600 mg/m ³ - 200 ppm; Kratkoročno 900 mg/m ³ - 300 ppm
	OEL Tip	AGW	Njemačka	Dugoročno 600 mg/m ³ - 200 ppm; Kratkoročno 600 mg/m ³ - 200 ppm Napomene: Skin 15
	OEL Tip	NDS	Poljska	Dugoročno 450 mg/m ³ ; Kratkoročno 900 mg/m ³ Napomene: Skin
	OEL Tip	MV	Slovenija	Dugoročno 600 mg/m ³ - 200 ppm; Kratkoročno 900 mg/m ³ - 300 ppm Napomene: Skin
	OEL Tip	IPRV	Litva	Dugoročno 600 mg/m ³ - 200 ppm; Kratkoročno 900 mg/m ³
	OEL Tip	ACGIH		Dugoročno 400 ppm Napomene: URT and eye irr
	OEL Tip	UE		Dugoročno 734 mg/m ³ - 200 ppm; Kratkoročno 1468 mg/m ³ - 400 ppm
	OEL Tip	MAK	Austrija	Dugoročno 734 mg/m ³ - 200 ppm; Kratkoročno 1468 mg/m ³ - 400 ppm
	OEL Tip	MAK	Njemačka	Dugoročno 750 mg/m ³ - 200 ppm; Kratkoročno 1500 mg/m ³ - 400 ppm
	OEL Tip	VLEP	Belgija	Dugoročno 734 mg/m ³ - 200 ppm; Kratkoročno 1468 mg/m ³ - 400 ppm
	OEL Tip	VLEP	Francuska	Dugoročno 734 mg/m ³ - 200 ppm; Kratkoročno 1468 mg/m ³ - 400 ppm
	OEL Tip	VLEP	Italija	Dugoročno 734 mg/m ³ - 200 ppm; Kratkoročno 1468 mg/m ³ - 400 ppm
	OEL Tip	VLEP	Rumunjska	Dugoročno 734 mg/m ³ - 200 ppm; Kratkoročno 400 mg/m ³ - 1468 ppm
	OEL Tip	TLV	Bugarska	Dugoročno 734 mg/m ³ - 200 ppm; Kratkoročno 1468 mg/m ³ - 400 ppm
	OEL Tip	TLV	Češka	Dugoročno 700 mg/m ³ - 191.1 ppm; Kratkoročno 900 mg/m ³ - 245.7 ppm
	OEL Tip	VLA	Španjolska	Dugoročno 734 mg/m ³ - 200 ppm; Kratkoročno 1460 mg/m ³ - 400 ppm
	OEL Tip	ÁK	Mađarska	Dugoročno 734 mg/m ³ ; Kratkoročno 1468 mg/m ³

OEL Tip	MAC	Nizozemska	Dugoročno 734 mg/m ³ - 200 ppm; Kratkoročno 1468 mg/m ³ - 400 ppm
OEL Tip	VLE	Portugal	Dugoročno 734 mg/m ³ - 200 ppm; Kratkoročno 1468 mg/m ³ - 400 ppm
OEL Tip	SUVA	Švicarska	Dugoročno 730 mg/m ³ - 200 ppm; Kratkoročno 1470 mg/m ³ - 400 ppm
OEL Tip	WEL	U.K.	Dugoročno 730 mg/m ³ - 200 ppm; Kratkoročno 1468 mg/m ³ - 400 ppm
OEL Tip	GVI	Hrvatska	Dugoročno 734 mg/m ³ - 200 ppm; Kratkoročno 1468 mg/m ³ - 400 ppm
OEL Tip	AGW	Njemačka	Dugoročno 730 mg/m ³ - 200 ppm; Kratkoročno 1460 mg/m ³ - 400 ppm
OEL Tip	NDS	Poljska	Dugoročno 734 mg/m ³ - 200 ppm; Kratkoročno 1468 mg/m ³ - 400 ppm
OEL Tip	MV	Slovenija	Dugoročno 734 mg/m ³ - 200 ppm; Kratkoročno 1468 mg/m ³ - 400 ppm
OEL Tip	IPRV	Litva	Dugoročno 500 mg/m ³ - 150 ppm; Kratkoročno 1100 mg/m ³ - 300 ppm
OEL Tip	RV	Latvija	Dugoročno 200 mg/m ³ - 54 ppm; Kratkoročno 1468 mg/m ³ - 400 ppm

2-metoksi-1-metiletil-acetat

CAS: 108-65-6	OEL Tip	UE		Dugoročno 275 mg/m3 - 50 ppm; Kratkoročno 550 mg/m3 - 100 ppm Napomene: Skin
	OEL Tip	MAK	Austrija	Dugoročno 275 mg/m3 - 50 ppm; Kratkoročno 550 mg/m3 - 100 ppm Napomene: Skin
	OEL Tip	MAK	Njemačka	Dugoročno 270 mg/m3 - 50 ppm; Kratkoročno 270 mg/m3 - 50 ppm
	OEL Tip	VLEP	Belgija	Dugoročno 275 mg/m3 - 50 ppm; Kratkoročno 550 mg/m3 - 100 ppm Napomene: Additional indication "D" means that the absorption of the agent through the skin, mucous membranes or eyes is an important part of the total exposure. It can be the result of both direct contact and its presence in the air.
	OEL Tip	VLEP	Francuska	Dugoročno 275 mg/m3 - 50 ppm; Kratkoročno 550 mg/m3 - 100 ppm Napomene: Skin
	OEL Tip	VLEP	Italija	Dugoročno 275 mg/m3 - 50 ppm; Kratkoročno 550 mg/m3 - 100 ppm Napomene: Skin
	OEL Tip	VLEP	Rumunjska	Dugoročno 275 mg/m3 - 50 ppm; Kratkoročno 550 mg/m3 - 100 ppm
	OEL Tip	TLV	Bugarska	Dugoročno 275 mg/m3 - 50 ppm; Kratkoročno 550 mg/m3 - 100 ppm Napomene: Skin
	OEL Tip	TLV	Češka	Dugoročno 270 mg/m3 - 49.14 ppm; Kratkoročno 550 mg/m3 - 10.01 ppm Napomene: Skin
	OEL Tip	VLA	Španjolska	Dugoročno 275 mg/m3 - 50 ppm; Kratkoročno 550 mg/m3 - 100 ppm Napomene: Skin
	OEL Tip	ÁK	Mađarska	Dugoročno 275 mg/m3; Kratkoročno 550 mg/m3
	OEL Tip	MAC	Nizozemska	Dugoročno 550 mg/m3 - 100 ppm
	OEL Tip	VLE	Portugal	Dugoročno 275 mg/m3 - 50 ppm; Kratkoročno 550 mg/m3 - 100 ppm Napomene: Skin
	OEL Tip	SUVA	Švicarska	Dugoročno 275 mg/m3 - 50 ppm; Kratkoročno 275 mg/m3 - 50 ppm
	OEL Tip	WEL	U.K.	Dugoročno 274 mg/m3 - 50 ppm; Kratkoročno 548 mg/m3 - 100 ppm Napomene: Skin
	OEL Tip	GVI	Hrvatska	Dugoročno 275 mg/m3 - 50 ppm; Kratkoročno 550 mg/m3 - 100 ppm Napomene: Skin
	OEL Tip	AGW	Njemačka	Dugoročno 270 mg/m3 - 50 ppm; Kratkoročno 270 mg/m3 - 50 ppm
	OEL Tip	NDS	Poljska	Dugoročno 260 mg/m3; Kratkoročno 520 mg/m3 Napomene: Skin
	OEL Tip	MV	Slovenija	Dugoročno 275 mg/m3 - 50 ppm; Kratkoročno 550 mg/m3 - 100 ppm Napomene: Skin
	OEL Tip	IPRV	Litva	Dugoročno 250 mg/m3 - 50 ppm; Kratkoročno 400 mg/m3 - 75 ppm Napomene: Skin
OEL Tip	RV	Latvija	Dugoročno 275 mg/m3 - 50 ppm; Kratkoročno 550 mg/m3 - 100 ppm Napomene: Skin	

n-butil-acetat

CAS: 123-86-4	OEL Tip	ACGIH	Dugoročno 50 ppm; Kratkoročno 150 ppm Napomene: Eye and URT irr
	OEL Tip	UE	Dugoročno 241 mg/m3 - 50 ppm; Kratkoročno 723 mg/m3 - 150 ppm
	OEL Tip	MAK	Austrija Dugoročno 241 mg/m3 - 50 ppm; Kratkoročno 480 mg/m3 - 100 ppm

OEL Tip	MAK	Njemačka	Dugoročno 480 mg/m ³ - 100 ppm; Kratkoročno 960 mg/m ³ - 200 ppm
OEL Tip	VLEP	Belgija	Dugoročno 238 mg/m ³ - 50 ppm; Kratkoročno 712 mg/m ³ - 150 ppm Napomene: Butylacetates, all isomers
OEL Tip	VLEP	Francuska	Dugoročno 241 mg/m ³ - 50 ppm; Kratkoročno 723 mg/m ³ - 150 ppm
OEL Tip	VLEP	Italija	Dugoročno 241 mg/m ³ - 50 ppm; Kratkoročno 723 mg/m ³ - 150 ppm
OEL Tip	VLEP	Rumunjska	Dugoročno 241 mg/m ³ - 50 ppm; Kratkoročno 723 mg/m ³ - 150 ppm
OEL Tip	TLV	Bugarska	Dugoročno 241 mg/m ³ - 50 ppm; Kratkoročno 723 mg/m ³ - 150 ppm
OEL Tip	TLV	Češka	Dugoročno 241 mg/m ³ - 50 ppm; Kratkoročno 723 mg/m ³ - 150 ppm
OEL Tip	VLA	Španjolska	Dugoročno 241 mg/m ³ - 50 ppm; Kratkoročno 723 mg/m ³ - 150 ppm
OEL Tip	ÁK	Mađarska	Dugoročno 241 mg/m ³ ; Kratkoročno 723 mg/m ³
OEL Tip	MAC	Nizozemska	Dugoročno 241 mg/m ³ - 50 ppm; Kratkoročno 723 mg/m ³ - 150 ppm
OEL Tip	SUVA	Švicarska	Dugoročno 240 mg/m ³ - 50 ppm; Kratkoročno 720 mg/m ³ - 150 ppm
OEL Tip	WEL	U.K.	Dugoročno 724 mg/m ³ - 150 ppm; Kratkoročno 966 mg/m ³ - 200 ppm
OEL Tip	GVI	Hrvatska	Dugoročno 724 mg/m ³ - 150 ppm; Kratkoročno 966 mg/m ³ - 200 ppm
OEL Tip	AGW	Njemačka	Dugoročno 300 mg/m ³ - 62 ppm; Kratkoročno 600 mg/m ³ - 124 ppm
OEL Tip	NDS	Poljska	Dugoročno 240 mg/m ³ ; Kratkoročno 720 mg/m ³
OEL Tip	MV	Slovenija	Dugoročno 300 mg/m ³ - 62 ppm; Kratkoročno 600 mg/m ³ - 124 ppm

Kristalni silicijev dioksid, kvarc (udisljiv dio)

CAS: 14808-60-7	OEL Tip	ACGIH	Dugoročno 0.025 mg/m ³ Napomene: (R), A2 - Pulm fibrosis, lung cancer
	OEL Tip	UE	Dugoročno 0.1 mg/m ³ Napomene: Respirable dust particles
	OEL Tip	MAK	Austrija Dugoročno 0.05 mg/m ³ Napomene: Respirable fraction
	OEL Tip	VLEP	Belgija Dugoročno 0.1 mg/m ³ Napomene: Respirable dust; Additional indication "C" means that the agent falls within the scope of Title 2 concerning carcinogenic, mutagenic and reprotoxic agents of Book VI of the Codex on well-being at work.
	OEL Tip	VLEP	Francuska Dugoročno 0.1 mg/m ³ Napomene: Respirable fraction
	OEL Tip	VLEP	Italija Dugoročno 0.1 mg/m ³ Napomene: Respirable dust particles
	OEL Tip	VLA	Španjolska Dugoročno 0.05 mg/m ³ Napomene: Respirable fraction
	OEL Tip	ÁK	Mađarska Dugoročno 0.1 mg/m ³ Napomene: Respirable fraction
	OEL Tip	MAC	Nizozemska Dugoročno 0.075 mg/m ³ Napomene: Respirable fraction
	OEL Tip	SUVA	Švicarska Dugoročno 0.15 mg/m ³ Napomene: Respirable aerosol
	OEL Tip	GVI	Hrvatska Dugoročno 0.1 mg/m ³
	OEL Tip	AGW	Njemačka Dugoročno 0.05 mg/m ³ ; Kratkoročno 0.4 mg/m ³ Napomene: Respirable fraction
	OEL Tip	NDS	Poljska Dugoročno 0.1 mg/m ³ Napomene: Respirable fraction
	OEL Tip	MV	Slovenija Dugoročno 0.15 mg/m ³
	OEL Tip	IPRV	Litva Dugoročno 0.1 mg/m ³
	OEL Tip	NGV/KG V	Švedska Dugoročno 0.1 mg/m ³ Napomene: Respirable fraction

ksilen

CAS: 1330-20-7	OEL Tip	UE	Dugoročno 221 mg/m ³ - 50 ppm; Kratkoročno 442 mg/m ³ - 100 ppm Napomene: Skin
	OEL Tip	TLV	Češka Dugoročno 200 mg/m ³ - 45.4 ppm; Kratkoročno 400 mg/m ³ - 90.8 ppm Napomene: Skin

etilbenzen CAS: 100-41-4	OEL Tip	RV	Latvija	Dugoročno 221 mg/m ³ - 50 ppm; Kratkoročno 442 mg/m ³ - 100 ppm
	OEL Tip	ACGIH		Dugoročno 20 ppm Napomene: A3, BEI - URT irr, kidney dam (nephropathy), cochlear impair
	OEL Tip	UE		Dugoročno 442 mg/m ³ - 100 ppm; Kratkoročno 884 mg/m ³ - 200 ppm Napomene: Skin
	OEL Tip	MAK	Austrija	Dugoročno 440 mg/m ³ - 100 ppm; Kratkoročno 880 mg/m ³ - 200 ppm Napomene: Skin
	OEL Tip	MAK	Njemačka	Dugoročno 88 mg/m ³ - 20 ppm; Kratkoročno 176 mg/m ³ - 40 ppm Napomene: Skin
	OEL Tip	VLEP	Belgija	Dugoročno 87 mg/m ³ - 20 ppm; Kratkoročno 551 mg/m ³ - 125 ppm Napomene: Additional indication "D" means that the absorption of the agent through the skin, mucous membranes or eyes is an important part of the total exposure. It can be the result of both direct contact and its presence in the air.
	OEL Tip	VLEP	Francuska	Dugoročno 88.4 mg/m ³ - 20 ppm; Kratkoročno 442 mg/m ³ - 100 ppm Napomene: Skin
	OEL Tip	VLEP	Italija	Dugoročno 442 mg/m ³ - 100 ppm; Kratkoročno 884 mg/m ³ - 200 ppm Napomene: Skin
	OEL Tip	VLEP	Rumunjska	Dugoročno 442 mg/m ³ - 100 ppm; Kratkoročno 884 mg/m ³ - 200 ppm
	OEL Tip	TLV	Bugarska	Dugoročno 435 mg/m ³ ; Kratkoročno 535 mg/m ³ Napomene: Skin
	OEL Tip	TLV	Češka	Dugoročno 200 mg/m ³ - 45.4 ppm; Kratkoročno 500 mg/m ³ - 113.5 ppm Napomene: Skin
	OEL Tip	VLA	Španjolska	Dugoročno 441 mg/m ³ - 100 ppm; Kratkoročno 884 mg/m ³ - 200 ppm
	OEL Tip	ÁK	Mađarska	Dugoročno 442 mg/m ³ ; Kratkoročno 884 mg/m ³ Napomene: Skin
	OEL Tip	MAC	Nizozemska	Dugoročno 215 mg/m ³ - 48.6 ppm; Kratkoročno 430 mg/m ³ - 97.3 ppm Napomene: Skin
	OEL Tip	VLE	Portugal	Dugoročno 442 mg/m ³ - 100 ppm; Kratkoročno 884 mg/m ³ - 200 ppm Napomene: Skin
	OEL Tip	SUVA	Švicarska	Dugoročno 435 mg/m ³ - 100 ppm; Kratkoročno 435 mg/m ³ - 100 ppm
	OEL Tip	WEL	U.K.	Dugoročno 441 mg/m ³ - 100 ppm; Kratkoročno 552 mg/m ³ - 125 ppm Napomene: Skin
	OEL Tip	GVI	Hrvatska	Dugoročno 442 mg/m ³ - 100 ppm; Kratkoročno 884 mg/m ³ - 200 ppm Napomene: Skin
	OEL Tip	AGW	Njemačka	Dugoročno 88 mg/m ³ - 20 ppm; Kratkoročno 176 mg/m ³ - 40 ppm Napomene: Skin
	OEL Tip	NDS	Poljska	Dugoročno 200 mg/m ³ ; Kratkoročno 400 mg/m ³ Napomene: Skin
	OEL Tip	MV	Slovenija	Dugoročno 442 mg/m ³ - 100 ppm; Kratkoročno 884 mg/m ³ - 200 ppm Napomene: Skin
	OEL Tip	IPRV	Litva	Dugoročno 442 mg/m ³ - 100 ppm; Kratkoročno 884 mg/m ³ - 200 ppm Napomene: Skin

Granične vrijednosti izloženosti PNEC

bis[4-(2,3-epoksipropoksi)fenil]propan

CAS: 1675-54-3 Putevi izloženosti: Svježa voda; PNEC Ograničiti: 0.006 mg/l

Putevi izloženosti: Morska voda; PNEC Ograničiti: 0.001 mg/l

Putevi izloženosti: Sedimenti svježe vode; PNEC Ograničiti: 0.341 mg/kg

Putevi izloženosti: Sedimenti morske vode; PNEC Ograničiti: 0.034 mg/kg

Putevi izloženosti: Tlo (poljoprivredno); PNEC Ograničiti: 0.065 mg/kg

Putevi izloženosti: Mikroorganizmi u postrojenjima za obradu otpadnih voda (STP); PNEC Ograničiti: 10 mg/l

reakcijska smjesa 2,2'-[metilenbis(4,1-fenilenoksimetilen)]dioksiran i 2-(2-[4-(oksiran-2-ilmetoksi)]fenoksi)oksiran i 2,2'-[metilenbis(2,1-fenilenoksimetilen)]dioksiran

Putevi izloženosti: Svježa voda; PNEC Ograničiti: 0.003 mg/l
Putevi izloženosti: Morska voda; PNEC Ograničiti: 0.0003 mg/l
Putevi izloženosti: Mikroorganizmi u postrojenjima za obradu otpadnih voda (STP); PNEC Ograničiti: 10 mg/l
Putevi izloženosti: Sedimenti morske vode; PNEC Ograničiti: 0.0294 mg/kg
Putevi izloženosti: Sedimenti svježe vode; PNEC Ograničiti: 0.294 mg/kg
Putevi izloženosti: Tlo (poljoprivredno); PNEC Ograničiti: 0.237 mg/kg

oksiran, mono[(C12-14-alkiloksi)metil]-derivati

CAS: 68609-97-2 Putevi izloženosti: Svježa voda; PNEC Ograničiti: 0.106 mg/l
Putevi izloženosti: Morska voda; PNEC Ograničiti: 0.011 mg/l
Putevi izloženosti: Mikroorganizmi u postrojenjima za obradu otpadnih voda (STP); PNEC Ograničiti: 10 mg/l
Putevi izloženosti: Sedimenti morske vode; PNEC Ograničiti: 30.72 mg/kg
Putevi izloženosti: Sedimenti svježe vode; PNEC Ograničiti: 307.16 mg/kg
Putevi izloženosti: Zemlja; PNEC Ograničiti: 1.234 mg/kg

Reaktivna smjesa etilbenžen, m-ksilen i p-ksilen

Putevi izloženosti: Svježa voda; PNEC Ograničiti: 0.044 mg/l
Putevi izloženosti: Povremena ispuštanja (slatka voda); PNEC Ograničiti: 0.01 mg/l
Putevi izloženosti: Morska voda; PNEC Ograničiti: 0.004 mg/l
Putevi izloženosti: Povremena ispuštanja (morska voda); PNEC Ograničiti: 0.001 mg/l
Putevi izloženosti: Sedimenti svježe vode; PNEC Ograničiti: 2.52 mg/kg
Putevi izloženosti: Sedimenti morske vode; PNEC Ograničiti: 0.252 mg/kg
Putevi izloženosti: Mikroorganizmi u postrojenjima za obradu otpadnih voda (STP); PNEC Ograničiti: 1.6 mg/l
Putevi izloženosti: Zemlja; PNEC Ograničiti: 0.852 mg/kg

butanon

CAS: 78-93-3 Putevi izloženosti: Svježa voda; PNEC Ograničiti: 55.8 mg/l
Putevi izloženosti: Morska voda; PNEC Ograničiti: 55.8 mg/l
Putevi izloženosti: Sedimenti svježe vode; PNEC Ograničiti: 284.74 mg/kg
Putevi izloženosti: Mikroorganizmi u postrojenjima za obradu otpadnih voda (STP); PNEC Ograničiti: 709 mg/l
Putevi izloženosti: Hranidbeni lanac; PNEC Ograničiti: 1000 mg/kg
Putevi izloženosti: Tlo (poljoprivredno); PNEC Ograničiti: 22.5 mg/kg

etil-acetat

CAS: 141-78-6 Putevi izloženosti: Morska voda; PNEC Ograničiti: 0.024 mg/l
Putevi izloženosti: Svježa voda; PNEC Ograničiti: 0.24 mg/l
Putevi izloženosti: Sedimenti morske vode; PNEC Ograničiti: 0.115 mg/kg
Putevi izloženosti: Sedimenti svježe vode; PNEC Ograničiti: 1.15 mg/kg
Putevi izloženosti: Mikroorganizmi u postrojenjima za obradu otpadnih voda (STP); PNEC Ograničiti: 650 mg/l
Putevi izloženosti: Tlo (poljoprivredno); PNEC Ograničiti: 0.148 mg/kg
Putevi izloženosti: Sekundarno trovanje; PNEC Ograničiti: 0.2 mg/kg

2-metoksi-1-metiletil-acetat

CAS: 108-65-6 Putevi izloženosti: Svježa voda; PNEC Ograničiti: 0.635 mg/l
Putevi izloženosti: Morska voda; PNEC Ograničiti: 0.064 mg/l
Putevi izloženosti: Mikroorganizmi u postrojenjima za obradu otpadnih voda (STP); PNEC Ograničiti: 100 mg/l
Putevi izloženosti: Sedimenti svježe vode; PNEC Ograničiti: 3.29 mg/kg
Putevi izloženosti: Sedimenti morske vode; PNEC Ograničiti: 0.329 mg/kg
Putevi izloženosti: Tlo (poljoprivredno); PNEC Ograničiti: 0.29 mg/kg

n-butil-acetat

CAS: 123-86-4 Putevi izloženosti: Morska voda; PNEC Ograničiti: 0.018 mg/l

Putevi izloženosti: Svježa voda; PNEC Ograničiti: 0.18 mg/l
Putevi izloženosti: Sedimenti morske vode; PNEC Ograničiti: 0.098 mg/kg
Putevi izloženosti: Sedimenti svježe vode; PNEC Ograničiti: 0.981 mg/kg
Putevi izloženosti: Mikroorganizmi u postrojenjima za obradu otpadnih voda (STP); PNEC Ograničiti: 35.6 mg/l
Putevi izloženosti: Tlo (poljoprivredno); PNEC Ograničiti: 0.09 mg/kg

etilbenzen

CAS: 100-41-4 Putevi izloženosti: Svježa voda; PNEC Ograničiti: 0.1 mg/l
Putevi izloženosti: Morska voda; PNEC Ograničiti: 0.01 mg/l
Putevi izloženosti: Mikroorganizmi u postrojenjima za obradu otpadnih voda (STP); PNEC Ograničiti: 9.6 mg/l
Putevi izloženosti: Sedimenti svježe vode; PNEC Ograničiti: 13.7 mg/kg
Putevi izloženosti: Sedimenti morske vode; PNEC Ograničiti: 1.37 mg/kg
Putevi izloženosti: Tlo (poljoprivredno); PNEC Ograničiti: 2.68 mg/kg

Izvedena razina bez učinka. (DNEL)

bis[4-(2,3-epoksipropoksi)fenil]propan

CAS: 1675-54-3 Putevi izloženosti: Ljudi dermalno; Učestalost izloženosti: Dugotrajni, sistemski učinci
Profesionalni djelatnik: 0.75 mg/kg; Potrošač: 0.089 mg/kg
Putevi izloženosti: Ljudi inhalacijski; Učestalost izloženosti: Dugotrajni, sistemski učinci
Profesionalni djelatnik: 4.93 mg/m³; Potrošač: 0.87 mg/m³
Putevi izloženosti: Ljudi oralno; Učestalost izloženosti: Kratkotrajni, sistemski učinci
Potrošač: 0.5 mg/kg

reakcijska smjesa 2,2'-[metilenbis(4,1-fenilenoksimetilen)]dioksiran i 2-(2-[4-(oksiran-2-ilmetoksi)]fenoksi)oksiran i 2,2'-[metilenbis(2,1-fenilenoksimetilen)]dioksiran

Putevi izloženosti: Ljudi dermalno; Učestalost izloženosti: Dugotrajni, sistemski učinci
Profesionalni djelatnik: 104.15 mg/kg; Potrošač: 62.5 mg/kg
Putevi izloženosti: Ljudi dermalno; Učestalost izloženosti: Kratkotrajni, lokalni učinci
Profesionalni djelatnik: 0.0083 mg/cm²
Putevi izloženosti: Ljudi inhalacijski; Učestalost izloženosti: Dugotrajni, sistemski učinci
Profesionalni djelatnik: 29.39 mg/m³; Potrošač: 8.7 mg/m³
Putevi izloženosti: Ljudi oralno; Učestalost izloženosti: Dugotrajni, sistemski učinci
Potrošač: 6.25 mg/kg

oksiran, mono[(C12-14-alkiloksi)metil]-derivati

CAS: 68609-97-2 Putevi izloženosti: Ljudi inhalacijski; Učestalost izloženosti: Dugotrajni, sistemski učinci
Profesionalni djelatnik: 3.6 mg/m³; Potrošač: 0.87 mg/m³
Putevi izloženosti: Ljudi dermalno; Učestalost izloženosti: Dugotrajni, sistemski učinci
Profesionalni djelatnik: 1 mg/kg; Potrošač: 0.5 mg/kg
Putevi izloženosti: Ljudi oralno; Učestalost izloženosti: Dugotrajni, sistemski učinci
Potrošač: 0.5 mg/kg

Reaktivna smjesa etilbenzen, m-ksilen i p-ksilen

Putevi izloženosti: Ljudi inhalacijski; Učestalost izloženosti: Dugotrajni, sistemski učinci
djelatnik: 221 mg/m³; Potrošač: 65.3 mg/m³
Putevi izloženosti: Ljudi inhalacijski; Učestalost izloženosti: Kratkotrajni, sistemski učinci
djelatnik: 442 mg/m³; Potrošač: 260 mg/m³
Putevi izloženosti: Ljudi inhalacijski; Učestalost izloženosti: Dugotrajni, lokalni učinci
djelatnik: 221 mg/m³; Potrošač: 65.3 mg/m³
Putevi izloženosti: Ljudi inhalacijski; Učestalost izloženosti: Kratkotrajni, lokalni učinci
djelatnik: 442 mg/m³; Potrošač: 260 mg/m³
Putevi izloženosti: Ljudi dermalno; Učestalost izloženosti: Dugotrajni, sistemski učinci
djelatnik: 212 mg/kg; Potrošač: 125 mg/kg
Putevi izloženosti: Ljudi oralno; Učestalost izloženosti: Dugotrajni, sistemski učinci
Potrošač: 12.5 mg/kg

butanon

CAS: 78-93-3 Putevi izloženosti: Ljudi inhalacijski; Učestalost izloženosti: Dugotrajni, sistemski učinci
Profesionalni djelatnik: 600 mg/m³; Potrošač: 106 mg/m³

Putevi izloženosti: Ljudi dermalno; Učestalost izloženosti: Dugotrajni, sistemski učinci
Profesionalni djelatnik: 1161 mg/kg; Potrošač: 412 mg/kg

Putevi izloženosti: Ljudi oralno; Učestalost izloženosti: Dugotrajni, sistemski učinci
Potrošač: 31 mg/kg

etil-acetat

CAS: 141-78-6 Putevi izloženosti: Ljudi inhalacijski; Učestalost izloženosti: Dugotrajni, sistemski učinci
Profesionalni djelatnik: 734 mg/m³; Potrošač: 367 mg/m³

Putevi izloženosti: Ljudi inhalacijski; Učestalost izloženosti: Dugotrajni, lokalni učinci
Profesionalni djelatnik: 734 mg/m³; Potrošač: 367 mg/m³

Putevi izloženosti: Ljudi inhalacijski; Učestalost izloženosti: Kratkotrajni, sistemski učinci
Profesionalni djelatnik: 1468 mg/m³; Potrošač: 734 mg/m³

Putevi izloženosti: Ljudi inhalacijski; Učestalost izloženosti: Kratkotrajni, lokalni učinci
Profesionalni djelatnik: 1468 mg/m³; Potrošač: 734 mg/m³

Putevi izloženosti: Ljudi dermalno; Učestalost izloženosti: Dugotrajni, sistemski učinci
Profesionalni djelatnik: 63 mg/kg; Potrošač: 37 mg/kg

Putevi izloženosti: Ljudi oralno; Učestalost izloženosti: Dugotrajni, sistemski učinci
Potrošač: 4.5 mg/kg

2-metoksi-1-metiletil-acetat

CAS: 108-65-6 Putevi izloženosti: Ljudi dermalno; Učestalost izloženosti: Dugotrajni, sistemski učinci
Profesionalni djelatnik: 796 mg/kg; Potrošač: 320 mg/kg

Putevi izloženosti: Ljudi oralno; Učestalost izloženosti: Dugotrajni, sistemski učinci
Potrošač: 36 mg/kg

Putevi izloženosti: Ljudi oralno; Učestalost izloženosti: Kratkotrajni, sistemski učinci
Potrošač: 500 mg/kg

Putevi izloženosti: Ljudi inhalacijski; Učestalost izloženosti: Dugotrajni, sistemski učinci
Profesionalni djelatnik: 275 mg/m³; Potrošač: 33 mg/m³

Putevi izloženosti: Ljudi inhalacijski; Učestalost izloženosti: Kratkotrajni, lokalni učinci
Profesionalni djelatnik: 550 mg/m³

Putevi izloženosti: Ljudi inhalacijski; Učestalost izloženosti: Dugotrajni, lokalni učinci
Potrošač: 33 mg/m³

Quaternary ammonium compounds, benzyl(hydrogenated tallow alkyl)dimethyl, chlori

CAS: 61789-72-8 Putevi izloženosti: Ljudi inhalacijski; Učestalost izloženosti: Dugotrajni, sistemski učinci
Profesionalni djelatnik: 3.96 mg/kg; Potrošač: 1.64 mg/kg

Putevi izloženosti: Ljudi dermalno; Učestalost izloženosti: Dugotrajni, sistemski učinci
Profesionalni djelatnik: 5.7 mg/kg; Potrošač: 3.4 mg/kg

n-butil-acetat

CAS: 123-86-4 Putevi izloženosti: Ljudi inhalacijski; Učestalost izloženosti: Dugotrajni, sistemski učinci
Profesionalni djelatnik: 300 mg/m³; Potrošač: 35.7 mg/m³

Putevi izloženosti: Ljudi inhalacijski; Učestalost izloženosti: Kratkotrajni, sistemski učinci
Profesionalni djelatnik: 600 mg/m³; Potrošač: 300 mg/m³

Putevi izloženosti: Ljudi inhalacijski; Učestalost izloženosti: Dugotrajni, lokalni učinci
Profesionalni djelatnik: 300 mg/m³; Potrošač: 35.7 mg/m³

Putevi izloženosti: Ljudi inhalacijski; Učestalost izloženosti: Kratkotrajni, lokalni učinci
Profesionalni djelatnik: 600 mg/m³; Potrošač: 300 mg/m³

Putevi izloženosti: Ljudi dermalno; Učestalost izloženosti: Dugotrajni, sistemski učinci
Profesionalni djelatnik: 11 mg/kg; Potrošač: 6 mg/kg

Putevi izloženosti: Ljudi dermalno; Učestalost izloženosti: Kratkotrajni, sistemski učinci
Profesionalni djelatnik: 11 mg/kg; Potrošač: 6 mg/kg

Putevi izloženosti: Ljudi oralno; Učestalost izloženosti: Kratkotrajni, sistemski učinci
Potrošač: 2 mg/kg

Putevi izloženosti: Ljudi oralno; Učestalost izloženosti: Dugotrajni, sistemski učinci

Potrošač: 2 mg/kg

etilbenzen

CAS: 100-41-4

Putevi izloženosti: Ljudi inhalacijski; Učestalost izloženosti: Dugotrajni, sistemski učinci
Profesionalni djelatnik: 77 mg/m³; Potrošač: 15 mg/m³

Putevi izloženosti: Ljudi inhalacijski; Učestalost izloženosti: Dugotrajni, lokalni učinci
Profesionalni djelatnik: 293 mg/m³

Putevi izloženosti: Ljudi dermalno; Učestalost izloženosti: Dugotrajni, sistemski učinci
Profesionalni djelatnik: 180 mg/kg

Putevi izloženosti: Ljudi oralno; Učestalost izloženosti: Dugotrajni, sistemski učinci
Potrošač: 1.6 mg/kg

8.2. Nadzor nad izloženošću

Osigurati odgovarajuću ventilaciju. Kad je to razumno moguće, to se može postići upotrebom rezervne ventilacije i dobre opće aspiracije.

Zaštita očiju:

Čaše sa bočnom zaštitom (EN 16321).

Zaštita kože:

Upotrebljavati odjeću prikladnu za potpunu zaštitu kože u skladu s aktivnošću i izloženošću (EN 14605/EN 13982), npr. radne kombinezone, pregače, sigurnosnu obuću, prikladnu odjeću.

Zaštita za ruke:

Ne postoji materijal ili kombinacija materijala za rukavice koji bi mogli jamčiti neograničenu otpornost na bilo koji kemijski proizvod ili kombinaciju proizvoda.

Ako je riječ o duljem ili ponavljanom rukovanju, koristite se rukavicama otpornim na kemijske proizvode.

Prikladne rukavice tipa (EN 374/EN 16523); FKM (fluorirana guma): debljina > = 0,4 mm; vrijeme prodiranja > = 480 min. NBR (nitrilna guma): debljina > = 0,4 mm; vrijeme prodiranja > = 480 min

Izbor prikladnih rukavica ne ovisi samo o materijalu, nego i o drugim karakteristikama kvalitete koje se razlikuju od proizvođača do proizvođača, i o načinima i vremenu upotrebe smjese.

Zaštita pri disanju:

Ako su radnici izloženi koncentracijama višima od granice izloženosti, moraju upotrebljavati odgovarajuće certificirane respiratore.

Kombinirana filtrirajuća naprava (EN 14387): maska s filtrom A-P2.

Kontrola izlaganja u okolišu:

Vidi točku 6.2

Higijenske i tehničke mjere

Vidi odlomak 7.

ODJELJAK 9.: Fizikalna i kemijska svojstva

9.1. Informacije o osnovnim fizikalnim i kemijskim svojstvima

fizičko stanje: tekuće

Izgled: tekuće

Boja: bijelo

Miris: karakterističan

Talište/ledište: N.D.

Vrelište ili početno vrelište i raspon temperatura vrenja: N.D.

Zapaljivost: Ne primjenjuje se.

Donja i gornja granica eksplozivnosti: N.D.

Plamište: > 93°C

Temperatura samozapaljenja: N.D.

Temperatura raspadanja: N.D.

pH: Ne primjenjuje se.

Kinematička viskoznost: Ne primjenjuje se.

Gustoća i/ili relativna gustoća: 1.66 kg/l (Interna metoda)

Relativna gustoća pare: N.D.

Tlak pare: N.D.

Topljivost u vodi: Netopivo

Topljivost u ulje: Ne primjenjuje se.

Koeficijent raspodjele n-oktanol/voda (logaritamska vrijednost): Ne primjenjuje se.

Svojstva čestica:

Veličina čestica: Ne primjenjuje se.

9.2. Ostale informacije

Vodljivost: N.D.

Explozivne osobine: Ne primjenjuje se. (Interna evaluacija)

Osobine oksidiranja: Ne primjenjuje se. (Interna evaluacija)

ODJELJAK 10.: Stabilnost i reaktivnost

10.1. Reaktivnost

Stabilan u normalnim uvjetima

10.2. Kemijska stabilnost

Stabilan u normalnim uvjetima

10.3. Mogućnost opasnih reakcija

Zbog djelovanja topline ili u slučaju požara može doći do oslobađanja ugljikovih oksida i para koji mogu biti štetni za zdravlje.

10.4. Uvjeti koje treba izbjegavati

Čuvati odvojeno od izvora topline.

10.5. Inkompatibilni materijali

Nijednu osobito.

Vidi točku 10.3

10.6. Opasni proizvodi raspadanja

Pri odgovarajućem skladištenju i rukovanju ne razvijaju se opasni proizvodi raspadanja.

Vidi točku 5.2

ODJELJAK 11.: Toksikološke informacije

11.1. Informacije o razredima opasnosti kako su definirani u Uredbi (EZ) br. 1272/2008

Ova tvar sadrži tekuću epoksi smolu koja uzrokuje manju iritaciju kože. Sve epoksi smole mogu uzrokovati osjetljivost kože. Učinci na kožu variraju od osobe do osobe.

Kod osoba koje dolaze u kontakt s tvari, alergijski dermatitis se može pojaviti nakon nekoliko dana ili tjedana učestalog i dugotrajnog kontakta. Zbog toga, i u slučaju da je iritacija kože slaba kontakt se treba izbjegavati.

Kad se jednom pojavi osjetljivost, izlaganje kože vrlo malim količinama može uzrokovati eritem i edem.

Podaci o toksičnosti proizvoda:

a) akutna toksičnost	Nije kategorizirano Na temelju dostupnih podataka kriteriji za razvrstavanje nisu ispunjeni.
b) kožno nagrizanje/nadraživanje	Proizvod je razvrstan kao: Skin Irrit. 2(H315)
c) teške očne ozljede/teško očno nadraživanje	Proizvod je razvrstan kao: Eye Irrit. 2(H319)
d) izazivanje kožne ili dišne preosjetljivosti	Proizvod je razvrstan kao: Skin Sens. 1A(H317)
e) mutagenost zametnih stanica	Nije kategorizirano Na temelju dostupnih podataka kriteriji za razvrstavanje nisu ispunjeni.
f) kancerogenost	Nije kategorizirano Na temelju dostupnih podataka kriteriji za razvrstavanje nisu ispunjeni.
g) reproduktivna toksičnost	Proizvod je razvrstan kao: Repr. 1B(H360)
h) Specifična toksičnost za ciljne organe (STOT) jednokratno izlaganje	Nije kategorizirano Na temelju dostupnih podataka kriteriji za razvrstavanje nisu ispunjeni.
i) Specifična toksičnost za ciljne organe (STOT) opetovano izlaganje	Nije kategorizirano
j) opasnost u slučaju udisanja	Na temelju dostupnih podataka kriteriji za razvrstavanje nisu ispunjeni. Nije kategorizirano Na temelju dostupnih podataka kriteriji za razvrstavanje nisu ispunjeni.

Podaci o toksičnosti glavnih sastojaka u proizvodu:

bis[4-(2,3-epoksi)propoksi]fenil]propan

CAS: 1675-54-3 a) akutna toksičnost LD50 Oralno Štakor > 2000 mg/kg
LD50 Koža Štakor > 2000 mg/kg

reakcijska smjesa 2,2'-[metilenbis(4,1-fenilenoksimetilen)]dioksiran i 2-(2-[4-(oksiran-2-ilmetoksi)]fenoksi)oksiran i 2,2'-[metilenbis(2,1-fenilenoksimetilen)]dioksiran

a) akutna toksičnost LD50 Koža Štakor > 2000 mg/kg
LD50 Oralno Štakor > 5000 mg/kg

oksiran, mono[(C12-14-alkiloksi)metil]-derivati

CAS: 68609-97-2 a) akutna toksičnost LC0 Udisanje pare Štakor > 0.15 mg/l 7h
LD50 Oralno Štakor > 2000 mg/kg

		LD50 Koža Kunić > 4000 mg/kg
titanijev dioksid		
CAS: 13463-67-7	a) akutna toksičnost	LD50 Oralno Štakor > 5000 mg/kg LC50 Udisanje prašine Štakor > 6.82 mg/l 4h
Reaktivna smjesa etilbenžen, m-ksilen i p-ksilen		
	a) akutna toksičnost	ATE - Dermalno: 1100 mg/kg t.m. ATE - Udisanje (Pare): 11 mg/l LD50 Oralno Štakor 3523 mg/kg
butanon		
CAS: 78-93-3	a) akutna toksičnost	LD50 Oralno Štakor > 2193 mg/kg LD50 Koža Kunić > 5000 mg/kg
etil-acetat		
CAS: 141-78-6	a) akutna toksičnost	LD50 Oralno Štakor 4934 mg/kg LD50 Koža Kunić > 20000 mg/kg LC50 Udisanje pare Štakor > 22.5 mg/l 6h
2-metoksi-1-metiletil-acetat		
CAS: 108-65-6	a) akutna toksičnost	LD50 Oralno Štakor > 5000 mg/kg LD50 Koža Kunić > 5000 mg/kg LC0 Udisanje pare Štakor > 4345 ppm 6h
Quaternary ammonium compounds, benzyl(hydrogenated tallow alkyl)dimethyl, chlori		
CAS: 61789-72-8	a) akutna toksičnost	LD50 Oralno Štakor 398 mg/kg
n-butil-acetat		
CAS: 123-86-4	a) akutna toksičnost	LD50 Oralno Štakor 10760 mg/kg LD50 Koža Kunić 14112 mg/kg LC50 Udisanje pare Štakor > 21.1 mg/l 4h
ksilen		
CAS: 1330-20-7	a) akutna toksičnost	ATE - Dermalno: 1100 mg/kg t.m. ATE - Udisanje (Pare): 11 mg/l
etilbenzen		
CAS: 100-41-4	a) akutna toksičnost	LD50 Oralno Štakor 3500 mg/kg LD50 Koža Kunić 15400 mg/kg LC50 Udisanje Štakor 17629 mg/m3 4h

11.2. Informacije o drugim opasnostima

Svojstva endokrine disrupcije:

Bez drugih endokrinih disruptora prisutnih u koncentraciji > = 0,1 %

ODJELJAK 12.: Ekološke informacije

Primjeniti dobre radne postupke da se produkt ne oslobađa u okoliš.

12.1. Toksičnost

Eko-Toksikološke informacije:

Otrovno za vodeni okoliš s dugotrajnim učincima.

Popis eko-toksikoloških svojstava proizvoda

Proizvod je razvrstan kao: Aquatic Chronic 2(H411)

Popis sastojaka sa eko-toksikološkim svojstvima

bis[4-(2,3-epoksipropoksi)fenil]propan

- CAS: 1675-54-3
- a) Akutna otrovnost na vodene organizme: EC50 Daphnia 1.8 mg/l 48h
 - a) Akutna otrovnost na vodene organizme: LC50 Ribe 2 mg/l 96h
 - a) Akutna otrovnost na vodene organizme: EC50 Algae 11 mg/l 72h
 - b) Hronična otrovnost na vodene organizme: NOEC Daphnia 0.3 mg/l 21d

reakcijska smjesa 2,2'-[metilenbis(4,1-fenilenoksimetilen)]dioksiran i 2-(2-[4-(oksiran-2-ilmetoksi)]fenoksi)oksiran i 2,2'-[metilenbis(2,1-fenilenoksimetilen)]dioksiran

- a) Akutna otrovnost na vodene organizme: LC50 Ribe 2.54 mg/l 96h

- a) Akutna otrovnost na vodene organizme: EC50 Algae 1.8 mg/l 72h
- a) Akutna otrovnost na vodene organizme: EC50 Daphnia 2.55 mg/l 48h
- b) Hronična otrovnost na vodene organizme: NOEC Daphnia 0.3 mg/l - 21d

oksiran, mono[(C12-14-alkiloksi)metil]-derivati

- CAS: 68609-97-2
- a) Akutna otrovnost na vodene organizme: LL50 Ribe > 100 mg/l 96h
 - a) Akutna otrovnost na vodene organizme: EL50 Daphnia 7.2 mg/l 48h
 - a) Akutna otrovnost na vodene organizme: IC50 Algae 843.75 mg/l 72h

titanijev dioksid

- CAS: 13463-67-7
- a) Akutna otrovnost na vodene organizme: LC50 Ribe > 1000 mg/l 96h
 - a) Akutna otrovnost na vodene organizme: EC50 Daphnia > 1000 mg/l 48h
 - a) Akutna otrovnost na vodene organizme: EC50 Algae 61 mg/l 72h

butanon

- CAS: 78-93-3
- a) Akutna otrovnost na vodene organizme: LC50 Ribe 2973 mg/l 96h
 - a) Akutna otrovnost na vodene organizme: EC50 Daphnia 308 mg/l 48h
 - a) Akutna otrovnost na vodene organizme: EC50 Algae 1229 mg/l 96h

etil-acetat

- CAS: 141-78-6
- a) Akutna otrovnost na vodene organizme: LC50 Ribe 230 mg/l 96h
 - a) Akutna otrovnost na vodene organizme: EC50 Daphnia 165 mg/l 48h

2-metoksi-1-metiletil-acetat

- CAS: 108-65-6
- a) Akutna otrovnost na vodene organizme: LC50 Ribe 134 mg/l 96h
 - a) Akutna otrovnost na vodene organizme: EC50 Daphnia 408 mg/l 48h
 - a) Akutna otrovnost na vodene organizme: EC50 Algae > 1000 mg/l 96h
 - b) Hronična otrovnost na vodene organizme: NOEC Ribe 47.5 mg/l - 14 d

Quaternary ammonium compounds, benzyl(hydrogenated tallow alkyl)dimethyl, chlori

- CAS: 61789-72-8
- a) Akutna otrovnost na vodene organizme: LC50 Ribe 0.1 mg/l 96h
 - a) Akutna otrovnost na vodene organizme: EC50 Daphnia 0.059 mg/l 48h
 - a) Akutna otrovnost na vodene organizme: EC50 Algae 0.11 mg/l 72h

n-butil-acetat

- CAS: 123-86-4
- a) Akutna otrovnost na vodene organizme: LC50 Ribe 18 mg/l 96h
 - a) Akutna otrovnost na vodene organizme: EC50 Daphnia 44 mg/l 48h
 - a) Akutna otrovnost na vodene organizme: EC50 Algae 675 mg/l 72h
 - b) Hronična otrovnost na vodene organizme: NOEC Daphnia 23 mg/l - 21d

etilbenzen

- CAS: 100-41-4
- a) Akutna otrovnost na vodene organizme: LC50 Ribe 4.2 mg/l 96h
 - a) Akutna otrovnost na vodene organizme: EC50 Daphnia 1.8 mg/l 48h
 - a) Akutna otrovnost na vodene organizme: EC50 Algae 3.6 mg/l 96h
 - b) Hronična otrovnost na vodene organizme: NOEC Daphnia 1 mg/l - 7d

12.2. Postojanost i razgradivost

bis[4-(2,3-epoksipropoksi)fenil]propan

CAS: 1675-54-3 Nije brzo-biološki razgradiv

oksiran, mono[(C12-14-alkiloksi)metil]-derivati

CAS: 68609-97-2 Brzo-biološki razgradiv

Reaktivna smjesa etilbenzen, m-ksilen i p-ksilen

Brzo-biološki razgradiv

butanon

CAS: 78-93-3 Brzo-biološki razgradiv

etil-acetat

CAS: 141-78-6 Brzo-biološki razgradiv

2-metoksi-1-metiletil-acetat

CAS: 108-65-6 Brzo-biološki razgradiv

n-butyl-acetat

CAS: 123-86-4 Brzo-biološki razgradiv

etilbenzen

CAS: 100-41-4 Brzo-biološki razgradiv

12.3. Bioakumulacijski potencijal

Ne primjenjuje se.

12.4. Pokretljivost u tlu

Reaktivna smjesa etilbenzen, m-ksilen i p-ksilen

Mobilan

12.5. Rezultati procjene svojstava PBT i vPvB

Prema dostupnim podacima proizvod ne sadrži PBT/vPvB u postotku većem $\geq 0.1\%$.

12.6. Svojstva endokrine disrupcije

Bez drugih endokrinih disruptora prisutnih u koncentraciji $\geq 0,1\%$

12.7. Ostali štetni učinci

Ne primjenjuje se.

ODJELJAK 13.: Zbrinjavanje

13.1. Metode obrade otpada

Regenerirati ako je moguće. Poslati ovlaštenim postrojenjima za odlaganje ili na spaljivanje pod kontroliranim uvjetima. Pri tome se pridržavati vrijedećih lokalnih i državnih regulativa.

Ne dopustiti prodor u kanalizaciju ili vodene tokove.

Zbrinite kontejnera onečišćenih proizvoda u skladu s lokalnim ili nacionalnim zakonskim odredbama.

Proizvod se nakon isteka roka trajanja mora odložiti prema propisima na snazi.

ODJELJAK 14.: Informacije o prijevozu



14.1. UN broj ili identifikacijski broj

3082

14.2. Ispravno otpremno ime prema UN-u

ADR-Naziv za otpremu: TVAR OPASNA ZA OKOLINU, TEKUĆA, INAČE NIJE SPECIFICIRANA. (bis[4-(2,3-epoksi)propoksi]fenil]propan - reakcijska smjesa 2,2'-[metilenbis(4,1-fenilenoksimetilen)]dioksiran i 2-(2-[4-(oksiran-2-ilmetoksi)]fenoksi)oksiran i 2,2'-[metilenbis(2,1-fenilenoksimetilen)]dioksiran)

IATA-Naziv za otpremu: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (bis[4-(2,3-epoksi)propoksi]fenil]propan - reakcijska smjesa 2,2'-[metilenbis(4,1-fenilenoksimetilen)]dioksiran i 2-(2-[4-(oksiran-2-ilmetoksi)]fenoksi)oksiran i 2,2'-[metilenbis(2,1-fenilenoksimetilen)]dioksiran)

IMDG-Naziv za otpremu: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (bis[4-(2,3-epoksi)propoksi]fenil]propan - reakcijska smjesa 2,2'-[metilenbis(4,1-fenilenoksimetilen)]dioksiran i 2-(2-[4-(oksiran-2-ilmetoksi)]fenoksi)oksiran i 2,2'-[metilenbis(2,1-fenilenoksimetilen)]dioksiran)

14.3. Razred(i) opasnosti pri prijevozu

ADR-Razred: 9

IATA-Razred: 9

IMDG-Razred: 9

14.4. Skupina pakiranja

ADR-Grupa pakiranja: III

IATA-Grupa pakiranja: III

IMDG-Grupa pakiranja: III

14.5. Opasnosti za okoliš

Najvažnija toksična komponenta: Quaternary ammonium compounds, benzyl(hydrogenated tallow alkyl)dimethyl, chlori

Morski polutant: Da

Zagađivači okoliša: Da

IMDG-EMS: F-A, S-F

14.6. Posebne mjere opreza za korisnika

Ceste i željeznica (ADR-RID):

ADR-Označavanje: 9
ADR - Identifikacijski broj opasnosti: 90
ADR-Posebne odredbe: 274 335 375 601
ADR ograničenja prijevoza u tunelu:

Zrak (IATA):

IATA-Putnički zrakoplov: 964
IATA-Teretni zrakoplov: 964
IATA-Označavanje: 9
IATA-Sporedni opasnosti: -
IATA-Erg: 9L
IATA-Posebne odredbe: A97 A158 A197 A215

More (IMDG):

IMDG-Skladištenje i rukovanje: Category A
IMDG-Segregacija: -
IMDG-Sporedni opasnosti -
IMDG-Posebne odredbe: 274 335 969

14.7. Prijevoz morem u razlivenom stanju u skladu s instrumentima IMO-a

Ne primjenjuje se.

ODJELJAK 15.: Informacije o propisima

15.1. Propisi u području sigurnosti, zdravlja i okoliša/posebno zakonodavstvo za tvar ili smjesu

Direktiva 98/24/EC (Rizici koji nastaju od kemijskih agenasa na radu)

Direktiva 2000/39/EC (Granična vrijednost profesionalne izloženosti)

Direktiva 2010/75/EU

Uredba (EC) br. 1907/2006 (REACH)

Uredba (EC) br. 1272/2008 (CLP)

Uredba (EC) br. 790/2009 (ATP 1 CLP) i (EZ) br. 758/2013

Uredba (EZ) br. 2020/878

Uredba (EZ) br. 286/2011 (ATP 2 CLP)

Uredba (EZ) br. 618/2012 (ATP 3 CLP)

Uredba (EZ) br. 487/2013 (ATP 4 CLP)

Uredba (EZ) br. 944/2013 (ATP 5 CLP)

Uredba (EZ) br. 605/2014 (ATP 6 CLP)

Uredba (EZ) br. 2015/1221 (ATP 7 CLP)

Uredba (EZ) br. 2016/918 (ATP 8 CLP)

Uredba (EZ) br. 2016/1179 (ATP 9 CLP)

Uredba (EZ) br. 2017/776 (ATP 10 CLP)

Uredba (EZ) br. 2018/669 (ATP 11 CLP)

Uredba (EZ) br. 2018/1480 (ATP 13 CLP)

Uredba (EZ) br. 2019/521 (ATP 12 CLP)

Uredba (EZ) br. 2020/217 (ATP 14 CLP)

Uredba (EZ) br. 2020/1182 (ATP 15 CLP)

Uredba (EZ) br. 2021/643 (ATP 16 CLP)

Uredba (EZ) br. 2021/849 (ATP 17 CLP)

Uredba (EZ) br. 2022/692 (ATP 18 CLP)

Uredba (EU) no. 2023/707

Uredba (EZ) br. 2023/1434 (ATP 19 CLP)

Uredba (EZ) br. 2023/1435 (ATP 20 CLP)

Uredba (EZ) br. 2024/197 (ATP 21 CLP)

Ograničenja u vezi s produktom ili sadržajnim tvarima u skladu s Prilogom XVII Uredbe (EZ-a) 1907/2006 (REACH) i naknadne izmjene:

Ograničenja koja se odnose na proizvod: 3

Ograničenja koja se odnose na sadržane tvari: 40, 75

Odredbe prema direktivi 2012/18/EU (Seveso III)

Kategorija Seveso III prema dijelu 1. Priloga 1.

proizvod pripada kategoriji: E2

Donje granične količine opasnih tvari (u tonama) - male količine

200

Donje granične količine opasnih tvari (u tonama) - velike količine

500

Uredba (EU) br. 649/2012 (Uredba PIC)

Nijedna tvar nije navedena

Njemačka klasifikacija opasnosti za vodu.

Klasa 2: zagađuje vodu.

SVHC tvari:

Prema dostupnim podacima proizvod ne sadrži SVHC u postotku većem $\geq 0.1\%$.

15.2. Procjena kemijske sigurnosti

Procjena kemijske sigurnosti provedena za smjesu

ODJELJAK 16.: Ostale informacije

Šifra	Opis
EUH066	Ponavljano izlaganje može prouzročiti sušenje ili pucanje kože.
H225	Lako zapaljiva tekućina i para.
H226	Zapaljiva tekućina i para.
H304	Može biti smrtonosno ako se proguta i uđe u dišni sustav.
H312	Štetno u dodiru s kožom.
H315	Nadražuje kožu.
H317	Može izazvati alergijsku reakciju na koži.
H319	Uzrokuje jako nadraživanje oka.
H332	Štetno ako se udiše.
H335	Može nadražiti dišni sustav.
H336	Može izazvati pospanost ili vrtoglavicu.
H351	Sumnja na moguće uzrokovanje raka ako se udiše.
H360	Može štetno djelovati na plodnost ili naškoditi nerođenom djetetu ako dođe u dodir s kožom ili se proguta.
H360F	Može štetno djelovati na plodnost.
H372	Uzrokuje oštećenje organa tijekom produljene ili ponavljane izloženosti ako se udiše.
H373	Može uzrokovati oštećenje organa tijekom produljene ili ponavljane izloženosti.
H411	Otrovno za vodeni okoliš s dugotrajnim učincima.
H412	Štetno za vodeni okoliš s dugotrajnim učincima.

Šifra	Razred opasnosti i kategorija opasnosti	Opis
2.6/2	Flam. Liq. 2	Zapaljiva tekućina, kategorija 2
2.6/3	Flam. Liq. 3	Zapaljiva tekućina, kategorija 3
3.1/4/Dermal	Acute Tox. 4	Akutna toksičnost (preko kože), kategorija 4
3.1/4/Inhal	Acute Tox. 4	Akutna toksičnost (udisanje), kategorija 4
3.10/1	Asp. Tox. 1	Opasnost od aspiracije, Kategorija 1
3.2/2	Skin Irrit. 2	Nadražujuće za kožu, kategorija 2
3.3/2	Eye Irrit. 2	Nadražujuće za oči, kategorija 2
3.4.2/1	Skin Sens. 1	Izazivanje preosjetljivosti kože, kategorija 1
3.4.2/1A	Skin Sens. 1A	Izazivanje preosjetljivosti kože, kategorija 1A
3.6/2	Carc. 2	Karcinogenost, Kategorija 2
3.7/1B	Repr. 1B	Reproduktivna toksičnost, Kategorija 1B
3.8/3	STOT SE 3	Specifična toksičnost za ciljane organe – jednokratno izlaganje, Kategorija 3
3.9/1	STOT RE 1	Specifična toksičnost za ciljane organe – ponavljano izlaganje, Kategorija 1
3.9/2	STOT RE 2	Specifična toksičnost za ciljane organe – ponavljano izlaganje, Kategorija 2
4.1/C2	Aquatic Chronic 2	Kroničnu (dugoročnu) opasnost za organizme koji žive u vodi, kategorija 2
4.1/C3	Aquatic Chronic 3	Kroničnu (dugoročnu) opasnost za organizme koji žive u vodi, kategorija 3

Razvrstavanje i postupak razvrstavanja za smjese sukladno Uredbi (EZ) br. 1272/2008 (CLP):

Razvrstavanje prema Uredbi (EZ) br. 1272/2008	Postupak razvrstavanja
Skin Irrit. 2, H315	Računska metoda
Eye Irrit. 2, H319	Računska metoda
Skin Sens. 1A, H317	Računska metoda

Ovaj dokument izradila je tehnički kompetentna osoba za SDS, te koja je prikladno za to osposobljena.

Glavni bibliografski izvori:

ECDIN – Informacijska mreža za ekološke podatke za kemikalije – Zajednički istraživački centar, Komisija Europskih zajednica
SAX's OPASNE OSOBINE INDUSTRIJSKIH TVARI- Osmo izdanje - Van Nostrand Reinold
Sigurnosno-tehnički listovi dobavljača sirovina.

Ovdje objavljenе informacije se temelje na našem znanju u vrijeme gore navedenog datuma. Odnose se samo na navedene proizvode i ne predstavlja garanciju neke određene kvalitete.

Obaveza je korisnika da utvrdi da je ova informacija cjelovita i da odgovara specifičnoj upotrebi.

Ovaj MSDS poništava i zamjenjuje sva prethodna izdanja.

Legenda kratica i akronima upotrebljenih u sigurnosno-tehničkom listu:

ACGIH: Američka konferencija vladinih specijalista za industrijsku higijenu
ADR: Europski sporazum o međunarodnom cestovnom prijevozu opasnih tvari.
ATE: Procjena akutne toksičnosti
ATEmix: Procijenjena vrijednost akutne toksičnosti (Mješavine)
BEI: Indeks biološke izloženosti
CAS: CAS registarski broj (Američko kemijsko društvo)
CAV: Centar za otrove
CE: Europska zajednica
CLP: Razvrstavanje, označavanje, pakiranje.
CMR: Karcinogeno, Mutageno i Reprotoksično
COV: Hlapivi organski spoj
CSA: Procjena kemijske sigurnosti
CSR: Izvješće o kemijskoj sigurnosti
DNEL: Izvedena razina bez učinka.
EC50: Pulu maksimalna efektivna koncentracija
ECHA: Europska agencija za kemijske proizvode
EINECS: Europski propis postojećih trgovačkih kemijskih tvari.
ES: Scenario izloženosti
GefStoffVO: Propis o opasnim tvarima, Njemačka.
GHS: Globalno harmonizirani sustav razvrstavanja i označavanja kemikalija
IARC: Međunarodna agencija za istraživanja o karcinomu
IATA: Međunarodna udruga za zračni prijevoz.
IC50: Pulu maksimalna koncentracija inhibitora
IMDG: Međunarodni pomorski kodeks opasnog tereta.
LC50: Smrtna koncentracija u 50% slučajeva ispitivane populacije.
LD50: Smrtna doza u 50% slučajeva ispitivane populacije.
LDLo: Niska smrtonosna doza
N.A.: Nije primjenjivo
N/A: Nije primjenjivo
N/D: Nije definirano/Nije dostupno
N.D.: Nije dostupno
NIOSH: Državni institut za zaštitu na radu
NOAEL: Razina bez uočenih štetnih učinaka
OSHA: Upravljanje zaštitom na radu
PBT: Persistentno, bioakumulativno i toksično
PGK: Packaging Instruction
PNEC: Predviđena koncentracija bez učinka.
PSG: Putnici
RID: Propis o međunarodnom prijevozu opasnih tvari željeznicom
STEL: Granica kratkotrajne izloženosti.
STOT: Toksičnost za ciljani organ.
TLV: Granična vrijednost praga.
TLV-TWA: Granična vrijednost praga za vremenski ponderirani prosjek. (ACGIH standard)
vPvB: Vrlo persistentno, vrlo bioakumulativno
WGK: Njemačka klasifikacija opasnosti za vodu.

Odlomci promijenjeni u odnosu na prethodnu reviziju:

- ODJELJAK 1.: Identifikacija tvari/smjese i podaci o društvu/poduzeću
- ODJELJAK 2.: Identifikacija opasnosti
- ODJELJAK 3.: Sastav/informacije o sastojcima
- ODJELJAK 8.: Nadzor nad izloženošću/osobna zaštita

- ODJELJAK 9.: Fizikalna i kemijska svojstva
- ODJELJAK 11.: Toksikološke informacije
- ODJELJAK 12.: Ekološke informacije
- ODJELJAK 15.: Informacije o propisima
- ODJELJAK 16.: Ostale informacije

Ethyl acetate

Substance identification

Chemical Name: Ethyl acetate

CAS number: 141-78-6

ETHYL ACETATE

ES 1: Cosmetics, personal care products (PC39); User for consumers (SU21).
 ES 2: Filling of drums and small packages (CS6); INDUSTRIAL USES (SU3).
 ES 3: Formulation or repackaging (F); INDUSTRIAL USES (SU3).
 ES 4: Use of non-reactive processing aid at industrial site (no inclusion in article) (ERC4); Industrial uses (su3); Extraction agents (PC40).
 ES 5: PROFESSIONAL APPLICATION OF COATINGS AND INKS; INDUSTRIAL USES (SU3).
 ES 6: Use as laboratory reagent (PROC15); Industrial uses (su3); Industrial use.
 ES 7: Use in cleaning products (GEST4_I, GEST4_P, GEST4_C); INDUSTRIAL USES (SU3).
 ES 8: Use in lubricants (GEST6_I, GEST6_P, GEST6_C); INDUSTRIAL USES (SU3).
 ES 9: Professional application of coatings and inks (14); INDUSTRIAL USES (SU3). Covers use in coatings (paints, inks, adhesives, etc.) including exposures during use (receipt of material, storage, preparation and transfer of bulk and semi-bulk products, application by spray, roller or spreader, dipping, flow, fluidized bed on production lines and film formation), the cleaning and maintenance of the equipment and the associated laboratory activities [GES3_I].
 ES 10: Use as laboratory reagent (PROC15); Industrial uses (su3); Professional (G27).
 ES 11: Use in agrochemical products (GEST11_P, GEST11_C); INDUSTRIAL USES (SU3).
 ES 12: Use in detergent products (GEST4_I, GEST4_P, GEST4_C).
 ES 13: Use in lubricants (GEST6_I, GEST6_P, GEST6_C).
 ES 14: Adhesives, Sealants (PC1); Use in coatings (GEST3_I, GEST3_P, GEST3_C).

ES 5: PROFESSIONAL APPLICATION OF COATINGS AND INKS (17); INDUSTRIAL USES (SU3).

5.1. USE AT INDUSTRIAL SITES

Environment

SC 1: Use of non-reactive processing aid at industrial site (no inclusion in article) ERC4

Worker

SC 2: Generalized exposures (closed systems) PROC1
 SC 3: Generalized exposures (closed systems); Use in closed systems, with sample taking PROC2
 SC 4: Film formation - forced drying (50 -100°C). Stove (>100°C), Curing by UV/EB radiation PROC2
 SC 5: Mixing operations, Generalized exposures PROC3
 SC 6: Film formation, air drying PROC4
 SC 7: Preparation of material for application, Mixing operations (open systems) PROC5
 SC 8: Spraying (automatic/robotic) PROC7
 SC 9: Manual spraying PROC7
 SC 10: Material transfers, Non-Specialized site PROC8a
 SC 11: Material transfers, Specialized site PROC8b
 SC 12: Roller, diffusion, flow application PROC10
 SC 13: Immersion, dipping and pouring PROC13
 SC 14: Laboratory activities PROC15
 SC 15: Material transfers, Drum/batch transfers, Transfer from/pour from containers PROC9
 SC 16: Production or preparation of articles by tableting, compression, extrusion or pelletisation. PROC14

5.2. CONDITIONS OF USE THAT AFFECT EXPOSURE

5.2.1 Environmental exposure control: Use of non-reactive processing aid at industrial site (no inclusion in article) (ERC4)

Amount used (or contained in articles), frequency and duration of use/exposure

Daily amount per site: ≤ 1 t/day

Annual amount per site: ≤ 300 t/year

Organizational and technical measures and conditions

A wastewater treatment plant is expected.

Assumed domestic sewage treatment plant flow: ≥ 2E3 m³/day

Conditions and measures for waste treatment (including the article of waste)

Waste treatment: Dispose of waste products or used containers according to local regulations.

Other conditions affecting environmental exposure

Water flow on the receiving surface: 18,000 m³/g

5.2.2. Worker Exposure Control: Chemical production or refinement in closed processes without likelihood of exposure or in processes with equivalent containment conditions (PROC1)

Product features (article)

Covers concentrations up to 100%.

Amount used (or contained in articles), frequency and duration of use/exposure

Frequency of use: Covers use up to 8 h/day

Organizational and technical measures and conditions

Provide a basic level of general ventilation (1 to 3 air changes per hour).

Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision.

Other conditions affecting worker exposure

Indoor and outdoor use: Indoor use

Temperature: Process temperature up to 40°C is assumed

5.2.3. Worker Exposure Control: Chemical production or refinery in closed process with occasional controlled exposure or processes with equivalent containment conditions (PROC2)

Product features (article)

Covers concentrations up to 100%.

Amount used (or contained in articles), frequency and duration of use/exposure

Frequency of use: Covers use up to 8 h/day

Organizational and technical measures and conditions

Provide a basic level of general ventilation (1 to 3 air changes per hour).

Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision.

Other conditions affecting worker exposure

Indoor and outdoor use: Indoor use

Temperature: Process temperature up to 40°C is assumed

5.2.4. Worker Exposure Control: Chemical production or refinery in closed process with occasional controlled exposure or processes with equivalent containment conditions (PROC2)

Product features (article)

Covers concentrations up to 100%.

Amount used (or contained in articles), frequency and duration of use/exposure

Frequency of use: Covers use up to 8 h/day

Organizational and technical measures and conditions

Provide a basic level of general ventilation (1 to 3 air changes per hour).

Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision.

Other conditions affecting worker exposure

Indoor and outdoor use: Indoor use

Temperature: Process temperature up to 40°C is assumed

5.2.5. Worker Exposure Control: Chemical production or formulation in closed batch processes, with occasional controlled exposure or processes with equivalent containment conditions (PROC3)

Product features (article)

Covers concentrations up to 100%.

Amount used (or contained in articles), frequency and duration of use/exposure

Frequency of use: Covers use up to 8 h/day

Organizational and technical measures and conditions

Provide a basic level of general ventilation (1 to 3 air changes per hour).

Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision.

Other conditions affecting worker exposure

Indoor and outdoor use: Indoor use

Temperature: Process temperature up to 40°C is assumed

5.2.6. Worker Exposure Control: Production of chemicals with the possibility of exposure (PROC4)

Product features (article)

Covers concentrations up to 100%.

Amount used (or contained in articles), frequency and duration of use/exposure

Frequency of use: Covers use up to 8 h/day

Organizational and technical measures and conditions

Local exhaust ventilation

Inhalation - minimum yield of 90%

Provide a basic level of general ventilation (1 to 3 air changes per hour).

Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision.

Other conditions affecting worker exposure

Indoor and outdoor use: Indoor use

Temperature: Process temperature up to 40°C is assumed

5.2.7. Worker Exposure Control: Mixing or blending in batch processes (PROC5)

Product features (article)

Covers concentrations up to 100%.

Amount used (or contained in articles), frequency and duration of use/exposure

Frequency of use: Covers use up to 8 h/day

Organizational and technical measures and conditions

Local exhaust ventilation

Inhalation - minimum yield of 90%

Provide a basic level of general ventilation (1 to 3 air changes per hour).

Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision.

Other conditions affecting worker exposure

Indoor and outdoor use: Indoor use

Temperature: Process temperature up to 40°C is assumed

5.2.8. Worker Exposure Control: Industrial spraying (PROC7)

Product features (article)

Covers concentrations up to 100%.

Amount used (or contained in articles), frequency and duration of use/exposure

Frequency of use: Covers use up to 8 h/day

Organizational and technical measures and conditions

Local exhaust ventilation

Inhalation - minimum yield of 95%

Provide a basic level of general ventilation (1 to 3 air changes per hour).

Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision.

Other conditions affecting worker exposure

Indoor and outdoor use: Indoor use

Temperature: Process temperature up to 40°C is assumed

5.2.9. Worker Exposure Control: Industrial spraying (PROC7)

Product features (article)

Covers concentrations up to 100%.

Amount used (or contained in articles), frequency and duration of use/exposure

Frequency of use: Covers use up to 8 h/day

Organizational and technical measures and conditions

Local exhaust ventilation

Inhalation - minimum yield of 95%

Provide a basic level of general ventilation (1 to 3 air changes per hour).

Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision.

Other conditions affecting worker exposure

Indoor and outdoor use: Indoor use

Temperature: Process temperature up to 40°C is assumed

5.2.10. Worker Exposure Control: Transfer of a substance or a preparation (filling/emptying) at non-dedicated facilities (PROC8a)

Product features (article)

Covers concentrations up to 100%.

Amount used (or contained in articles), frequency and duration of use/exposure

Frequency of use: Covers use up to 8 h/day

Organizational and technical measures and conditions

Local exhaust ventilation

Inhalation - minimum yield of 90%

Provide a basic level of general ventilation (1 to 3 air changes per hour).

Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision.

Other conditions affecting worker exposure

Indoor and outdoor use: Indoor use

Temperature: Process temperature up to 40°C is assumed

5.2.11. Worker Exposure Control: Transfer of a substance or a mixture (charging/discharging) at dedicated facilities (PROC8b)

Product features (article)

Covers concentrations up to 100%.

Amount used (or contained in articles), frequency and duration of use/exposure

Frequency of use: Covers use up to 8 h/day

Organizational and technical measures and conditions

Local exhaust ventilation

Inhalation - minimum yield of 95%

Provide a basic level of general ventilation (1 to 3 air changes per hour).

Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision.

Other conditions affecting worker exposure

Indoor and outdoor use: Indoor use

Temperature: Process temperature up to 40°C is assumed

5.2.12. Worker Exposure Control: Application with rollers or brushes (PROC10)

Product features (article)

Covers concentrations up to 100%.

Amount used (or contained in articles), frequency and duration of use/exposure

Frequency of use: Covers use up to 8 h/day

Organizational and technical measures and conditions

Local exhaust ventilation

Inhalation - minimum yield of 90%

Provide a basic level of general ventilation (1 to 3 air changes per hour).

Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision.

Other conditions affecting worker exposure

Indoor and outdoor use: Indoor use

Temperature: Process temperature up to 40°C is assumed

5.2.13. Worker Exposure Control: Treatment of articles by dipping and pouring (PROC13)

Product features (article)

Covers concentrations up to 100%.

Amount used (or contained in articles), frequency and duration of use/exposure

Frequency of use: Covers use up to 8 h/day

Organizational and technical measures and conditions

Local exhaust ventilation

Inhalation - minimum yield of 90%

Provide a basic level of general ventilation (1 to 3 air changes per hour).

Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision.

Other conditions affecting worker exposure

Indoor and outdoor use: Indoor use

Temperature: Process temperature up to 40°C is assumed

5.2.14. Worker Exposure Control: Use as laboratory reagents (PROC15)

Product features (article)

Covers concentrations up to 100%.

Amount used (or contained in articles), frequency and duration of use/exposure

Frequency of use: Covers use up to 8 h/day

Organizational and technical measures and conditions

Provide a basic level of general ventilation (1 to 3 air changes per hour).

Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision.

Other conditions affecting worker exposure

Indoor and outdoor use: Indoor use

Temperature: Process temperature up to 40°C is assumed

5.2.15. Worker Exposure Control: Transfer of substance or mixture into small containers (dedicated filling line, including weighing) (PROC9)

Product features (article)

Covers concentrations up to 100%.

Amount used (or contained in articles), frequency and duration of use/exposure

Frequency of use: Covers use up to 8 h/day

Organizational and technical measures and conditions

Local exhaust ventilation

Inhalation - minimum yield of 90%

Provide a basic level of general ventilation (1 to 3 air changes per hour).

Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision.

Other conditions affecting worker exposure

Indoor and outdoor use: Indoor use

Temperature: Process temperature up to 40°C is assumed

5.2.16. Worker Exposure Control: Tableting, compression, extrusion, pelletising, granulation (PROC14)

Product features (article)

Covers concentrations up to 100%.

Amount used (or contained in articles), frequency and duration of use/exposure

Frequency of use: Covers use up to 8 h/day

Organizational and technical measures and conditions

Local exhaust ventilation

Inhalation - minimum yield of 90%

Provide a basic level of general ventilation (1 to 3 air changes per hour).

Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision.

Other conditions affecting worker exposure

Indoor and outdoor use: Indoor use

Temperature: Process temperature up to 40°C is assumed

5.3. EXPOSURE ESTIMATION AND REFERENCE TO ITS SOURCE

5.3.1. Environmental release and exposure: Use of non-reactive processing aid at industrial site (no inclusion in article) (ERC4)

Route release	Release rate	Method for estimating for release
water	20 kg/day	Estimated release factor
air	980 kg/day	Estimated release factor
Soil	0 kg/day	Estimated release factor

Protection target	Estimated exposure	RCR
Fresh water	0.119 mg/l (EUSES v2.1)	0.495
freshwater sediments	0.708 mg/kg dry weight (EUSES v2.1)	0.616
Sea water	0.012 mg/l (EUSES v2.1)	0.495
Marine sediment	0.071 mg/kg dry weight (EUSES v2.1)	0.617
Sewage treatment plant	1.184 mg/l (EUSES v2.1)	< 0.01
Farmland	0.081 mg/kg dry weight (EUSES v2.1)	0.547
Prey for predators (freshwater)	1.469 mg/kg dry weight (EUSES v2.1)	< 0.01
Prey for predators (marine water)	0.148 mg/kg dry weight (EUSES v2.1)	< 0.01
Main predator prey (marine water)	0.031 mg/kg dry weight (EUSES v2.1)	< 0.01
Prey for Predators (Terrestrial)	0.028 mg/kg dry weight (EUSES v2.1)	< 0.01

5.3.2. Worker exposure: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions (PROC1)

Exposure routes	Health effect	Exposure indicator	Estimated exposure	RCR
inhalation	systemic	Long-term	0.037 mg/m ³ (ECETOC TRA worker v3)	< 0.01
inhalation	systemic	Short term	0.147 mg/m ³ (ECETOC TRA worker v3)	< 0.01
inhalation	local	Long-term	0.037 mg/m ³ (ECETOC TRA worker v3)	< 0.01
inhalation	local	Short term	0.147 mg/m ³ (ECETOC TRA worker v3)	< 0.01
dermal	systemic	Long-term	0.034 mg/kg bw/day (ECETOC TRA worker v3)	< 0.01
combined routes	systemic	Long-term	/	< 0.01

5.3.3. Worker exposure: Chemical production or refinery in closed process with occasional controlled exposure or processes with equivalent containment conditions (PROC2)

Exposure routes	Health effect	Exposure indicator	Estimated exposure	RCR
inhalation	systemic	Long-term	91.77 mg/m ³ (ECETOC TRA worker v3)	0.125
inhalation	systemic	Short term	361.7 mg/m ³ (ECETOC TRA worker v3)	0.25
inhalation	local	Long-term	91.77 mg/m ³ (ECETOC TRA worker v3)	0.125
inhalation	local	Short term	361.7 mg/m ³ (ECETOC TRA worker v3)	0.25
dermal	systemic	Long-term	1.37 mg/kg bw/day (ECETOC TRA worker v3)	0.022
combined routes	systemic	Long-term	/	0.147

5.3.4. Worker exposure: Chemical production or refinery in closed process with occasional controlled exposure or processes with equivalent containment conditions (PROC2)

Exposure routes	Health effect	Exposure indicator	Estimated exposure	RCR
inhalation	systemic	Long-term	91.77 mg/m ³ (ECETOC TRA worker v3)	0.125
inhalation	systemic	Short term	361.7 mg/m ³ (ECETOC TRA worker v3)	0.25
inhalation	local	Long-term	91.77 mg/m ³ (ECETOC TRA worker v3)	0.125
inhalation	local	Short term	361.7 mg/m ³ (ECETOC TRA worker v3)	0.25
dermal	systemic	Long-term	1.37 mg/kg bw/day (ECETOC TRA worker v3)	0.022
combined routes	systemic	Long-term	/	0.147

5.3.5. Worker exposure: Chemical production or formulation in closed batch processes, with occasional controlled exposure or processes with equivalent containment conditions (PROC3)

Exposure routes	Health effect	Exposure indicator	Estimated exposure	RCR
inhalation	systemic	Long-term	183.5 mg/m ³ (ECETOC TRA worker v3)	0.25
inhalation	systemic	Short term	734.2 mg/m ³ (ECETOC TRA worker v3)	0.5
inhalation	local	Long-term	183.5 mg/m ³ (ECETOC TRA worker v3)	0.25
inhalation	local	Short term	734.2 mg/m ³ (ECETOC TRA worker v3)	0.5
dermal	systemic	Long-term	0.69 mg/kg bw/day (ECETOC TRA worker v3)	0.011
combined routes	systemic	Long-term	/	0.261

5.3.6. Worker exposure: Production of chemicals with the possibility of exposure (PROC4)

Exposure routes	Health effect	Exposure indicator	Estimated exposure	RCR
inhalation	systemic	Long-term	36.71 mg/m ³ (ECETOC TRA worker v3)	0.05
inhalation	systemic	Short term	146.8 mg/m ³ (ECETOC TRA worker v3)	0.1
inhalation	local	Long-term	36.71 mg/m ³ (ECETOC TRA worker v3)	0.05
inhalation	local	Short term	146.8 mg/m ³ (ECETOC TRA worker v3)	0.1
dermal	systemic	Long-term	6.86 mg/kg bw/day (ECETOC TRA worker v3)	0.109
combined routes	systemic	Long-term	/	0.159

5.3.7. Worker exposure: Mixing or blending in batch processes (PROC5)

Exposure routes	Health effect	Exposure indicator	Estimated exposure	RCR
inhalation	systemic	Long-term	91.77 mg/m ³ (ECETOC TRA worker v3)	0.125
inhalation	systemic	Short term	367.1 mg/m ³ (ECETOC TRA worker v3)	0.25
inhalation	local	Long-term	91.77 mg/m ³ (ECETOC TRA worker v3)	0.125
inhalation	local	Short term	367.1 mg/m ³ (ECETOC TRA worker v3)	0.25
dermal	systemic	Long-term	13.71 mg/kg bw/day (ECETOC TRA worker v3)	0.218
combined routes	systemic	Long-term	/	0.343

5.3.8. Worker exposure: Industrial spraying (PROC7)

Exposure routes	Health effect	Exposure indicator	Estimated exposure	RCR
inhalation	systemic	Long-term	91.77 mg/m ³ (ECETOC TRA worker v3)	0.125
inhalation	systemic	Short term	367.1 mg/m ³ (ECETOC TRA worker v3)	0.25
inhalation	local	Long-term	91.77 mg/m ³ (ECETOC TRA worker v3)	0.125
inhalation	local	Short term	367.1 mg/m ³ (ECETOC TRA worker v3)	0.25
dermal	systemic	Long-term	42.86 mg/kg bw/day (ECETOC TRA worker v3)	0.68
combined routes	systemic	Long-term	/	0.805

5.3.9. Worker exposure: Industrial spraying (PROC7)

Exposure routes	Health effect	Exposure indicator	Estimated exposure	RCR
inhalation	systemic	Long-term	91.77 mg/m ³ (ECETOC TRA worker v3)	0.125
inhalation	systemic	Short term	367.1 mg/m ³ (ECETOC TRA worker v3)	0.25
inhalation	local	Long-term	91.77 mg/m ³ (ECETOC TRA worker v3)	0.125
inhalation	local	Short term	367.1 mg/m ³ (ECETOC TRA worker v3)	0.25
dermal	systemic	Long-term	42.86 mg/kg bw/day (ECETOC TRA worker v3)	0.68
combined routes	systemic	Long-term	/	0.805

5.3.10. Worker exposure: Transfer of a substance or a preparation (filling/emptying) at non-dedicated facilities (PROC8a)

Exposure routes	Health effect	Exposure indicator	Estimated exposure	RCR
inhalation	systemic	Long-term	91.77 mg/m ³ (ECETOC TRA worker v3)	0.125
inhalation	systemic	Short term	367.1 mg/m ³ (ECETOC TRA worker v3)	0.25
inhalation	local	Long-term	91.77 mg/m ³ (ECETOC TRA worker v3)	0.125
inhalation	local	Short term	367.1 mg/m ³ (ECETOC TRA worker v3)	0.25
dermal	systemic	Long-term	13.71 mg/kg bw/day (ECETOC TRA worker v3)	0.218
combined routes	systemic	Long-term	/	0.343

5.3.11. Worker exposure: Transfer of a substance or a mixture (charging/discharging) at dedicated facilities (PROC8b)

Exposure routes	Health effect	Exposure indicator	Estimated exposure	RCR
inhalation	systemic	Long-term	27.53 mg/m ³ (ECETOC TRA worker v3)	0.038
inhalation	systemic	Short term	110.1 mg/m ³ (ECETOC TRA worker v3)	0.075
inhalation	local	Long-term	27.53 mg/m ³ (ECETOC TRA worker v3)	0.038
inhalation	local	Short term	110.1 mg/m ³ (ECETOC TRA worker v3)	0.075
dermal	systemic	Long-term	13.71 mg/kg bw/day (ECETOC TRA worker v3)	0.218
combined routes	systemic	Long-term	/	0.255

5.3.12. Worker exposure: Application with rollers or brushes (PROC10)

Exposure routes	Health effect	Exposure indicator	Estimated exposure	RCR
inhalation	systemic	Long-term	91.77 mg/m ³ (ECETOC TRA worker v3)	0.125
inhalation	systemic	Short term	367.1 mg/m ³ (ECETOC TRA worker v3)	0.25
inhalation	local	Long-term	91.77 mg/m ³ (ECETOC TRA worker v3)	0.125
inhalation	local	Short term	367.1 mg/m ³ (ECETOC TRA worker v3)	0.25
dermal	systemic	Long-term	27.43 mg/kg bw/day (ECETOC TRA worker v3)	0.435
combined routes	systemic	Long-term	/	0.56

5.3.13. Worker exposure: Treatment of articles by dipping and pouring (PROC13)

Exposure routes	Health effect	Exposure indicator	Estimated exposure	RCR
inhalation	systemic	Long-term	91.77 mg/m ³ (ECETOC TRA worker v3)	0.125
inhalation	systemic	Short term	367.1 mg/m ³ (ECETOC TRA worker v3)	0.25
inhalation	local	Long-term	91.77 mg/m ³ (ECETOC TRA worker v3)	0.125
inhalation	local	Short term	367.1 mg/m ³ (ECETOC TRA worker v3)	0.25
dermal	systemic	Long-term	13.71 mg/kg bw/day (ECETOC TRA worker v3)	0.218
combined routes	systemic	Long-term	/	0.343

5.3.14. Worker exposure: Use as laboratory reagents (PROC15)

Exposure routes	Health effect	Exposure indicator	Estimated exposure	RCR
inhalation	systemic	Long-term	183.5 mg/m ³ (ECETOC TRA worker v3)	0.25
inhalation	systemic	Short term	734.2 mg/m ³ (ECETOC TRA worker v3)	0.5
inhalation	local	Long-term	183.5 mg/m ³ (ECETOC TRA worker v3)	0.25
inhalation	local	Short term	734.2 mg/m ³ (ECETOC TRA worker v3)	0.5
dermal	systemic	Long-term	0.34 mg/kg bw/day (ECETOC TRA worker v3)	< 0.01
combined routes	systemic	Long-term	/	0.255

5.3.15. Worker exposure: Transfer of substance or mixture into small containers (dedicated filling line, including weighing) (PROC9)

Exposure routes	Health effect	Exposure indicator	Estimated exposure	RCR
inhalation	systemic	Long-term	73.42 mg/m ³ (ECETOC TRA worker v3)	0.1
inhalation	systemic	Short term	293.6 mg/m ³ (ECETOC TRA worker v3)	0.2
inhalation	local	Long-term	73.42 mg/m ³ (ECETOC TRA worker v3)	0.1
inhalation	local	Short term	293.6 mg/m ³ (ECETOC TRA worker v3)	0.2
dermal	systemic	Long-term	6.86 mg/kg bw/day (ECETOC TRA worker v3)	0.109
combined routes	systemic	Long-term	/	0.209

5.3.16. Worker exposure: Tableting, compression, extrusion, pelletising, granulation (PROC14)

Exposure routes	Health effect	Exposure indicator	Estimated exposure	RCR
inhalation	systemic	Long-term	91.77 mg/m ³ (ECETOC TRA worker v3)	0.125
inhalation	systemic	Short term	367.1 mg/m ³ (ECETOC TRA worker v3)	0.25
inhalation	local	Long-term	91.77 mg/m ³ (ECETOC TRA worker v3)	0.125
inhalation	local	Short term	367.1 mg/m ³ (ECETOC TRA worker v3)	0.25
dermal	systemic	Long-term	3.43 mg/kg bw/day (ECETOC TRA worker v3)	0.054
combined routes	systemic	Long-term	/	0.179

5.4. GUIDANCE FOR DOWNSTREAM USERS TO ASSESS WHETHER THEY COMPLY WITH THE LIMITS SET BY THE EXPOSURE SCENARIO

Guidance to check compliance with the exposure scenario: <https://echa.europa.eu/>

ES 9: PROFESSIONAL APPLICATION OF COATINGS AND INKS (14); INDUSTRIAL USES (SU3). COVERS USE IN COATINGS (PAINTS, INKS, ADHESIVES, ETC.) INCLUDING EXPOSURES DURING USE (RECEIPT OF MATERIAL, STORAGE, PREPARATION AND TRANSFER OF BULK AND SEMI-BULK PRODUCTS, APPLICATION BY SPRAY, ROLLER OR SPREADER, DIPPING, FLOW, FLUIDIZED BED ON PRODUCTION LINES AND FILM FORMATION), THE CLEANING AND MAINTENANCE OF THE EQUIPMENT AND THE ASSOCIATED LABORATORY ACTIVITIES [GES3_I].

9.1. WIDE DISPERSIVE USE BY PROFESSIONAL WORKERS

Environment

SC 1: Wide dispersive use of non-reactive processing aid (no inclusion into the article, outdoor) ERC8d

Worker

SC 3: Generalized exposures (closed systems) PROC1
SC 4: Filling of equipment from drums and containers PROC2
SC 5: Generalized exposures (closed systems), Use in closed systems PROC2
SC 6: Preparation of material for application, Generalized exposures PROC3
SC 7: Film formation - air drying, Indoor use PROC4
SC 8: Film formation - air drying, Outdoor use PROC4
SC 9: Preparation of material for application, Indoor use PROC5
SC 10: Preparation of material for application, Outdoor use PROC5
SC 11: Material transfers, Drum/batch transfers, Non-Specialized site PROC8a
SC 12: 12 Material Transfers, Drum/batch transfers, specialized site PROC8b
SC 13: Roller, diffusion, flow application, Indoor use PROC10
SC 14: Roller, diffusion, flow application, Outdoor use PROC10
SC 15: Manual spraying, Indoor use PROC11
SC 16: Manual spraying, Outdoor use PROC11
SC 17: Immersion, dipping and pouring, Indoor use PROC13
SC 18: Immersion, dipping and pouring, Outdoor use PROC13
SC 19: Laboratory activities PROC15
SC 20: Hand application - finger paints, crayons, stickers, Indoor use PROC19
SC 21: Hand application - finger paints, crayons, stickers, Outdoor use PROC19

9.2. CONDITIONS OF USE THAT AFFECT EXPOSURE

9.2.1 Environmental exposure control: Wide dispersive use of non-reactive processing aid (no inclusion into the article, outdoor) (ERC8d)

Organizational and technical measures and conditions

A wastewater treatment plant is expected.

Conditions and measures for waste treatment (including the article of waste)

Waste treatment: Dispose of waste products or used containers according to local regulations.

9.2.3. Worker Exposure Control: Chemical production or refinement in closed processes without likelihood of exposure or in processes with equivalent containment conditions (PROC1)

Product features (article)

Covers concentrations up to 100%.

Amount used (or contained in articles), frequency and duration of use/exposure

Frequency of use: Covers use up to 8 h/day

Organizational and technical measures and conditions

Provide a basic level of general ventilation (1 to 3 air changes per hour).

Other conditions affecting worker exposure

Indoor and outdoor use: Indoor use

Temperature: Process temperature up to 40°C is assumed

9.2.4. Worker Exposure Control: Chemical production or refinery in closed process with occasional controlled exposure or processes with equivalent containment conditions (PROC2)

Product features (article)

Covers concentrations up to 100%.

Amount used (or contained in articles), frequency and duration of use/exposure

Frequency of use: Covers use up to 8 h/day

Organizational and technical measures and conditions

Provide a basic level of general ventilation (1 to 3 air changes per hour).

Other conditions affecting worker exposure

Indoor and outdoor use: Indoor use

Temperature: Process temperature up to 40°C is assumed

9.2.5. Worker Exposure Control: Chemical production or refinery in closed process with occasional controlled exposure or processes with equivalent containment conditions (PROC2)

Product features (article)

Covers concentrations up to 100%.

Amount used (or contained in articles), frequency and duration of use/exposure

Frequency of use: Covers use up to 8 h/day

Organizational and technical measures and conditions

Provide a basic level of general ventilation (1 to 3 air changes per hour).

Other conditions affecting worker exposure

Indoor and outdoor use: Indoor use

Temperature: Process temperature up to 40°C is assumed

9.2.6. Worker Exposure Control: Chemical production or formulation in closed batch processes, with occasional controlled exposure or processes with equivalent containment conditions (PROC3)

Product features (article)

Covers concentrations up to 100%.

Amount used (or contained in articles), frequency and duration of use/exposure

Frequency of use: Covers use up to 8 h/day

Organizational and technical measures and conditions

Provide a basic level of general ventilation (3 to 5 air changes per hour).

Other conditions affecting worker exposure

Indoor and outdoor use: Indoor use

Temperature: Process temperature up to 40°C is assumed

9.2.7. Worker Exposure Control: Production of chemicals with the possibility of exposure (PROC4)

Product features (article)

Covers concentrations up to 100%.

Amount used (or contained in articles), frequency and duration of use/exposure

Frequency of use: Covers use up to 8 h/day

Organizational and technical measures and conditions

Local exhaust ventilation

Inhalation - minimum yield of 80%

Provide a basic level of general ventilation (3 to 5 air changes per hour).

Other conditions affecting worker exposure

Indoor and outdoor use: Indoor use

Temperature: Process temperature up to 40°C is assumed

9.2.8. Worker Exposure Control: Production of chemicals with the possibility of exposure (PROC4)

Product features (article)

Covers concentrations up to 100%.

Amount used (or contained in articles), frequency and duration of use/exposure

Frequency of use: Covers use up to 8 h/day

Organizational and technical measures and conditions

Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision.

Other conditions affecting worker exposure

Indoor and outdoor use: Indoor use

Temperature: Process temperature up to 40°C is assumed

9.2.9. Worker Exposure Control: Mixing or blending in batch processes (PROC5)

Product features (article)

Covers concentrations up to 100%.

Amount used (or contained in articles), frequency and duration of use/exposure

Frequency of use: Covers use up to 8 h/day

Organizational and technical measures and conditions

Local exhaust ventilation

Inhalation - minimum yield of 80%

Provide a basic level of general ventilation (3 to 5 air changes per hour).

Other conditions affecting worker exposure

Indoor and outdoor use: Indoor use

Temperature: Process temperature up to 40°C is assumed

9.2.10. Worker Exposure Control: Mixing or blending in batch processes (PROC5)

Product features (article)

Covers concentrations up to 100%.

Amount used (or contained in articles), frequency and duration of use/exposure

Frequency of use: Covers use up to 8 h/day

Conditions and measures for personal protection, hygiene and health assessment

Wear suitable respirator.

For more information, refer to Section 8 of the SDS (safety data sheet).

Inhalation - minimum yield of 90%

Other conditions affecting worker exposure

Indoor and outdoor use: Outdoor use

Temperature: Process temperature up to 40°C is assumed

9.2.11. Worker Exposure Control: Transfer of a substance or a preparation (filling/emptying) at non-dedicated facilities (PROC8a) (PROC8b)

Product features (article)

Covers concentrations up to 100%.

Amount used (or contained in articles), frequency and duration of use/exposure

Frequency of use: Covers use up to 8 h/day

Organizational and technical measures and conditions

Local exhaust ventilation

Inhalation - minimum yield of 90%

Provide a basic level of general ventilation (3 to 5 air changes per hour).

Other conditions affecting worker exposure

Indoor and outdoor use: Indoor use

Temperature: Process temperature up to 40°C is assumed

9.2.12. Worker Exposure Control: Transfer of a substance or a mixture (charging/discharging) at dedicated facilities (PROC8b)

Product features (article)

Covers concentrations up to 100%.

Amount used (or contained in articles), frequency and duration of use/exposure

Frequency of use: Covers use up to 8 h/day

Organizational and technical measures and conditions

Local exhaust ventilation

Inhalation - minimum yield of 90%

Provide a basic level of general ventilation (1 to 3 air changes per hour).

Other conditions affecting worker exposure

Indoor and outdoor use: Indoor use

Temperature: Process temperature up to 40°C is assumed

9.2.13. Worker Exposure Control: Application with rollers or brushes (PROC10)

Product features (article)

Covers concentrations up to 100%.

Amount used (or contained in articles), frequency and duration of use/exposure

Frequency of use: Covers use up to 8 h/day

Organizational and technical measures and conditions

Local exhaust ventilation

Inhalation - minimum yield of 80%

Provide a basic level of general ventilation (1 to 3 air changes per hour).

Other conditions affecting worker exposure

Indoor and outdoor use: Indoor use

Temperature: Process temperature up to 40°C is assumed

9.2.14. Worker Exposure Control: Application with rollers or brushes (PROC10)

Product features (article)

Covers concentrations up to 100%.

Amount used (or contained in articles), frequency and duration of use/exposure

Frequency of use: Covers use up to 8 h/day

Conditions and measures for personal protection, hygiene and health assessment

Wear suitable respirator.

For more information, refer to Section 8 of the SDS (safety data sheet).

Inhalation - minimum yield of 90%

Other conditions affecting worker exposure

Indoor and outdoor use: Indoor use

Temperature: Process temperature up to 40°C is assumed

9.2.15. Worker Exposure Control: Non-industrial spray application (PROC11)

Product features (article)

Covers concentrations up to 25 %

Amount used (or contained in articles), frequency and duration of use/exposure

Frequency of use: Covers use up to 8 h/day

Organizational and technical measures and conditions

Local exhaust ventilation

Inhalation - minimum yield of 80%

Provide a basic level of general ventilation (3 to 5 air changes per hour).

Conditions and measures for personal protection, hygiene and health assessment

Wear suitable gloves tested to EN374.

If skin contamination is expected to extend to other parts of the body, these parts should also be protected with impermeable clothing equivalent to that described for the hands.

For more information, refer to Section 8 of the SDS (safety data sheet).

Other conditions affecting worker exposure

Indoor and outdoor use: Indoor use

Temperature: Process temperature up to 40°C is assumed

9.2.16. Worker Exposure Control: Non-industrial spray application (PROC11)

Product features (article)

Covers concentrations up to 25 %

Amount used (or contained in articles), frequency and duration of use/exposure

Frequency of use: Covers use up to 8 h/day

Conditions and measures for personal protection, hygiene and health assessment

Wear suitable gloves tested to EN374.

If skin contamination is expected to extend to other parts of the body, these parts should also be protected with impermeable clothing equivalent to that described for the hands.

For more information, refer to Section 8 of the SDS (safety data sheet).

Wear suitable respirator.

For more information, refer to Section 8 of the SDS (safety data sheet).

Inhalation - minimum yield of 90%

Other conditions affecting worker exposure

Indoor and outdoor use: Outdoor use

Temperature: Process temperature up to 40°C is assumed

9.2.17. Worker Exposure Control: Treatment of articles by dipping and pouring (PROC13)

Product features (article)

Covers concentrations up to 25 %

Amount used (or contained in articles), frequency and duration of use/exposure

Frequency of use: Covers use up to 8 h/day

Organizational and technical measures and conditions

Provide a good standard of general ventilation (from 5 to 10 air changes per hour).

Other conditions affecting worker exposure

Indoor and outdoor use: Indoor use

Temperature: Process temperature up to 40°C is assumed

9.2.18. Worker Exposure Control: Treatment of articles by dipping and pouring (PROC13)

Product features (article)

Covers concentrations up to 25 %

Amount used (or contained in articles), frequency and duration of use/exposure

Frequency of use: Covers use up to 8 h/day

Conditions and measures for personal protection, hygiene and health assessment

Wear suitable respirator.

For more information, refer to Section 8 of the SDS (safety data sheet).

Inhalation - minimum yield of 90%

Other conditions affecting worker exposure

Indoor and outdoor use: Outdoor use

Temperature: Process temperature up to 40°C is assumed

9.2.19. Worker Exposure Control: Use as laboratory reagents (PROC15)

Product features (article)

Covers concentrations up to 100%.

Amount used (or contained in articles), frequency and duration of use/exposure

Frequency of use: Covers use up to 8 h/day

Organizational and technical measures and conditions

Provide a basic level of general ventilation (1 to 3 air changes per hour).

Other conditions affecting worker exposure

Indoor and outdoor use: Indoor use

Temperature: Process temperature up to 40°C is assumed

9.2.20. Worker Exposure Control: Hand-mixing with direct contact and only PPE available (PROC19)

Product features (article)

Covers concentrations up to 25 %

Amount used (or contained in articles), frequency and duration of use/exposure

Frequency of use: Covers use up to 8 h/day

Organizational and technical measures and conditions

Provide a good standard of general ventilation (from 5 to 10 air changes per hour).

Conditions and measures for personal protection, hygiene and health assessment

Wear suitable gloves tested to EN374.

If skin contamination is expected to extend to other parts of the body, these parts should also be protected with impermeable clothing equivalent to that described for the hands.

For more information, refer to Section 8 of the SDS (safety data sheet).

Other conditions affecting worker exposure

Indoor and outdoor use: Indoor use

Temperature: Process temperature up to 40°C is assumed

9.2.21. Worker Exposure Control: Hand-mixing with direct contact and only PPE available (PROC19)

Product features (article)

Covers concentrations up to 5 %

Amount used (or contained in articles), frequency and duration of use/exposure

Frequency of use: Covers use up to 8 h/day

Conditions and measures for personal protection, hygiene and health assessment

Wear suitable gloves tested to EN374.

If skin contamination is expected to extend to other parts of the body, these parts should also be protected with impermeable clothing equivalent to that described for the hands.

For more information, refer to Section 8 of the SDS (safety data sheet).

Other conditions affecting worker exposure

Indoor and outdoor use: Indoor use

Temperature: Process temperature up to 40°C is assumed

9.3. EXPOSURE ESTIMATION AND REFERENCE TO ITS SOURCE

9.3.1. Environmental release and exposure: Wide dispersive use of non-reactive processing aid (no inclusion into the article, outdoor) (ERC8d)

Route release	Release rate	Method for estimating for release
water	0.014 kg/day	Estimated release factor
air	980 kg/day	Estimated release factor
Soil	0 kg/day	Estimated release factor

Protection target	Estimated exposure	RCR
Fresh water	0.000396 mg/l (EUSES v2.1)	< 0.01
freshwater sediments	0.00236 mg/kg dry weight (EUSES v2.1)	< 0.01
Sea water	0.0000597 mg/l (EUSES v2.1)	< 0.01
Marine sediment	0.000356 mg/kg dry weight (EUSES v2.1)	< 0.01
Sewage treatment plant	0.000805 mg/l (EUSES v2.1)	< 0.01
Farmland	0.000131 mg/kg dry weight (EUSES v2.1)	< 0.01
Prey for predators (freshwater)	0.011 mg/kg wet weight (EUSES v2.1)	< 0.01
Prey for predators (marine water)	0.00167 mg/kg wet weight (EUSES v2.1)	< 0.01
Main predator prey (marine water)	0.00158 mg/kg wet weight (EUSES v2.1)	< 0.01
Prey for Predators (Terrestrial)	0.000114 mg/kg wet weight (EUSES v2.1)	< 0.01

9.3.3. Worker exposure: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions (PROC1)

Exposure routes	Health effect	Exposure indicator	Estimated exposure	RCR
inhalation	systemic	Long-term	0.367 mg/m ³ (ECETOC TRA worker v3)	< 0.01
inhalation	systemic	Short term	1.468 mg/m ³ (ECETOC TRA worker v3)	< 0.01
inhalation	local	Long-term	0.367 mg/m ³ (ECETOC TRA worker v3)	< 0.01
inhalation	local	Short term	1.468 mg/m ³ (ECETOC TRA worker v3)	< 0.01
dermal	systemic	Long-term	0.034 mg/kg bw/day (ECETOC TRA worker v3)	< 0.01
combined routes	systemic	Long-term	/	< 0.01

9.3.4. Worker exposure: Chemical production or refinery in closed process with occasional controlled exposure or processes with equivalent containment conditions (PROC2)

Exposure routes	Health effect	Exposure indicator	Estimated exposure	RCR
inhalation	systemic	Long-term	183.5 mg/m ³ (ECETOC TRA worker v3)	0.25
inhalation	systemic	Short term	734.2 mg/m ³ (ECETOC TRA worker v3)	0.5
inhalation	local	Long-term	183.5 mg/m ³ (ECETOC TRA worker v3)	0.25
inhalation	local	Short term	734.2 mg/m ³ (ECETOC TRA worker v3)	0.5
dermal	systemic	Long-term	1.37 mg/kg bw/day (ECETOC TRA worker v3)	0.022
combined routes	systemic	Long-term	/	0.272

9.3.5. Worker exposure: Chemical production or refinery in closed process with occasional controlled exposure or processes with equivalent containment conditions (PROC2)

Exposure routes	Health effect	Exposure indicator	Estimated exposure	RCR
inhalation	systemic	Long-term	183.5 mg/m ³ (ECETOC TRA worker v3)	0.25
inhalation	local	Short term	734.2 mg/m ³ (ECETOC TRA worker v3)	0.5
inhalation	local	Long-term	183.5 mg/m ³ (ECETOC TRA worker v3)	0.25
inhalation	systemic	Short term	734.2 mg/m ³ (ECETOC TRA worker v3)	0.5
dermal	systemic	Long-term	1.37 mg/kg bw/day (ECETOC TRA worker v3)	0.022
combined routes	systemic	Long-term	/	0.272

9.3.6. Worker exposure: Chemical production or formulation in closed batch processes, with occasional controlled exposure or processes with equivalent containment conditions (PROC3)

Exposure routes	Health effect	Exposure indicator	Estimated exposure	RCR
inhalation	systemic	Long-term	256.9 mg/m ³ (ECETOC TRA worker v3)	0.35
inhalation	systemic	Short term	1.03 g/m ³ (ECETOC TRA worker v3)	0.7
inhalation	local	Long-term	256.9 mg/m ³ (ECETOC TRA worker v3)	0.35
inhalation	local	Short term	1.03 g/m ³ (ECETOC TRA worker v3)	0.7
dermal	systemic	Long-term	0.69 mg/kg bw/day (ECETOC TRA worker v3)	0.011
combined routes	systemic	Long-term	/	0.361

9.3.7. Worker exposure: Production of chemicals with the possibility of exposure (PROC4)

Exposure routes	Health effect	Exposure indicator	Estimated exposure	RCR
inhalation	systemic	Long-term	128.4 mg/m ³ (ECETOC TRA worker v3)	0.175
inhalation	systemic	Short term	513.9 mg/m ³ (ECETOC TRA worker v3)	0.35
inhalation	local	Long-term	128.4 mg/m ³ (ECETOC TRA worker v3)	0.175
inhalation	local	Short term	513.9 mg/m ³ (ECETOC TRA worker v3)	0.35
dermal	systemic	Long-term	6.86 mg/kg bw/day (ECETOC TRA worker v3)	0.109
combined routes	systemic	Long-term	/	0.284

9.3.8. Worker exposure: Production of chemicals with the possibility of exposure (PROC4)

Exposure routes	Health effect	Exposure indicator	Estimated exposure	RCR
inhalation	systemic	Long-term	256.9 mg/m ³ (ECETOC TRA worker v3)	0.35
inhalation	systemic	Short term	1.03 g/m ³ (ECETOC TRA worker v3)	0.7
inhalation	local	Long-term	256.9 mg/m ³ (ECETOC TRA worker v3)	0.35
inhalation	local	Short term	1.03 g/m ³ (ECETOC TRA worker v3)	0.7
dermal	systemic	Long-term	6.86 mg/kg bw/day (ECETOC TRA worker v3)	0.109
combined routes	systemic	Long-term	/	0.459

9.3.9. Worker exposure: Mixing or blending in batch processes (PROC5)

Exposure routes	Health effect	Exposure indicator	Estimated exposure	RCR
inhalation	systemic	Long-term	256.9 mg/m ³ (ECETOC TRA worker v3)	0.35
inhalation	systemic	Short term	1.03 g/m ³ (ECETOC TRA worker v3)	0.7
inhalation	local	Long-term	256.9 mg/m ³ (ECETOC TRA worker v3)	0.35
inhalation	local	Short term	1.03 g/m ³ (ECETOC TRA worker v3)	0.7
dermal	systemic	Long-term	13.71 mg/kg bw/day (ECETOC TRA worker v3)	0.218
combined routes	systemic	Long-term	/	0.568

9.3.10. Worker exposure: Mixing or blending in batch processes (PROC5)

Exposure routes	Health effect	Exposure indicator	Estimated exposure	RCR
inhalation	systemic	Long-term	128.4 mg/m ³ (ECETOC TRA worker v3)	0.175
inhalation	systemic	Short term	513.9 mg/m ³ (ECETOC TRA worker v3)	0.35
inhalation	local	Long-term	128.4 mg/m ³ (ECETOC TRA worker v3)	0.175
inhalation	local	Short term	513.9 mg/m ³ (ECETOC TRA worker v3)	0.35
dermal	systemic	Long-term	13.71 mg/kg bw/day (ECETOC TRA worker v3)	0.218
combined routes	systemic	Long-term	/	0.393

9.3.11. Worker exposure: Transfer of a substance or a preparation (filling/emptying) at non-dedicated facilities (PROC8a)

Exposure routes	Health effect	Exposure indicator	Estimated exposure	RCR
inhalation	systemic	Long-term	256.9 mg/m ³ (ECETOC TRA worker v3)	0.35
inhalation	systemic	Short term	1.03 g/m ³ (ECETOC TRA worker v3)	0.7
inhalation	local	Long-term	256.9 mg/m ³ (ECETOC TRA worker v3)	0.35
inhalation	local	Short term	1.03 g/m ³ (ECETOC TRA worker v3)	0.7
dermal	systemic	Long-term	13.71 mg/kg bw/day (ECETOC TRA worker v3)	0.218
combined routes	systemic	Long-term	/	0.568

9.3.12. Worker exposure: Transfer of a substance or a mixture (charging/discharging) at dedicated facilities (PROC8b)

Exposure routes	Health effect	Exposure indicator	Estimated exposure	RCR
inhalation	systemic	Long-term	91.77 mg/m ³ (ECETOC TRA worker v3)	0.125
inhalation	systemic	Short term	367.1 mg/m ³ (ECETOC TRA worker v3)	0.25
inhalation	local	Long-term	91.77 mg/m ³ (ECETOC TRA worker v3)	0.125
inhalation	local	Short term	367.1 mg/m ³ (ECETOC TRA worker v3)	0.25
dermal	systemic	Long-term	13.71 mg/kg bw/day (ECETOC TRA worker v3)	0.218
combined routes	systemic	Long-term	/	0.343

9.3.13. Worker exposure: Application with rollers or brushes (PROC10)

Exposure routes	Health effect	Exposure indicator	Estimated exposure	RCR
inhalation	systemic	Long-term	256.9 mg/m ³ (ECETOC TRA worker v3)	0.35
inhalation	systemic	Short term	1.03 g/m ³ (ECETOC TRA worker v3)	0.7
inhalation	local	Long-term	256.9 mg/m ³ (ECETOC TRA worker v3)	0.35
inhalation	local	Short term	1.03 g/m ³ (ECETOC TRA worker v3)	0.7
dermal	systemic	Long-term	27.43 mg/kg bw/day (ECETOC TRA worker v3)	0.435
combined routes	systemic	Long-term	/	0.785

9.3.14. Worker exposure: Application with rollers or brushes (PROC10)

Exposure routes	Health effect	Exposure indicator	Estimated exposure	RCR
inhalation	systemic	Long-term	128.4 mg/m ³ (ECETOC TRA worker v3)	0.175
inhalation	systemic	Short term	513.9 mg/m ³ (ECETOC TRA worker v3)	0.35
inhalation	local	Long-term	128.4 mg/m ³ (ECETOC TRA worker v3)	0.175
inhalation	local	Short term	513.9 mg/m ³ (ECETOC TRA worker v3)	0.35
dermal	systemic	Long-term	27.43 mg/kg bw/day (ECETOC TRA worker v3)	0.435
combined routes	systemic	Long-term	/	0.61

9.3.15. Worker exposure: Non-industrial spray application (PROC11)

Exposure routes	Health effect	Exposure indicator	Estimated exposure	RCR
inhalation	systemic	Long-term	308.3 mg/m ³ (ECETOC TRA worker v3)	0.42
inhalation	systemic	Short term	mg/m ³ (ECETOC TRA worker v3)	0.84
inhalation	local	Long-term	308.3 mg/m ³ (ECETOC TRA worker v3)	0.42
inhalation	local	Short term	mg/m ³ (ECETOC TRA worker v3)	0.84
dermal	systemic	Long-term	12.85 mg/kg bw/day (ECETOC TRA worker v3)	0.204
combined routes	systemic	Long-term	/	0.624

9.3.16. Worker exposure: Non-industrial spray application (PROC11)

Exposure routes	Health effect	Exposure indicator	Estimated exposure	RCR
inhalation	systemic	Long-term	154.1 mg/m ³ (ECETOC TRA worker v3)	0.21
inhalation	systemic	Short term	616.7 mg/m ³ (ECETOC TRA worker v3)	0.42
inhalation	local	Long-term	154.1 mg/m ³ (ECETOC TRA worker v3)	0.21
inhalation	local	Short term	616.7 mg/m ³ (ECETOC TRA worker v3)	0.42
dermal	systemic	Long-term	12.85 mg/kg bw/day (ECETOC TRA worker v3)	0.204
combined routes	systemic	Long-term	/	0.414

9.3.17. Worker exposure: Treatment of articles by dipping and pouring (PROC13)

Exposure routes	Health effect	Exposure indicator	Estimated exposure	RCR
inhalation	systemic	Long-term	165.1 mg/m ³ (ECETOC TRA worker v3)	0.225
inhalation	systemic	Short term	660.7 mg/m ³ (ECETOC TRA worker v3)	0.45
inhalation	local	Long-term	165.1 mg/m ³ (ECETOC TRA worker v3)	0.225
inhalation	local	Short term	660.7 mg/m ³ (ECETOC TRA worker v3)	0.45
dermal	systemic	Long-term	8.226 mg/kg bw/day (ECETOC TRA worker v3)	0.131
combined routes	systemic	Long-term	/	0.356

9.3.18. Worker exposure: Treatment of articles by dipping and pouring (PROC13)

Exposure routes	Health effect	Exposure indicator	Estimated exposure	RCR
inhalation	systemic	Long-term	38.54 mg/m ³ (ECETOC TRA worker v3)	0.053
inhalation	systemic	Short term	154.1 mg/m ³ (ECETOC TRA worker v3)	0.105
inhalation	local	Long-term	38.54 mg/m ³ (ECETOC TRA worker v3)	0.053
inhalation	local	Short term	154.1 mg/m ³ (ECETOC TRA worker v3)	0.105
dermal	systemic	Long-term	8.226 mg/kg bw/day (ECETOC TRA worker v3)	0.131
combined routes	systemic	Long-term	/	0.183

9.3.19. Worker exposure: Use as laboratory reagents (PROC15)

Exposure routes	Health effect	Exposure indicator	Estimated exposure	RCR
inhalation	systemic	Long-term	183.5 mg/m ³ (ECETOC TRA worker v3)	0.25
inhalation	systemic	Short term	734.2 mg/m ³ (ECETOC TRA worker v3)	0.5
inhalation	local	Long-term	183.5 mg/m ³ (ECETOC TRA worker v3)	0.25
inhalation	local	Short term	734.2 mg/m ³ (ECETOC TRA worker v3)	0.5
dermal	systemic	Long-term	0.34 mg/kg bw/day (ECETOC TRA worker v3)	< 0.01
combined routes	systemic	Long-term	/	0.255

9.3.20. Worker exposure: Hand-mixing with direct contact and only PPE available (PROC19)

Exposure routes	Health effect	Exposure indicator	Estimated exposure	RCR
inhalation	systemic	Long-term	330.3 mg/m ³ (ECETOC TRA worker v3)	0.45
inhalation	systemic	Short term	1.32 g/m ³ (ECETOC TRA worker v3)	0.9
inhalation	local	Long-term	330.3 mg/m ³ (ECETOC TRA worker v3)	0.45
inhalation	local	Short term	1.32 g/m ³ (ECETOC TRA worker v3)	0.9
dermal	systemic	Long-term	16.97 mg/kg bw/day (ECETOC TRA worker v3)	0.269
combined routes	systemic	Long-term	/	0.72

9.3.21. Worker exposure: Hand-mixing with direct contact and only PPE available (PROC19)

Exposure routes	Health effect	Exposure indicator	Estimated exposure	RCR
inhalation	systemic	Long-term	256.9 mg/m ³ (ECETOC TRA worker v3)	0.35
inhalation	systemic	Short term	mg/m ³ (ECETOC TRA worker v3)	0.7
inhalation	local	Long-term	256.9 mg/m ³ (ECETOC TRA worker v3)	0.35
inhalation	local	Short term	mg/m ³ (ECETOC TRA worker v3)	0.7
dermal	systemic	Long-term	5.657 mg/kg bw/day (ECETOC TRA worker v3)	0.09
combined routes	systemic	Long-term	/	0.44

9.4. GUIDANCE FOR DOWNSTREAM USERS TO ASSESS WHETHER THEY COMPLY WITH THE LIMITS SET BY THE EXPOSURE SCENARIO

Guidance to check compliance with the exposure scenario: <https://echa.europa.eu/>

ES 12: USE IN DETERGENT PRODUCTS (GEST4_I, GEST4_P, GEST4_C).

12.1. WIDE DISPERSIVE USE BY PROFESSIONAL WORKERS

Environment

SC 1: Wide dispersive use of non-reactive processing aid (no inclusion into the article, indoors) ERC8a

Worker

SC 2: Filling of equipment from drums and containers, specialised site PROC8b

SC 3: Automated process with (semi) closed systems; Use in closed systems PROC2

SC 4: Automated process with (semi) closed systems Drum/batch transfers, Use in closed systems PROC3

SC 5: Semi-automatic process (e.g: Semi-automatic application of floor care and maintenance products) PROC4

SC 6: Filling of equipment from drums and containers, Outdoor use PROC8a

SC 7: Immersion, dipping and pouring, Manual, Surfaces, Cleaning PROC13

SC 8: Cleaning with low-pressure washers, Roller application or brushing, No spraying PROC10

SC 9: Cleaning with high pressure washers, Spraying, Indoor use PROC11

SC 10: Cleaning with high pressure washers Spraying, Outdoor use PROC11

SC 11: Application of cleaning products in closed systems, Manual, Surfaces, Cleaning PROC10

SC 12: Ad hoc manual application via trigger sprays, partial dipping, etc., Roller application or brushing PROC10

SC 13: Application of cleaning products in closed systems, Outdoor use PROC4

SC 14: Cleaning of medical devices PROC4

12.2. CONDITIONS OF USE THAT AFFECT EXPOSURE

12.2.1 Environmental exposure control: Wide dispersive use of non-reactive processing aid (no inclusion into the article, indoors) (ERC8a)

Organizational and technical measures and conditions

A wastewater treatment plant is expected.

Conditions and measures for waste treatment (including the article of waste)

Waste treatment: Dispose of waste products or used containers according to local regulations.

12.2.2. Worker Exposure Control: Transfer of a substance or a mixture (charging/discharging) at dedicated facilities (PROC8b)

Product features (article)

Covers concentrations up to 25 %

Amount used (or contained in articles), frequency and duration of use/exposure

Frequency of use: Covers use up to 8 h/day

Organizational and technical measures and conditions

Provide a good standard of general ventilation (from 5 to 10 air changes per hour).

Other conditions affecting worker exposure

Indoor and outdoor use: Indoor use

Temperature: Process temperature up to 40°C is assumed

12.2.3. Worker Exposure Control: Chemical production or refinery in closed process with occasional controlled exposure or processes with equivalent containment conditions (PROC2)

Product features (article)

Covers concentrations up to 25 %

Amount used (or contained in articles), frequency and duration of use/exposure

Frequency of use: Covers use up to 8 h/day

Organizational and technical measures and conditions

Provide a basic level of general ventilation (1 to 3 air changes per hour).

Other conditions affecting worker exposure

Indoor and outdoor use: Indoor use

Temperature: Process temperature up to 40°C is assumed

12.2.4. Worker Exposure Control: Chemical production or formulation in closed batch processes, with occasional controlled exposure or processes with equivalent containment conditions (PROC3)

Product features (article)

Covers concentrations up to 25 %

Amount used (or contained in articles), frequency and duration of use/exposure

Frequency of use: Covers use up to 8 h/day

Organizational and technical measures and conditions

Provide a basic level of general ventilation (1 to 3 air changes per hour).

Other conditions affecting worker exposure

Indoor and outdoor use: Indoor use

Temperature: Process temperature up to 40°C is assumed

12.2.5. Worker Exposure Control: Production of chemicals with the possibility of exposure (PROC4)

Product features (article)

Covers concentrations up to 25 %

Amount used (or contained in articles), frequency and duration of use/exposure

Frequency of use: Covers use up to 8 h/day

Organizational and technical measures and conditions

Provide a good standard of general ventilation (from 5 to 10 air changes per hour).

Other conditions affecting worker exposure

Indoor and outdoor use: Indoor use

Temperature: Process temperature up to 40°C is assumed

12.2.6. Worker Exposure Control: Transfer of a substance or a preparation (filling/emptying) at non-dedicated facilities (PROC8a)

Product features (article)

Covers concentrations up to 25 %

Amount used (or contained in articles), frequency and duration of use/exposure

Frequency of use: Covers use up to 8 h/day

Conditions and measures for personal protection, hygiene and health assessment

Wear suitable respirator.

For more information, refer to Section 8 of the SDS (safety data sheet).

Inhalation - minimum yield of 90%

Other conditions affecting worker exposure

Indoor and outdoor use: Outdoor use

Temperature: Process temperature up to 40°C is assumed

12.2.7. Worker Exposure Control: Treatment of articles by dipping and pouring (PROC13)

Product features (article)

Covers concentrations up to 25 %

Amount used (or contained in articles), frequency and duration of use/exposure

Frequency of use: Covers use up to 8 h/day

Organizational and technical measures and conditions

Provide a good standard of general ventilation (from 5 to 10 air changes per hour).

Other conditions affecting worker exposure

Indoor and outdoor use: Indoor use

Temperature: Process temperature up to 40°C is assumed

12.2.8. Worker Exposure Control: Application with rollers or brushes (PROC10)

Product features (article)

Covers concentrations up to 25 %

Amount used (or contained in articles), frequency and duration of use/exposure

Frequency of use: Covers use up to 8 h/day

Organizational and technical measures and conditions

Provide a good standard of general ventilation (from 5 to 10 air changes per hour).

Other conditions affecting worker exposure

Indoor and outdoor use: Indoor use

Temperature: Process temperature up to 40°C is assumed

12.2.9. Worker Exposure Control: Non-industrial spray application (PROC11)

Product features (article)

Covers concentrations up to 5 %

Amount used (or contained in articles), frequency and duration of use/exposure

Frequency of use: Covers use up to 8 h/day

Organizational and technical measures and conditions

Provide a good standard of general ventilation (from 5 to 10 air changes per hour).

Other conditions affecting worker exposure

Indoor and outdoor use: Indoor use

Temperature: Process temperature up to 40°C is assumed

12.2.10. Worker Exposure Control: Non-industrial spray application (PROC11)

Product features (article)

Covers concentrations up to 1%

Amount used (or contained in articles), frequency and duration of use/exposure

Frequency of use: Covers use up to 8 h/day

Conditions and measures for personal protection, hygiene and health assessment

Wear suitable gloves tested to EN374.

If skin contamination is expected to extend to other parts of the body, these parts should also be protected with impermeable clothing equivalent to that described for the hands.

For more information, refer to Section 8 of the SDS (safety data sheet).

Other conditions affecting worker exposure

Indoor and outdoor use: Outdoor use

Temperature: Process temperature up to 40°C is assumed

12.2.11. Worker Exposure Control: Application with rollers or brushes (PROC10)

Product features (article)

Covers concentrations up to 5 %

Amount used (or contained in articles), frequency and duration of use/exposure

Frequency of use: Covers use up to 8 h/day

Organizational and technical measures and conditions

Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

Other conditions affecting worker exposure

Indoor and outdoor use: Indoor use

Temperature: Process temperature up to 40°C is assumed

5.2.12. Worker Exposure Control: Application with rollers or brushes (PROC10)

Product features (article)

Covers concentrations up to 25 %

Amount used (or contained in articles), frequency and duration of use/exposure

Frequency of use: Covers use up to 8 h/day

Organizational and technical measures and conditions

Local exhaust ventilation

Inhalation - minimum yield of 80%

Provide a basic level of general ventilation (1 to 3 air changes per hour).

Other conditions affecting worker exposure

Indoor and outdoor use: Indoor use

Temperature: Process temperature up to 40°C is assumed

12.2.13. Worker Exposure Control: Production of chemicals with the possibility of exposure (PROC4)

Product features (article)

Covers concentrations up to 25 %

Amount used (or contained in articles), frequency and duration of use/exposure

Frequency of use: Covers use up to 8 h/day

Conditions and measures for personal protection, hygiene and health assessment

Wear suitable respirator.

For more information, refer to Section 8 of the SDS (safety data sheet).

Inhalation - minimum yield of 90%

Other conditions affecting worker exposure

Indoor and outdoor use: Outdoor use

Temperature: Process temperature up to 40°C is assumed

12.2.14. Worker Exposure Control: Production of chemicals with the possibility of exposure (PROC4)

Product features (article)

Covers concentrations up to 25 %

Amount used (or contained in articles), frequency and duration of use/exposure

Frequency of use: Covers use up to 8 h/day

Organizational and technical measures and conditions

Local exhaust ventilation

Inhalation - minimum yield of 80%

Provide a basic level of general ventilation (1 to 3 air changes per hour).

Other conditions affecting worker exposure

Indoor and outdoor use: Indoor use

Temperature: Process temperature up to 40°C is assumed

12.3. EXPOSURE ESTIMATION AND REFERENCE TO ITS SOURCE

12.3.1. Environmental release and exposure: Wide dispersive use of non-reactive processing aid (no inclusion into the article, indoors) (ERC8a)

Route release	Release rate	Method for estimating for release
water	0.014 kg/day	Environmental Release Category (ERC)
air	0.014 kg/day	Environmental Release Category (ERC)
Soil	0 kg/day	Environmental Release Category (ERC)

Protection target	Estimated exposure	RCR
Fresh water	0.000397 mg/l (EUSES v2.1)	< 0.01
freshwater sediments	0.00237 mg/kg dry weight (EUSES v2.1)	< 0.01
Sea water	0.000598 mg/l (EUSES v2.1)	< 0.01
Marine sediment	0.000357 mg/kg dry weight (EUSES v2.1)	< 0.01
Sewage treatment plant	0.000811 mg/l (EUSES v2.1)	< 0.01
Farmland	0.000131 mg/kg dry weight (EUSES v2.1)	< 0.01
Prey for predators (freshwater)	0.011 mg/kg dry weight (EUSES v2.1)	< 0.01
Prey for predators (marine water)	0.00167 mg/kg dry weight (EUSES v2.1)	< 0.01
Main predator prey (marine water)	0.00158 mg/kg dry weight (EUSES v2.1)	< 0.01
Prey for Predators (Terrestrial)	0.000114 mg/kg dry weight (EUSES v2.1)	< 0.01

12.3.2. Worker exposure: Transfer of a substance or a mixture (charging/discharging) at dedicated facilities (PROC8b)

Exposure routes	Health effect	Exposure indicator	Estimated exposure	RCR
inhalation	systemic	Long-term	165.1 mg/m ³ (ECETOC TRA worker v3)	0.225
inhalation	systemic	Short term	660.7 mg/m ³ (ECETOC TRA worker v3)	0.45
inhalation	local	Long-term	165.1 mg/m ³ (ECETOC TRA worker v3)	0.225
inhalation	local	Short term	660.7 mg/m ³ (ECETOC TRA worker v3)	0.45
dermal	systemic	Long-term	8.226 mg/kg bw/day (ECETOC TRA worker v3)	0.131
combined routes	systemic	Long-term	/	0.356

12.3.3. Worker exposure: Chemical production or refinery in closed process with occasional controlled exposure or processes with equivalent containment conditions (PROC2)

Exposure routes	Health effect	Exposure indicator	Estimated exposure	RCR
inhalation	systemic	Long-term	110.1 mg/m ³ (ECETOC TRA worker v3)	0.15
inhalation	local	Long-term	110.1 mg/m ³ (ECETOC TRA worker v3)	0.15
inhalation	local	Short term	440.5 mg/m ³ (ECETOC TRA worker v3)	0.3
inhalation	systemic	Short term	440.5 mg/m ³ (ECETOC TRA worker v3)	0.3
dermal	systemic	Long-term	0.822 mg/kg bw/day (ECETOC TRA worker v3)	0.013
combined routes	systemic	Long-term	/	0.163

12.3.4. Worker exposure: Chemical production or formulation in closed batch processes, with occasional controlled exposure or processes with equivalent containment conditions (PROC3)

Exposure routes	Health effect	Exposure indicator	Estimated exposure	RCR
inhalation	systemic	Long-term	220.2 mg/m ³ (ECETOC TRA worker v3)	0.3
inhalation	systemic	Short term	881.0 mg/m ³ (ECETOC TRA worker v3)	0.6
inhalation	local	Long-term	220.2 mg/m ³ (ECETOC TRA worker v3)	0.3
inhalation	local	Short term	881.0 mg/m ³ (ECETOC TRA worker v3)	0.6
dermal	systemic	Long-term	0.414 mg/kg bw/day (ECETOC TRA worker v3)	< 0.01
combined routes	systemic	Long-term	/	0.307

12.3.5. Worker exposure: Production of chemicals with the possibility of exposure (PROC4)

Exposure routes	Health effect	Exposure indicator	Estimated exposure	RCR
inhalation	systemic	Long-term	165.1 mg/m ³ (ECETOC TRA worker v3)	0.225
inhalation	systemic	Short term	660.7 mg/m ³ (ECETOC TRA worker v3)	0.45
inhalation	local	Long-term	165.1 mg/m ³ (ECETOC TRA worker v3)	0.225
inhalation	local	Short term	660.7 mg/m ³ (ECETOC TRA worker v3)	0.45
dermal	systemic	Long-term	4.116 mg/kg bw/day (ECETOC TRA worker v3)	0.065
combined routes	systemic	Long-term	/	0.29

12.3.6. Worker exposure: Transfer of a substance or a preparation (filling/emptying) at non-dedicated facilities (PROC8a)

Exposure routes	Health effect	Exposure indicator	Estimated exposure	RCR
inhalation	systemic	Long-term	77.09 mg/m ³ (ECETOC TRA worker v3)	0.105
inhalation	systemic	Short term	308.3 mg/m ³ (ECETOC TRA worker v3)	0.21
inhalation	local	Long-term	77.09 mg/m ³ (ECETOC TRA worker v3)	0.105
inhalation	local	Short term	308.3 mg/m ³ (ECETOC TRA worker v3)	0.21
dermal	systemic	Long-term	8.226 mg/kg bw/day (ECETOC TRA worker v3)	0.131
combined routes	systemic	Long-term	/	0.236

12.3.7. Worker exposure: Treatment of articles by dipping and pouring (PROC13)

Exposure routes	Health effect	Exposure indicator	Estimated exposure	RCR
inhalation	systemic	Long-term	165.1 mg/m ³ (ECETOC TRA worker v3)	0.225
inhalation	systemic	Short term	660.7 mg/m ³ (ECETOC TRA worker v3)	0.45
inhalation	local	Long-term	165.1 mg/m ³ (ECETOC TRA worker v3)	0.225
inhalation	local	Short term	660.7 mg/m ³ (ECETOC TRA worker v3)	0.45
dermal	systemic	Long-term	8.226 mg/kg bw/day (ECETOC TRA worker v3)	0.131
combined routes	systemic	Long-term	/	0.356

12.3.8. Worker exposure: Application with rollers or brushes (PROC10)

Exposure routes	Health effect	Exposure indicator	Estimated exposure	RCR
inhalation	systemic	Long-term	330.3 mg/m ³ (ECETOC TRA worker v3)	0.45
inhalation	systemic	Short term	mg/m ³ (ECETOC TRA worker v3)	0.9
inhalation	local	Long-term	330.3 mg/m ³ (ECETOC TRA worker v3)	0.45
inhalation	local	Short term	mg/m ³ (ECETOC TRA worker v3)	0.9
dermal	systemic	Long-term	16.45 mg/kg bw/day (ECETOC TRA worker v3)	0.261
combined routes	systemic	Long-term	/	0.711

12.3.9. Worker exposure: Non-industrial spray application (PROC11)

Exposure routes	Health effect	Exposure indicator	Estimated exposure	RCR
inhalation	systemic	Long-term	220.2 mg/m ³ (ECETOC TRA worker v3)	0.3
inhalation	systemic	Short term	881.0 mg/m ³ (ECETOC TRA worker v3)	0.6
inhalation	local	Long-term	220.2 mg/m ³ (ECETOC TRA worker v3)	0.3
inhalation	local	Short term	881.0 mg/m ³ (ECETOC TRA worker v3)	0.6
dermal	systemic	Long-term	21.42 mg/kg bw/day (ECETOC TRA worker v3)	0.34
combined routes	systemic	Long-term	/	0.64

12.3.10. Worker exposure: Non-industrial spray application (PROC11)

Exposure routes	Health effect	Exposure indicator	Estimated exposure	RCR
inhalation	systemic	Long-term	256.9 mg/m ³ (ECETOC TRA worker v3)	0.35
inhalation	systemic	Short term	1.03 g/m ³ (ECETOC TRA worker v3)	0.7
inhalation	local	Long-term	256.9 mg/m ³ (ECETOC TRA worker v3)	0.35
inhalation	local	Short term	1.03 g/m ³ (ECETOC TRA worker v3)	0.7
dermal	systemic	Long-term	2.143 mg/kg bw/day (ECETOC TRA worker v3)	0.034
combined routes	systemic	Long-term	/	0.384

12.3.11. Worker exposure: Application with rollers or brushes (PROC10)

Exposure routes	Health effect	Exposure indicator	Estimated exposure	RCR
inhalation	systemic	Long-term	256.9 mg/m ³ (ECETOC TRA worker v3)	0.35
inhalation	systemic	Short term	1.03 g/m ³ (ECETOC TRA worker v3)	0.7
inhalation	local	Long-term	256.9 mg/m ³ (ECETOC TRA worker v3)	0.35
inhalation	local	Short term	1.03 g/m ³ (ECETOC TRA worker v3)	0.7
dermal	systemic	Long-term	5.486 mg/kg bw/day (ECETOC TRA worker v3)	0.087
combined routes	systemic	Long-term	/	0.437

12.3.12. Worker exposure: Application with rollers or brushes (PROC10)

Exposure routes	Health effect	Exposure indicator	Estimated exposure	RCR
inhalation	systemic	Long-term	220.2 mg/m ³ (ECETOC TRA worker v3)	0.3
inhalation	systemic	Short term	881.0 mg/m ³ (ECETOC TRA worker v3)	0.6
inhalation	local	Long-term	220.2 mg/m ³ (ECETOC TRA worker v3)	0.3
inhalation	local	Short term	881.0 mg/m ³ (ECETOC TRA worker v3)	0.6
dermal	systemic	Long-term	16.45 mg/kg bw/day (ECETOC TRA worker v3)	0.261
combined routes	systemic	Long-term	/	0.561

12.3.13. Worker exposure: Production of chemicals with the possibility of exposure (PROC4)

Exposure routes	Health effect	Exposure indicator	Estimated exposure	RCR
inhalation	systemic	Long-term	38.54 mg/m ³ (ECETOC TRA worker v3)	0.053
inhalation	systemic	Short term	154.1 mg/m ³ (ECETOC TRA worker v3)	0.105
inhalation	local	Long-term	38.54 mg/m ³ (ECETOC TRA worker v3)	0.053
inhalation	local	Short term	154.1 mg/m ³ (ECETOC TRA worker v3)	0.105
dermal	systemic	Long-term	4.116 mg/kg bw/day (ECETOC TRA worker v3)	0.065
combined routes	systemic	Long-term	/	0.118

12.3.14. Worker exposure: Production of chemicals with the possibility of exposure (PROC4)

Exposure routes	Health effect	Exposure indicator	Estimated exposure	RCR
inhalation	systemic	Long-term	110.1 mg/m ³ (ECETOC TRA worker v3)	0.15
inhalation	systemic	Short term	440.5 mg/m ³ (ECETOC TRA worker v3)	0.3
inhalation	local	Long-term	110.1 mg/m ³ (ECETOC TRA worker v3)	0.15
inhalation	local	Short term	440.5 mg/m ³ (ECETOC TRA worker v3)	0.3
dermal	systemic	Long-term	4.116 mg/kg bw/day (ECETOC TRA worker v3)	0.065
combined routes	systemic	Long-term	/	0.215

12.4. GUIDANCE FOR DOWNSTREAM USERS TO ASSESS WHETHER THEY COMPLY WITH THE LIMITS SET BY THE EXPOSURE SCENARIO

Guidance to check compliance with the exposure scenario: <https://echa.europa.eu/>

n-butyl acetate

Substance identification

Chemical Name: n-butyl acetate

CAS number: 123-86-4

Date - Version: 07/06/2017 10.0

1. USE IN COATINGS. USE IN PAINTS. USE IN PRINTING INKS. USE IN ADHESIVES.

Short title of the exposure scenario: Use in coatings. Use in paints. Use in printing inks. Use in adhesives.

SU3; ERC4; PROC7, PROC10, PROC13

EXPOSURE CONTROL AND RISK MANAGEMENT MEASURES

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: CEPE SPERC4.1a.v1

Operating conditions

Yearly amount used in EU: 5,000,000 kgs

Minimum emission days per year: 225

Emission factor to air: 0.8%

Emission factor in water: 2%

Emission factor in soil: 0%

Receiving surface water (flow rate): 18,000 m³/day

Freshwater dilution factor: 10

Marine water dilution factor: 100

Risk management measures

Suitable measures to reduce emissions to air can be: Exhaust gas treatment with thermal oxidation.

Type of treatment plant: Municipal sewage treatment plant.

Assumed sewage treatment plant flow: 2,000 m³/day

Exposure estimation and reference to its source

Evaluation method: EASY TRA v4.1, ECETOC TRA v3.0, Environment

Risk Characterization Ratio (RCR): 0.925355

Risk from environmental exposure is driven by soil.

Maximum safe use amount: 1080.7 kg/day

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC7: Industrial spray application

Area of use: Industrial

Operating conditions

Substance concentration: n-butyl acetate content: ≥0 - ≤100%

Physical state: liquid

Vapor pressure of the substance during use: 1120Pa

Process temperature: 20°C

Duration and frequency of application: 480 mins. 5 days a week

Indoor/Outdoor: Internal use

Risk management measures

Wear chemically resistant gloves in combination with "basic" employee training. Effectiveness: 90%

Minimize manual tasks.

Daily general cleaning of equipment and work area.

Regular inspection and maintenance of equipment and machinery.

Ensure that the activity is performed outside the operator's respiratory zone (head-product distance greater than 1m).

Avoid frequent and direct contact with the substance.

Check that risk reduction measures are implemented and that the conditions of use are respected.

Avoid splashes.

Make sure the spray booth is used.

Wear suitable clothing.

Exposure estimation and reference to its source

Evaluation method: EASY TRA v4.1, ECETOC TRA v3.0, Worker. Worker - dermal, long-term - systemic.

Exposure estimation: 4.2857 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.38961

Evaluation method: EASY TRA v4.1, ECETOC TRA v3.0, Worker. Operator - inhalation, long-term - local.

Exposure estimation: 0.0001 mg/m³

Risk Characterization Ratio (RCR): 0.000001

Guidance for downstream users

For a comparison term, visit <http://www.ecetoc.org/tra> Please note that a revised version was used (see exposure estimates).

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC10: Application with rollers or brushes

Area of use: Industrial

Operating conditions

Substance concentration: n-butyl acetate content: ≥ 0 - $\leq 100\%$

Physical state: liquid

Vapor pressure of the substance during use: 1120Pa

Process temperature: 20°C

Duration and frequency of application: 480 mins. 5 days a week

Indoor/Outdoor: Internal use

Risk management measures

Forced local ventilation. Effectiveness: 90%

Wear chemically resistant gloves in combination with "basic" employee training. Effectiveness: 90%

Exposure estimation and reference to its source

Evaluation method: EASY TRA v4.1, ECETOC TRA v3.0, Worker. Worker - dermal, long-term - systemic.

Exposure estimation: 2.7429 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.249351

Evaluation method: EASY TRA v4.1, ECETOC TRA v3.0, Worker. Operator - inhalation, long-term - local.

Exposure estimation: 24.1996 mg/m³

Risk Characterization Ratio (RCR): 0.080665

Guidance for downstream users

For a comparison term, visit <http://www.ecetoc.org/tra>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC13: Treatment of articles by dipping and pouring

Area of use: Industrial

Operating conditions

Substance concentration: n-butyl acetate content: ≥ 0 - $\leq 100\%$

Physical state: liquid

Vapor pressure of the substance during use: 1120Pa

Process temperature: 20°C

Duration and frequency of application: 480 mins. 5 days a week

Indoor/Outdoor: Internal use

Risk management measures

Forced local ventilation. Effectiveness: 90%

Wear chemically resistant gloves in combination with "basic" employee training. Effectiveness: 90%

Exposure estimation and reference to its source

Evaluation method: EASY TRA v4.1, ECETOC TRA v3.0, Worker. Worker - dermal, long-term - systemic.

Exposure estimation: 1.3714 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.124675

Evaluation method: EASY TRA v4.1, ECETOC TRA v3.0, Worker. Operator - inhalation, long-term - local.

Exposure estimation: 24.1996 mg/m³

Risk Characterization Ratio (RCR): 0.080665

Guidance for downstream users

For a comparison term, visit <http://www.ecetoc.org/tra>

2. USE IN COATINGS. USE IN PAINTS. USE IN PRINTING INKS. USE IN ADHESIVES.

Short title of the exposure scenario: Use in coatings. Use in paints. Use in printing inks. Use in adhesives.
SU3; ERC4; PROC7, PROC10, PROC13

EXPOSURE CONTROL AND RISK MANAGEMENT MEASURES

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: CEPE SPERC4.1a.v1

Operating conditions

Yearly amount used in EU: 43,000,000 kgs

Minimum emission days per year: 225

Emission factor to air: 0.8%

Emission factor in water: 2%

Emission factor in soil: 0%

Receiving surface water (flow rate): 18,000 m³/day

Freshwater dilution factor: 10

Marine water dilution factor: 100

Risk management measures

Suitable measures to reduce emissions to air can be: Exhaust gas treatment with thermal oxidation.

Type of treatment plant: Municipal sewage treatment plant.

Assumed sewage treatment plant flow: 2,000 m³/day

Exposure estimation and reference to its source

Evaluation method: EASY TRA v4.1, ECETOC TRA v3.0, Environment

Risk Characterization Ratio (RCR): 0.925355

Risk from environmental exposure is driven by soil.

Maximum safe use amount: 1080.7 kg/day

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC7: Industrial spray application

Area of use: Industrial

Operating conditions

Substance concentration: n-butyl acetate content: ≥0 - ≤100%

Physical state: liquid

Vapor pressure of the substance during use: 1120Pa

Process temperature: 20°C

Duration and frequency of application: 480 mins. 5 days a week

Indoor/Outdoor: Internal use

Risk management measures

Wear chemically resistant gloves in combination with "basic" employee training. Effectiveness: 90%

Minimize manual tasks.

Daily general cleaning of equipment and work area.

Regular inspection and maintenance of equipment and machinery.

Ensure that the activity is performed outside the operator's respiratory zone (head-product distance greater than 1m).

Avoid frequent and direct contact with the substance.

Check that risk reduction measures are implemented and that the conditions of use are respected.

Avoid splashes.

Make sure the spray booth is used.

Wear suitable clothing.

Exposure estimation and reference to its source

Evaluation method: EASY TRA v4.1, ECETOC TRA v3.0, Worker. Worker - dermal, long-term - systemic.

Exposure estimation: 4.2857 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.38961

Evaluation method: EASY TRA v4.1, ECETOC TRA v3.0, Worker. Operator - inhalation, long-term - local.
Exposure estimation: 0.0001 mg/m³
Risk Characterization Ratio (RCR): 0.000001

Guidance for downstream users

For a comparison term, visit <http://www.ecetoc.org/tra> Please note that a revised version was used (see exposure estimates).

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC10: Application with rollers or brushes

Area of use: Industrial

Operating conditions

Substance concentration: n-butyl acetate content: ≥0 - ≤100%

Physical state: liquid

Vapor pressure of the substance during use: 1120Pa

Process temperature: 20°C

Duration and frequency of application: 480 mins. 5 days a week

Indoor/Outdoor: Internal use

Risk management measures

Forced local ventilation. Effectiveness: 90%

Wear chemically resistant gloves in combination with "basic" employee training. Effectiveness: 90%

Exposure estimation and reference to its source

Evaluation method: EASY TRA v4.1, ECETOC TRA v3.0, Worker. Worker - dermal, long-term - systemic.

Exposure estimation: 2.7429 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.249351

Evaluation method: EASY TRA v4.1, ECETOC TRA v3.0, Worker. Operator - inhalation, long-term - local.

Exposure estimation: 24.1996 mg/m³

Risk Characterization Ratio (RCR): 0.080665

Guidance for downstream users

For a comparison term, visit <http://www.ecetoc.org/tra>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC13: Treatment of articles by dipping and pouring

Area of use: Industrial

Operating conditions

Substance concentration: n-butyl acetate content: ≥0 - ≤100%

Physical state: liquid

Vapor pressure of the substance during use: 1120Pa

Process temperature: 20°C

Duration and frequency of application: 480 mins. 5 days a week

Indoor/Outdoor: Internal use

Risk management measures

Forced local ventilation. Effectiveness: 90%

Wear chemically resistant gloves in combination with "basic" employee training. Effectiveness: 90%

Exposure estimation and reference to its source

Evaluation method: EASY TRA v4.1, ECETOC TRA v3.0, Worker. Worker - dermal, long-term - systemic.

Exposure estimation: 1.3714 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.124675

Evaluation method: EASY TRA v4.1, ECETOC TRA v3.0, Worker. Operator - inhalation, long-term - local.

Exposure estimation: 24.1996 mg/m³

Risk Characterization Ratio (RCR): 0.080665

Guidance for downstream users

For a comparison term, visit <http://www.ecetoc.org/tra>

3. USE IN COATINGS. USE IN PAINTS. USE IN PRINTING INKS. USE IN ADHESIVES.

Short title of the exposure scenario: Use in coatings. Use in paints. Use in printing inks. Use in adhesives.
SU22; ERC8a, ERC8d; PROC10, PROC11, PROC13, PROC19

EXPOSURE CONTROL AND RISK MANAGEMENT MEASURES

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: CEPE SPERC 8a.2a.v1

Operating conditions

Yearly amount used in EU: 2,000,000 kgs

Minimum emission days per year: 225

Emission factor to air: 99%

Emission factor in water: 1%

Emission factor in soil: 0%

Receiving surface water (flow rate): 18,000 m³/day

Freshwater dilution factor: 10

Marine water dilution factor: 100

Risk management measures

The wastewater treatment measures considered suitable are, for example, wastewater or sewage treatment plant.

Type of treatment plant: Municipal sewage treatment plant.

Assumed sewage treatment plant flow: 2,000 m³/day

Exposure estimation and reference to its source

Evaluation method: EASY TRA v4.1, ECETOC TRA v3.0, Environment

Risk Characterization Ratio (RCR): 0.012923

Risk from environmental exposure is driven by freshwater sediment.

Maximum safe use amount: 1934.6 kg/giorno

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: CEPE SPERC 8d.3a.v1

Operating conditions

Yearly amount used in EU: 2,000,000 kgs

Minimum emission days per year: 225

Emission factor to air: 98%

Emission factor in water: 2%

Emission factor in soil: 0%

Receiving surface water (flow rate): 18,000 m³/day

Freshwater dilution factor: 10

Marine water dilution factor: 100

Risk management measures

Type of treatment plant: Municipal sewage treatment plant.

Assumed sewage treatment plant flow: 2,000 m³/day

Exposure estimation and reference to its source

Evaluation method: EASY TRA v4.1, ECETOC TRA v3.0, Environment

Risk Characterization Ratio (RCR): 0.092422

Risk from environmental exposure is driven by soil.

Maximum safe use amount: 1082 kg/day

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC10: Application with rollers or brushes

Area of use: Professional

Operating conditions

Substance concentration: n-butyl acetate content: ≥ 0 - $\leq 100\%$

Physical state: liquid

Vapor pressure of the substance during use: 1120Pa

Process temperature: 20°C

Duration and frequency of application: 480 mins. 5 days a week

Indoor/Outdoor: Internal use

Risk management measures

Provide a good standard of general or controlled ventilation (5 to 10 air changes per hour). Effectiveness: 70%

Wear chemically resistant gloves in combination with "basic" employee training. Effectiveness: 90%

Exposure estimation and reference to its source

Evaluation method: EASY TRA v4.1, ECETOC TRA v3.0, Worker. Worker - dermal, long-term - systemic.

Exposure estimation: 2.7429 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.249351

Evaluation method: EASY TRA v4.1, ECETOC TRA v3.0, Worker. Operator - inhalation, long-term - local.

Exposure estimation: 145.1979 mg/m³

Risk Characterization Ratio (RCR): 0.483993

Guidance for downstream users

For a comparison term, visit <http://www.ecetoc.org/tra>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC11: Non-industrial spray application

Area of use: Professional

Operating conditions

Substance concentration: n-butyl acetate content: ≥ 0 - $\leq 45\%$

Physical state: liquid

Vapor pressure of the substance during use: 1120Pa

Process temperature: 20°C

Duration and frequency of application: 480 mins. 5 days a week

Indoor/Outdoor: Internal use

Risk management measures

Wear chemically resistant gloves in combination with "basic" employee training. Effectiveness: 90%

Minimize manual tasks.

Daily general cleaning of equipment and work area.

Regular inspection and maintenance of equipment and machinery.

Ensure that the activity is performed outside the operator's respiratory zone (head-product distance greater than 1m).

Avoid frequent and direct contact with the substance.

Check that risk reduction measures are implemented and that the conditions of use are respected.

Avoid splashes.

Make sure the spray booth is used.

Wear suitable clothing.

Exposure estimation and reference to its source

Evaluation method: EASY TRA v4.1, ECETOC TRA v3.0, Worker. Worker - dermal, long-term - systemic.

Exposure estimation: 10.7143 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.974026

Evaluation method: EASY TRA v4.1, ECETOC TRA v3.0, Worker. Operator - inhalation, long-term - local.

Exposure estimation: 0.0001 mg/m³

Risk Characterization Ratio (RCR): 0.000001

Guidance for downstream users

For a comparison term, visit <http://www.ecetoc.org/tra> Please note that a revised version was used (see exposure estimates).

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC11: Non-industrial spray application

Area of use: Professional

Operating conditions

Substance concentration: n-butyl acetate content: ≥ 0 - $\leq 45\%$

Physical state: liquid

Vapor pressure of the substance during use: 1120Pa

Process temperature: 20°C

Duration and frequency of application: 480 mins. 5 days a week

Indoor/Outdoor: Internal use

Risk management measures

Wear chemically resistant gloves in combination with "basic" employee training. Effectiveness: 90%

Minimize manual tasks.

Avoid frequent and direct contact with the substance.

Check that risk reduction measures are implemented and that the conditions of use are respected.

Daily general cleaning of equipment and work area.

Regular control and maintenance of equipment and machinery.

Make sure doors and windows are open (general ventilation).

Avoid splashes.

Use an adequately effective local ventilation system.

Wear suitable clothing.

Exposure estimation and reference to its source

Evaluation method: EASY TRA v4.1, ECETOC TRA v3.0, Worker, modified version. The concentration of the substance has been considered using a linear approach. Worker - dermal, long-term - systemic.

Exposure estimation: 4.8214 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.438312

Evaluation method: EASY TRA v4.1, ECETOC TRA v3.0, Worker, modified version. Operator - inhalation, long-term - local.

Exposure estimation: 153 mg/m³

Risk Characterization Ratio (RCR): 0.51

Guidance for downstream users

For a comparison term, visit <http://www.ecetoc.org/tra> Please note that a revised version was used (see exposure estimates).

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC11: Non-industrial spray application

Area of use: Professional

Operating conditions

Substance concentration: n-butyl acetate content: ≥ 0 - $\leq 100\%$

Physical state: liquid

Vapor pressure of the substance during use: 1120Pa

Process temperature: 20°C

Duration and frequency of application: 480 mins. 5 days a week

Indoor/Outdoor: Internal use

Risk management measures

Wear chemically resistant gloves in combination with "basic" employee training. Effectiveness: 90%

Minimize manual tasks.

Avoid frequent and direct contact with the substance.

Check that risk reduction measures are implemented and that the conditions of use are respected.

Daily general cleaning of equipment and work area.

Regular inspection and maintenance of equipment and machinery.

Avoid splashes.

Make sure doors and windows are open (general ventilation).

Wear a half face mask with a P2L filter or better.

Wear suitable clothing.

Exposure estimation and reference to its source

Evaluation method: EASY TRA v4.1, ECETOC TRA v3.0, Worker, modified version. The concentration of the substance has been considered using a linear approach. Worker - dermal, long-term - systemic.

Exposure estimation: 4.8214 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.438312

Evaluation method: EASY TRA v4.1, ECETOC TRA v3.0, Worker, modified version. Operator - inhalation, long-term - local.

Exposure estimation: 116 mg/m³

Risk Characterization Ratio (RCR): 0.386667

Guidance for downstream users

For a comparison term, visit <http://www.ecetoc.org/tra> Please note that a revised version was used (see exposure estimates).

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC13: Treatment of articles by dipping and pouring

Area of use: Professional

Operating conditions

Substance concentration: n-butyl acetate content: ≥ 0 - $\leq 100\%$

Physical state: liquid

Vapor pressure of the substance during use: 1120Pa

Process temperature: 20°C

Duration and frequency of application: 480 mins. 5 days a week

Indoor/Outdoor: Internal use

Risk management measures

Provide a good standard of general or controlled ventilation (5 to 10 air changes per hour). Effectiveness: 70%

Wear chemically resistant gloves in combination with "basic" employee training. Effectiveness: 90%

Exposure estimation and reference to its source

Evaluation method: EASY TRA v4.1, ECETOC TRA v3.0, Worker. Worker - dermal, long-term - systemic.

Exposure estimation: 1.3714 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.124675

Evaluation method: EASY TRA v4.1, ECETOC TRA v3.0, Worker. Operator - inhalation, long-term - local.

Exposure estimation: 145.1979 mg/m³

Risk Characterization Ratio (RCR): 0.483993

Guidance for downstream users

For a comparison term, visit <http://www.ecetoc.org/tra>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC19: Manual mixing with direct contact with the only use of personal protective equipment

Area of use: Professional

Operating conditions

Substance concentration: n-butyl acetate content: ≥ 0 - $\leq 100\%$

Physical state: liquid

Vapor pressure of the substance during use: 1120Pa

Process temperature: 20°C

Duration and frequency of application: 240 mins. 5 days a week

Indoor/Outdoor: Internal use

Risk management measures

Forced local ventilation: Effectiveness: 80%

Wear chemically resistant gloves in combination with "basic" employee training. Effectiveness: 90%

Ensure a good standard of general or controlled ventilation (no less than 3-5 air changes per hour). Effectiveness: 30%

Exposure estimation and reference to its source

Evaluation method: EASY TRA v4.1, ECETOC TRA v3.0, Worker. Worker - dermal, long-term - systemic.

Exposure estimation: 8.4857 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.771429

Evaluation method: EASY TRA v4.1, ECETOC TRA v3.0, Worker. Operator - inhalation, long-term - local.

Exposure estimation: 67.759 mg/m³

Risk Characterization Ratio (RCR): 0.225863

Guidance for downstream users

For a comparison term, visit <http://www.ecetoc.org/tra>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC19: Manual mixing with direct contact with the only use of personal protective equipment

Area of use: Professional

Operating conditions

Substance concentration: n-butyl acetate content: ≥ 0 - $\leq 100\%$

Physical state: liquid

Vapor pressure of the substance during use: 1120Pa

Process temperature: 20°C

Duration and frequency of application: 60 mins. 5 days a week

Indoor/Outdoor: Internal use

Risk management measures

Provide a good standard of general or controlled ventilation (5 to 10 air changes per hour). Effectiveness: 70%

Wear chemically resistant gloves in combination with "basic" employee training. Effectiveness: 90%

Exposure estimation and reference to its source

Evaluation method: EASY TRA v4.1, ECETOC TRA v3.0, Worker. Worker - dermal, long-term - systemic.

Exposure estimation: 2.8286 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.257143

Evaluation method: EASY TRA v4.1, ECETOC TRA v3.0, Worker. Operator - inhalation, long-term - local.

Exposure estimation: 145.1979 mg/m³

Risk Characterization Ratio (RCR): 0.483993

Guidance for downstream users

For a comparison term, visit <http://www.ecetoc.org/tra>

Reaction mass of ethylbenzene and m-xylene and p-xylene

Substance identification

Chemical Name: Reaction mass of ethylbenzene and m-xylene and p-xylene

EC number: 905-562-9

Date - Version: 24/05/2019

Identified use	Process category (PROC)	Product Category (PC)	Sector of use (SU)	Article category (AC)	Environmental Release Category (ERC)	EU tonnage (in thousands of tons)	Regional fraction
Coatings (industrial)	PROC1, PROC2, PROC3, PROC4, PROC5, PROC7, PROC8a, PROC8b, PROC10, PROC13, PROC15	ND	3	ND	4	50	0.1
Coatings (professional)	PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC10, PROC11, PROC13, PROC15, PROC19	ND	22	ND	8a, 8d	50	0.1

USE IN THE XYLENE CATEGORY IN COATINGS - INDUSTRIAL USE

SECTION 1. TITLE OF THE EXPOSURE SCENARIO

Title

Use of the xylene category in coatings

Sector of use

Industrial use SU3

Process categories

PROC1, PROC2, PROC3, PROC4, PROC5, PROC7, PROC8a, PROC8b, PROC10, PROC13, PROC15

Environmental Release Categories

ERC4

Processes, tasks, activities considered

Considers use in coatings (paints, inks, adhesives, etc.) including exposure during use (including receipt of material, storage, preparation and transfer from bulk or semi-bulk, spray, roller, spatula application, dipping, flow, fluid layers in production lines and in film formation) and equipment cleaning, maintenance and associated laboratory activities.

SECTION 2. OPERATING CONDITIONS AND RISK MANAGEMENT MEASURES

SECTION 2.1 WORKERS EXPOSURE CONTROL

Product features

Liquid, vapor pressure >10 kPa [OC5].

Concentration of the substance in the product

Covers a percentage substance in the product up to 100% (unless otherwise stated) [G13].

Quantities used

Not applicable.

Frequency and duration of use

Covers a daily exposure up to 8 hours (unless otherwise specified) [G2].

Human factors not influenced by risk management

Not applicable.

Other operational conditions affecting worker exposure

Assumes use at not more than 20°C above ambient temperature [G15].

Assumes a good basic standard of occupational hygiene is implemented.

Scenarios and risk management measures

General exposures (closed systems) [CS15].

Handle substance within a closed system [E47].

General exposures (closed systems) [CS15]. With sampling [CS56]. Use in closed systems [CS38].

Handle substance within a closed system [E47].

Film formation - Forced drying (50-100°C). Drying (> 100°C). UV/EB radiation curing [CS94].

Handle substance within a closed system [E47].

Mixing operations (closed systems) [CS29]. General exposures (closed systems) [CS15].

Handle substance within a closed system [E47]. Provide a good standard of general ventilation (not less than 3-5 air changes per hour) [E11]. Avoid carrying out activities involving exposure for more than 4 hours [OC28].

Film formation - air drying [CS95].

Provide a good standard of general ventilation (not less than 3-5 air changes per hour) [E11].

Preparation of material for application [CS96]. Film formation - air drying [CS95].

Provide a good standard of general or controlled ventilation (10-15 air changes per hour) [E40].

Spray application (automatic/robotic) [CS97].

Perform in a ventilated booth supported by laminar airflow [E59].

Manual [CS34]. Spraying [CS10].

Provide a good standard of general or controlled ventilation (10-15 air changes per hour) [E40]. Wear a respirator conforming to EN140 with a type A filter or better [PPE22].

Material transfers [CS3]. Non-dedicated facility [CS82].

Ensure material transfers are under containment or extract ventilation [E66].

Material transfers [CS3]. Dedicated facility [CS81].

Ensure material transfers are under containment or extract ventilation [E66].

Roller application, spreader, flow [CS98].

Provide extract ventilation at points where emissions occur [E54].

Dipping and pouring [CS4].

Provide a good standard of general or controlled ventilation (10-15 air changes per hour) [E40].

Laboratory activity [CS36].

No specific measures have been identified [E118].

Material transfers [CS3]. Drum/batch transfers [CS8]. Transfer/pour from containers [CS22].

Provide a good standard of general or controlled ventilation (10-15 air changes per hour) [E40].

Equipment cleaning and maintenance [CS39].

Drain system before equipment downtime or maintenance [E65].

Storage [CS67]. With occasional controlled exposure [CS137].

Handle substance within a closed system [E47].

SECTION 2.2 ENVIRONMENTAL EXPOSURE CONTROL

Evaluation method

EUSES 2.1.1 using predefined release fractions from ESVOC SpERC 4.3a.v1

Product features

The xylene category consists of liquids of medium volatility.

The solubility in water for the category is 166mg/l; the vapor pressure is 821 Pa at 20°C; and log Kow is 3.16 and is readily biodegradable.

Quantities used

EU tonnage: 50 kt/year

Regional tonnage: 5 kt/year

Main fraction of local origin: 1

Frequency and duration of use

Issue days per year: 300

Environmental factors not influenced by risk management

Local fresh water dilution factor: 10

Local dilution factor in sea water: 100

The conditions reported on the SPERC information sheet (ESVOC SpERC 4.3.v1) give rise to the following fraction versions

Additional conditions of use affecting environmental exposure

Fraction of release to air from process before RMMs: 0.98.

Fraction of release to waste water from process before RMMs: 0.007.

Fraction of release to soil from process before RMMs: 0.

On-site conditions and technical measures to reduce or limit discharges, emissions to air and releases to soil

Treat air emissions to provide a typical removal efficiency of [TCR7]: >90%.

Typical on-site waste water treatment technology provides removal efficiency of [TCR11]: 93.67%.

Soil emission controls are not applicable as there is no direct release to soil [TCR4].

Prevent discharge of undissolved substance to or recover from waste water [TCR14].

Organisational measures to avoid/limit release from a site

Do not apply industrial sludge to natural soils [OMS2].

Sludge should be incinerated, contained or reclaimed [OMS3].

Conditions and measures for the municipal sewage treatment plant

Estimated substance removal from wastewater via municipal sewage treatment [STP3]: 93.67%.

Assumed domestic sewage treatment plant flow (m³/d) [STP5]: 2000.

Conditions and measures for external treatment of waste for disposal

External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3].

Conditions and measures for the external recovery of waste

External recovery or recycling of waste must be in accordance with applicable local and/or national laws [ERW1].

Other environmental control measures in addition to those described above

None.

SECTION 3. EXPOSURE ESTIMATION

SECTION 3.1 HEALTH

When complying with the recommended risk management measures (RMMs) and operational conditions (OCs), exposure is not expected to exceed the DNELs and the risk characterisation ratio should be less than 1.

SECTION 3.2 ENVIRONMENT

When complying with the recommended risk management measures (RMMs) and operational conditions (OCs), exposure is not expected to exceed the PNECs and the risk characterisation ratio should be less than 1.

SECTION 4. GUIDELINES FOR THE DU TO VERIFY COMPLIANCE WITH THE EXPOSURE SCENARIO

SECTION 4.1 HEALTH

Confirm that the RMMs and OCs match the description or have equivalent efficiency.

SECTION 4.2 ENVIRONMENT

Confirm that the RMMs and OCs match the description or have equivalent efficiency.

As typically found in a waste water treatment plant, the required waste water removal efficiency is: 93.67%.

Scaling values

Further details on scaling and control technologies are provided in the SPERC sheet [DSU4].

Basis for scaling: Environment. Risk: ground. MSafe 68871 kg/day after RMM.

Use of the site: 5 kt/year

On-site emission factors: Water - 93.67% efficiency. Air - 0% efficiency.

Dilution factors Fresh water 10. Marine water 100.

Initial fraction of release to water on-site (before RMMs): 0.7%.

Typical release to water after RMMs 3.75E-02 mg/l.

USE IN THE XYLENE CATEGORY IN COATINGS - PROFESSIONAL USE

SECTION 1. TITLE OF THE EXPOSURE SCENARIO

Title

Use of the xylene category in coatings

Sector of use

Professional use, SU22

Process categories

PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC10, PROC11, PROC13, PROC15, PROC19

Environmental Release Categories

ERC8a, ERC8d

Processes, tasks, activities considered

Considers use in coatings (paints, inks, adhesives, etc.) including exposure during use (including receipt of material, storage, preparation and transfer from bulk or semi-bulk, spray, roller, brush, manual spatula application or similar methods and in film formation) and equipment cleaning, maintenance and associated laboratory activities.

SECTION 2. OPERATING CONDITIONS AND RISK MANAGEMENT MEASURES

SECTION 2.1 WORKERS EXPOSURE CONTROL

Product features

Liquid, vapour pressure 0.5 - 10 kPa [OC4].

Concentration of the substance in the product

Covers a percentage substance in the product up to 100% (unless otherwise stated) [G13].

Quantities used

Not applicable.

Frequency and duration of use

Covers a daily exposure up to 8 hours (unless otherwise specified) [G2].

Human factors not influenced by risk management

Not applicable.

Other operational conditions affecting worker exposure

Assumes use at not more than 20°C above ambient temperature [G15].

Assumes a good basic standard of occupational hygiene is implemented.

Scenarios and risk management measures

General exposures (closed systems) [CS15].

Handle substance within a closed system [E47].

Filling/preparation of equipment from drums or containers [CS45].

Handle substance within a closed system [E47]. Ensure material transfers are under containment or extract ventilation [E66].

General exposures (closed systems) [CS15]. Use in closed systems [CS38].

Handle substance within a closed system [E47]. Ensure material transfers are under containment or extract ventilation [E66].

Preparation of material for application [CS96].

Handle substance within a closed system [E47]. Provide a good standard of general or controlled ventilation (10-15 air changes per hour) [E40].

Film formation - air drying [CS95]. Outdoor [OC9].

Make sure the operation is performed outdoors [E69]. Avoid carrying out activities involving exposure for more than 1 hour [OC27]. Wear suitable gloves tested to standard EN374 [PPE15].

Film formation - air drying [CS95]. Indoor [OC8].

Provide extract ventilation at points where emissions occur [E54]. Provide a good standard of general ventilation (not less than 3-5 air changes per hour) [E11].

Preparation of material for application [CS96]. Indoor [OC8].

Provide a good standard of general or controlled ventilation (10-15 air changes per hour) [E40]. Avoid carrying out activities involving exposure for more than 1 hour [OC27].

Preparation of material for application [CS96]. Outdoor [OC9].

Make sure the operation is performed outdoors [E69]. Avoid carrying out activities involving exposure for more than 1 hour [OC27].

Material transfers [CS3]. Drum/batch transfers [CS8].

Transfer via enclosed lines [E52]. Provide a good standard of general ventilation (not less than 3-5 air changes per hour) [E11].

Roller application, spreader, flow [CS98]. Indoor [OC8].

Provide a good standard of general or controlled ventilation (10-15 air changes per hour) [E40]. Wear a respirator conforming to EN140 with a type A filter or better [PPE22].

Roller application, spreader, flow [CS98]. Outdoor [OC9].

Make sure the operation is performed outdoors [E69]. Wear a respirator conforming to EN140 with a type A filter or better [PPE22].

Manual [CS34]. Spraying [CS10]. Indoor [OC8].

Perform in a ventilated booth supported by laminar airflow [E59].

Manual [CS34]. Spraying [CS10]. Outdoor [OC9].

Make sure the operation is performed outdoors [E69]. Avoid carrying out activities involving exposure for more than 4 hours [OC28]. Wear suitable gloves tested to standard EN374 [PPE15]. Wear a full face respirator conforming to EN140 with type A filter or better [PPE24].

Dipping and pouring [CS4]. Indoor [OC8].

Provide extract ventilation at points where emissions occur [E54]. Avoid carrying out activities involving exposure for more than 4 hours [OC28].

Dipping and pouring [CS4]. Outdoor [OC9].

Make sure the operation is performed outdoors [E69]. Wear a respirator conforming to EN140 with a type A filter or better [PPE22].

Laboratory activity [CS36].

Handle in a fume cupboard or under extract ventilation [E83].

Hand application - finger paints, crayons, stickers [CS72]. Indoor [OC8].

Limit the substance content in the product to 5% [OC17]. Provide a good standard of controlled ventilation (10-15 air changes per hour) [E40]. Wear suitable gloves tested to standard EN374 [PPE15].

Hand application - finger paints, crayons, stickers [CS72]. Outdoor [OC9].

Limit the substance content in the product to 5% [OC17]. Avoid carrying out activities involving exposure for more than 4 hours [OC28]. Wear suitable gloves tested to standard EN374 [PPE15].

Equipment cleaning and maintenance [CS39].

Drain system before equipment downtime or maintenance [E65]. Avoid carrying out activities involving exposure for more than 4 hours [OC28].

Storage [CS67]. With occasional controlled exposure [CS137].

Handle substance within a closed system [E47]. Provide a good standard of general or controlled ventilation (10-15 air changes per hour) [E40].

SECTION 2.2 ENVIRONMENTAL EXPOSURE CONTROL**Evaluation method**

EUSES 2.1.1 using predefined release fractions from ESVOC SpERC 8.3b.v1

Product features

The xylene category consists of liquids of medium volatility.

The solubility in water for the category is 166mg/l; the vapor pressure is 821 Pa at 20°C; and log Kow is 3.16 and is readily biodegradable.

Quantities used

EU tonnage: 50 kt/year

Regional tonnage: 5 kt/year

Main fraction of local origin: 0.002

Frequency and duration of use

Issue days per year: 365

Environmental factors not influenced by risk management

Local fresh water dilution factor: 10

Local dilution factor in sea water: 100

The conditions reported on the SPERC information sheet (ESVOC SpERC 4.3.v1) give rise to the following fraction versions

Additional conditions of use affecting environmental exposure

Fraction of release to air from process before RMMs: 0.98

Fraction of release to waste water from process before RMMs: 0.01

Fraction of release to soil from process before RMMs: 0.01

On-site conditions and technical measures to reduce or limit discharges, emissions to air and releases to soil

Treat air emissions to provide a typical removal efficiency of [TCR7]: 0%.

Typical on-site waste water treatment technology provides removal efficiency of [TCR11]: 93.67%.

Organisational measures to avoid/limit release from a site

Prevent environmental discharge consistent with regulatory requirements [OMS4].

Conditions and measures for the municipal sewage treatment plant

Estimated substance removal from wastewater via municipal sewage treatment [STP3]: 93.67%.

Assumed domestic sewage treatment plant flow (m³/d) [STP5]: 2000.

Conditions and measures for external treatment of waste for disposal

External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3].

Conditions and measures for the external recovery of waste

External recovery or recycling of waste must be in accordance with applicable local and/or national laws [ERW1].

Other environmental control measures in addition to those described above

None.

SECTION 3. EXPOSURE ESTIMATION**SECTION 3.1 HEALTH**

When complying with the recommended risk management measures (RMMs) and operational conditions (OCs), exposure is not expected to exceed the DNELs and the risk characterisation ratio should be less than 1.

SECTION 3.2 ENVIRONMENT

When complying with the recommended risk management measures (RMMs) and operational conditions (OCs), exposure is not expected to exceed the PNECs and the risk characterisation ratio should be less than 1.

SECTION 4. GUIDELINES FOR THE DU TO VERIFY COMPLIANCE WITH THE EXPOSURE SCENARIO

SECTION 4.1 HEALTH

Confirm that the RMMs and OCs match the description or have equivalent efficiency.

SECTION 4.2 ENVIRONMENT

Confirm that the RMMs and OCs match the description or have equivalent efficiency.

As typically found in a waste water treatment plant, the required waste water removal efficiency is: 93.67%.

Scaling values

Further details on scaling and control technologies are provided in the SPERC sheet [DSU4].

Basis for scaling: Environment. Risk: Fresh water sediments MSafe 68871 kg/day after RMM.

Use of the site: 0.01 kt/year

On-site emission factors: Water - 93.67% efficiency. Air - 0% efficiency.

Dilution factors Fresh water 10. Marine water 100.

Initial fraction of release to water on-site (before RMMs): 1%.

Typical release to water after RMMs 1.50E-03 mg/l.

bis-[4-(2,3-epoxipropoxi)phenyl]propane

Identifikacija tvari

Kemijski naziv: bis-[4-(2,3-epoxipropoxi)phenyl]propane

CAS broj: 1675-54-3

Datum - verzija: 29/12/2021 - 1.3

INDUSTRIJSKA UPORABA - PROFESIONALNA UPOTREBA: JAVNI SEKTOR (UPRAVA, OBRAZOVANJE, ZABAVA, USLUGE, OBRRTNIŠTVO) (SU22).

1. NASLOVNI ODJELJAK

Naziv scenarija izloženosti: industrijska upotreba.

Strukturirani kratki naslov: profesionalna upotreba: javni sektor (uprava, obrazovanje, zabava, usluge, obrtništvo) (SU22).

Tvar: 2,2'-[(1-metiletiliden)bis(4,1-fenilenossimetilen)]bisossirano

EC broj: 216-823-5

Registracijski broj: 01-2119456619-26

OKOLIŠ

SC 1: upotreba nereaktivnih tehnoloških pomoćnih sredstava za obradu na industrijskoj lokaciji (bez uključivanja u artikl) ERC4

RADNIK

SC 2: upotreba kao laboratorijski reagensi PROC15

SC 3: obrada artikala umakanjem i prelijevanjem PROC13

SC 4: sažimanje u pastile, kompresija, ekstruzija, peletizacija, granulacija PROC14

SC 5: mašćenje / opće podmazivanje u uvjetima visoke kinetičke energije PROC18

SC 6: prijenos tvari ili pripravlja (punjenje/pražnjenje) iz posuda / velikih spremnika i u njih, u nenamjenskim objektima PROC8a

2. UVJETI UPOTREBE KOJI UTJEČU NA IZLOŽENOST

2.1. NADZOR NAD OKOLIŠNOM IZLOŽENOŠĆU: upotreba nereaktivnih tehnoloških pomoćnih sredstava za obradu na industrijskoj lokaciji (bez uključivanja u artikl) (ERC4)

Obilježja proizvoda (artikla)

Fizički oblik proizvoda: Tekućina

Upotrijebljene količine (ili sadržane u artiklu), učestalost i trajanje upotrebe/izlaganja

Dnevna količina po lokaciji: 0,6 tona/dan

Godišnja količina po lokaciji: 20 tona godišnje

Uvjeti i mjere povezani s uređajem za pročišćavanje otpadnih voda

Vrsta STP-a: uređaj za obradu komunalnog otpada.

Ostale informacije o STP-u: biološka eliminacija.

Pročišćavanje mulja u STP-u: može se odložiti na odlagališta ako je to dopušteno lokalnim zakonodavstvom.

Izlazna voda STP-a: 2.000 m³/giorno

Ostali uvjeti koji utječu na okolišnu izloženost

Protok vode na dolaznoj površini: 18.000 m³/dan

otvoreni/zatvoreni prostor: upotreba u zatvorenom prostoru.

2.2. NADZOR NAD IZLOŽENOŠĆU RADNIKA: upotreba kao laboratorijski reagensi (PROC15)

Obilježja proizvoda (artikla)

Obuhvaća udio tvari u proizvodu do 100 %.

Fizički oblik proizvoda: Tekućina.

Temperatura: < 40°C

Upotrijebljene količine (ili sadržane u artiklu), učestalost i trajanje upotrebe/izlaganja

Trajanje: obuhvaća dnevna izlaganja do 8 sati.

Tehnički i organizacijski uvjeti i mjere

Pretpostavlja se da se primjenjuju dobri osnovni standardi higijene na radnom mjestu.

Osigurajte dobru razinu opće ventilacije (ne manje od 3 do 5 varijacija zraka na sat).

Kožno: minimalna učinkovitost od 0 %.

Udisanje: minimalni prinos od 30 %.

Uvjeti i mjere koje se odnose na osobnu zaštitu, procjenu higijene i zdravlja

Nosite rukavice otporne na kemikalije (testirane u skladu s normom EN374); trebate biti i odgovarajuće osposobljeni.

Upotrebljavajte odgovarajuću zaštitu za oči.

Kožno: minimalna učinkovitost od 95 %.

Udisanje: minimalni prinos od 0 %.

Ostali uvjeti koji utječu na izloženost radnikā

otvoreni/zatvoreni prostor: na prekrivenom prostoru.

Temperatura: < 40°C

2.3. NADZOR NAD IZLOŽENOŠĆU RADNIKA: obrada artikala umakanjem i prelijevanjem (PROC13)

Obilježja proizvoda (artikla)

Obuhvaća udio tvari u proizvodu do 25 %.

Fizički oblik proizvoda: Tekućina.

Tlak pare: 0,00741 Pa

Temperatura: < 70°C

Upotrijebljene količine (ili sadržane u artiklu), učestalost i trajanje upotrebe/izlaganja

Trajanje: obuhvaća dnevna izlaganja do 8 sati.

Tehnički i organizacijski uvjeti i mjere

Pretpostavlja se da se primjenjuju dobri osnovni standardi higijene na radnom mjestu.

Osigurajte dobru razinu opće ventilacije (ne manje od 1 do 3 varijacija zraka na sat).

Kožno: minimalna učinkovitost od 0 %.

Udisanje: minimalni prinos od 0 %.

Uvjeti i mjere koje se odnose na osobnu zaštitu, procjenu higijene i zdravlja

Nosite rukavice otporne na kemikalije (testirane u skladu s normom EN374); trebate biti i odgovarajuće osposobljeni.

Upotrebljavajte odgovarajuću zaštitu za oči.

Kožno: minimalna učinkovitost od 95 %.

Udisanje: minimalni prinos od 0 %.

Nosite odgovarajući respirator.

Udisanje: minimalni prinos od 90 %.

Ostali uvjeti koji utječu na izloženost radnikā

otvoreni/zatvoreni prostor: na prekrivenom prostoru.

Temperatura: < 40°C

2.4. NADZOR NAD IZLOŽENOŠĆU RADNIKA: sažimanje u pastile, kompresija, ekstruzija, peletizacija, granulacija (PROC14)

Obilježja proizvoda (artikla)

Obuhvaća udio tvari u proizvodu do 100 %.

Fizički oblik proizvoda: Tekućina.

Temperatura: < 40°C

Upotrijebljene količine (ili sadržane u artiklu), učestalost i trajanje upotrebe/izlaganja

Trajanje: obuhvaća dnevna izlaganja do 8 sati.

Tehnički i organizacijski uvjeti i mjere

Pretpostavlja se da se primjenjuju dobri osnovni standardi higijene na radnom mjestu.

Osigurajte dobru razinu opće ventilacije (ne manje od 3 do 5 varijacija zraka na sat).

Kožno: minimalna učinkovitost od 0 %.

Udisanje: minimalni prinos od 30 %.

Uvjeti i mjere koje se odnose na osobnu zaštitu, procjenu higijene i zdravlja

Nosite rukavice otporne na kemikalije (testirane u skladu s normom EN374); trebate biti i odgovarajuće osposobljeni.

Upotrebljavajte odgovarajuću zaštitu za oči.

Kožno: minimalna učinkovitost od 95 %.

Udisanje: minimalni prinos od 0 %.

Ostali uvjeti koji utječu na izloženost radnikā

otvoreni/zatvoreni prostor: na prekrivenom prostoru.

Temperatura: < 40°C

2.5. NADZOR NAD IZLOŽENOŠĆU RADNIKA: mašćenje / opće podmazivanje u uvjetima visoke kinetičke energije (PROC18)

Obilježja proizvoda (artikla)

Obuhvaća koncentracije do 20 %.

Fizički oblik proizvoda: Tekućina.

Temperatura: ≤ 800°C

Upotrijebljene količine (ili sadržane u artiklu), učestalost i trajanje upotrebe/izlaganja

Trajanje: obuhvaća dnevna izlaganja do 8 sati.

Uvjeti i mjere koje se odnose na osobnu zaštitu, procjenu higijene i zdravlja

Nosite rukavice otporne na kemikalije (testirane u skladu s normom EN374); trebate biti i odgovarajuće osposobljeni.

Upotrebljavajte odgovarajuću zaštitu za oči.

Kožno: minimalna učinkovitost od 95 %.

Udisanje: minimalni prinos od 0 %.

Nosite odgovarajući respirator.

Udisanje: minimalni prinos od 90 %.

Ostali uvjeti koji utječu na izloženost radnikā

otvoreni/zatvoreni prostor: na otvorenom.

Industrijska ili profesionalna upotreba: profesionalna upotreba.

Temperatura: ≤ 800°C

2.6. NADZOR NAD IZLOŽENOŠĆU RADNIKA: prijenos tvari ili pripravka (punjenje/pražnjenje) iz posuda / velikih spremnika i u njih, u nenamjenskim objektima (PROC8a)

Obilježja proizvoda (artikla)

Obuhvaća udio tvari u proizvodu do 25 %.

Fizički oblik proizvoda: Tekućina.

Upotrijebljene količine (ili sadržane u artiklu), učestalost i trajanje upotrebe/izlaganja

Trajanje: obuhvaća dnevna izlaganja do 8 sati.

Uvjeti i mjere koje se odnose na osobnu zaštitu, procjenu higijene i zdravlja

Nosite rukavice otporne na kemikalije (testirane u skladu s normom EN374); trebate biti i odgovarajuće osposobljeni.

Upotrebljavajte odgovarajuću zaštitu za oči.

Kožno: minimalna učinkovitost od 95 %.

Udisanje: minimalni prinos od 0 %.

Ostali uvjeti koji utječu na izloženost radnikā

otvoreni/zatvoreni prostor: na otvorenom.

Industrijska ili profesionalna okruženja: profesionalna upotreba.

Temperatura: Pretpostavlja se temperatura obrade do < 40 °C.

3. PROCJENA IZLOŽENOSTI I REFERENCA NA NJEZIN IZVOR

3.1. Ispuštanje u okoliš i izloženost: upotreba nereaktivnih tehnoloških pomoćnih sredstava za obradu na industrijskoj lokaciji (bez uključivanja u artikl) (ERC4)

Put ispuštanja	Brzina ispuštanja	Metoda procjene za ispuštanje
slap	1.2E-10kg/giorno	FEICA SPERC 5.1 a.v1
zrak	3E-4kg/dan	FEICA SPERC 5.1 a.v1
Tlo	0%	FEICA SPERC 5.1 a.v1

Cilj zaštite	Procijenjena izloženost (EUSES v2.1)	RCR
Svježa voda	3.76E-4mg/l	0.063
Sedimenti u slatkoj vodi	0.018mg/l	0.053
Morska voda	2.95E-5mg/kg suha težina	0.049
Morski sediment	1.42E-3mg/kg suha težina	0.042
Postrojenje za pročišćavanje otpadnih voda	5.68E-11 mg/l	< 0.01
Poljoprivredno zemljište	2.88E-6mg/kg suha težina	< 0.01
Plijeva za grabežljivce (slatka voda)	mg/kg mokre mase (EUSES v2.1)	< 0.01
Plijeva za grabežljivce (morska voda)	9.13E-4mg/kg mokro težio	< 0.01
Glavni plijev grabežljivaca (morska voda)	9.13E-4mg/kg mokro težio	< 0.01
Plijeva za grabežljivce (na kopnu)	1.68E-4mg/kg mokro težio	< 0.01
Čovjek kroz okoliš – udisanje	7.65E-9mg/m³	< 0.01
Čovjek kroz okoliš – oralni put	3E-5mg/kg tt/dan	< 0.01
Stanovništvo izloženo putem okoliša	-	< 0.01

3.2. Izloženost radnika: upotreba kao laboratorijski reagensi (PROC15)

Putovi izlaganja	Utjecaj na zdravlje	Pokazatelj izloženosti	Procijenjena izloženost (ECETOC TRA radnik v3)	RCR
udisanjem	sustavan	dugoročan	0.993mg/m³	0.201
udisanjem	lokalni	dugoročan	0.993mg/m³	-
udisanjem	lokalni	kratkoročan	0.993mg/m³	-
dermalno	sustavan	dugoročan	0.172mg/kg tt/dan	0.045
dermalno	lokalni	kratkoročan	9.92E-3 mg/cm²	-
kombinirani putovi	-	-	-	0.247

3.3. Izloženost radnika: obrada artikala umakanjem i prelijevanjem (PROC13)

Putovi izlaganja	Utjecaj na zdravlje	Pokazatelj izloženosti	Procijenjena izloženost (ECETOC TRA radnik v3)	RCR
udisanjem	sustavan	dugoročan	0.085mg/m ³	0.017
udisanjem	lokalno	dugoročan	0.085mg/m ³	-
udisanjem	lokalno	kratkoročan	0.085mg/m ³	-
dermalno	sustavan	dugoročan	0.411mg/kg tt/dan	0.548
dermalno	lokalno	kratkoročan	0.06 mg/cm ²	-
kombinirani putovi	-	-	-	0.566

3.4. Izloženost radnika: sažimanje u pastile, kompresija, ekstruzija, peletizacija, granulacija (PROC14)

Putovi izlaganja	Utjecaj na zdravlje	Pokazatelj izloženosti	Procijenjena izloženost (ECETOC TRA radnik v3)	RCR
udisanjem	sustavan	dugoročan	0.993mg/m ³	0.201
udisanjem	lokalno	dugoročan	0.993mg/m ³	-
udisanjem	lokalno	kratkoročan	0.993mg/m ³	-
dermalno	sustavan	dugoročan	0.172mg/kg tt/dan	0.229
dermalno	lokalno	kratkoročan	0.0025mg/cm ²	-
kombinirani putovi	-	-	-	0.43

3.5. Izloženost radnika: mašćenje / opće podmazivanje u uvjetima visoke kinetičke energije (PROC18)

Putovi izlaganja	Utjecaj na zdravlje	Pokazatelj izloženosti	Procijenjena izloženost (ECETOC TRA radnik v3)	RCR
udisanjem	sustavan	dugoročan	0.596mg/m ³	0.121
udisanjem	lokalno	dugoročan	0.596mg/m ³	-
udisanjem	lokalno	kratkoročan	0.596mg/m ³	-
dermalno	sustavan	dugoročan	0.411mg/kg tt/dan	0.548
dermalno	lokalno	kratkoročan	0.03mg/cm ²	-
kombinirani putovi	-	-	-	0.669

3.6. Izloženost radnika: prijenos tvari ili pripravlja (punjenje/pražnjenje) u nenamjenskim objektima (PROC8a)

Putovi izlaganja	Utjecaj na zdravlje	Pokazatelj izloženosti	Procijenjena izloženost (ECETOC TRA radnik v3)	RCR
udisanjem	sustavan	dugoročan	0.596mg/m ³	0.121
udisanjem	lokalno	dugoročan	0.596mg/m ³	-
udisanjem	lokalno	kratkoročan	0.596mg/m ³	-
dermalno	sustavan	dugoročan	0.411mg/kg tt/dan	0.548
dermalno	lokalno	kratkoročan	0.03mg/cm ²	-
kombinirani putovi	-	-	-	0.669

4. VODIČ ZA DALJNJE KORISNIKE ZA PROCJENU RADE LI U GRANICAMA NAMETNUTIM SCENARIJEM IZLOŽENOSTI

Predviđena izlaganja ne bi smjela prelaziti primjenjive granice izlaganja (navedene u odjeljku 8. sigurnosnog lista) kad su provedeni mjere upravljanja rizikom / radni uvjeti navedeni u odjeljku 2.

Ako se primjenjuju druge mjere upravljanja rizicima / drugi radni uvjeti, korisnici su dužni osigurati da se rizicima upravlja barem na jednakim razinama.

Vodič se temelji na pretpostavljenim radnim uvjetima koji možda nisu primjenjivi na sve lokacije, stoga bi skaliranje moglo biti potrebno za definiranje mjera upravljanja za točan rizik specifičan za lokaciju.

PROFESIONALNA UPOTREBA - PROFESIONALNA UPOTREBA: JAVNI SEKTOR (UPRAVA, OBRAZOVANJE, ZABAVA, USLUGE, OBRTNIŠTVO) (SU22).

1. NASLOVNI ODJELJAK

Naziv scenarija izloženosti: profesionalni.

Strukturirani kratki naslov: profesionalna upotreba: javni sektor (uprava, obrazovanje, zabava, usluge, obrtništvo) (SU22).

Tvar: 2,2'-[(1-metiletiliden)bis(4,1-fenilenossimetilen)]bisossirano

EC broj: 216-823-5

Registracijski broj: 01-2119456619-26

OKOLIŠ

SC 1: upotreba na industrijskoj lokaciji zbog čega dolazi do uključivanja u artikal ERC5

RADNIK

SC 2: industrijsko prskanje PROC7

SC 3: prijenos tvari ili priprava (punjenje/pražnjenje) iz posuda / velikih spremnika i u njih, u nenamjenskim objektima PROC8a

SC 4: prijenos tvari ili smjese (punjenje/pražnjenje) iz posuda / velikih spremnika i u njih, u namjenskim objektima PROC8b

SC 5: prijenos tvari ili smjese u male spremnike (namjensko punjenje, uključujući vaganje) PROC9

SC 6: nanošenje valjcima ili kistovima PROC10

SC 7: neindustrijsko prskanje PROC11

2. UVJETI UPOTREBE KOJI UTJEČU NA IZLOŽENOST

2.1. NADZOR NAD OKOLIŠNOM IZLOŽENOŠĆU: upotreba na industrijskoj lokaciji zbog čega dolazi do uključivanja u artikal (ERC5)

Obilježja proizvoda (artikla)

Obuhvaća udio tvari u proizvodu do 100 %.

Fizički oblik proizvoda: Tekućina

Upotrijebljene količine (ili sadržane u artiklu), učestalost i trajanje upotrebe/izlaganja

Godišnja količina po lokaciji: 30.000 tona godišnje

Dnevna količina po lokaciji: 100 tona/dan

Uvjeti i mjere povezani s uređajem za pročišćavanje otpadnih voda

Vrsta STP-a: uređaj za obradu komunalnog otpada.

Ostale informacije o STP-u: biološka eliminacija.

Pročišćavanje mulja u STP-u: može se odložiti na odlagališta ako je to dopušteno lokalnim zakonodavstvom.

Izlazna voda STP-a: 2.000 m³/giorno

Ostali uvjeti koji utječu na okolišnu izloženost

Protok vode na dolaznoj površini: 18.000 m³/dan

2.2. NADZOR NAD IZLOŽENOŠĆU RADNIKA: industrijsko prskanje (PROC7)

Obilježja proizvoda (artikla)

Obuhvaća udio tvari u proizvodu do 25 %.

Fizički oblik proizvoda: Tekućina.

Tlak pare: 0,00741 Pa

Upotrijebljene količine (ili sadržane u artiklu), učestalost i trajanje upotrebe/izlaganja

Trajanje: obuhvaća dnevna izlaganja do 8 sati.

Tehnički i organizacijski uvjeti i mjere

Osigurajte dobru razinu opće ventilacije (ne manje od 3 do 5 varijacija zraka na sat).

Uvjeti i mjere koje se odnose na osobnu zaštitu, procjenu higijene i zdravlja

Nosite rukavice otporne na kemikalije (testirane u skladu s normom EN374); trebate biti i odgovarajuće osposobljeni.

Upotrebljavajte odgovarajuću zaštitu za oči.

Ako se očekuje da će se kontaminacija kože proširiti i na druge dijelove tijela, i ti bi dijelovi trebali biti zaštićeni voodootpornom odjećom na način jednak onome opisan za ruke.

Nosite odgovarajući respirator.

Kožno: minimalna učinkovitost od 99 %.

Udisanje: minimalni prinos od 90 %.

Ostali uvjeti koji utječu na izloženost radnikā

otvoreni/zatvoreni prostor: na prekrivenom prostoru.

Industrijska ili profesionalna okruženja profesionalna upotreba.

Temperatura: pretpostavlja se temperatura obrade do 70 °C.

2.3. NADZOR NAD IZLOŽENOŠĆU RADNIKA: prijenos tvari ili pripravka (punjenje/pražnjenje) iz posuda / velikih spremnika i u njih, u nenamjenskim objektima (PROC8a)

Obilježja proizvoda (artikla)

Obuhvaća udio tvari u proizvodu do 25 %.

Fizički oblik proizvoda: Tekućina.

Tlak pare: 0,00741 Pa

Temperatura: 70°C

Upotrijebljene količine (ili sadržane u artiklu), učestalost i trajanje upotrebe/izlaganja

Trajanje: obuhvaća dnevna izlaganja do 8 sati.

Tehnički i organizacijski uvjeti i mjere

Osigurajte dobru razinu opće ventilacije (ne manje od 1 do 3 varijacija zraka na sat).

Kožno: minimalna učinkovitost od 0 %.

Udisanje: minimalni prinos od 0 %.

Uvjeti i mjere koje se odnose na osobnu zaštitu, procjenu higijene i zdravlja

Nosite rukavice otporne na kemikalije (testirane u skladu s normom EN374); trebate biti i odgovarajuće osposobljeni.

Upotrebljavajte odgovarajuću zaštitu za oči.

Kožno: minimalna učinkovitost od 95 %.

Udisanje: minimalni prinos od 0 %.

Ostali uvjeti koji utječu na izloženost radnikā

otvoreni/zatvoreni prostor: na prekrivenom prostoru.

Industrijska ili profesionalna okruženja profesionalna upotreba.

Temperatura: 70°C

2.4. NADZOR NAD IZLOŽENOŠĆU RADNIKA: prijenos tvari ili smjese (punjenje/pražnjenje) iz posuda / velikih spremnika i u njih, u namjenskim objektima (PROC8b)

Obilježja proizvoda (artikla)

Obuhvaća udio tvari u proizvodu do 100 %.

Fizički oblik proizvoda: Tekućina.

Tlak pare: 0,00741 Pa

Temperatura: 70°C

Upotrijebljene količine (ili sadržane u artiklu), učestalost i trajanje upotrebe/izlaganja

Trajanje: obuhvaća dnevna izlaganja do 8 sati.

Tehnički i organizacijski uvjeti i mjere

Pretpostavlja se da se primjenjuju dobri osnovni standardi higijene na radnom mjestu.

Osigurajte dobru razinu opće ventilacije (ne manje od 1 do 3 varijacija zraka na sat).

Uvjeti i mjere koje se odnose na osobnu zaštitu, procjenu higijene i zdravlja

Nosite rukavice otporne na kemikalije (testirane u skladu s normom EN374); trebate biti i odgovarajuće osposobljeni.

Upotrebljavajte odgovarajuću zaštitu za oči.

Kožno: minimalna učinkovitost od 95 %.

Udisanje: minimalni prinos od 0 %.

Nosite odgovarajući respirator.

Udisanje: minimalni prinos od 90 %.

Ostali uvjeti koji utječu na izloženost radnikā

otvoreni/zatvoreni prostor: na prekrivenom prostoru.

Temperatura: 70°C

2.5. NADZOR NAD IZLOŽENOŠĆU RADNIKA: prijenos tvari ili smjese u male spremnike (namjensko punjenje, uključujući vaganje) (PROC9)

Obilježja proizvoda (artikla)

Obuhvaća koncentracije do 100 %.

Fizički oblik proizvoda: Tekućina.

Tlak pare: 0,00741 Pa

Temperatura: < 50°C

Upotrijebljene količine (ili sadržane u artiklu), učestalost i trajanje upotrebe/izlaganja

Trajanje: obuhvaća dnevna izlaganja do 8 sati.

Tehnički i organizacijski uvjeti i mjere

Pretpostavlja se da se primjenjuju dobri osnovni standardi higijene na radnom mjestu.

Osigurajte dobru razinu opće ventilacije (ne manje od 3 do 5 varijacija zraka na sat).

Kožno: minimalna učinkovitost od 0 %.

Udisanje: minimalni prinos od 30 %.

Uvjeti i mjere koje se odnose na osobnu zaštitu, procjenu higijene i zdravlja

Nosite rukavice otporne na kemikalije (testirane u skladu s normom EN374); trebate biti i odgovarajuće osposobljeni.

Upotrebljavajte odgovarajuću zaštitu za oči.

Kožno: minimalna učinkovitost od 95 %.

Udisanje: minimalni prinos od 0 %.

Nosite odgovarajući respirator.

Udisanje: minimalni prinos od 90 %.

Ostali uvjeti koji utječu na izloženost radnikā

otvoreni/zatvoreni prostor: na prekrivenom prostoru.

Temperatura: < 50°C

2.6. NADZOR NAD IZLOŽENOŠĆU RADNIKA: nanošenje valjcima ili kistovima (PROC10)

Obilježja proizvoda (artikla)

Obuhvaća udio tvari u proizvodu do 25 %.

Fizički oblik proizvoda: Tekućina.

Tlak pare: 0,00741 Pa

Temperatura: < 70°C

Upotrijebljene količine (ili sadržane u artiklu), učestalost i trajanje upotrebe/izlaganja

Trajanje: obuhvaća dnevna izlaganja do 8 sati.

Tehnički i organizacijski uvjeti i mjere

Pretpostavlja se da se primjenjuju dobri osnovni standardi higijene na radnom mjestu.

Osigurajte dobru razinu opće ventilacije (ne manje od 1 do 3 varijacija zraka na sat).

Lokalna ispušna ventilacija.

Kožno: minimalna učinkovitost od 0 %.

Udisanje: minimalni prinos od 90 %.

Uvjeti i mjere koje se odnose na osobnu zaštitu, procjenu higijene i zdravlja

Nosite rukavice otporne na kemikalije (testirane u skladu s normom EN374); trebate biti i odgovarajuće osposobljeni.

Upotrebljavajte odgovarajuću zaštitu za oči.

Kožno: minimalna učinkovitost od 99 %.

Udisanje: minimalni prinos od 0 %.

Ostali uvjeti koji utječu na izloženost radnikā

otvoreni/zatvoreni prostor: na prekrivenom prostoru.

Temperatura: < 70°C.

2.7. NADZOR NAD IZLOŽENOŠĆU RADNIKA: neindustrijsko prskanje (PROC11)

Obilježja proizvoda (artikla)

Obuhvaća udio tvari u proizvodu do 25 %.

Fizički oblik proizvoda: Tekućina.

Temperatura: < 40°C

Upotrijebljene količine (ili sadržane u artiklu), učestalost i trajanje upotrebe/izlaganja

Trajanje: obuhvaća dnevna izlaganja do 8 sati.

Tehnički i organizacijski uvjeti i mjere

Osigurajte dobru razinu opće ventilacije (ne manje od 3 do 5 varijacija zraka na sat).

Uvjeti i mjere koje se odnose na osobnu zaštitu, procjenu higijene i zdravlja

Nosite rukavice otporne na kemikalije (testirane u skladu s normom EN374); trebate biti i odgovarajuće osposobljeni.

Upotrebljavajte odgovarajuću zaštitu za oči.

Ako se očekuje da će se kontaminacija kože proširiti i na druge dijelove tijela, i ti bi dijelovi trebali biti zaštićeni vodootpornom odjećom na način jednak onome opisan za ruke.

Nosite odgovarajući respirator.

Kožno: minimalna učinkovitost od 99 %.

Udisanje: minimalni prinos od 90 %.

Ostali uvjeti koji utječu na izloženost radnikā

otvoreni/zatvoreni prostor: na prekrivenom prostoru.

Temperatura: < 40°C.

3. PROCJENA IZLOŽENOSTI I REFERENCA NA NJEZIN IZVOR

3.1. Ispuštanje u okoliš i izloženost: upotreba na industrijskoj lokaciji zbog čega dolazi do uključivanja u artikal (ERC5)

Put ispuštanja	Brzina ispuštanja	Metoda procjene za ispuštanje
slap	0,06 kg/dan	FEICA SPERC 8c.1 b.v1
zrak	0 kg/dan	FEICA SPERC 8c.1 b.v1
Tlo	0%	FEICA SPERC 8c.1 b.v1

Cilj zaštite	Procijenjena izloženost (EUSES v2.1)	RCR
Svježa voda	3.22E-3mg/l	0,536
Sedimenti u slatkoj vodi	0.155mg/l	0,454
Morska voda	3.14E-4mg/l	0,523
Morski sediment	0.015mg/kg suha težina	0,442
Postrojenje za pročišćavanje otpadnih voda	0.028mg/l	< 0,01
Poljoprivredno zemljište	0.05mg/kg suha težina	0,779
Plijeva za grabežljivce (slatka voda)	0.048mg/kg mokro teži	< 0,01
Plijeva za grabežljivce (morska voda)	4.53E-3mg/kg mokro teži	< 0,01
Glavni plijev grabežljivaca (morska voda)	1.64E-3mg/kg mokro teži	< 0,01
Plijeva za grabežljivce (na kopnu)	0.056mg/kg mokro teži	< 0,01
Čovjek kroz okoliš – udisanje	Koncentracija u zraku: 3.45E-11 mg/m ³	< 0,01
Čovjek kroz okoliš – oralni put	1.47E-3mg/kg tt/dan	< 0,01
Stanovništvo izloženo putem okoliša	-	< 0,01

3.2. Izloženost radnika: industrijsko prskanje (PROC7)

Putovi izlaganja	Utjecaj na zdravlje	Pokazatelj izloženosti	Procijenjena izloženost	RCR
udisanjem	sustavan	dugoročan	0.34mg/m ³ (ART v1.5)	0.069
udisanjem	lokalno	dugoročan	0.34mg/m ³ (ART v1.5)	-
udisanjem	lokalno	kratkoročan	0.78mg/m ³ (ART v1.5)	-
dermalno	sustavan	dugoročan	0.257mg/kg tt/dan (ECETOC TRA radnik v3)	0.343
dermalno	lokalno	kratkoročan	0.012mg/cm ² (ECETOC TRA worker v3)	-
kombinirani putovi	-	-	-	0.412

3.3. Izloženost radnika: prijenos tvari ili priprava (punjenje/pražnjenje) u nenamjenskim objektima (PROC8a)

Putovi izlaganja	Utjecaj na zdravlje	Pokazatelj izloženosti	Procijenjena izloženost (ECETOC TRA radnik v3)	RCR
udisanjem	sustavan	dugoročan	0.851mg/m ³	0.173
udisanjem	lokalno	dugoročan	0.851mg/m ³	-
udisanjem	lokalno	kratkoročan	0.851mg/m ³	-
dermalno	sustavan	dugoročan	0.411mg/kg tt/dan	0.548
dermalno	lokalno	kratkoročan	0.03mg/cm ²	-
kombinirani putovi	-	-	-	0.721

3.4. Izloženost radnika: prijenos tvari ili smjese (punjenje/pražnjenje) u namjenskim objektima (PROC8b)

Putovi izlaganja	Utjecaj na zdravlje	Pokazatelj izloženosti	Procijenjena izloženost (ECETOC TRA radnik v3)	RCR
udisanjem	sustavan	dugoročan	0.085mg/m ³	0.017
udisanjem	lokalno	dugoročan	0.085mg/m ³	-
udisanjem	lokalno	kratkoročan	0.0851mg/m ³	-
dermalno	sustavan	dugoročan	0.411mg/kg tt/dan	0.548
dermalno	lokalno	kratkoročan	0.03mg/cm ²	-
kombinirani putovi	-	-	-	0.566

3.5. Izloženost radnika: prijenos tvari ili smjese u male spremnike (namjensko punjenje, uključujući vaganje) (PROC9)

Putovi izlaganja	Utjecaj na zdravlje	Pokazatelj izloženosti	Procijenjena izloženost (ECETOC TRA radnik v3)	RCR
udisanjem	sustavan	dugoročan	0.099mg/m ³	0.02
udisanjem	lokalno	dugoročan	0.099mg/m ³	-
udisanjem	lokalno	kratkoročan	0.993mg/m ³	-
dermalno	sustavan	dugoročan	0.343mg/kg tt/dan	0.457
dermalno	lokalno	kratkoročan	0.05mg/cm ²	-
kombinirani putovi	-	-	-	0.659

3.6. Izloženost radnika: nanošenje valjcima ili kistovima (PROC10)

Putovi izlaganja	Utjecaj na zdravlje	Pokazatelj izloženosti	Procijenjena izloženost (ECETOC TRA radnik v3)	RCR
udisanjem	sustavan	dugoročan	0.085mg/m ³	0.017
udisanjem	lokalno	dugoročan	0.085mg/m ³	-
udisanjem	lokalno	kratkoročan	0.085mg/m ³	-
dermalno	sustavan	dugoročan	0.165mg/kg tt/dan	0.219
dermalno	lokalno	kratkoročan	0.012mg/cm ²	-
kombinirani putovi	-	-	-	0.237

3.7. Izloženost radnika: neindustrijsko prskanje (PROC11)

Putovi izlaganja	Utjecaj na zdravlje	Pokazatelj izloženosti	Procijenjena izloženost	RCR
udisanjem	sustavan	dugoročan	0.34mg/m ³ (ART v1 .5)	0.069
udisanjem	lokalno	dugoročan	0.34mg/m ³ (ART v1 .5)	-
udisanjem	lokalno	kratkoročan	0.78mg/m ³ (ART v1 .5)	-
dermalno	sustavan	dugoročan	0.643mg/kg tt/dan (ECETOC TRA radnika v3)	0.857
dermalno	lokalno	kratkoročan	0.03mg/cm ² (ECETOC TRA worker v3)	-
kombinirani putovi	-	-	-	0.926

4. VODIČ ZA DALJNJE KORISNIKE ZA PROCJENU RADE LI U GRANICAMA NAMETNUTIM SCENARIJEM IZLOŽENOSTI

Predviđena izlaganja ne bi smjela prelaziti primjenjive granice izlaganja (navedene u odjeljku 8. sigurnosnog lista) kad su provedeni mjere upravljanja rizikom / radni uvjeti navedeni u odjeljku 2.

Ako se primjenjuju druge mjere upravljanja rizicima / drugi radni uvjeti, korisnici su dužni osigurati da se rizicima upravlja barem na jednakim razinama.

Vodič se temelji na pretpostavljenim radnim uvjetima koji možda nisu primjenjivi na sve lokacije, stoga bi skaliranje moglo biti potrebno za definiranje mjera upravljanja za točan rizik specifičan za lokaciju.

2-methoxy-1-methylethyl acetate

Substance identification

Chemical Name: 2-methoxy-1-methylethyl acetate

CAS number: 108-65-6

Date - Version: 02/08/2021 18.0

4. USE IN COATINGS. - USE IN INDUSTRIAL PLANTS

Short title of the exposure scenario: Use in coatings. - Use in industrial plants

SU3; ERC4; PROC1, PROC2, PROC3, PROC4, PROC5, PROC7, PROC8a, PROC8b, PROC9, PROC10, PROC13, PROC14, PROC15

EXPOSURE CONTROL AND RISK MANAGEMENT MEASURES

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: ERC4: Industrial use of processing aids not becoming part of articles.

Operating conditions

Yearly amount used in EU: 63,050,000 kg

Daily amount per site: 105.087 kg

Minimum continuous emission days per year: 300

Emission factor to air: 27%

Emission factor in water: 2%

Emission factor in soil: 0.1%

Releases based on A&B tables from TGD 2003

Freshwater dilution factor: 10

Marine water dilution factor: 100

Risk management measures

Treat air emissions to provide a typical removal efficiency of 70%.

Prevent discharge of undissolved substance, or recover from wastewater.

Type of treatment plant: Municipal sewage treatment plant.

Total removal efficiency of the substance from the wastewater after Risk Management Measures and treatment in the treatment plant (5): 87.3%

Assumed treatment plant flow: 2,000 m³/day

Measures relative to the waste

Dispose of waste cans and containers according to local regulations.

Exposure estimation and reference to its source

Risk Characterization Ratio (RCR): 0.1338

Risk from environmental exposure is driven by freshwater and marine water.

Maximum safe use amount: 79,180 kg/day

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC1: Use in closed process, no likelihood of exposure.

Area of use: Industrial

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥0 - ≤100%

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 0.04 mg/m³

Risk Characterization Ratio (RCR): 0.0001

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 0.34 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.01

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC2: Use in closed, continuous process with occasional controlled exposure.
General exposure. Continuous process (closed system) with sample collection.

Area of use: Industrial

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥0 - ≤100%

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 37.54 mg/m³

Risk Characterization Ratio (RCR): 0.1

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 1.37 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.03

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC2: Use in closed, continuous process with occasional controlled exposure.
Film formation - Fast drying.

Area of use: Industrial

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥0 - ≤100%

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Operation is carried out at elevated temperature (> 20°C above ambient temperature).

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 187.71 mg/m³

Risk Characterization Ratio (RCR): 0.5

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 1.37 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.03

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC3: Use in batch process (synthesis or formulation). Mixing operations. General exposure (closed system).

Area of use: Industrial

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 100\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 93.85 mg/m³

Risk Characterization Ratio (RCR): 0.25

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 0.34 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.01

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC4: Use in batch process (synthesis) where opportunity for exposure arises. Film formation - Air drying.

Area of use: Industrial

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 100\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 75.08 mg/m³

Risk Characterization Ratio (RCR): 0.2

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 6.86 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.14

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC5: Mixing in batch processes for formulation of preparations and articles (multistage and/or significant contact). Preparation of material for application. Mixing operations (open systems).

Area of use: Industrial

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 100\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 187.71 mg/m³

Risk Characterization Ratio (RCR): 0.51

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 13.71 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.27

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC7: Industrial spray application. Spraying (automatic/robotic).

Area of use: Industrial

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥0 - ≤100%

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Risk management measures

Carry out in a vented booth or extracted enclosure. Effectiveness: 95%.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 46.93 mg/m³

Risk Characterization Ratio (RCR): 0.13

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 2.14 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.04

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC7: Industrial spray application. Spraying (manual).

Area of use: Industrial

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥0 - ≤100%

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Risk management measures

Provide a good standard of controlled ventilation (10 to 15 air changes per hour). Effectiveness: 70%.

Wear suitable gloves compliant with EN ISO 374-1. Effectiveness: 80%.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 281.56 mg/m³

Risk Characterization Ratio (RCR): 0.76

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 8.57 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.17

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities. Material transfers. Non-dedicated system.

Area of use: Industrial

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 100\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 187.71 mg/m³

Risk Characterization Ratio (RCR): 0.51

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 13.71 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.27

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities. Material transfers. Dedicated plant.

Area of use: Industrial

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 100\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 187.71 mg/m³

Risk Characterization Ratio (RCR): 0.51

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 6.86 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.14

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing). Material transfers. Drum/batch transfers. Transfer from containers. Dedicated plant.

Area of use: Industrial

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 100\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 187.71 mg/m³

Risk Characterization Ratio (RCR): 0.51

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 6.86 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.14

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC10: Application with rollers or brushes. Roller, spatula, jet application.

Area of use: Industrial

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥0 - ≤100%

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Risk management measures

Wear suitable gloves compliant with EN ISO 374-1. Effectiveness: 80%

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 187.71 mg/m³

Risk Characterization Ratio (RCR): 0.51

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 5.49 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.11

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC13: Treatment of articles by dipping, pouring, enamelling.

Area of use: Industrial

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥0 - ≤100%

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 187.71 mg/m³

Risk Characterization Ratio (RCR): 0.51

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 13.71 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.27

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC14: Production of preparations or articles by tableting, compression, extrusion or pelletising. Production or preparation of articles by tableting, compression, extrusion.

Area of use: Industrial

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 100\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 187.71 mg/m³

Risk Characterization Ratio (RCR): 0.51

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 3.43 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.07

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC15: Use as laboratory reagent. Laboratory activities.

Area of use: Industrial

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 100\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 37.54 mg/m³

Risk Characterization Ratio (RCR): 0.1

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 0.34 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.01

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

5. USE IN COATINGS. - USE IN INDUSTRIAL PLANTS

Short title of the exposure scenario: Use in coatings. - Use in industrial plants

SU3; ERC4; PROC1, PROC2, PROC3, PROC4, PROC5, PROC7, PROC8a, PROC8b, PROC9, PROC10, PROC13, PROC14, PROC15

EXPOSURE CONTROL AND RISK MANAGEMENT MEASURES

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: ERC4: Industrial use of processing aids not becoming part of articles.

Operating conditions

Yearly amount used in EU: 2,600,000 kgs

Daily amount per site: 430kg

Minimum continuous emission days per year: 300

Emission factor to air: 80%

Emission factor in water: 10%

Emission factor in soil: 0.1%

Releases based on A&B tables from TGD 2003

Freshwater dilution factor: 10

Marine water dilution factor: 100

Risk management measures

Prevent discharge of undissolved substance, or recover from wastewater.

Type of treatment plant: Municipal sewage treatment plant.

Total removal efficiency of the substance from the wastewater after Risk Management Measures and treatment in the treatment plant (5): 87.3%

Assumed treatment plant flow: 2,000 m³/day

Measures relative to the waste

Dispose of waste cans and containers according to local regulations.

Exposure estimation and reference to its source

Risk Characterization Ratio (RCR): 0.029

Risk from environmental exposure is driven by freshwater and marine water.

Maximum safe use amount: 140.104 kg/day

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC1: Use in closed process, no likelihood of exposure (closed system). General exposure.

Area of use: Industrial

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥0 - ≤5%

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Workers - all relevant routes of exposure.

If the operating conditions identified and risk management measures are applied, the use has been assessed as safe.

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC2: Use in closed, continuous process with occasional controlled exposure. General exposure. Continuous process (closed system) with sample collection.

Area of use: Industrial

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 5\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 7.51 mg/m³

Risk Characterization Ratio (RCR): 0.02

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 1.37 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.03

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC2: Use in closed, continuous process with occasional controlled exposure. Film formation - Fast drying.

Area of use: Industrial

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 5\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Operation is carried out at elevated temperature ($> 20^\circ\text{C}$ above ambient temperature).

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 37.54 mg/m³

Risk Characterization Ratio (RCR): 0.1

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 1.37 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.03

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC3: Use in batch process (synthesis or formulation). Mixing operations. General exposure (closed system).

Area of use: Industrial

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 5\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 18.77 mg/m³

Risk Characterization Ratio (RCR): 0.05

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 0.34 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.01

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC4: Use in batch process (synthesis) where opportunity for exposure arises. Film formation - Air drying.

Area of use: Industrial

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 5\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 15.02 mg/m³

Risk Characterization Ratio (RCR): 0.04

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 6.86 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.14

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC5: Mixing in batch processes for formulation of preparations and articles (multistage and/or significant contact). Preparation of material for application. Mixing operations (open systems).

Area of use: Industrial

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 5\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 37.54 mg/m³

Risk Characterization Ratio (RCR): 0.1

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 13.71 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.27

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC7: Industrial spray application. Spraying (automatic/robotic). Spraying (manual)

Area of use: Industrial

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 5\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Risk management measures

Wear suitable gloves compliant with EN ISO 374-1. Effectiveness: 80%.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 187.71 mg/m³

Risk Characterization Ratio (RCR): 0.51

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 8.57 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.17

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC7: Industrial spray application. Spraying (manual).

Area of use: Industrial

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥0 - ≤5%

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Risk management measures

Wear suitable gloves compliant with EN ISO 374-1.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Workers - all relevant routes of exposure

If the operating conditions identified and risk management measures are applied, the use has been assessed as safe.

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities. Material transfers. Non-dedicated system.

Area of use: Industrial

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥0 - ≤5%

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 37.54 mg/m³

Risk Characterization Ratio (RCR): 0.1

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 13.71 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.27

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities. Material transfers. Dedicated plant.

Area of use: Industrial

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 5\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 37.54 mg/m³

Risk Characterization Ratio (RCR): 0.1

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 6.86 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.14

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing). Material transfers. Drum/batch transfers. Transfer from containers. Dedicated plant.

Area of use: Industrial

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 5\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 37.54 mg/m³

Risk Characterization Ratio (RCR): 0.1

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 6.86 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.14

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC10: Application with rollers or brushes. Roller, spatula, jet application.

Area of use: Industrial

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 5\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 37.54 mg/m³

Risk Characterization Ratio (RCR): 0.1

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 27.43 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.54

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC13: Treatment of articles by dipping, pouring, enamelling.

Area of use: Industrial

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 5\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 37.54 mg/m³

Risk Characterization Ratio (RCR): 0.1

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 13.71 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.27

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC14: Production of preparations or articles by tableting, compression, extrusion or pelletising. Production or preparation of articles by tableting, compression, extrusion.

Area of use: Industrial

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 5\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 37.54 mg/m³

Risk Characterization Ratio (RCR): 0.1

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 3.43 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.07

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC15: Use as laboratory reagent. Laboratory activities.

Area of use: Industrial

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 5\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 7.51 mg/m³

Risk Characterization Ratio (RCR): 0.02

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 0.34 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.01

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

7 USE IN COATINGS. - USE IN INDUSTRIAL PLANTS

Short title of the exposure scenario: Use in coatings. - Use in professional installations

SU22; ERC8a, ERC8d; PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC10, PROC11, PROC13, PROC15, PROC19

EXPOSURE CONTROL AND RISK MANAGEMENT MEASURES

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: ERC8a: Wide dispersive indoor use of processing aids in open systems.

Operating conditions

Yearly amount used in EU: 2,600,000 kgs

Daily amount per site: 433 kg

Minimum continuous emission days per year: 300

Emission factor to air: 80%

Emission factor in water: 10%

Emission factor in soil: 0.1%

Releases based on A&B tables from TGD 2003

Freshwater dilution factor: 10

Marine water dilution factor: 100

Risk management measures

Prevent discharge of undissolved substance, or recover from wastewater.

Type of treatment plant: Municipal sewage treatment plant.

Total removal efficiency of the substance from the wastewater after Risk Management Measures and treatment in the treatment plant (5): 87.3%

Assumed treatment plant flow: 2,000 m³/day

Measures relative to the waste

Dispose of waste cans and containers according to local regulations.

Exposure estimation and reference to its source

Risk Characterization Ratio (RCR): 0.029

Risk from environmental exposure is driven by freshwater and marine water.

Maximum safe use amount: 15,141 kg/day

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: ERC8d: Wide dispersive outdoor use of processing aids in open systems.

Operating conditions

Yearly amount used in EU: 2,600,000 kgs

Daily amount per site: 433 kg

Minimum continuous emission days per year: 300

Emission factor to air: 80%

Emission factor in water: 10%

Emission factor in soil: 0.1%

Releases based on A&B tables from TGD 2003

Freshwater dilution factor: 10

Marine water dilution factor: 100

Risk management measures

Prevent discharge of undissolved substance, or recover from wastewater.

Type of treatment plant: Municipal sewage treatment plant.

Total removal efficiency of the substance from the wastewater after Risk Management Measures and treatment in the treatment plant (5): 87.3%

Assumed treatment plant flow: 2,000 m³/day

Measures relative to the waste

Dispose of waste cans and containers according to local regulations.

Exposure estimation and reference to its source

Risk Characterization Ratio (RCR): 0.029

Risk from environmental exposure is driven by freshwater and marine water.

Maximum safe use amount: 15,141 kg/day

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC1: Use in closed process, no likelihood of exposure.

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 100\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 0.04 mg/m³

Risk Characterization Ratio (RCR): 0.0001

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 0.34 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.01

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC2: Use in closed, continuous process with occasional controlled exposure.

Filling/Preparation of equipment required for drums and containers.

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 100\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Workers - all relevant routes of exposure.

The use has been assessed as safe.

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC2: Use in closed, continuous process with occasional controlled exposure.

General exposure. Use in confined systems (closed system). Filling/Preparation of equipment required for drums and containers.

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 100\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Operation is carried out at elevated temperature ($> 20^\circ\text{C}$ above ambient temperature).

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 75.08 mg/m³

Risk Characterization Ratio (RCR): 0.2

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 1.37 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.03

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC3: Use in batch process (synthesis or formulation). Preparation of material for application

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥0 - ≤100%

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 93.85 mg/m³

Risk Characterization Ratio (RCR): 0.25

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 0.34 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.01

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC4: Use in batch process (synthesis) where opportunity for exposure arises. Film formation - Air drying.

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥0 - ≤100%

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 187.71 mg/m³

Risk Characterization Ratio (RCR): 0.51

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 6.86 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.14

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC4: Use in batch and other processes (synthesis) where opportunity for exposure arises. Film formation - Air drying.

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 100\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Workers - all relevant routes of exposure.

The use has been assessed as safe.

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC5: Mixing in batch processes for formulation of preparations and articles (multistage and/or significant contact). Preparation of material for application.

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 100\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Risk management measures

Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Effectiveness: 30%.

Alternatively: Ensure that operations are carried out externally.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 269.79 mg/m³

Risk Characterization Ratio (RCR): 0.71

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 13.71 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.27

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC5: Mixing in batch processes for formulation of preparations and articles (multistage and/or significant contact). Preparation of material for application.

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 100\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Risk management measures

Ensure that operations are carried out externally.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Workers - all relevant routes of exposure

If the operating conditions identified and risk management measures are applied, the use has been assessed as safe.

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities. Material transfers. Drum/batch transfers. Non-dedicated system.

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 100\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Risk management measures

Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Effectiveness: 30%.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 262.79 mg/m³

Risk Characterization Ratio (RCR): 0.71

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 13.71 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.27

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities. Material transfers. Drum/batch transfers Dedicated plant.

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 100\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 187.71 mg/m³

Risk Characterization Ratio (RCR): 0.51

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 6.86 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.14

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC10: Application with rollers or brushes. Roller, spatula, jet application.

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 100\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Risk management measures

Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Effectiveness: 30%.

Wear suitable gloves compliant with EN ISO 374-1. Effectiveness: 80%

If there is no general ventilation, ensure that operations are carried out outdoors.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 262.79 mg/m³

Risk Characterization Ratio (RCR): 0.71

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 5.49 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.11

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC10: Application with rollers or brushes. Roller, spatula, jet application.

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 100\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Risk management measures

Ensure that operations are carried out externally.

Wear suitable gloves compliant with EN ISO 374-1.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Workers - all relevant routes of exposure

If the operating conditions identified and risk management measures are applied, the use has been assessed as safe.

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC11: Non-industrial spray application. Spraying (manual).

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 100\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Risk management measures

Carry out in a vented booth or extracted enclosure. Effectiveness: 80%.

Wear a respirator conforming to EN140 with type A filter or better. Effectiveness: 90%.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 37.54 mg/m³

Risk Characterization Ratio (RCR): 0.1

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 2.14 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.04

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC11: Non-industrial spray application. Spraying (manual).

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥0 - ≤100%

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Risk management measures

Ensure that operations are carried out externally. Effectiveness: 30%.

Wear a respirator conforming to EN140 with type A filter or better. Effectiveness: 90%.

Wear suitable gloves compliant with EN ISO 374-1. Effectiveness: 80%.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 131.4 mg/m³

Risk Characterization Ratio (RCR): 0.36

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 21.43 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.42

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC13: Treatment of articles by dipping, pouring, enamelling.

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥0 - ≤100%

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Risk management measures

Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Effectiveness: 30%.

Alternatively: Ensure that operations are carried out externally.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 262.79 mg/m³

Risk Characterization Ratio (RCR): 0.71

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 13.71 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.27

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC13: Treatment of articles by dipping, pouring, enamelling.

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 100\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Risk management measures

Ensure that operations are carried out externally.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Workers - all relevant routes of exposure

If the operating conditions identified and risk management measures are applied, the use has been assessed as safe.

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC15: Use as laboratory reagent. Laboratory activities.

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 100\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 37.54 mg/m³

Risk Characterization Ratio (RCR): 0.1

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 0.34 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.01

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC19: Manual mixing with direct contact using only personal protective equipment. Hand application - fingerpaints, pastels, adhesives.

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 100\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Risk management measures

Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Effectiveness: 30%.

Wear chemically resistant gloves in combination with "basic" employee training. Effectiveness: 90%.

If there is no general ventilation, ensure that operations are carried out outdoors.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 262.79 mg/m³

Risk Characterization Ratio (RCR): 0.71

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 14.14 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.28

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC19: Manual mixing with direct contact using only personal protective equipment. Hand application - fingerpaints, pastels, adhesives.

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥0 - ≤100%

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Risk management measures

Ensure that operations are carried out externally.

Wear chemically resistant gloves in combination with "basic" employee training.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Workers - all relevant routes of exposure

If the operating conditions identified and risk management measures are applied, the use has been assessed as safe.

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

8. USE IN COATINGS. - USE IN INDUSTRIAL PLANTS

Short title of the exposure scenario: Use in coatings. - Use in professional installations

SU22; ERC8a, ERC8d; PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC10, PROC11, PROC13, PROC15, PROC19

EXPOSURE CONTROL AND RISK MANAGEMENT MEASURES

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: ERC8a: Wide dispersive indoor use of processing aids in open systems.

Operating conditions

Yearly amount used in EU: 2,600,000 kgs

Daily amount per site: 433 kg

Minimum continuous emission days per year: 300

Emission factor to air: 80%

Emission factor in water: 10%

Emission factor in soil: 0.1%

Releases based on A&B tables from TGD 2003

Freshwater dilution factor: 10

Marine water dilution factor: 100

Risk management measures

Prevent discharge of undissolved substance, or recover from wastewater.

Type of treatment plant: Municipal sewage treatment plant.

Total removal efficiency of the substance from the wastewater after Risk Management Measures and treatment in the treatment plant (5): 87.3%

Assumed treatment plant flow: 2,000 m³/day

Measures relative to the waste

Dispose of waste cans and containers according to local regulations.

Exposure estimation and reference to its source

Risk Characterization Ratio (RCR): 0.029

Risk from environmental exposure is driven by freshwater and marine water.

Maximum safe use amount: 15,141 kg/day

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: ERC8d: Wide dispersive outdoor use of processing aids in open systems.

Operating conditions

Yearly amount used in EU: 2,600,000 kgs

Daily amount per site: 433 kg

Minimum continuous emission days per year: 300

Emission factor to air: 80%

Emission factor in water: 10%

Emission factor in soil: 0.1%

Releases based on A&B tables from TGD 2003

Freshwater dilution factor: 10

Marine water dilution factor: 100

Risk management measures

Prevent discharge of undissolved substance, or recover from wastewater.

Type of treatment plant: Municipal sewage treatment plant.

Total removal efficiency of the substance from the wastewater after Risk Management Measures and treatment in the treatment plant (5): 87.3%

Assumed treatment plant flow: 2,000 m³/day

Measures relative to the waste

Dispose of waste cans and containers according to local regulations.

Exposure estimation and reference to its source

Risk Characterization Ratio (RCR): 0.029

Risk from environmental exposure is driven by freshwater and marine water.

Maximum safe use amount: 15,141 kg/day

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC1: Use in closed process, no likelihood of exposure. General exposure (closed system).

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 5\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Workers - all relevant routes of exposure

If the operating conditions identified and risk management measures are applied, the use has been assessed as safe.

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC2: Use in closed, continuous process with occasional controlled exposure. Filling/Preparation of equipment required for drums and containers.

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 5\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Workers - all relevant routes of exposure

If the operating conditions identified and risk management measures are applied, the use has been assessed as safe.

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC2: Use in closed, continuous process with occasional controlled exposure. General exposure. Use in confined systems (closed system). Filling/Preparation of equipment required for drums and containers.

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 5\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Operation is carried out at elevated temperature ($> 20^\circ\text{C}$ above ambient temperature).

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 15.02 mg/m³

Risk Characterization Ratio (RCR): 0.4

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 1.37 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.03

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC3: Use in batch process (synthesis or formulation). Preparation of material for application

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥0 - ≤5%

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 18.77 mg/m³

Risk Characterization Ratio (RCR): 0.05

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 0.34 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.01

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC4: Use in batch and other processes (synthesis) where opportunity for exposure arises. Film formation - Air drying.

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥0 - ≤5%

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 37.54 mg/m³

Risk Characterization Ratio (RCR): 0.1

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 6.86 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.14

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC4: Use in batch and other processes (synthesis) where opportunity for exposure arises. Film formation - Air drying.

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 5\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Indoor/Outdoor: Indoor use.

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Workers - all relevant routes of exposure

If the operating conditions identified and risk management measures are applied, the use has been assessed as safe.

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC5: Mixing in batch processes for formulation of preparations and articles (multistage and/or significant contact). Preparation of material for application.

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 5\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 75.08 mg/m³

Risk Characterization Ratio (RCR): 0.2

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 13.71 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.27

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC5: Mixing in batch processes for formulation of preparations and articles (multistage and/or significant contact). Preparation of material for application.

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 5\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Risk management measures

Ensure that operations are carried out externally.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Workers - all relevant routes of exposure

If the operating conditions identified and risk management measures are applied, the use has been assessed as safe.

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities. Material transfers. Drum/batch transfers. Non-dedicated system.

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 5\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 75.08 mg/m³

Risk Characterization Ratio (RCR): 0.2

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 13.71 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.27

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities. Material transfers. Drum/batch transfers Dedicated plant.

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 5\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 37.54 mg/m³

Risk Characterization Ratio (RCR): 0.1

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 6.86 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.14

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC10: Application with rollers or brushes. Roller, spatula, jet application.

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 5\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 75.08 mg/m³

Risk Characterization Ratio (RCR): 0.2

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 27.43 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.54

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC10: Application with rollers or brushes. Roller, spatula, jet application.

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥0 - ≤5%

Indoor/Outdoor: Outdoor use.

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Workers - all relevant routes of exposure

If the operating conditions identified and risk management measures are applied, the use has been assessed as safe.

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC11: Non-industrial spray application. Spraying (manual).

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥0 - ≤5%

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Risk management measures

Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Effectiveness: 30%.

Wear chemically resistant gloves in combination with "basic" employee training. Effectiveness: 90%.

If there is no general ventilation, ensure that operations are carried out outdoors.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 262.79 mg/m³

Risk Characterization Ratio (RCR): 0.71

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 10.71 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.21

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC11: Non-industrial spray application. Spraying (manual).

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 5\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Risk management measures

Ensure that operations are carried out externally.

Wear chemically resistant gloves in combination with "basic" employee training.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Workers - all relevant routes of exposure

If the operating conditions identified and risk management measures are applied, the use has been assessed as safe.

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC13: Treatment of articles by dipping, pouring, enamelling.

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 5\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 75.08 mg/m³

Risk Characterization Ratio (RCR): 0.2

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 13.71 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.27

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC13: Treatment of articles by dipping, pouring, enamelling.

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 5\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Indoor/Outdoor: Indoor use.

Assumes use at not more than 20°C above ambient temperature.

Risk management measures

Ensure that operations are carried out externally.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Workers - all relevant routes of exposure

If the operating conditions identified and risk management measures are applied, the use has been assessed as safe.

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC15: Use as laboratory reagent. Laboratory activities.

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 5\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 7.51 mg/m³

Risk Characterization Ratio (RCR): 0.02

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 0.34 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.01

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC19: Manual mixing with direct contact using only personal protective equipment. Hand application - fingerpaints, pastels, adhesives.

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 5\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Risk management measures

Wear suitable gloves compliant with EN ISO 374-1. Effectiveness: 80%.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 75.08 mg/m³

Risk Characterization Ratio (RCR): 0.2

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 28.29 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.56

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC19: Manual mixing with direct contact using only personal protective equipment. Hand application - fingerpaints, pastels, adhesives.

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 5\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Indoor/Outdoor: Outdoor use.

Assumes use at not more than 20°C above ambient temperature.

Risk management measures

Wear suitable gloves compliant with EN ISO 374-1.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Workers - all relevant routes of exposure

If the operating conditions identified and risk management measures are applied, the use has been assessed as safe.

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

Xylene

Identification of the exposure scenario

Product name: Xylene

Reach registration number: 01-2119488216-32-XXXX

CAS number: 1330-20-7

EC number: 215-535-7

Review date: 14/02/2022 rev. 3.0

USE IN COATINGS - INDUSTRIAL USE

1. Title of the exposure scenario

Process purpose: Includes use in coatings (varnishes, inks, adhesives, etc.), including exposure during application (including material receipt, storage, bulk and semi-bulk preparation and transfer, application by spray, roller, manual spraying, dip, flow, fluid layers in production lines and in film formation) and system cleaning, maintenance and related laboratory activities.

Main sector: SU3 Industrial uses

Environment

Environmental Release Categories [ERC]: ERC4 Use of non-reactive processing aid at industrial site (no inclusion into or onto article).

Specific Environmental Release Category [SPERC]: ESVOC SPERC 4.3a.v1

Worker

Process categories:

PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions.

PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions.

PROC 3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment conditions.

PROC4 Production of chemicals with the possibility of exposure.

PROC5 Mixing or blending in batch processes

PROC7 Industrial spraying.

PROC8a Transfer of a substance or preparation (charging/discharging) at non-dedicated facilities.

PROC8a Transfer of substance or mixture (charging/discharging) at non-dedicated facilities.

PROC10 Application with rollers or brushes.

PROC13 Treatment of articles by dipping and pouring.

PROC15 Use as laboratory reagent.

PROC24 High (mechanical) energy work-up of substances bound in/on materials and/or articles.

2. Other conditions of use affecting exposure (Industrial - Environment 1)

Products features

Form: Liquid, vapor pressure 0.5 - 10 kPa at STP

Easily biodegradable.

Amounts used:

Annual amount per site: 2500 tonnes

Frequency and duration of use

Issue days: 300 days/year

Additional operating conditions relating to environmental exposure

Emission factor - air

Air release rate produced by the process (initial release prior to risk management measures): 0.98

Emission factor - water

Waste water release rate produced by the process (initial release prior to risk management measures): 0.007

Emission factor - soil

Soil release rate produced by the process (initial release prior to risk management measures): 0

Environmental factors that are not influenced by risk management

Dilution

Local fresh water dilution factor: 10

Local seawater dilution factor: 100

Risk management measures

Sewage Treatment Plant Data (STP)

Estimated substance removal from waste water via domestic sewage treatment: 95.8%

Assumed domestic sewage treatment plant flow: 2000 m³/day

Local technical conditions and measures to reduce and limit discharges and air emissions

Air:

Treat air emission to provide a typical removal efficiency of > 90%.

Water:

Avoid releasing the undiluted substance into local waste water or recover it on site. The typical on-site purification technique has a removal efficiency of 95.8%.

Ground:

Soil emission controls are not applicable as there is no direct release to soil.

Conditions and measures for external treatment of waste

Sludge treatment:

Do not spread industrial sludge on natural soils. Sewerage sludge should be burned, stored or regenerated.

Waste treatment:

No waste of the substance is formed during production.

2. Other conditions of use affecting exposure (Workers - Health 1)

Products features

Form:

Liquid, vapor pressure 0.5 - 10 kPa at STP

Concentration information: Includes concentrations up to 100%, unless otherwise indicated.

Quantities used

Not applicable.

Frequency and duration of use

Covers daily exposures up to 8 hours (unless stated differently).

Other operational conditions affecting worker exposure

Temperature: (unless stated differently) assumes use at not more than 20°C above ambient temperature.

Ventilation Rate: Ensure a sufficient amount of controlled ventilation (10 to 15 air changes per hour). Assumes a good basic standard of occupational hygiene is implemented.

Technical conditions and process-level (source) measures to prevent releases

Technical protective measures:

Handle substance within a closed system. Provide supplementary ventilation to points where emissions occur. Ensure material transfers are managed using closed or air exhaust systems. Drain or remove substance from equipment before opening or servicing PROC7 Industrial spraying: spraying (automatic/robotic) should be carried out in a ventilated booth with laminar air flow.

Risk management measures:

PROC7 Industrial spraying.

Manual spraying.

Wear respiratory protection in accordance with EN 140 with filter type A or better.

3. Verification of exposure (Environment 1)

Environmental exposure:

Predicted exposures are not expected to exceed the specific risks (listed in chapter 8 of the safety datasheet), when the risk management measures/operational conditions outlined in section 2 are implemented.

Maximum allowable site tonnage (M_{safe}), based on release following total waste water treatment removal: 9874 kg/day

3. Exposure Verification (Health 1)

Exposure

Predicted workplace exposures are not expected to exceed the DNEL when risk identification measures are implemented.

4. Guidance to check compliance with the exposure scenario (Environment 1)

Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Guidance is based on assumed operating conditions which may not be applicable to all sites, thus, scaling may be necessary to define appropriate site-specific risk management measures.

Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination.

Required removal efficiency for waste water can be achieved using on-site/off-site technologies, either alone or in combination.

Further details on scaling and control technologies are provided in SpERC factsheet (<http://cefic.org/en/reach-for-industries-libraries.html>).

4. Guidance to check compliance with the exposure scenario (Health 1)

Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

USE IN COATINGS - PROFESSIONAL USE

1. Title of the exposure scenario

Process purpose: Includes use in coatings (varnishes, inks, adhesives, etc.), including exposure during application (including material receipt, storage, bulk and semi-bulk preparation and transfer, application by spray, roller, brush and manual spraying or similar processes and film formation) and system cleaning, maintenance and related laboratory activities.

Main sector: SU22 Professional uses

Environment

Environmental Release Categories [ERC]:

ERC8a Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor).

ERC8d Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor).

ERC8c Widespread use leading to inclusion into/onto article (indoor).

ERC8f Widespread use leading to inclusion into/onto article (outdoor).

Specific Environmental Release Category [SPERC]: ESVOC SPERC 8.3b.v1

Worker

Process categories:

PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions.

PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions.

PROC 3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment conditions.

PROC4 Production of chemicals with the possibility of exposure.

PROC5 Mixing or blending in batch processes

PROC8a Transfer of a substance or preparation (charging/discharging) at non-dedicated facilities.

PROC8a Transfer of substance or mixture (charging/discharging) at non-dedicated facilities.

PROC10 Application with rollers or brushes.

PROC11 Non-industrial spray application.

PROC13 Treatment of articles by dipping and pouring.

PROC15 Use as laboratory reagent.

PROC19 Manual activities with direct contact.

PROC24 High (mechanical) energy work-up of substances bound in/on materials and/or articles.

2. Other conditions of use affecting exposure (Industrial - Environment 1)

Products features

Form: Liquid, vapor pressure 0.5 - 10 kPa at STP Easily biodegradable.

Quantities used

Annual amount per site: 10 tonnes

Frequency and duration of use

Issue days: 365 days/year

Additional operating conditions relating to environmental exposure

Emission factor - air

Air release rate produced by the process (initial release prior to risk management measures): 0.98

Emission factor - water

Waste water release rate produced by the process (initial release prior to risk management measures): 0.01

Emission factor - soil

Soil release rate produced by the process (initial release prior to risk management measures): 0.01

Environmental factors that are not influenced by risk management

Dilution

Local fresh water dilution factor: 10

Local seawater dilution factor: 100

Risk management measures

Sewage Treatment Plant Data (STP)

Estimated substance removal from waste water via domestic sewage treatment 95.8%

Assumed domestic sewage treatment plant flow: 2000 m³/day

Local technical conditions and measures to reduce and limit discharges and air emissions

Air: Treat air emission to provide a typical removal efficiency of 0%.

Water: The typical on-site purification technique has a removal efficiency of 95.8%.

Conditions and measures for external treatment of waste

Waste treatment: External treatment and disposal of waste should comply with applicable local and/or national regulations.

2. Other conditions of use affecting exposure (Workers - Health 1)

Products features

Form:

Liquid, vapor pressure 0.5 - 10 kPa at STP

Concentration information:

Includes concentrations up to 100%, unless otherwise indicated.

Quantities used

Not applicable.

Frequency and duration of use

Covers daily exposures up to 8 hours (unless stated differently).

Other operational conditions affecting worker exposure

Temperature:

(unless stated differently) assumes use at not more than 20°C above ambient temperature.

Ventilation Rate:

Provide a good standard of controlled ventilation (10 to 15 air changes per hour) or ensure operation is undertaken outdoors.

Assumes a good basic standard of occupational hygiene is implemented.

Technical conditions and process-level (source) measures to prevent releases

Technical protective measures:

Handle substance within a closed system. Provide supplementary ventilation to points where emissions occur. Ensure material transfers are managed using closed or air exhaust systems. Clean/flush equipment prior to opening or maintenance. Transport on closed roads. PROC11 Non-industrial spray application. Indoor use. Perform in a laminar flow ventilated booth. PROC15 Use as laboratory reagents handle under fume hood or extract air.

Organizational measures to prevent/limit releases, dispersion and exposure

Organizational measures

Avoid activities with an exposure of more than 4 hours.

Hand Application - Finger Paints, Chalks, Stickers:

Limit the amount of substance in the mixture to 5%.

Risk management measures

Wear protective gloves according to EN 374, resistant to solvents.

PROC10 Application with rollers or brushes.

PROC11 Non-industrial spray application. Outdoor use.

PROC13 Treatment of articles by dipping and pouring. Outdoor use.

Wear respiratory protection in accordance with EN 140 with filter type A or better.

3. Verification of exposure (Environment 1)

Environmental exposure

Predicted exposures are not expected to exceed the specific risks (listed in chapter 8 of the safety datasheet), when the risk management measures/operational conditions outlined in section 2 are implemented.

Maximum allowable site tonnage (M_{safe}), based on release following total waste water treatment removal: 5969 kg/day

3. Exposure Verification (Health 1)

Exposure

Predicted workplace exposures are not expected to exceed the DNEL when risk identification measures are implemented.

4. Guidance to check compliance with the exposure scenario (Environment 1)

Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Guidance is based on assumed operating conditions which may not be applicable to all sites, thus, scaling may be necessary to define appropriate site-specific risk management measures.

Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination.

Required removal efficiency for waste water can be achieved using on-site/off-site technologies, either alone or in combination.

Further details on scaling and control technologies are provided in SpERC factsheet (<http://cefic.org/en/reach-for-industries-libraries.html>).

4. Guidance to check compliance with the exposure scenario (Health 1)

Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

FASSA EPOXY 300 COMP.B

Sigurnosno-tehničkog lista, datum: 21/05/2025 Opis version 3

ODJELJAK 1.: Identifikacija tvari/smjese i podaci o društvu/poduzeću**1.1. Identifikacijska oznaka proizvoda**

Identifikacija preparata:

Trgovačko ime: FASSA EPOXY 300 COMP.B

Trgovački kod: 1223.B

UFI: N338-4HGK-Y30U-GJ0Q

1.2. Utvrđene relevantne uporabe tvari ili smjese i uporabe koje se ne preporučuju

Preporučana upotreba: Epoksidna smola

Nepreporučljiva upotreba: Nije namijenjeno potrošačima

1.3. Podaci o dobavljaču koji isporučuje sigurnosno-tehnički list

Tvrtka: FASSA Srl

Via Lazzaris, 3 - 31027 Spresiano (TV) - ITALY

Tel. +39 0422 7222

Fax +39 0422 887509

Odgovorna osoba: laboratorio.spresiano@fassabortolo.it

1.4. Broj telefona za izvanredna stanja

+3851 2348 342

ODJELJAK 2.: Identifikacija opasnosti**2.1. Razvrstavanje tvari ili smjese****Uredba (EC) br. 1272/2008 (CLP)**

Skin Corr. 1B Uzrokuje teške opekline kože i ozljede oka.

Skin Sens. 1A Može izazvati alergijsku reakciju na koži.

Repr. 2 Sumnja na moguće štetno djelovanje na plodnost. Sumnja na mogućnost štetnog djelovanja na nerođeno dijete.

STOT RE 2 Može uzrokovati oštećenje organa tijekom produljene ili ponavljane izloženosti ako se udiše i proguta.

Aquatic Chronic 2 Otrovno za vodeni okoliš s dugotrajnim učincima.

Fizikalno-kemijski učinci štetni po ljudsko zdravlje i okoliš:

Nema ostalih rizika

2.2. Elementi označivanja**Uredba (EC) br. 1272/2008 (CLP):****Piktogrami i oznaka opasnosti**

Opasnost

Oznake upozorenja

H314 Uzrokuje teške opekline kože i ozljede oka.

H317 Može izazvati alergijsku reakciju na koži.

H361fd Sumnja na moguće štetno djelovanje na plodnost. Sumnja na mogućnost štetnog djelovanja na nerođeno dijete.

H373 Može uzrokovati oštećenje organa tijekom produljene ili ponavljane izloženosti ako se udiše i proguta.

H411 Otrovno za vodeni okoliš s dugotrajnim učincima.

Oznake obavijesti

P260 Ne udisati prašinu/dim/plin/maglu/pare/aerosol.

P264 Temeljito oprati vodom nakon rukovanja.

P280 Nositi zaštitne rukavice/zaštitno odijelo te zaštitu za oči/zaštitu za lice.

P303+P361+P353

U SLUČAJU DODIRA S KOŽOM (ili kosom): odmah skinuti svu zagađenu odjeću. Isprati kožu vodom ili tuširanjem.

P305+P351+P338

U SLUČAJU DODIRA S OČIMA: oprezno ispirati vodom nekoliko minuta. Ukloniti kontaktne leće ako ih nosite i ako se one lako uklanjaju. Nastaviti ispirati.

P310

Odmah nazvati CENTAR ZA KONTROLU OTROVANJA/liječnika.

Sadrži:

tetraetilenpentamin

Amini, polietilenpoli-, trietilentetramin
frakcija

2-piperazin-1-iletilamin

benzil-alkohol

Masne kiseline, C18-nezasićene, dimeri,
oligomerni proizvodi reakcije s masnim
kiselinama iz visokog ulja i
trietilenetetramin

12-hidroksi-N-[6-(12-
hidroksioktadekanamido)heksil]
oktadekanamid

produkti reakcije formaldehid i 4-nonilfenol
i trietilentetramin i 2-piperazin-1-iletilamin

Posebne odredbe prema Prilogu XVII REACH-a i naknadnih amandmana:

Niti jedan

2.3. Ostale opasnosti

Bez PBT-a, vPvB-a ili endokrinih disruptora prisutnih
u koncentraciji > = 0,1 %.

Nema ostalih rizika

ODJELJAK 3.: Sastav/informacije o sastojcima

3.1. Tvari

Ne primjenjuje se.

3.2. Smjese

Identifikacija preparata: FASSA EPOXY 300 COMP.B

Opasni sastojci u smislu CLP Uredbe koja se odnosi na razvrstavanje:

Količina	Naziv	Ident. Broj.	Klasifikacija	Broj registriranih slučajeva:
≥50 - <80 %	Masne kiseline, C18-nezasićene, dimeri, oligomerni proizvodi reakcije s masnim kiselinama iz visokog ulja i trietilenetetramin	CAS:68082-29-1 EC:500-191-5	Skin Irrit. 2, H315; Eye Dam. 1, H318; Skin Sens. 1A, H317; Aquatic Chronic 2, H411	01-2119972320-44-xxxx
≥10 - <20 %	produkti reakcije formaldehid i 4-nonilfenol i trietilentetramin i 2-piperazin-1-iletilamin	EC:922-006-0	Eye Dam. 1, H318; Skin Sens. 1, H317; Skin Corr. 1B, H314	
≥10 - <20 %	benzil-alkohol	CAS:100-51-6 EC:202-859-9 Index:603-057-00-5	Acute Tox. 4, H302 Eye Irrit. 2, H319 Skin Sens. 1B, H317 Procjena akutne toksičnosti: ATE - Oralno: 1200mg/kg t.m.	01-2119492630-38-xxxx
≥3 - <5 %	2-piperazin-1-iletilamin	CAS:140-31-8 EC:205-411-0 Index:612-105-00-4	Acute Tox. 3, H311 Acute Tox. 4, H302 Skin Corr. 1B, H314 Eye Dam. 1, H318 Skin Sens. 1, H317 STOT RE 1, H372 Aquatic Chronic 3, H412 Repr. 2, H361fd Procjena akutne toksičnosti: ATE - Oralno: 500mg/kg t.m.	01-2119471486-30-xxxx
≥1 - <3 %	ksilen	CAS:1330-20-7 EC:215-535-7 Index:601-022-00-9	Flam. Liq. 3, H226 Acute Tox. 4, H312 Acute Tox. 4, H332 Skin Irrit. 2, H315 Eye Irrit. 2, H319 STOT SE 3, H335 STOT RE 2, H373	01-2119488216-32-xxxx

			Asp. Tox. 1, H304	
			Procjena akutne toksičnosti: ATE - Dermalno: 1100mg/kg t.m. ATE - Udisanje (Pare): 11mg/l	
≥0.5 - <1 %	Amini, polietilenpoli-, trietilentetramin frakcija	CAS:90640-67-8 EC:292-588-2	Acute Tox. 4, H312; Acute Tox. 4, H302; Skin Corr. 1B, H314; Eye Dam. 1, H318; Skin Sens. 1, H317; Aquatic Chronic 3, H412	01-2119487919-13-xxxx
≥0.5 - <1 %	tetraetilenpentamin	CAS:90640-66-7 EC:292-587-7	Acute Tox. 4, H312 Acute Tox. 4, H302 Skin Corr. 1B, H314 Eye Dam. 1, H318 Skin Sens. 1, H317 Aquatic Chronic 3, H412	01-2119487290-37-xxxx
			Procjena akutne toksičnosti: ATE - Oralno: 500mg/kg t.m. ATE - Dermalno: 1100mg/kg t.m.	
≥0.3 - <0.5 %	12-hidroksi-N-[6-(12-hidroksioktadekanamido)heksil] oktadekanamid	EC:434-430-9	Skin Sens. 1, H317; Aquatic Chronic 4, H413	01-0000018057-71-xxxx
≥0.3 - <0.5 %	2-metoksi-1-metiletil-acetat	CAS:108-65-6 EC:203-603-9 Index:607-195-00-7	Flam. Liq. 3, H226; STOT SE 3, H336	01-2119475791-29-xxxx
≥0.3 - <0.5 %	etilbenzen	CAS:100-41-4 EC:202-849-4 Index:601-023-00-4	Flam. Liq. 2, H225; Acute Tox. 4, H332; STOT RE 2, H373; Asp. Tox. 1, H304; Aquatic Chronic 3, H412	01-2119489370-35-xxxx
≥0.05 - <0.1 %	toluen	CAS:108-88-3 EC:203-625-9 Index:601-021-00-3	Flam. Liq. 2, H225; Repr. 2, H361d; Asp. Tox. 1, H304; STOT RE 2, H373; Skin Irrit. 2, H315; STOT SE 3, H336; Aquatic Chronic 3, H412	01-2119471310-51-xxxx
≥0.05 - <0.1 %	n-butil-acetat	CAS:123-86-4 EC:204-658-1 Index:607-025-00-1	Flam. Liq. 3, H226; STOT SE 3, H336, EUH066	01-2119485493-29-xxxx
≥0.05 - <0.1 %	ksilen	CAS:1330-20-7 EC:215-535-7 Index:601-022-00-9	Flam. Liq. 3, H226 Acute Tox. 4, H312 Acute Tox. 4, H332 Asp. Tox. 1, H304 Skin Irrit. 2, H315 Eye Irrit. 2, H319 STOT SE 3, H335 STOT RE 2, H373 Aquatic Chronic 3, H412	01-2119488216-32-xxxx
			Procjena akutne toksičnosti: ATE - Dermalno: 1100mg/kg t.m. ATE - Udisanje (Pare): 11mg/l	
≥0.05 - <0.1 %	Kristalni silicijev dioksid, kvarc (udisljiv dio)	CAS:14808-60-7 EC:238-878-4	STOT RE 1, H372	Izuzeto
≥0.05 - <0.1 %	etilbenzen	CAS:100-41-4 EC:202-849-4 Index:601-023-00-4	Flam. Liq. 2, H225; Acute Tox. 4, H332; STOT RE 2, H373; Asp. Tox. 1, H304	01-2119489370-35-xxxx
≥0.05 - <0.1 %	butanon	CAS:78-93-3 EC:201-159-0 Index:606-002-00-3	Flam. Liq. 2, H225; Eye Irrit. 2, H319; STOT SE 3, H336, EUH066	01-2119457290-43-xxxx

ODJELJAK 4.: Mjere prve pomoći

4.1. Opis mjera prve pomoći

U slučaju kontakta sa kožom:

Smjesta skinuti zagađenu odjeću i ukloniti je na bezbjedan način.

ODMAH NAZVATI MEDICINSKU EKIPU ZA HITNU POMOĆ

U slučaju kontakta sa očima:

U slučaju kontakta sa očima, ispirati oči vodom neko vrijeme, držati otvorene kapke, a potom zatražiti pomoć oftalmologa.

Zaštititi neozlijeđeno oko.

U slučaju gutanja:

Ne poticati povraćanje, obratiti se liječniku i pokazati listić o sigurnosti i oznaku kemijskog rizika.

U slučaju udisanja:

Izloženu osobu treba iznijeti na svježi zrak, držati je na toplom, a ista mora mirovati.

Ukoliko osoba nepravilno diše ili uopće ne diše, dati umjetno disanje.

Ukoliko se proguta, hitno zatražiti savjet liječnika i pokazati posudu ili naljepnicu.

4.2. Najvažniji simptomi i učinci, akutni i odgođeni

Simptomi i učinci su u skladu s očekivanjima od opasnosti kako je prikazano u 2. odjeljku.

4.3. Navod o potrebi za hitnom liječničkom pomoći i posebnom obradom

U slučaju nesreće ili slabosti smjesta se obratiti liječniku (ako je moguće, pokazati upute za uporabu ili sigurnosni list).

ODJELJAK 5.: Mjere za suzbijanje požara

5.1. Sredstva za gašenje

Prikladna sredstva za gašenje požara:

CO₂, aparati za gašenje požara prahom, pjena, raspršivanje vode.

Sredstva za gašenje požara koja ne treba koristiti iz bezbjednosnih razloga:

Voda u mlazovima.

5.2. Posebne opasnosti koje proizlaze iz tvari ili smjese

Sagorijevanjem se oslobađaju teški dimovi.

Ne udisati plinove nastale eksplozijom i/ili izgaranjem (ugljikov monoksid i ugljikov dioksid, dušikove okside).

5.3. Savjeti za gasitelje požara

Koristiti prikladne dišne aparate.

Posebno pokupiti zaprljanu vodu, koja je korištena za gašenje požara. Ne bacati ovu vodu u kanalizacionu mrežu.

Neoštećene spremnike skloniti iz prostora neposredne opasnosti, ukoliko se to može izvršiti na bezbjedan način.

ODJELJAK 6.: Mjere kod slučajnog ispuštanja

6.1. Osobne mjere opreza, zaštitna oprema i postupci za izvanredna stanja

Za osobe koje se ne ubrajaju u interventno osoblje:

Koristiti sredstva za osobnu zaštitu.

Ukoliko ste izloženi pari/prašini/aerosoli nosite dišne aparate.

Obezbjediti prikladno prozračivanje.

Koristiti prikladnu zaštitu dišnih organa.

Konzultirati mjere zaštite opisane u točkama 7. i 8.

Za interventno osoblje:

Koristiti sredstva za osobnu zaštitu.

6.2. Mjere zaštite okoliša

Spriječiti prodiranje u tlo/dublje slojeve zemlje. Spriječiti ulivanje u površinske vode ili u kanalizacionu mrežu.

U slučaju izlaska plina ili prodiranja u vodene tokove, tlo ili kanalizacionu mrežu, obavijestiti nadležna tijela.

6.3. Metode i materijal za sprečavanje širenja i čišćenje

Materijal je prikladan za skupljanje: inertni upijajući materijal (npr. pijesak, vermikulit)

Nakon što je proizvod sakupljen, isprati onečišćeno područje i predmete s vodom.

Zadržati vodu kojom ste izvršili pranje, pa je eliminirati.

6.4. Uputa na druge odjeljke

Pogledati također i paragrafe 8. i 13.

ODJELJAK 7.: Rukovanje i skladištenje

7.1. Mjere opreza za sigurno rukovanje

Izbjegavati dodir s kožom i očima, udisanje para i maglica.

Koristiti lokaliziranu ventilaciju.

Ne koristite prazne spremnike prije no što ih očistite.

Prije prijenosa proizvoda, uvjeriti se da u spremnicima nema ostataka nekompatibilnih tvari.

Savjeti o općoj higijeni na radnom mjestu:

Kontaminirana odjeća se smjesta mora zamijeniti prije ulaska u menze.

Ne konzumirati hranu i piće na radnom mjestu.

Pogledati i paragraf 8. u svezi sa preporučenim napravama za zaštitu.

7.2. Uvjeti sigurnog skladištenja, uzimajući u obzir moguće inkompatibilnosti

Čuvati spremnike dobro zatvorene na hladnom i dobro prozračenom mjestu daleko od izvora topline.

Držati podalje od hrane, pića i krmiva.

Inkompatibilne tvari:

Vidi točku 10.5

Upute za prostorije za skladištenje:

Aдекватно prozračene prostorije.

7.3. Posebna krajnja uporaba ili uporabe

Preporuke

Vidi točku 1.2

Specifične otopine za industrijski sektor

Nema posebne upotrebe

ODJELJAK 8.: Nadzor nad izloženosti/osobna zaštita

8.1. Nadzorni parametri

Granične vrijednosti izloženosti na mjestu rada

benzil-alkohol

CAS: 100-51-6	OEL Tip	MAK	Njemačka	Dugoročno 22 mg/m ³ - 5 ppm; Kratkoročno 44 mg/m ³ - 10 ppm Napomene: Inhalable fraction and vapour, Skin
	OEL Tip	TLV	Bugarska	Dugoročno 5 mg/m ³
	OEL Tip	TLV	Češka	Dugoročno 40 mg/m ³ - 8.88 ppm; Kratkoročno 80 mg/m ³ - 17.76 ppm
	OEL Tip	SUVA	Švicarska	Dugoročno 22 mg/m ³ - 5 ppm
	OEL Tip	AGW	Njemačka	Dugoročno 22 mg/m ³ - 5 ppm; Kratkoročno 44 mg/m ³ - 10 ppm Napomene: Inhalable fraction and vapour
	OEL Tip	NDS	Poljska	Dugoročno 240 mg/m ³
	OEL Tip	MV	Slovenija	Dugoročno 22 mg/m ³ - 5 ppm; Kratkoročno 44 mg/m ³ - 10 ppm Napomene: Skin
	OEL Tip	IPRV	Litva	Dugoročno 5 mg/m ³ Napomene: Skin

ksilen

CAS: 1330-20-7	OEL Tip	UE		Dugoročno 221 mg/m ³ - 50 ppm; Kratkoročno 442 mg/m ³ - 100 ppm Napomene: Skin
	OEL Tip	TLV	Češka	Dugoročno 200 mg/m ³ - 45.4 ppm; Kratkoročno 400 mg/m ³ - 90.8 ppm Napomene: Skin
	OEL Tip	RV	Latvija	Dugoročno 221 mg/m ³ - 50 ppm; Kratkoročno 442 mg/m ³ - 100 ppm

2-metoksi-1-metiletil-acetat

CAS: 108-65-6	OEL Tip	UE		Dugoročno 275 mg/m ³ - 50 ppm; Kratkoročno 550 mg/m ³ - 100 ppm Napomene: Skin
	OEL Tip	MAK	Austrija	Dugoročno 275 mg/m ³ - 50 ppm; Kratkoročno 550 mg/m ³ - 100 ppm Napomene: Skin
	OEL Tip	MAK	Njemačka	Dugoročno 270 mg/m ³ - 50 ppm; Kratkoročno 270 mg/m ³ - 50 ppm
	OEL Tip	VLEP	Belgija	Dugoročno 275 mg/m ³ - 50 ppm; Kratkoročno 550 mg/m ³ - 100 ppm Napomene: Additional indication "D" means that the absorption of the agent through the skin, mucous membranes or eyes is an important part of the total exposure. It can be the result of both direct contact and its presence in the air.
	OEL Tip	VLEP	Francuska	Dugoročno 275 mg/m ³ - 50 ppm; Kratkoročno 550 mg/m ³ - 100 ppm Napomene: Skin
	OEL Tip	VLEP	Italija	Dugoročno 275 mg/m ³ - 50 ppm; Kratkoročno 550 mg/m ³ - 100 ppm Napomene: Skin
	OEL Tip	VLEP	Rumunjska	Dugoročno 275 mg/m ³ - 50 ppm; Kratkoročno 550 mg/m ³ - 100 ppm
	OEL Tip	TLV	Bugarska	Dugoročno 275 mg/m ³ - 50 ppm; Kratkoročno 550 mg/m ³ - 100 ppm Napomene: Skin
	OEL Tip	TLV	Češka	Dugoročno 270 mg/m ³ - 49.14 ppm; Kratkoročno 550 mg/m ³ - 10.01 ppm Napomene: Skin
	OEL Tip	VLA	Španjolska	Dugoročno 275 mg/m ³ - 50 ppm; Kratkoročno 550 mg/m ³ - 100 ppm Napomene: Skin
	OEL Tip	ÁK	Mađarska	Dugoročno 275 mg/m ³ ; Kratkoročno 550 mg/m ³
	OEL Tip	MAC	Nizozemska	Dugoročno 550 mg/m ³ - 100 ppm
	OEL Tip	VLE	Portugal	Dugoročno 275 mg/m ³ - 50 ppm; Kratkoročno 550 mg/m ³ - 100 ppm Napomene: Skin
	OEL Tip	SUVA	Švicarska	Dugoročno 275 mg/m ³ - 50 ppm; Kratkoročno 275 mg/m ³ - 50 ppm

etilbenzen CAS: 100-41-4	OEL Tip	WEL	U.K.	Dugoročno 274 mg/m3 - 50 ppm; Kratkoročno 548 mg/m3 - 100 ppm Napomene: Skin
	OEL Tip	GVI	Hrvatska	Dugoročno 275 mg/m3 - 50 ppm; Kratkoročno 550 mg/m3 - 100 ppm Napomene: Skin
	OEL Tip	AGW	Njemačka	Dugoročno 270 mg/m3 - 50 ppm; Kratkoročno 270 mg/m3 - 50 ppm
	OEL Tip	NDS	Poljska	Dugoročno 260 mg/m3; Kratkoročno 520 mg/m3 Napomene: Skin
	OEL Tip	MV	Slovenija	Dugoročno 275 mg/m3 - 50 ppm; Kratkoročno 550 mg/m3 - 100 ppm Napomene: Skin
	OEL Tip	IPRV	Litva	Dugoročno 250 mg/m3 - 50 ppm; Kratkoročno 400 mg/m3 - 75 ppm Napomene: Skin
	OEL Tip	RV	Latvija	Dugoročno 275 mg/m3 - 50 ppm; Kratkoročno 550 mg/m3 - 100 ppm Napomene: Skin
	OEL Tip	ACGIH		Dugoročno 20 ppm Napomene: A3, BEI - URT irr, kidney dam (nephropathy), cochlear impair
	OEL Tip	UE		Dugoročno 442 mg/m3 - 100 ppm; Kratkoročno 884 mg/m3 - 200 ppm Napomene: Skin
	OEL Tip	MAK	Austrija	Dugoročno 440 mg/m3 - 100 ppm; Kratkoročno 880 mg/m3 - 200 ppm
	OEL Tip	MAK	Njemačka	Dugoročno 88 mg/m3 - 20 ppm; Kratkoročno 176 mg/m3 - 40 ppm Napomene: Skin
	OEL Tip	VLEP	Belgija	Dugoročno 87 mg/m3 - 20 ppm; Kratkoročno 551 mg/m3 - 125 ppm Napomene: Additional indication "D" means that the absorption of the agent through the skin, mucous membranes or eyes is an important part of the total exposure. It can be the result of both direct contact and its presence in the air.
	OEL Tip	VLEP	Francuska	Dugoročno 88.4 mg/m3 - 20 ppm; Kratkoročno 442 mg/m3 - 100 ppm
	OEL Tip	VLEP	Italija	Dugoročno 442 mg/m3 - 100 ppm; Kratkoročno 884 mg/m3 - 200 ppm
	OEL Tip	VLEP	Rumunjska	Dugoročno 442 mg/m3 - 100 ppm; Kratkoročno 884 mg/m3 - 200 ppm
	OEL Tip	TLV	Češka	Dugoročno 200 mg/m3 - 45.4 ppm; Kratkoročno 500 mg/m3 - 113.5 ppm Napomene: Skin
	OEL Tip	VLA	Španjolska	Dugoročno 441 mg/m3 - 100 ppm; Kratkoročno 884 mg/m3 - 200 ppm Napomene: Skin
toluen CAS: 108-88-3	OEL Tip	ÁK	Mađarska	Dugoročno 442 mg/m3; Kratkoročno 884 mg/m3
	OEL Tip	MAC	Nizozemska	Dugoročno 215 mg/m3; Kratkoročno 430 mg/m3
	OEL Tip	VLE	Portugal	Dugoročno 442 mg/m3 - 100 ppm; Kratkoročno 884 mg/m3 - 200 ppm Napomene: Skin
	OEL Tip	SUVA	Švicarska	Dugoročno 435 mg/m3 - 100 ppm; Kratkoročno 435 mg/m3 - 100 ppm
	OEL Tip	WEL	U.K.	Dugoročno 441 mg/m3 - 100 ppm; Kratkoročno 552 mg/m3 - 125 ppm
	OEL Tip	GVI	Hrvatska	Dugoročno 442 mg/m3 - 100 ppm; Kratkoročno 884 mg/m3 - 200 ppm Napomene: Skin
	OEL Tip	AGW	Njemačka	Dugoročno 88 mg/m3 - 20 ppm; Kratkoročno 176 mg/m3 - 40 ppm Napomene: Skin
	OEL Tip	NDS	Poljska	Dugoročno 200 mg/m3; Kratkoročno 400 mg/m3
	OEL Tip	MV	Slovenija	Dugoročno 442 mg/m3 - 100 ppm; Kratkoročno 884 mg/m3 - 200 ppm Napomene: Skin
	OEL Tip	ACGIH		Dugoročno 20 ppm Napomene: A4, BEI - Visual impair, female repro, pregnancy loss
	OEL Tip	UE		Dugoročno 192 mg/m3 - 50 ppm; Kratkoročno 384 mg/m3 - 100 ppm Napomene: Skin
	OEL Tip	MAK	Austrija	Dugoročno 190 mg/m3 - 50 ppm; Kratkoročno 380 mg/m3 - 100 ppm
	OEL Tip	MAK	Njemačka	Dugoročno 190 mg/m3 - 50 ppm; Kratkoročno 380 mg/m3 - 100 ppm Napomene: Skin
	OEL Tip	VLEP	Belgija	Dugoročno 77 mg/m3 - 20 ppm; Kratkoročno 384 mg/m3 - 100 ppm

Napomene: Additional indication "D" means that the absorption of the agent through the skin, mucous membranes or eyes is an important part of the total exposure. It can be the result of both direct contact and its presence in the air.

OEL Tip	VLEP	Francuska	Dugoročno 76.8 mg/m ³ - 20 ppm; Kratkoročno 384 mg/m ³ - 100 ppm
OEL Tip	VLEP	Italija	Dugoročno 192 mg/m ³ - 50 ppm Napomene: Skin
OEL Tip	VLEP	Rumunjska	Dugoročno 192 mg/m ³ - 50 ppm; Kratkoročno 384 mg/m ³ - 100 ppm
OEL Tip	TLV	Češka	Dugoročno 192 mg/m ³ - 50.112 ppm; Kratkoročno 384 mg/m ³ - 100.224 ppm Napomene: Skin
OEL Tip	VLA	Španjolska	Dugoročno 192 mg/m ³ - 50 ppm; Kratkoročno 384 mg/m ³ - 100 ppm Napomene: Skin
OEL Tip	ÁK	Mađarska	Dugoročno 190 mg/m ³ ; Kratkoročno 380 mg/m ³
OEL Tip	MAC	Nizozemska	Dugoročno 150 mg/m ³ ; Kratkoročno 384 mg/m ³
OEL Tip	VLE	Portugal	Dugoročno 192 mg/m ³ - 50 ppm; Kratkoročno 384 mg/m ³ - 100 ppm Napomene: Skin
OEL Tip	SUVA	Švicarska	Dugoročno 190 mg/m ³ - 50 ppm; Kratkoročno 760 mg/m ³ - 200 ppm
OEL Tip	WEL	U.K.	Dugoročno 191 mg/m ³ - 50 ppm; Kratkoročno 384 mg/m ³ - 100 ppm
OEL Tip	GVI	Hrvatska	Dugoročno 192 mg/m ³ - 50 ppm; Kratkoročno 384 mg/m ³ - 100 ppm Napomene: Skin
OEL Tip	AGW	Njemačka	Dugoročno 190 mg/m ³ - 50 ppm; Kratkoročno 760 mg/m ³ - 200 ppm
OEL Tip	NDS	Poljska	Dugoročno 100 mg/m ³ ; Kratkoročno 200 mg/m ³
OEL Tip	MV	Slovenija	Dugoročno 192 mg/m ³ - 50 ppm; Kratkoročno 384 mg/m ³ - 100 ppm Napomene: Skin

n-butil-acetat

CAS: 123-86-4

OEL Tip	ACGIH		Dugoročno 50 ppm; Kratkoročno 150 ppm Napomene: Eye and URT irr
OEL Tip	UE		Dugoročno 241 mg/m ³ - 50 ppm; Kratkoročno 723 mg/m ³ - 150 ppm
OEL Tip	MAK	Austrija	Dugoročno 241 mg/m ³ - 50 ppm; Kratkoročno 480 mg/m ³ - 100 ppm
OEL Tip	MAK	Njemačka	Dugoročno 480 mg/m ³ - 100 ppm; Kratkoročno 960 mg/m ³ - 200 ppm
OEL Tip	VLEP	Belgija	Dugoročno 238 mg/m ³ - 50 ppm; Kratkoročno 712 mg/m ³ - 150 ppm Napomene: Butylacetates, all isomers
OEL Tip	VLEP	Francuska	Dugoročno 241 mg/m ³ - 50 ppm; Kratkoročno 723 mg/m ³ - 150 ppm
OEL Tip	VLEP	Italija	Dugoročno 241 mg/m ³ - 50 ppm; Kratkoročno 723 mg/m ³ - 150 ppm
OEL Tip	VLEP	Rumunjska	Dugoročno 241 mg/m ³ - 50 ppm; Kratkoročno 723 mg/m ³ - 150 ppm
OEL Tip	TLV	Bugarska	Dugoročno 241 mg/m ³ - 50 ppm; Kratkoročno 723 mg/m ³ - 150 ppm
OEL Tip	TLV	Češka	Dugoročno 241 mg/m ³ - 50 ppm; Kratkoročno 723 mg/m ³ - 150 ppm
OEL Tip	VLA	Španjolska	Dugoročno 241 mg/m ³ - 50 ppm; Kratkoročno 723 mg/m ³ - 150 ppm
OEL Tip	ÁK	Mađarska	Dugoročno 241 mg/m ³ ; Kratkoročno 723 mg/m ³
OEL Tip	MAC	Nizozemska	Dugoročno 241 mg/m ³ - 50 ppm; Kratkoročno 723 mg/m ³ - 150 ppm
OEL Tip	SUVA	Švicarska	Dugoročno 240 mg/m ³ - 50 ppm; Kratkoročno 720 mg/m ³ - 150 ppm
OEL Tip	WEL	U.K.	Dugoročno 724 mg/m ³ - 150 ppm; Kratkoročno 966 mg/m ³ - 200 ppm
OEL Tip	GVI	Hrvatska	Dugoročno 724 mg/m ³ - 150 ppm; Kratkoročno 966 mg/m ³ - 200 ppm
OEL Tip	AGW	Njemačka	Dugoročno 300 mg/m ³ - 62 ppm; Kratkoročno 600 mg/m ³ - 124 ppm
OEL Tip	NDS	Poljska	Dugoročno 240 mg/m ³ ; Kratkoročno 720 mg/m ³
OEL Tip	MV	Slovenija	Dugoročno 300 mg/m ³ - 62 ppm; Kratkoročno 600 mg/m ³ - 124 ppm

ksilen

CAS: 1330-20-7

OEL Tip	ACGIH		Dugoročno 20 ppm Napomene: A4, BEI - URT and eye irr, CNS impair
OEL Tip	UE		Dugoročno 221 mg/m ³ - 50 ppm; Kratkoročno 442 mg/m ³ - 100 ppm Napomene: Skin
OEL Tip	MAK	Austrija	Dugoročno 221 mg/m ³ - 50 ppm; Kratkoročno 442 mg/m ³ - 100 ppm
OEL Tip	MAK	Njemačka	Dugoročno 220 mg/m ³ - 50 ppm; Kratkoročno 440 mg/m ³ - 100 ppm Napomene: Skin
OEL Tip	VLEP	Belgija	Dugoročno 221 mg/m ³ - 50 ppm; Kratkoročno 442 mg/m ³ - 100 ppm

Napomene: Additional indication "D" means that the absorption of the agent through the skin, mucous membranes or eyes is an important part of the total exposure. It can be the result of both direct contact and its presence in the air.

OEL Tip	VLEP	Francuska	Dugoročno 221 mg/m ³ - 50 ppm; Kratkoročno 442 mg/m ³ - 100 ppm Napomene: Skin
OEL Tip	VLEP	Italija	Dugoročno 221 mg/m ³ - 50 ppm; Kratkoročno 442 mg/m ³ - 100 ppm Napomene: Skin
OEL Tip	VLEP	Rumunjska	Dugoročno 221 mg/m ³ - 50 ppm; Kratkoročno 442 mg/m ³ - 100 ppm
OEL Tip	TLV	Bugarska	Dugoročno 221 mg/m ³ - 50 ppm; Kratkoročno 442 mg/m ³ - 100 ppm Napomene: Skin
OEL Tip	TLV	Češka	Dugoročno 200 mg/m ³ - 45.4 ppm; Kratkoročno 400 mg/m ³ - 90.8 ppm Napomene: Skin
OEL Tip	VLA	Španjolska	Dugoročno 221 mg/m ³ - 50 ppm; Kratkoročno 442 mg/m ³ - 100 ppm
OEL Tip	ÁK	Mađarska	Dugoročno 221 mg/m ³ ; Kratkoročno 442 mg/m ³ Napomene: Skin
OEL Tip	MAC	Nizozemska	Dugoročno 210 mg/m ³ - 47.5 ppm; Kratkoročno 442 mg/m ³ - 100 ppm Napomene: Skin
OEL Tip	VLE	Portugal	Dugoročno 221 mg/m ³ - 50 ppm; Kratkoročno 442 mg/m ³ - 100 ppm Napomene: Skin
OEL Tip	SUVA	Švicarska	Dugoročno 220 mg/m ³ - 50 ppm; Kratkoročno 440 mg/m ³ - 100 ppm
OEL Tip	WEL	U.K.	Dugoročno 220 mg/m ³ - 50 ppm; Kratkoročno 441 mg/m ³ - 100 ppm Napomene: Skin
OEL Tip	GVI	Hrvatska	Dugoročno 221 mg/m ³ - 50 ppm; Kratkoročno 442 mg/m ³ - 100 ppm Napomene: Skin
OEL Tip	AGW	Njemačka	Dugoročno 220 mg/m ³ - 50 ppm; Kratkoročno 440 mg/m ³ - 100 ppm Napomene: Skin
OEL Tip	NDS	Poljska	Dugoročno 100 mg/m ³ ; Kratkoročno 200 mg/m ³ Napomene: Skin
OEL Tip	MV	Slovenija	Dugoročno 221 mg/m ³ - 50 ppm; Kratkoročno 442 mg/m ³ - 100 ppm Napomene: Skin
OEL Tip	IPRV	Litva	Dugoročno 221 mg/m ³ - 50 ppm; Kratkoročno 442 mg/m ³ - 100 ppm Napomene: Skin
OEL Tip	RV	Latvija	Dugoročno 221 mg/m ³ - 50 ppm; Kratkoročno 442 mg/m ³ - 100 ppm Napomene: Skin

Kristalni silicijev dioksid, kvarc (udisljiv dio)

CAS: 14808-60-7

OEL Tip	ACGIH		Dugoročno 0.025 mg/m ³ Napomene: (R), A2 - Pulm fibrosis, lung cancer
OEL Tip	UE		Dugoročno 0.1 mg/m ³ Napomene: Respirable dust particles
OEL Tip	MAK	Austrija	Dugoročno 0.05 mg/m ³ Napomene: Respirable fraction
OEL Tip	VLEP	Belgija	Dugoročno 0.1 mg/m ³ Napomene: Respirable dust; Additional indication "C" means that the agent falls within the scope of Title 2 concerning carcinogenic, mutagenic and reprotoxic agents of Book VI of the Codex on well-being at work.
OEL Tip	VLEP	Francuska	Dugoročno 0.1 mg/m ³ Napomene: Respirable fraction
OEL Tip	VLEP	Italija	Dugoročno 0.1 mg/m ³ Napomene: Respirable dust particles
OEL Tip	VLA	Španjolska	Dugoročno 0.05 mg/m ³ Napomene: Respirable fraction
OEL Tip	ÁK	Mađarska	Dugoročno 0.1 mg/m ³ Napomene: Respirable fraction
OEL Tip	MAC	Nizozemska	Dugoročno 0.075 mg/m ³ Napomene: Respirable fraction

OEL Tip	SUVA	Švicarska	Dugoročno 0.15 mg/m ³ Napomene: Respirable aerosol
OEL Tip	GVI	Hrvatska	Dugoročno 0.1 mg/m ³
OEL Tip	AGW	Njemačka	Dugoročno 0.05 mg/m ³ ; Kratkoročno 0.4 mg/m ³ Napomene: Respirable fraction
OEL Tip	NDS	Poljska	Dugoročno 0.1 mg/m ³ Napomene: Respirable fraction
OEL Tip	MV	Slovenija	Dugoročno 0.15 mg/m ³
OEL Tip	IPRV	Litva	Dugoročno 0.1 mg/m ³
OEL Tip	NGV/KG V	Švedska	Dugoročno 0.1 mg/m ³ Napomene: Respirable fraction

etilbenzen

CAS: 100-41-4

OEL Tip	ACGIH		Dugoročno 20 ppm Napomene: A3, BEI - URT irr, kidney dam (nephropathy), cochlear impair
OEL Tip	UE		Dugoročno 442 mg/m ³ - 100 ppm; Kratkoročno 884 mg/m ³ - 200 ppm Napomene: Skin
OEL Tip	MAK	Austrija	Dugoročno 440 mg/m ³ - 100 ppm; Kratkoročno 880 mg/m ³ - 200 ppm Napomene: Skin
OEL Tip	MAK	Njemačka	Dugoročno 88 mg/m ³ - 20 ppm; Kratkoročno 176 mg/m ³ - 40 ppm Napomene: Skin
OEL Tip	VLEP	Belgija	Dugoročno 87 mg/m ³ - 20 ppm; Kratkoročno 551 mg/m ³ - 125 ppm Napomene: Additional indication "D" means that the absorption of the agent through the skin, mucous membranes or eyes is an important part of the total exposure. It can be the result of both direct contact and its presence in the air.
OEL Tip	VLEP	Francuska	Dugoročno 88.4 mg/m ³ - 20 ppm; Kratkoročno 442 mg/m ³ - 100 ppm Napomene: Skin
OEL Tip	VLEP	Italija	Dugoročno 442 mg/m ³ - 100 ppm; Kratkoročno 884 mg/m ³ - 200 ppm Napomene: Skin
OEL Tip	VLEP	Rumunjska	Dugoročno 442 mg/m ³ - 100 ppm; Kratkoročno 884 mg/m ³ - 200 ppm
OEL Tip	TLV	Bugarska	Dugoročno 435 mg/m ³ ; Kratkoročno 535 mg/m ³ Napomene: Skin
OEL Tip	TLV	Češka	Dugoročno 200 mg/m ³ - 45.4 ppm; Kratkoročno 500 mg/m ³ - 113.5 ppm Napomene: Skin
OEL Tip	VLA	Španjolska	Dugoročno 441 mg/m ³ - 100 ppm; Kratkoročno 884 mg/m ³ - 200 ppm
OEL Tip	ÁK	Mađarska	Dugoročno 442 mg/m ³ ; Kratkoročno 884 mg/m ³ Napomene: Skin
OEL Tip	MAC	Nizozemska	Dugoročno 215 mg/m ³ - 48.6 ppm; Kratkoročno 430 mg/m ³ - 97.3 ppm Napomene: Skin
OEL Tip	VLE	Portugal	Dugoročno 442 mg/m ³ - 100 ppm; Kratkoročno 884 mg/m ³ - 200 ppm Napomene: Skin
OEL Tip	SUVA	Švicarska	Dugoročno 435 mg/m ³ - 100 ppm; Kratkoročno 435 mg/m ³ - 100 ppm
OEL Tip	WEL	U.K.	Dugoročno 441 mg/m ³ - 100 ppm; Kratkoročno 552 mg/m ³ - 125 ppm Napomene: Skin
OEL Tip	GVI	Hrvatska	Dugoročno 442 mg/m ³ - 100 ppm; Kratkoročno 884 mg/m ³ - 200 ppm Napomene: Skin
OEL Tip	AGW	Njemačka	Dugoročno 88 mg/m ³ - 20 ppm; Kratkoročno 176 mg/m ³ - 40 ppm Napomene: Skin
OEL Tip	NDS	Poljska	Dugoročno 200 mg/m ³ ; Kratkoročno 400 mg/m ³ Napomene: Skin
OEL Tip	MV	Slovenija	Dugoročno 442 mg/m ³ - 100 ppm; Kratkoročno 884 mg/m ³ - 200 ppm Napomene: Skin
OEL Tip	IPRV	Litva	Dugoročno 442 mg/m ³ - 100 ppm; Kratkoročno 884 mg/m ³ - 200 ppm Napomene: Skin

butanon

CAS: 78-93-3	OEL Tip	ACGIH		Dugoročno 75 ppm; Kratkoročno 150 ppm Napomene: BEI Skin - URT irr, CNS and PNS impair
	OEL Tip	UE		Dugoročno 600 mg/m ³ - 200 ppm; Kratkoročno 900 mg/m ³ - 300 ppm
	OEL Tip	MAK	Austrija	Dugoročno 295 mg/m ³ - 100 ppm; Kratkoročno 590 mg/m ³ - 200 ppm Napomene: Skin
	OEL Tip	MAK	Njemačka	Dugoročno 600 mg/m ³ - 200 ppm; Kratkoročno 600 mg/m ³ - 200 ppm Napomene: Skin
	OEL Tip	VLEP	Belgija	Dugoročno 600 mg/m ³ - 200 ppm; Kratkoročno 900 mg/m ³ - 300 ppm
	OEL Tip	VLEP	Francuska	Dugoročno 600 mg/m ³ - 200 ppm; Kratkoročno 900 mg/m ³ - 300 ppm
	OEL Tip	VLEP	Italija	Dugoročno 600 mg/m ³ - 200 ppm; Kratkoročno 900 mg/m ³ - 300 ppm
	OEL Tip	VLEP	Rumunjska	Dugoročno 600 mg/m ³ - 200 ppm; Kratkoročno 900 mg/m ³ - 300 ppm
	OEL Tip	TLV	Bugarska	Dugoročno 590 mg/m ³ ; Kratkoročno 885 mg/m ³
	OEL Tip	TLV	Češka	Dugoročno 600 mg/m ³ - 200 ppm; Kratkoročno 900 mg/m ³ - 300 ppm
	OEL Tip	VLA	Španjolska	Dugoročno 600 mg/m ³ - 200 ppm; Kratkoročno 900 mg/m ³ - 300 ppm
	OEL Tip	ÁK	Mađarska	Dugoročno 600 mg/m ³ ; Kratkoročno 900 mg/m ³ Napomene: Skin
	OEL Tip	MAC	Nizozemska	Dugoročno 590 mg/m ³ - 197 ppm; Kratkoročno 900 mg/m ³ - 300 ppm Napomene: Skin
	OEL Tip	VLE	Portugal	Dugoročno 600 mg/m ³ - 200 ppm; Kratkoročno 900 mg/m ³ - 300 ppm
	OEL Tip	SUVA	Švicarska	Dugoročno 590 mg/m ³ - 200 ppm; Kratkoročno 590 mg/m ³ - 200 ppm
	OEL Tip	WEL	U.K.	Dugoročno 600 mg/m ³ - 200 ppm; Kratkoročno 899 mg/m ³ - 300 ppm Napomene: Skin
	OEL Tip	GVI	Hrvatska	Dugoročno 600 mg/m ³ - 200 ppm; Kratkoročno 900 mg/m ³ - 300 ppm
	OEL Tip	AGW	Njemačka	Dugoročno 600 mg/m ³ - 200 ppm; Kratkoročno 600 mg/m ³ - 200 ppm Napomene: Skin 15
	OEL Tip	NDS	Poljska	Dugoročno 450 mg/m ³ ; Kratkoročno 900 mg/m ³ Napomene: Skin
	OEL Tip	MV	Slovenija	Dugoročno 600 mg/m ³ - 200 ppm; Kratkoročno 900 mg/m ³ - 300 ppm Napomene: Skin
	OEL Tip	IPRV	Litva	Dugoročno 600 mg/m ³ - 200 ppm; Kratkoročno 900 mg/m ³

Granične vrijednosti izloženosti PNEC

Masne kiseline, C18-nezasićene, dimeri, oligomerni proizvodi reakcije s masnim kiselinama iz visokog ulja i trietilenetetramin

CAS: 68082-29-1 Putevi izloženosti: Morska voda; PNEC Ograničiti: 0 mg/l

Putevi izloženosti: Svježa voda; PNEC Ograničiti: 0.004 mg/l

Putevi izloženosti: Mikroorganizmi u postrojenjima za obradu otpadnih voda (STP); PNEC Ograničiti: 3.84 mg/l

Putevi izloženosti: Sedimenti morske vode; PNEC Ograničiti: 43.4 mg/kg

Putevi izloženosti: Sedimenti svježe vode; PNEC Ograničiti: 434.02 mg/kg

Putevi izloženosti: Zemlja; PNEC Ograničiti: 86.78 mg/kg

benzil-alkohol

CAS: 100-51-6 Putevi izloženosti: Svježa voda; PNEC Ograničiti: 1 mg/l

Putevi izloženosti: Morska voda; PNEC Ograničiti: 0.1 mg/l

Putevi izloženosti: Mikroorganizmi u postrojenjima za obradu otpadnih voda (STP); PNEC Ograničiti: 39 mg/l

Putevi izloženosti: Sedimenti svježe vode; PNEC Ograničiti: 5.27 mg/kg

Putevi izloženosti: Sedimenti morske vode; PNEC Ograničiti: 0.527 mg/kg

Putevi izloženosti: Tlo (poljoprivredno); PNEC Ograničiti: 0.456 mg/kg

2-piperazin-1-iletilamin

CAS: 140-31-8 Putevi izloženosti: Svježa voda; PNEC Ograničiti: 0.058 mg/l

Putevi izloženosti: Morska voda; PNEC Ograničiti: 5.8 µg/l

Putevi izloženosti: Mikroorganizmi u postrojenjima za obradu otpadnih voda (STP); PNEC Ograničiti: 250 mg/l

Putevi izloženosti: Sedimenti svježe vode; PNEC Ograničiti: 215 mg/kg

Putevi izloženosti: Sedimenti morske vode; PNEC Ograničiti: 21.5 mg/kg

Putevi izloženosti: Zemlja; PNEC Ograničiti: 1 mg/kg

Amini, polietilenpoli-, trietilentetramin frakcija

CAS: 90640-67-8 Putevi izloženosti: Svježa voda; PNEC Ograničiti: 0.027 mg/l

Putevi izloženosti: Morska voda; PNEC Ograničiti: 0.003 mg/l

Putevi izloženosti: Mikroorganizmi u postrojenjima za obradu otpadnih voda (STP); PNEC Ograničiti: 0.13 mg/l

Putevi izloženosti: Sedimenti svježe vode; PNEC Ograničiti: 8.572 mg/kg

Putevi izloženosti: Sedimenti morske vode; PNEC Ograničiti: 0.857 mg/kg

Putevi izloženosti: Tlo (poljoprivredno); PNEC Ograničiti: 1.25 mg/kg

2-metoksi-1-metiletil-acetat

CAS: 108-65-6 Putevi izloženosti: Svježa voda; PNEC Ograničiti: 0.635 mg/l

Putevi izloženosti: Morska voda; PNEC Ograničiti: 0.064 mg/l

Putevi izloženosti: Mikroorganizmi u postrojenjima za obradu otpadnih voda (STP); PNEC Ograničiti: 100 mg/l

Putevi izloženosti: Sedimenti svježe vode; PNEC Ograničiti: 3.29 mg/kg

Putevi izloženosti: Sedimenti morske vode; PNEC Ograničiti: 0.329 mg/kg

Putevi izloženosti: Tlo (poljoprivredno); PNEC Ograničiti: 0.29 mg/kg

etilbenzen

CAS: 100-41-4 Putevi izloženosti: Svježa voda; PNEC Ograničiti: 0.1 mg/l

Putevi izloženosti: Morska voda; PNEC Ograničiti: 0.01 mg/l

Putevi izloženosti: Mikroorganizmi u postrojenjima za obradu otpadnih voda (STP); PNEC Ograničiti: 9.6 mg/l

Putevi izloženosti: Sedimenti svježe vode; PNEC Ograničiti: 13.7 mg/kg

Putevi izloženosti: Sedimenti morske vode; PNEC Ograničiti: 1.37 mg/kg

Putevi izloženosti: Tlo (poljoprivredno); PNEC Ograničiti: 2.68 mg/kg

toluen

CAS: 108-88-3 Putevi izloženosti: Morska voda; PNEC Ograničiti: 0.68 mg/l

Putevi izloženosti: Svježa voda; PNEC Ograničiti: 0.68 mg/l

Putevi izloženosti: Sedimenti morske vode; PNEC Ograničiti: 16.39 mg/kg

Putevi izloženosti: Sedimenti svježe vode; PNEC Ograničiti: 16.39 mg/kg

Putevi izloženosti: Mikroorganizmi u postrojenjima za obradu otpadnih voda (STP); PNEC Ograničiti: 13.61 mg/l

Putevi izloženosti: Tlo (poljoprivredno); PNEC Ograničiti: 2.89 mg/kg

n-butil-acetat

CAS: 123-86-4 Putevi izloženosti: Morska voda; PNEC Ograničiti: 0.018 mg/l

Putevi izloženosti: Svježa voda; PNEC Ograničiti: 0.18 mg/l

Putevi izloženosti: Sedimenti morske vode; PNEC Ograničiti: 0.098 mg/kg

Putevi izloženosti: Sedimenti svježe vode; PNEC Ograničiti: 0.981 mg/kg

Putevi izloženosti: Mikroorganizmi u postrojenjima za obradu otpadnih voda (STP); PNEC Ograničiti: 35.6 mg/l

Putevi izloženosti: Tlo (poljoprivredno); PNEC Ograničiti: 0.09 mg/kg

ksilen

CAS: 1330-20-7 Putevi izloženosti: Morska voda; PNEC Ograničiti: 0.327 mg/l

Putevi izloženosti: Svježa voda; PNEC Ograničiti: 0.327 mg/l

Putevi izloženosti: Mikroorganizmi u postrojenjima za obradu otpadnih voda (STP); PNEC Ograničiti: 6.58 mg/l

Putevi izloženosti: Sedimenti morske vode; PNEC Ograničiti: 12.46 mg/kg

Putevi izloženosti: Sedimenti svježe vode; PNEC Ograničiti: 12.46 mg/kg

Putevi izloženosti: Tlo (poljoprivredno); PNEC Ograničiti: 2.31 mg/kg

etilbenzen

CAS: 100-41-4 Putevi izloženosti: Svježa voda; PNEC Ograničiti: 0.1 mg/l

Putevi izloženosti: Morska voda; PNEC Ograničiti: 0.01 mg/l

Putevi izloženosti: Mikroorganizmi u postrojenjima za obradu otpadnih voda (STP); PNEC Ograničiti: 9.6 mg/l

Putevi izloženosti: Sedimenti svježe vode; PNEC Ograničiti: 13.7 mg/kg

Putevi izloženosti: Sedimenti morske vode; PNEC Ograničiti: 1.37 mg/kg

Putevi izloženosti: Tlo (poljoprivredno); PNEC Ograničiti: 2.68 mg/kg

butanon

CAS: 78-93-3

Putevi izloženosti: Svježa voda; PNEC Ograničiti: 55.8 mg/l

Putevi izloženosti: Morska voda; PNEC Ograničiti: 55.8 mg/l

Putevi izloženosti: Sedimenti svježe vode; PNEC Ograničiti: 284.74 mg/kg

Putevi izloženosti: Mikroorganizmi u postrojenjima za obradu otpadnih voda (STP); PNEC Ograničiti: 709 mg/l

Putevi izloženosti: Hranidbeni lanac; PNEC Ograničiti: 1000 mg/kg

Putevi izloženosti: Tlo (poljoprivredno); PNEC Ograničiti: 22.5 mg/kg

Izvedena razina bez učinka. (DNEL)

Masne kiseline, C18-nezasićene, dimeri, oligomerni proizvodi reakcije s masnim kiselinama iz visokog ulja i trietilenetetramin

CAS: 68082-29-1

Putevi izloženosti: Ljudi inhalacijski; Učestalost izloženosti: Dugotrajni, sistemski učinci
Profesionalni djelatnik: 3.9 mg/m³; Potrošač: 0.97 mg/m³

Putevi izloženosti: Ljudi dermalno; Učestalost izloženosti: Dugotrajni, sistemski učinci
Profesionalni djelatnik: 1.1 mg/kg; Potrošač: 0.56 mg/kg

Putevi izloženosti: Ljudi oralno; Učestalost izloženosti: Dugotrajni, sistemski učinci
Potrošač: 0.56 mg/kg

benzil-alkohol

CAS: 100-51-6

Putevi izloženosti: Ljudi inhalacijski; Učestalost izloženosti: Kratkotrajni, sistemski učinci
Profesionalni djelatnik: 110 mg/m³; Potrošač: 27 mg/m³

Putevi izloženosti: Ljudi inhalacijski; Učestalost izloženosti: Dugotrajni, sistemski učinci
Profesionalni djelatnik: 22 mg/m³; Potrošač: 5.4 mg/m³

Putevi izloženosti: Ljudi dermalno; Učestalost izloženosti: Kratkotrajni, sistemski učinci
Profesionalni djelatnik: 40 mg/kg; Potrošač: 20 mg/kg

Putevi izloženosti: Ljudi dermalno; Učestalost izloženosti: Dugotrajni, sistemski učinci
Profesionalni djelatnik: 8 mg/kg; Potrošač: 4 mg/kg

Putevi izloženosti: Ljudi oralno; Učestalost izloženosti: Kratkotrajni, sistemski učinci
Potrošač: 20 mg/kg

Putevi izloženosti: Ljudi oralno; Učestalost izloženosti: Dugotrajni, sistemski učinci
Potrošač: 4 mg/kg

2-piperazin-1-iletilamin

CAS: 140-31-8

Putevi izloženosti: Ljudi inhalacijski; Učestalost izloženosti: Kratkotrajni, sistemski učinci
Profesionalni djelatnik: 10.6 mg/m³

Putevi izloženosti: Ljudi inhalacijski; Učestalost izloženosti: Dugotrajni, sistemski učinci
Profesionalni djelatnik: 10.6 mg/m³

Putevi izloženosti: Ljudi inhalacijski; Učestalost izloženosti: Dugotrajni, lokalni učinci
Profesionalni djelatnik: 0.015 mg/m³

Putevi izloženosti: Ljudi inhalacijski; Učestalost izloženosti: Kratkotrajni, lokalni učinci
Profesionalni djelatnik: 0.08 mg/m³

Putevi izloženosti: Ljudi dermalno; Učestalost izloženosti: Dugotrajni, sistemski učinci
Profesionalni djelatnik: 3.33 mg/kg

Amini, polietilenpoli-, trietilenetetramin frakcija

CAS: 90640-67-8

Putevi izloženosti: Ljudi inhalacijski; Učestalost izloženosti: Dugotrajni, sistemski učinci
Profesionalni djelatnik: 0.54 mg/m³; Potrošač: 0.096 mg/m³

Putevi izloženosti: Ljudi oralno; Učestalost izloženosti: Dugotrajni, sistemski učinci
Profesionalni djelatnik: 0.14 mg/kg

2-metoksi-1-metiletil-acetat

CAS: 108-65-6 Putevi izloženosti: Ljudi dermalno; Učestalost izloženosti: Dugotrajni, sistemski učinci
Profesionalni djelatnik: 796 mg/kg; Potrošač: 320 mg/kg

Putevi izloženosti: Ljudi oralno; Učestalost izloženosti: Dugotrajni, sistemski učinci
Potrošač: 36 mg/kg

Putevi izloženosti: Ljudi oralno; Učestalost izloženosti: Kratkotrajni, sistemski učinci
Potrošač: 500 mg/kg

Putevi izloženosti: Ljudi inhalacijski; Učestalost izloženosti: Dugotrajni, sistemski učinci
Profesionalni djelatnik: 275 mg/m³; Potrošač: 33 mg/m³

Putevi izloženosti: Ljudi inhalacijski; Učestalost izloženosti: Kratkotrajni, lokalni učinci
Profesionalni djelatnik: 550 mg/m³

Putevi izloženosti: Ljudi inhalacijski; Učestalost izloženosti: Dugotrajni, lokalni učinci
Potrošač: 33 mg/m³

etilbenzen

CAS: 100-41-4 Putevi izloženosti: Ljudi inhalacijski; Učestalost izloženosti: Dugotrajni, sistemski učinci
Profesionalni djelatnik: 77 mg/m³; Potrošač: 15 mg/m³

Putevi izloženosti: Ljudi inhalacijski; Učestalost izloženosti: Kratkotrajni, lokalni učinci
Profesionalni djelatnik: 293 mg/m³

Putevi izloženosti: Ljudi dermalno; Učestalost izloženosti: Dugotrajni, sistemski učinci
Profesionalni djelatnik: 180 mg/kg

Putevi izloženosti: Ljudi oralno; Učestalost izloženosti: Dugotrajni, sistemski učinci
Potrošač: 1.6 mg/kg

toluen

CAS: 108-88-3 Putevi izloženosti: Ljudi inhalacijski; Učestalost izloženosti: Dugotrajni, sistemski učinci
Profesionalni djelatnik: 192 mg/m³; Potrošač: 56.5 mg/m³

Putevi izloženosti: Ljudi inhalacijski; Učestalost izloženosti: Kratkotrajni, sistemski učinci
Profesionalni djelatnik: 384 mg/m³; Potrošač: 226 mg/m³

Putevi izloženosti: Ljudi dermalno; Učestalost izloženosti: Dugotrajni, sistemski učinci
Profesionalni djelatnik: 384 mg/kg; Potrošač: 226 mg/kg

Putevi izloženosti: Ljudi oralno; Učestalost izloženosti: Dugotrajni, sistemski učinci
Potrošač: 8.13 mg/kg

Putevi izloženosti: Ljudi inhalacijski; Učestalost izloženosti: Dugotrajni, lokalni učinci
Profesionalni djelatnik: 192 mg/m³; Potrošač: 56.5 mg/m³

Putevi izloženosti: Ljudi inhalacijski; Učestalost izloženosti: Kratkotrajni, lokalni učinci
Profesionalni djelatnik: 384 mg/m³; Potrošač: 226 mg/m³

n-butil-acetat

CAS: 123-86-4 Putevi izloženosti: Ljudi inhalacijski; Učestalost izloženosti: Dugotrajni, sistemski učinci
Profesionalni djelatnik: 300 mg/m³; Potrošač: 35.7 mg/m³

Putevi izloženosti: Ljudi inhalacijski; Učestalost izloženosti: Kratkotrajni, sistemski učinci
Profesionalni djelatnik: 600 mg/m³; Potrošač: 300 mg/m³

Putevi izloženosti: Ljudi inhalacijski; Učestalost izloženosti: Dugotrajni, lokalni učinci
Profesionalni djelatnik: 300 mg/m³; Potrošač: 35.7 mg/m³

Putevi izloženosti: Ljudi inhalacijski; Učestalost izloženosti: Kratkotrajni, lokalni učinci
Profesionalni djelatnik: 600 mg/m³; Potrošač: 300 mg/m³

Putevi izloženosti: Ljudi dermalno; Učestalost izloženosti: Dugotrajni, sistemski učinci
Profesionalni djelatnik: 11 mg/kg; Potrošač: 6 mg/kg

Putevi izloženosti: Ljudi dermalno; Učestalost izloženosti: Kratkotrajni, sistemski učinci
Profesionalni djelatnik: 11 mg/kg; Potrošač: 6 mg/kg

Putevi izloženosti: Ljudi oralno; Učestalost izloženosti: Kratkotrajni, sistemski učinci
Potrošač: 2 mg/kg

Putevi izloženosti: Ljudi oralno; Učestalost izloženosti: Dugotrajni, sistemski učinci
Potrošač: 2 mg/kg

ksilen

CAS: 1330-20-7 Putevi izloženosti: Ljudi inhalacijski; Učestalost izloženosti: Dugotrajni, sistemski učinci

Profesionalni djelatnik: 221 mg/m³; Potrošač: 65.3 mg/m³

Putevi izloženosti: Ljudi inhalacijski; Učestalost izloženosti: Kratkotrajni, sistemski učinci
Profesionalni djelatnik: 442 mg/m³; Potrošač: 260 mg/m³

Putevi izloženosti: Ljudi inhalacijski; Učestalost izloženosti: Kratkotrajni, lokalni učinci
Profesionalni djelatnik: 442 mg/m³; Potrošač: 260 mg/m³

Putevi izloženosti: Ljudi inhalacijski; Učestalost izloženosti: Dugotrajni, lokalni učinci
Profesionalni djelatnik: 221 mg/m³; Potrošač: 65.3 mg/m³

Putevi izloženosti: Ljudi dermalno; Učestalost izloženosti: Dugotrajni, sistemski učinci
Profesionalni djelatnik: 212 mg/kg; Potrošač: 125 mg/kg

Putevi izloženosti: Ljudi oralno; Učestalost izloženosti: Dugotrajni, sistemski učinci
Potrošač: 12.5 mg/kg

etilbenzen

CAS: 100-41-4 Putevi izloženosti: Ljudi inhalacijski; Učestalost izloženosti: Dugotrajni, sistemski učinci
Profesionalni djelatnik: 77 mg/m³; Potrošač: 15 mg/m³

Putevi izloženosti: Ljudi inhalacijski; Učestalost izloženosti: Dugotrajni, lokalni učinci
Profesionalni djelatnik: 293 mg/m³

Putevi izloženosti: Ljudi dermalno; Učestalost izloženosti: Dugotrajni, sistemski učinci
Profesionalni djelatnik: 180 mg/kg

Putevi izloženosti: Ljudi oralno; Učestalost izloženosti: Dugotrajni, sistemski učinci
Potrošač: 1.6 mg/kg

butanon

CAS: 78-93-3 Putevi izloženosti: Ljudi inhalacijski; Učestalost izloženosti: Dugotrajni, sistemski učinci
Profesionalni djelatnik: 600 mg/m³; Potrošač: 106 mg/m³

Putevi izloženosti: Ljudi dermalno; Učestalost izloženosti: Dugotrajni, sistemski učinci
Profesionalni djelatnik: 1161 mg/kg; Potrošač: 412 mg/kg

Putevi izloženosti: Ljudi oralno; Učestalost izloženosti: Dugotrajni, sistemski učinci
Potrošač: 31 mg/kg

8.2. Nadzor nad izloženošću

Osigurati odgovarajuću ventilaciju. Kad je to razumno moguće, to se može postići upotrebom rezervne ventilacije i dobre opće aspiracije.

Zaštita očiju:

Čaše sa bočnom zaštitom (EN 166).

Zaštita kože:

Upotrebljavati odjeću prikladnu za potpunu zaštitu kože u skladu s aktivnošću i izloženošću (EN 14605/EN 13982), npr. radne kombinezone, pregače, sigurnosnu obuću, prikladnu odjeću.

Zaštita za ruke:

Ne postoji materijal ili kombinacija materijala za rukavice koji bi mogli jamčiti neograničenu otpornost na bilo koji kemijski proizvod ili kombinaciju proizvoda.

Ako je riječ o duljem ili ponavljanom rukovanju, koristite se rukavicama otpornim na kemijske proizvode.

Prikladne rukavice tipa (EN 374/EN 16523); FKM (fluorirana guma): debljina > = 0,4 mm; vrijeme prodiranja > = 480 min. NBR (nitrilna guma): debljina > = 0,4 mm; vrijeme prodiranja > = 480 min

Izbor prikladnih rukavica ne ovisi samo o materijalu, nego i o drugim karakteristikama kvalitete koje se razlikuju od proizvođača do proizvođača, i o načinima i vremenu upotrebe smjese.

Zaštita pri disanju:

Ako su radnici izloženi koncentracijama višima od granice izloženosti, moraju upotrebljavati odgovarajuće certificirane respiratore.

Kombinirana filtrirajuća naprava (EN 14387): maska s filtrom A-P2.

Kontrola izlaganja u okolišu:

Vidi točku 6.2

Higijenske i tehničke mjere

Vidi odlomak 7.

ODJELJAK 9.: Fizikalna i kemijska svojstva

9.1. Informacije o osnovnim fizikalnim i kemijskim svojstvima

fizičko stanje: tekuće

Izgled: tekuće

Boja: crno

Miris: amin

Talište/ledište: N.D.

Vrelište ili početno vrelište i raspon temperatura vrenja: N.D.
Zapaljivost: Ne primjenjuje se.
Donja i gornja granica eksplozivnosti: N.D.
Plamište: > 93°C
Temperatura samozapaljenja: N.D.
Temperatura raspadanja: N.D.
pH: $\geq 10.50 \leq 11.50$ (Interna metoda)
Kinematička viskoznost: Ne primjenjuje se.
Gustoća i/ili relativna gustoća: 1.04 kg/l (Interna metoda)
Relativna gustoća pare: N.D.
Tlak pare: N.D.
Topljivost u vodi: Ne primjenjuje se.
Topljivost u ulje: Ne primjenjuje se.
Koeficijent raspodjele n-oktanol/voda (logaritamska vrijednost): Ne primjenjuje se.

Svojstva čestica:

Veličina čestica: Ne primjenjuje se.

9.2. Ostale informacije

Vodljivost: N.D.
Eksplozivne osobine: Ne primjenjuje se. (Interna evaluacija)
Osobine oksidiranja: Ne primjenjuje se. (Interna evaluacija)

ODJELJAK 10.: Stabilnost i reaktivnost

10.1. Reaktivnost

Stabilan u normalnim uvjetima

10.2. Kemijska stabilnost

Stabilan u normalnim uvjetima

10.3. Mogućnost opasnih reakcija

Može se zapaliti u kontaktu s jakim oksidansima.

Zbog djelovanja topline ili u slučaju požara može doći do oslobađanja ugljikovih oksida i para koji mogu biti štetni za zdravlje.

10.4. Uvjeti koje treba izbjegavati

Čuvati odvojeno od izvora topline.

10.5. Inkompatibilni materijali

Snažni oksidansi, snažna redukcijska sredstva, alifatski i aromatski amini.

Vidi točku 10.3

10.6. Opasni proizvodi raspadanja

Pri odgovarajućem skladištenju i rukovanju ne razvijaju se opasni proizvodi raspadanja.

Vidi točku 5.2

ODJELJAK 11.: Toksikološke informacije

11.1. Informacije o razredima opasnosti kako su definirani u Uredbi (EZ) br. 1272/2008

Podaci o toksičnosti proizvoda:

a) akutna toksičnost	Nije kategorizirano Na temelju dostupnih podataka kriteriji za razvrstavanje nisu ispunjeni.
b) kožno nagrizanje/nadraživanje	Proizvod je razvrstan kao: Skin Corr. 1B(H314)
c) teške očne ozljede/teško očno nadraživanje	Nije kategorizirano Na temelju dostupnih podataka kriteriji za razvrstavanje nisu ispunjeni.
d) izazivanje kožne ili dišne preosjetljivosti	Proizvod je razvrstan kao: Skin Sens. 1A(H317)
e) mutagenost zametnih stanica	Nije kategorizirano Na temelju dostupnih podataka kriteriji za razvrstavanje nisu ispunjeni.
f) kancerogenost	Nije kategorizirano Na temelju dostupnih podataka kriteriji za razvrstavanje nisu ispunjeni.
g) reproduktivna toksičnost	Proizvod je razvrstan kao: Repr. 2(H361)
h) Specifična toksičnost za ciljne organe (STOT) jednokratno izlaganje	Nije kategorizirano Na temelju dostupnih podataka kriteriji za razvrstavanje nisu ispunjeni.
i) Specifična toksičnost za ciljne	Proizvod je razvrstan kao: STOT RE 2(H373)

organe (STOT) opetovano
izlaganje

j) opasnost u slučaju udisanja

Nije kategorizirano

Na temelju dostupnih podataka kriteriji za razvrstavanje nisu ispunjeni.

Podaci o toksičnosti glavnih sastojaka u proizvodu:

Masne kiseline, C18-nezasićene, dimeri, oligomerni proizvodi reakcije s masnim kiselinama iz visokog ulja i trietilenetetramin

CAS: 68082-29-1 a) akutna toksičnost LD50 Oralno Štakor > 2000 mg/kg
LD50 Koža Štakor > 2000 mg/kg

benzil-alkohol

CAS: 100-51-6 a) akutna toksičnost ATE - Oralno: 1200 mg/kg t.m.
LD50 Oralno Štakor 1620 mg/kg

2-piperazin-1-iletilamin

CAS: 140-31-8 a) akutna toksičnost ATE - Oralno: 500 mg/kg t.m.
LD50 Koža Kunić 866 mg/kg

ksilen

CAS: 1330-20-7 a) akutna toksičnost ATE - Dermalno: 1100 mg/kg t.m.
ATE - Udisanje (Pare): 11 mg/l

Amini, polietilenpoli-, trietilentetramin frakcija

CAS: 90640-67-8 a) akutna toksičnost LD50 Oralno Štakor 1716 mg/kg
LD50 Koža Kunić 1465 mg/kg

tetraetilenpentamin

CAS: 90640-66-7 a) akutna toksičnost ATE - Oralno: 500 mg/kg t.m.
ATE - Dermalno: 1100 mg/kg t.m.

2-metoksi-1-metiletil-acetat

CAS: 108-65-6 a) akutna toksičnost LD50 Oralno Štakor > 5000 mg/kg
LD50 Koža Kunić > 5000 mg/kg
LC0 Udisanje pare Štakor > 4345 ppm 6h

etilbenzen

CAS: 100-41-4 a) akutna toksičnost LD50 Oralno Štakor 3500 mg/kg
LD50 Koža Kunić 15400 mg/kg
LC50 Udisanje Štakor 17629 mg/m³ 4h

toluen

CAS: 108-88-3 a) akutna toksičnost LD50 Oralno Štakor 5000 mg/kg
LD50 Koža Kunić 12267 mg/kg
LC50 Udisanje pare Štakor 25.7 mg/l 4h

n-butil-acetat

CAS: 123-86-4 a) akutna toksičnost LD50 Oralno Štakor 10760 mg/kg
LD50 Koža Kunić 14112 mg/kg
LC50 Udisanje pare Štakor > 21.1 mg/l 4h

ksilen

CAS: 1330-20-7 a) akutna toksičnost ATE - Dermalno: 1100 mg/kg t.m.
ATE - Udisanje (Pare): 11 mg/l
LD50 Oralno Štakor 3523 mg/kg

etilbenzen

CAS: 100-41-4 a) akutna toksičnost LD50 Oralno Štakor 3500 mg/kg
LD50 Koža Kunić 15400 mg/kg
LC50 Udisanje Štakor 17629 mg/m³ 4h

butanon

CAS: 78-93-3 a) akutna toksičnost LD50 Oralno Štakor > 2193 mg/kg
LD50 Koža Kunić > 5000 mg/kg

11.2. Informacije o drugim opasnostima

Svojstva endokrine disrupcije:

Bez drugih endokrinih disruptora prisutnih u koncentraciji $\geq 0,1\%$

ODJELJAK 12.: Ekološke informacije

Primjeniti dobre radne postupke da se produkt ne oslobađa u okoliš.

12.1. Toksičnost

Eko-Toksikološke informacije:

Otrovno za vodeni okoliš s dugotrajnim učincima.

Popis eko-toksikoloških svojstava proizvoda

Proizvod je razvrstan kao: Aquatic Chronic 2(H411)

Popis sastojaka sa eko-toksikološkim svojstvima

Masne kiseline, C18-nezasićene, dimeri, oligomerni proizvodi reakcije s masnim kiselinama iz visokog ulja i trietilenetetramin

CAS: 68082-29-1 a) Akutna otrovnost na vodene organizme: LC50 Ribe 7.07 mg/l 96h
a) Akutna otrovnost na vodene organizme: EC50 Daphnia 7.07 mg/l 48h
a) Akutna otrovnost na vodene organizme: EC50 Algae 4.34 mg/l 72h

benzil-alkohol

CAS: 100-51-6 a) Akutna otrovnost na vodene organizme: LC50 Ribe 460 mg/l 96h
a) Akutna otrovnost na vodene organizme: EC50 Daphnia 230 mg/l 48h
a) Akutna otrovnost na vodene organizme: EC50 Algae 770 mg/l 72h
b) Hronična otrovnost na vodene organizme: NOEC Daphnia 51 mg/l 21d
b) Hronična otrovnost na vodene organizme: NOEC Algae 310 mg/l 72h

2-piperazin-1-iletilamin

CAS: 140-31-8 a) Akutna otrovnost na vodene organizme: LC50 Ribe 2190 mg/l 96h
a) Akutna otrovnost na vodene organizme: EC50 Daphnia 58 mg/l 48h
a) Akutna otrovnost na vodene organizme: EC50 Algae > 1000 mg/l 72h

Amini, polietilenpoli-, trietilentetramin frakcija

CAS: 90640-67-8 a) Akutna otrovnost na vodene organizme: LC50 Ribe 330 mg/l 96h
a) Akutna otrovnost na vodene organizme: EC50 Daphnia 31.1 mg/l 48h
a) Akutna otrovnost na vodene organizme: EC50 Algae 20 mg/l 72h

tetraetilenpentamin

CAS: 90640-66-7 a) Akutna otrovnost na vodene organizme: LC50 Ribe 420 mg/l 96h
a) Akutna otrovnost na vodene organizme: EC50 Daphnia 24.1 mg/l 48h

2-metoksi-1-metiletil-acetat

CAS: 108-65-6 a) Akutna otrovnost na vodene organizme: LC50 Ribe 134 mg/l 96h
a) Akutna otrovnost na vodene organizme: EC50 Daphnia 408 mg/l 48h
a) Akutna otrovnost na vodene organizme: EC50 Algae > 1000 mg/l 96h
b) Hronična otrovnost na vodene organizme: NOEC Ribe 47.5 mg/l - 14 d

etilbenzen

CAS: 100-41-4 a) Akutna otrovnost na vodene organizme: LC50 Ribe 4.2 mg/l 96h
a) Akutna otrovnost na vodene organizme: EC50 Daphnia 1.8 mg/l 48h
a) Akutna otrovnost na vodene organizme: EC50 Algae 3.6 mg/l 96h
b) Hronična otrovnost na vodene organizme: NOEC Daphnia 1 mg/l - 7d

toluen

CAS: 108-88-3 a) Akutna otrovnost na vodene organizme: LC50 Ribe 5.5 mg/l 96h
a) Akutna otrovnost na vodene organizme: EC50 Daphnia 3.78 mg/l 48h

n-butil-acetat

CAS: 123-86-4 a) Akutna otrovnost na vodene organizme: LC50 Ribe 18 mg/l 96h
a) Akutna otrovnost na vodene organizme: EC50 Daphnia 44 mg/l 48h
a) Akutna otrovnost na vodene organizme: EC50 Algae 675 mg/l 72h
b) Hronična otrovnost na vodene organizme: NOEC Daphnia 23 mg/l - 21d

etilbenzen

CAS: 100-41-4 a) Akutna otrovnost na vodene organizme: LC50 Ribe 4.2 mg/l 96h
a) Akutna otrovnost na vodene organizme: EC50 Daphnia 1.8 mg/l 48h
a) Akutna otrovnost na vodene organizme: EC50 Algae 3.6 mg/l 96h
b) Hronična otrovnost na vodene organizme: NOEC Daphnia 1 mg/l - 7d

butanon

CAS: 78-93-3 a) Akutna otrovnost na vodene organizme: LC50 Ribe 2973 mg/l 96h
a) Akutna otrovnost na vodene organizme: EC50 Daphnia 308 mg/l 48h
a) Akutna otrovnost na vodene organizme: EC50 Algae 1229 mg/l 96h

12.2. Postojanost i razgradivost

Masne kiseline, C18-nezasićene, dimeri, oligomerni proizvodi reakcije s masnim kiselinama iz visokog ulja i trietilenetetramin

CAS: 68082-29-1 Nije brzo-biološki razgradiv

benzil-alkohol

CAS: 100-51-6 Brzo-biološki razgradiv

Amini, polietilenpoli-, trietilenetetramin frakcija

CAS: 90640-67-8 Nije brzo-biološki razgradiv

2-metoksi-1-metiletil-acetat

CAS: 108-65-6 Brzo-biološki razgradiv

etilbenzen

CAS: 100-41-4 Brzo-biološki razgradiv

toluen

CAS: 108-88-3 Brzo-biološki razgradiv

n-butil-acetat

CAS: 123-86-4 Brzo-biološki razgradiv

ksilen

CAS: 1330-20-7 Brzo-biološki razgradiv

etilbenzen

CAS: 100-41-4 Brzo-biološki razgradiv

butanon

CAS: 78-93-3 Brzo-biološki razgradiv

12.3. Bioakumulacijski potencijal

ksilen

CAS: 1330-20-7 Nije bioakumulativan

12.4. Pokretljivost u tlu

ksilen

CAS: 1330-20-7 Mobilan

12.5. Rezultati procjene svojstava PBT i vPvB

Prema dostupnim podacima proizvod ne sadrži PBT/vPvB u postotku većem $\geq 0.1\%$.

12.6. Svojstva endokrine disrupcije

Bez drugih endokrinih disruptora prisutnih u koncentraciji $> = 0,1 \%$

12.7. Ostali štetni učinci

Ne primjenjuje se.

ODJELJAK 13.: Zbrinjavanje

13.1. Metode obrade otpada

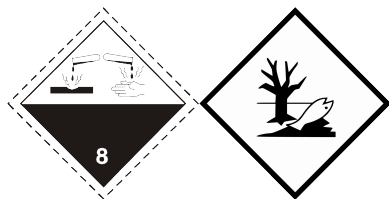
Regenerirati ako je moguće. Poslati ovlaštenim postrojenjima za odlaganje ili na spaljivanje pod kontroliranim uvjetima. Pri tome se pridržavati vrijedećih lokalnih i državnih regulativa.

Ne dopustiti prodor u kanalizaciju ili vodene tokove.

Zbrinite kontejnera onečišćenih proizvoda u skladu s lokalnim ili nacionalnim zakonskim odredbama.

Proizvod se nakon isteka roka trajanja mora odložiti prema propisima na snazi.

ODJELJAK 14.: Informacije o prijevozu



14.1. UN broj ili identifikacijski broj

1760

14.2. Ispravno otpremno ime prema UN-u

ADR-Naziv za otpremu: KOROZIVNA TEKUĆA TVAR, N.A.S. (produkti reakcije formaldehid i 4-nonilfenol i trietilentetramin i 2-piperazin-1-iletilamin - 2-piperazin-1-iletilamin)

IATA-Naziv za otpremu: CORROSIVE LIQUID, N.O.S. (produkti reakcije formaldehid i 4-nonilfenol i trietilentetramin i 2-piperazin-1-iletilamin - 2-piperazin-1-iletilamin)

IMDG-Naziv za otpremu: CORROSIVE LIQUID, N.O.S. (produkti reakcije formaldehid i 4-nonilfenol i trietilentetramin i 2-piperazin-1-iletilamin - 2-piperazin-1-iletilamin)

14.3. Razred(i) opasnosti pri prijevozu

ADR-Razred: 8

IATA-Razred: 8

IMDG-Razred: 8

14.4. Skupina pakiranja

ADR-Grupa pakiranja: II

IATA-Grupa pakiranja: II

IMDG-Grupa pakiranja: II

14.5. Opasnosti za okoliš

Morski polutant: Da

Zagađivači okoliša: Da

IMDG-EMS: F-A, S-B

14.6. Posebne mjere opreza za korisnika

Ceste i željeznica (ADR-RID):

ADR-Označavanje: 8

ADR - Identifikacijski broj opasnosti: 80

ADR-Posebne odredbe: 274

ADR ograničenja prijevoza u tunelu:

Zrak (IATA):

IATA-Putnički zrakoplov: 851

IATA-Teretni zrakoplov: 855

IATA-Označavanje: 8

IATA-Sporedni opasnosti: -

IATA-Erg: 8L

IATA-Posebne odredbe: A3 A803

More (IMDG):

IMDG-Skladištenje i rukovanje: Category B SW2

IMDG-Segregacija: -

IMDG-Sporedni opasnosti: -

IMDG-Posebne odredbe: 274

14.7. Prijevoz morem u razlišenom stanju u skladu s instrumentima IMO-a

Ne primjenjuje se.

ODJELJAK 15.: Informacije o propisima

15.1. Propisi u području sigurnosti, zdravlja i okoliša/posebno zakonodavstvo za tvar ili smjesu

Direktiva 98/24/EC (Rizici koji nastaju od kemijskih agenasa na radu)

Direktiva 2000/39/EC (Granična vrijednost profesionalne izloženosti)

Direktiva 2010/75/EU

Uredba (EC) br. 1907/2006 (REACH)

Uredba (EC) br. 1272/2008 (CLP)

Uredba (EC) br. 790/2009 (ATP 1 CLP) i (EZ) br. 758/2013

Uredba (EZ) br. 2020/878

Uredba (EZ) br. 286/2011 (ATP 2 CLP)

Uredba (EZ) br. 618/2012 (ATP 3 CLP)

Uredba (EZ) br. 487/2013 (ATP 4 CLP)

- Uredba (EZ) br. 944/2013 (ATP 5 CLP)
- Uredba (EZ) br. 605/2014 (ATP 6 CLP)
- Uredba (EZ) br. 2015/1221 (ATP 7 CLP)
- Uredba (EZ) br. 2016/918 (ATP 8 CLP)
- Uredba (EZ) br. 2016/1179 (ATP 9 CLP)
- Uredba (EZ) br. 2017/776 (ATP 10 CLP)
- Uredba (EZ) br. 2018/669 (ATP 11 CLP)
- Uredba (EZ) br. 2018/1480 (ATP 13 CLP)
- Uredba (EZ) br. 2019/521 (ATP 12 CLP)
- Uredba (EZ) br. 2020/217 (ATP 14 CLP)
- Uredba (EZ) br. 2020/1182 (ATP 15 CLP)
- Uredba (EZ) br. 2021/643 (ATP 16 CLP)
- Uredba (EZ) br. 2021/849 (ATP 17 CLP)
- Uredba (EZ) br. 2022/692 (ATP 18 CLP)
- Uredba (EU) no. 2023/707
- Uredba (EZ) br. 2023/1434 (ATP 19 CLP)
- Uredba (EZ) br. 2023/1435 (ATP 20 CLP)
- Uredba (EZ) br. 2024/197 (ATP 21 CLP)

Ograničenja u vezi s produktom ili sadržajnim tvarima u skladu s Prilogom XVII Uredbe (EZ-a) 1907/2006 (REACH) i naknadne izmjene:

- Ograničenja koja se odnose na proizvod: 3
- Ograničenja koja se odnose na sadržane tvari: 40, 48, 75

Odredbe prema direktivi 2012/18/EU (Seveso III)

Kategorija Seveso III prema dijelu 1. Priloga 1.	Donje granične količine opasnih tvari (u tonama) - male količine	Donje granične količine opasnih tvari (u tonama) - velike količine
proizvod pripada kategoriji: E2	200	500

Uredba (EU) br. 649/2012 (Uredba PIC)

Nijedna tvar nije navedena

Njemačka klasifikacija opasnosti za vodu.

Klasa 3: iznimno opasni.

SVHC tvari:

Prema dostupnim podacima proizvod ne sadrži SVHC u postotku većem $\geq 0.1\%$.

15.2. Procjena kemijske sigurnosti

Procjena kemijske sigurnosti provedena za smjesu

ODJELJAK 16.: Ostale informacije

Šifra	Opis
EUH066	Ponavljano izlaganje može prouzročiti sušenje ili pucanje kože.
H225	Lako zapaljiva tekućina i para.
H226	Zapaljiva tekućina i para.
H302	Štetno ako se proguta.
H304	Može biti smrtonosno ako se proguta i uđe u dišni sustav.
H311	Otrovno u dodiru s kožom.
H312	Štetno u dodiru s kožom.
H314	Uzrokuje teške opekline kože i ozljede oka.
H315	Nadražuje kožu.
H317	Može izazvati alergijsku reakciju na koži.
H318	Uzrokuje teške ozljede oka.
H319	Uzrokuje jako nadraživanje oka.
H332	Štetno ako se udiše.
H335	Može nadražiti dišni sustav.
H336	Može izazvati pospanost ili vrtoglavicu.
H361d	Sumnja na mogućnost štetnog djelovanja na nerođeno dijete.
H361fd	Sumnja na moguće štetno djelovanje na plodnost. Sumnja na mogućnost štetnog djelovanja na nerođeno dijete.
H372	Uzrokuje oštećenje organa tijekom produljene ili ponavljane izloženosti ako se udiše.

H373	Može uzrokovati oštećenje organa tijekom produljene ili ponavljane izloženosti.
H373	Može uzrokovati oštećenje organa tijekom produljene ili ponavljane izloženosti ako se udiše i proguta.
H411	Otrovno za vodeni okoliš s dugotrajnim učincima.
H412	Štetno za vodeni okoliš s dugotrajnim učincima.
H413	Može uzrokovati dugotrajne štetne učinke na vodeni okoliš.

Šifra	Razred opasnosti i kategorija opasnosti	Opis
2.6/2	Flam. Liq. 2	Zapaljiva tekućina, kategorija 2
2.6/3	Flam. Liq. 3	Zapaljiva tekućina, kategorija 3
3.1/3/Dermal	Acute Tox. 3	Akutna toksičnost (preko kože), kategorija 3
3.1/4/Dermal	Acute Tox. 4	Akutna toksičnost (preko kože), kategorija 4
3.1/4/Inhal	Acute Tox. 4	Akutna toksičnost (udisanje), kategorija 4
3.1/4/Oral	Acute Tox. 4	Akutna toksičnost (gutanje), kategorija 4
3.10/1	Asp. Tox. 1	Opasnost od aspiracije, Kategorija 1
3.2/1B	Skin Corr. 1B	Nagrizajuće za kožu, kategorija 1B
3.2/2	Skin Irrit. 2	Nadražujuće za kožu, kategorija 2
3.3/1	Eye Dam. 1	Teška ozljeda oka, kategorija 1
3.3/2	Eye Irrit. 2	Nadražujuće za oči, kategorija 2
3.4.2/1	Skin Sens. 1	Izazivanje preosjetljivosti kože, kategorija 1
3.4.2/1A	Skin Sens. 1A	Izazivanje preosjetljivosti kože, kategorija 1A
3.4.2/1B	Skin Sens. 1B	Izazivanje preosjetljivosti kože, kategorija 1B
3.7/2	Repr. 2	Reproduktivna toksičnost, Kategorija 2
3.8/3	STOT SE 3	Specifična toksičnost za ciljane organe – jednokratno izlaganje, Kategorija 3
3.9/1	STOT RE 1	Specifična toksičnost za ciljane organe – ponavljano izlaganje, Kategorija 1
3.9/2	STOT RE 2	Specifična toksičnost za ciljane organe – ponavljano izlaganje, Kategorija 2
4.1/C2	Aquatic Chronic 2	Kroničnu (dugoročnu) opasnost za organizme koji žive u vodi, kategorija 2
4.1/C3	Aquatic Chronic 3	Kroničnu (dugoročnu) opasnost za organizme koji žive u vodi, kategorija 3
4.1/C4	Aquatic Chronic 4	Kroničnu (dugoročnu) opasnost za organizme koji žive u vodi, kategorija 4

Razvrstavanje i postupak razvrstavanja za smjese sukladno Uredbi (EZ) br. 1272/2008 (CLP):

Razvrstavanje prema Uredbi (EZ) br. 1272/2008 Postupak razvrstavanja

Skin Corr. 1B, H314	Računska metoda
Skin Sens. 1A, H317	Računska metoda
Repr. 2, H361fd	Računska metoda
STOT RE 2, H373	Računska metoda
Aquatic Chronic 2, H411	Računska metoda

Ovaj dokument izradila je tehnički kompetentna osoba za SDS, te koja je prikladno za to osposobljena.

Glavni bibliografski izvori:

ECDIN – Informacijska mreža za ekološke podatke za kemikalije – Zajednički istraživački centar, Komisija Europskih zajednica
SAX's OPASNE OSOBINE INDUSTRIJSKIH TVARI- Osmo izdanje - Van Nostrand Reinold
Sigurnosno-tehnički listovi dobavljača sirovina.

Ovdje objavljenе informacije se temelje na našem znanju u vrijeme gore navedenog datuma. Odnose se samo na navedene proizvode i ne predstavlja garanciju neke određene kvalitete.

Obaveza je korisnika da utvrdi da je ova informacija cjelovita i da odgovara specifičnoj upotrebi.

Ovaj MSDS poništava i zamjenjuje sva predhodna izdanja.

Legenda kratica i akronima upotrebljenih u sigurnosno-tehničkom listu:

ACGIH: Američka konferencija vladinih specijalista za industrijsku higijenu
ADR: Europski sporazum o međunarodnom cestovnom prijevozu opasnih tvari.
ATE: Procjena akutne toksičnosti
ATEmix: Procijenjena vrijednost akutne toksičnosti (Mješavine)
BEI: Indeks biološke izloženosti

CAS: CAS registarski broj (Američko kemijsko društvo)
CAV: Centar za otrove
CE: Europska zajednica
CLP: Razvrstavanje, označavanje, pakiranje.
CMR: Karcinogeno, Mutageno i Reprotoksično
COV: Hlapivi organski spoj
CSA: Procjena kemijske sigurnosti
CSR: Izvješće o kemijskoj sigurnosti
DNEL: Izvedena razina bez učinka.
EC50: Pulu maksimalna efektivna koncentracija
ECHA: Europska agencija za kemijske proizvode
EINECS: Europski propis postojećih trgovačkih kemijskih tvari.
ES: Scenario izloženosti
GefStoffVO: Propis o opasnim tvarima, Njemačka.
GHS: Globalno harmonizirani sustav razvrstavanja i označavanja kemikalija
IARC: Međunarodna agencija za istraživanja o karcinomu
IATA: Međunarodna udruga za zračni prijevoz.
IC50: Pulu maksimalna koncentracija inhibitora
IMDG: Međunarodni pomorski kodeks opasnog tereta.
LC50: Smrtna koncentracija u 50% slučajeva ispitivane populacije.
LD50: Smrtna doza u 50% slučajeva ispitivane populacije.
LDLo: Niska smrtonosna doza
N.A.: Nije primjenjivo
N/A: Nije primjenjivo
N/D: Nije definirano/Nije dostupno
N.D.: Nije dostupno
NIOSH: Državni institut za zaštitu na radu
NOAEL: Razina bez uočenih štetnih učinaka
OSHA: Upravljanje zaštitom na radu
PBT: Persistentno, bioakumulativno i toksično
PGK: Packaging Instruction
PNEC: Predviđena koncentracija bez učinka.
PSG: Putnici
RID: Propis o međunarodnom prijevozu opasnih tvari željeznicom
STEL: Granica kratkotrajne izloženosti.
STOT: Toksičnost za ciljani organ.
TLV: Granična vrijednost praga.
TLV-TWA: Granična vrijednost praga za vremenski ponderirani prosjek. (ACGIH standard)
vPvB: Vrlo persistentno, vrlo bioakumulativno
WGK: Njemačka klasifikacija opasnosti za vodu.

Odlomci promijenjeni u odnosu na prethodnu reviziju:

- ODJELJAK 1.: Identifikacija tvari/smjese i podaci o društvu/poduzeću
- ODJELJAK 8.: Nadzor nad izloženošću/osobna zaštita
- ODJELJAK 9.: Fizikalna i kemijska svojstva
- ODJELJAK 15.: Informacije o propisima

n-butyl acetate

Substance identification

Chemical Name: n-butyl acetate

CAS number: 123-86-4

Date - Version: 07/06/2017 10.0

1. USE IN COATINGS. USE IN PAINTS. USE IN PRINTING INKS. USE IN ADHESIVES.

Short title of the exposure scenario: Use in coatings. Use in paints. Use in printing inks. Use in adhesives.

SU3; ERC4; PROC7, PROC10, PROC13

EXPOSURE CONTROL AND RISK MANAGEMENT MEASURES

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: CEPE SPERC4.1a.v1

Operating conditions

Yearly amount used in EU: 5,000,000 kgs

Minimum emission days per year: 225

Emission factor to air: 0.8%

Emission factor in water: 2%

Emission factor in soil: 0%

Receiving surface water (flow rate): 18,000 m³/day

Freshwater dilution factor: 10

Marine water dilution factor: 100

Risk management measures

Suitable measures to reduce emissions to air can be: Exhaust gas treatment with thermal oxidation.

Type of treatment plant: Municipal sewage treatment plant.

Assumed sewage treatment plant flow: 2,000 m³/day

Exposure estimation and reference to its source

Evaluation method: EASY TRA v4.1, ECETOC TRA v3.0, Environment

Risk Characterization Ratio (RCR): 0.925355

Risk from environmental exposure is driven by soil.

Maximum safe use amount: 1080.7 kg/day

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC7: Industrial spray application

Area of use: Industrial

Operating conditions

Substance concentration: n-butyl acetate content: ≥0 - ≤100%

Physical state: liquid

Vapor pressure of the substance during use: 1120Pa

Process temperature: 20°C

Duration and frequency of application: 480 mins. 5 days a week

Indoor/Outdoor: Internal use

Risk management measures

Wear chemically resistant gloves in combination with "basic" employee training. Effectiveness: 90%

Minimize manual tasks.

Daily general cleaning of equipment and work area.

Regular inspection and maintenance of equipment and machinery.

Ensure that the activity is performed outside the operator's respiratory zone (head-product distance greater than 1m).

Avoid frequent and direct contact with the substance.

Check that risk reduction measures are implemented and that the conditions of use are respected.

Avoid splashes.

Make sure the spray booth is used.

Wear suitable clothing.

Exposure estimation and reference to its source

Evaluation method: EASY TRA v4.1, ECETOC TRA v3.0, Worker. Worker - dermal, long-term - systemic.

Exposure estimation: 4.2857 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.38961

Evaluation method: EASY TRA v4.1, ECETOC TRA v3.0, Worker. Operator - inhalation, long-term - local.

Exposure estimation: 0.0001 mg/m³

Risk Characterization Ratio (RCR): 0.000001

Guidance for downstream users

For a comparison term, visit <http://www.ecetoc.org/tra> Please note that a revised version was used (see exposure estimates).

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC10: Application with rollers or brushes

Area of use: Industrial

Operating conditions

Substance concentration: n-butyl acetate content: ≥ 0 - $\leq 100\%$

Physical state: liquid

Vapor pressure of the substance during use: 1120Pa

Process temperature: 20°C

Duration and frequency of application: 480 mins. 5 days a week

Indoor/Outdoor: Internal use

Risk management measures

Forced local ventilation. Effectiveness: 90%

Wear chemically resistant gloves in combination with "basic" employee training. Effectiveness: 90%

Exposure estimation and reference to its source

Evaluation method: EASY TRA v4.1, ECETOC TRA v3.0, Worker. Worker - dermal, long-term - systemic.

Exposure estimation: 2.7429 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.249351

Evaluation method: EASY TRA v4.1, ECETOC TRA v3.0, Worker. Operator - inhalation, long-term - local.

Exposure estimation: 24.1996 mg/m³

Risk Characterization Ratio (RCR): 0.080665

Guidance for downstream users

For a comparison term, visit <http://www.ecetoc.org/tra>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC13: Treatment of articles by dipping and pouring

Area of use: Industrial

Operating conditions

Substance concentration: n-butyl acetate content: ≥ 0 - $\leq 100\%$

Physical state: liquid

Vapor pressure of the substance during use: 1120Pa

Process temperature: 20°C

Duration and frequency of application: 480 mins. 5 days a week

Indoor/Outdoor: Internal use

Risk management measures

Forced local ventilation. Effectiveness: 90%

Wear chemically resistant gloves in combination with "basic" employee training. Effectiveness: 90%

Exposure estimation and reference to its source

Evaluation method: EASY TRA v4.1, ECETOC TRA v3.0, Worker. Worker - dermal, long-term - systemic.

Exposure estimation: 1.3714 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.124675

Evaluation method: EASY TRA v4.1, ECETOC TRA v3.0, Worker. Operator - inhalation, long-term - local.

Exposure estimation: 24.1996 mg/m³

Risk Characterization Ratio (RCR): 0.080665

Guidance for downstream users

For a comparison term, visit <http://www.ecetoc.org/tra>

2. USE IN COATINGS. USE IN PAINTS. USE IN PRINTING INKS. USE IN ADHESIVES.

Short title of the exposure scenario: Use in coatings. Use in paints. Use in printing inks. Use in adhesives.
SU3; ERC4; PROC7, PROC10, PROC13

EXPOSURE CONTROL AND RISK MANAGEMENT MEASURES

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: CEPE SPERC4.1a.v1

Operating conditions

Yearly amount used in EU: 43,000,000 kgs

Minimum emission days per year: 225

Emission factor to air: 0.8%

Emission factor in water: 2%

Emission factor in soil: 0%

Receiving surface water (flow rate): 18,000 m³/day

Freshwater dilution factor: 10

Marine water dilution factor: 100

Risk management measures

Suitable measures to reduce emissions to air can be: Exhaust gas treatment with thermal oxidation.

Type of treatment plant: Municipal sewage treatment plant.

Assumed sewage treatment plant flow: 2,000 m³/day

Exposure estimation and reference to its source

Evaluation method: EASY TRA v4.1, ECETOC TRA v3.0, Environment

Risk Characterization Ratio (RCR): 0.925355

Risk from environmental exposure is driven by soil.

Maximum safe use amount: 1080.7 kg/day

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC7: Industrial spray application

Area of use: Industrial

Operating conditions

Substance concentration: n-butyl acetate content: ≥0 - ≤100%

Physical state: liquid

Vapor pressure of the substance during use: 1120Pa

Process temperature: 20°C

Duration and frequency of application: 480 mins. 5 days a week

Indoor/Outdoor: Internal use

Risk management measures

Wear chemically resistant gloves in combination with "basic" employee training. Effectiveness: 90%

Minimize manual tasks.

Daily general cleaning of equipment and work area.

Regular inspection and maintenance of equipment and machinery.

Ensure that the activity is performed outside the operator's respiratory zone (head-product distance greater than 1m).

Avoid frequent and direct contact with the substance.

Check that risk reduction measures are implemented and that the conditions of use are respected.

Avoid splashes.

Make sure the spray booth is used.

Wear suitable clothing.

Exposure estimation and reference to its source

Evaluation method: EASY TRA v4.1, ECETOC TRA v3.0, Worker. Worker - dermal, long-term - systemic.

Exposure estimation: 4.2857 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.38961

Evaluation method: EASY TRA v4.1, ECETOC TRA v3.0, Worker. Operator - inhalation, long-term - local.
Exposure estimation: 0.0001 mg/m³
Risk Characterization Ratio (RCR): 0.000001

Guidance for downstream users

For a comparison term, visit <http://www.ecetoc.org/tra> Please note that a revised version was used (see exposure estimates).

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC10: Application with rollers or brushes

Area of use: Industrial

Operating conditions

Substance concentration: n-butyl acetate content: ≥0 - ≤100%

Physical state: liquid

Vapor pressure of the substance during use: 1120Pa

Process temperature: 20°C

Duration and frequency of application: 480 mins. 5 days a week

Indoor/Outdoor: Internal use

Risk management measures

Forced local ventilation. Effectiveness: 90%

Wear chemically resistant gloves in combination with "basic" employee training. Effectiveness: 90%

Exposure estimation and reference to its source

Evaluation method: EASY TRA v4.1, ECETOC TRA v3.0, Worker. Worker - dermal, long-term - systemic.

Exposure estimation: 2.7429 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.249351

Evaluation method: EASY TRA v4.1, ECETOC TRA v3.0, Worker. Operator - inhalation, long-term - local.

Exposure estimation: 24.1996 mg/m³

Risk Characterization Ratio (RCR): 0.080665

Guidance for downstream users

For a comparison term, visit <http://www.ecetoc.org/tra>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC13: Treatment of articles by dipping and pouring

Area of use: Industrial

Operating conditions

Substance concentration: n-butyl acetate content: ≥0 - ≤100%

Physical state: liquid

Vapor pressure of the substance during use: 1120Pa

Process temperature: 20°C

Duration and frequency of application: 480 mins. 5 days a week

Indoor/Outdoor: Internal use

Risk management measures

Forced local ventilation. Effectiveness: 90%

Wear chemically resistant gloves in combination with "basic" employee training. Effectiveness: 90%

Exposure estimation and reference to its source

Evaluation method: EASY TRA v4.1, ECETOC TRA v3.0, Worker. Worker - dermal, long-term - systemic.

Exposure estimation: 1.3714 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.124675

Evaluation method: EASY TRA v4.1, ECETOC TRA v3.0, Worker. Operator - inhalation, long-term - local.

Exposure estimation: 24.1996 mg/m³

Risk Characterization Ratio (RCR): 0.080665

Guidance for downstream users

For a comparison term, visit <http://www.ecetoc.org/tra>

3. USE IN COATINGS. USE IN PAINTS. USE IN PRINTING INKS. USE IN ADHESIVES.

Short title of the exposure scenario: Use in coatings. Use in paints. Use in printing inks. Use in adhesives.
SU22; ERC8a, ERC8d; PROC10, PROC11, PROC13, PROC19

EXPOSURE CONTROL AND RISK MANAGEMENT MEASURES

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: CEPE SPERC 8a.2a.v1

Operating conditions

Yearly amount used in EU: 2,000,000 kgs

Minimum emission days per year: 225

Emission factor to air: 99%

Emission factor in water: 1%

Emission factor in soil: 0%

Receiving surface water (flow rate): 18,000 m³/day

Freshwater dilution factor: 10

Marine water dilution factor: 100

Risk management measures

The wastewater treatment measures considered suitable are, for example, wastewater or sewage treatment plant.

Type of treatment plant: Municipal sewage treatment plant.

Assumed sewage treatment plant flow: 2,000 m³/day

Exposure estimation and reference to its source

Evaluation method: EASY TRA v4.1, ECETOC TRA v3.0, Environment

Risk Characterization Ratio (RCR): 0.012923

Risk from environmental exposure is driven by freshwater sediment.

Maximum safe use amount: 1934.6 kg/giorno

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: CEPE SPERC 8d.3a.v1

Operating conditions

Yearly amount used in EU: 2,000,000 kgs

Minimum emission days per year: 225

Emission factor to air: 98%

Emission factor in water: 2%

Emission factor in soil: 0%

Receiving surface water (flow rate): 18,000 m³/day

Freshwater dilution factor: 10

Marine water dilution factor: 100

Risk management measures

Type of treatment plant: Municipal sewage treatment plant.

Assumed sewage treatment plant flow: 2,000 m³/day

Exposure estimation and reference to its source

Evaluation method: EASY TRA v4.1, ECETOC TRA v3.0, Environment

Risk Characterization Ratio (RCR): 0.092422

Risk from environmental exposure is driven by soil.

Maximum safe use amount: 1082 kg/day

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC10: Application with rollers or brushes

Area of use: Professional

Operating conditions

Substance concentration: n-butyl acetate content: ≥ 0 - $\leq 100\%$

Physical state: liquid

Vapor pressure of the substance during use: 1120Pa

Process temperature: 20°C

Duration and frequency of application: 480 mins. 5 days a week

Indoor/Outdoor: Internal use

Risk management measures

Provide a good standard of general or controlled ventilation (5 to 10 air changes per hour). Effectiveness: 70%

Wear chemically resistant gloves in combination with "basic" employee training. Effectiveness: 90%

Exposure estimation and reference to its source

Evaluation method: EASY TRA v4.1, ECETOC TRA v3.0, Worker. Worker - dermal, long-term - systemic.

Exposure estimation: 2.7429 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.249351

Evaluation method: EASY TRA v4.1, ECETOC TRA v3.0, Worker. Operator - inhalation, long-term - local.

Exposure estimation: 145.1979 mg/m³

Risk Characterization Ratio (RCR): 0.483993

Guidance for downstream users

For a comparison term, visit <http://www.ecetoc.org/tra>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC11: Non-industrial spray application

Area of use: Professional

Operating conditions

Substance concentration: n-butyl acetate content: ≥ 0 - $\leq 45\%$

Physical state: liquid

Vapor pressure of the substance during use: 1120Pa

Process temperature: 20°C

Duration and frequency of application: 480 mins. 5 days a week

Indoor/Outdoor: Internal use

Risk management measures

Wear chemically resistant gloves in combination with "basic" employee training. Effectiveness: 90%

Minimize manual tasks.

Daily general cleaning of equipment and work area.

Regular inspection and maintenance of equipment and machinery.

Ensure that the activity is performed outside the operator's respiratory zone (head-product distance greater than 1m).

Avoid frequent and direct contact with the substance.

Check that risk reduction measures are implemented and that the conditions of use are respected.

Avoid splashes.

Make sure the spray booth is used.

Wear suitable clothing.

Exposure estimation and reference to its source

Evaluation method: EASY TRA v4.1, ECETOC TRA v3.0, Worker. Worker - dermal, long-term - systemic.

Exposure estimation: 10.7143 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.974026

Evaluation method: EASY TRA v4.1, ECETOC TRA v3.0, Worker. Operator - inhalation, long-term - local.

Exposure estimation: 0.0001 mg/m³

Risk Characterization Ratio (RCR): 0.000001

Guidance for downstream users

For a comparison term, visit <http://www.ecetoc.org/tra> Please note that a revised version was used (see exposure estimates).

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC11: Non-industrial spray application

Area of use: Professional

Operating conditions

Substance concentration: n-butyl acetate content: ≥ 0 - $\leq 45\%$

Physical state: liquid

Vapor pressure of the substance during use: 1120Pa

Process temperature: 20°C

Duration and frequency of application: 480 mins. 5 days a week

Indoor/Outdoor: Internal use

Risk management measures

Wear chemically resistant gloves in combination with "basic" employee training. Effectiveness: 90%

Minimize manual tasks.

Avoid frequent and direct contact with the substance.

Check that risk reduction measures are implemented and that the conditions of use are respected.

Daily general cleaning of equipment and work area.

Regular control and maintenance of equipment and machinery.

Make sure doors and windows are open (general ventilation).

Avoid splashes.

Use an adequately effective local ventilation system.

Wear suitable clothing.

Exposure estimation and reference to its source

Evaluation method: EASY TRA v4.1, ECETOC TRA v3.0, Worker, modified version. The concentration of the substance has been considered using a linear approach. Worker - dermal, long-term - systemic.

Exposure estimation: 4.8214 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.438312

Evaluation method: EASY TRA v4.1, ECETOC TRA v3.0, Worker, modified version. Operator - inhalation, long-term - local.

Exposure estimation: 153 mg/m³

Risk Characterization Ratio (RCR): 0.51

Guidance for downstream users

For a comparison term, visit <http://www.ecetoc.org/tra> Please note that a revised version was used (see exposure estimates).

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC11: Non-industrial spray application

Area of use: Professional

Operating conditions

Substance concentration: n-butyl acetate content: ≥ 0 - $\leq 100\%$

Physical state: liquid

Vapor pressure of the substance during use: 1120Pa

Process temperature: 20°C

Duration and frequency of application: 480 mins. 5 days a week

Indoor/Outdoor: Internal use

Risk management measures

Wear chemically resistant gloves in combination with "basic" employee training. Effectiveness: 90%

Minimize manual tasks.

Avoid frequent and direct contact with the substance.

Check that risk reduction measures are implemented and that the conditions of use are respected.

Daily general cleaning of equipment and work area.

Regular inspection and maintenance of equipment and machinery.

Avoid splashes.

Make sure doors and windows are open (general ventilation).

Wear a half face mask with a P2L filter or better.

Wear suitable clothing.

Exposure estimation and reference to its source

Evaluation method: EASY TRA v4.1, ECETOC TRA v3.0, Worker, modified version. The concentration of the substance has been considered using a linear approach. Worker - dermal, long-term - systemic.

Exposure estimation: 4.8214 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.438312

Evaluation method: EASY TRA v4.1, ECETOC TRA v3.0, Worker, modified version. Operator - inhalation, long-term - local.

Exposure estimation: 116 mg/m³

Risk Characterization Ratio (RCR): 0.386667

Guidance for downstream users

For a comparison term, visit <http://www.ecetoc.org/tra> Please note that a revised version was used (see exposure estimates).

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC13: Treatment of articles by dipping and pouring

Area of use: Professional

Operating conditions

Substance concentration: n-butyl acetate content: ≥ 0 - $\leq 100\%$

Physical state: liquid

Vapor pressure of the substance during use: 1120Pa

Process temperature: 20°C

Duration and frequency of application: 480 mins. 5 days a week

Indoor/Outdoor: Internal use

Risk management measures

Provide a good standard of general or controlled ventilation (5 to 10 air changes per hour). Effectiveness: 70%

Wear chemically resistant gloves in combination with "basic" employee training. Effectiveness: 90%

Exposure estimation and reference to its source

Evaluation method: EASY TRA v4.1, ECETOC TRA v3.0, Worker. Worker - dermal, long-term - systemic.

Exposure estimation: 1.3714 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.124675

Evaluation method: EASY TRA v4.1, ECETOC TRA v3.0, Worker. Operator - inhalation, long-term - local.

Exposure estimation: 145.1979 mg/m³

Risk Characterization Ratio (RCR): 0.483993

Guidance for downstream users

For a comparison term, visit <http://www.ecetoc.org/tra>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC19: Manual mixing with direct contact with the only use of personal protective equipment

Area of use: Professional

Operating conditions

Substance concentration: n-butyl acetate content: ≥ 0 - $\leq 100\%$

Physical state: liquid

Vapor pressure of the substance during use: 1120Pa

Process temperature: 20°C

Duration and frequency of application: 240 mins. 5 days a week

Indoor/Outdoor: Internal use

Risk management measures

Forced local ventilation: Effectiveness: 80%

Wear chemically resistant gloves in combination with "basic" employee training. Effectiveness: 90%

Ensure a good standard of general or controlled ventilation (no less than 3-5 air changes per hour). Effectiveness: 30%

Exposure estimation and reference to its source

Evaluation method: EASY TRA v4.1, ECETOC TRA v3.0, Worker. Worker - dermal, long-term - systemic.

Exposure estimation: 8.4857 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.771429

Evaluation method: EASY TRA v4.1, ECETOC TRA v3.0, Worker. Operator - inhalation, long-term - local.

Exposure estimation: 67.759 mg/m³

Risk Characterization Ratio (RCR): 0.225863

Guidance for downstream users

For a comparison term, visit <http://www.ecetoc.org/tra>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC19: Manual mixing with direct contact with the only use of personal protective equipment

Area of use: Professional

Operating conditions

Substance concentration: n-butyl acetate content: ≥ 0 - $\leq 100\%$

Physical state: liquid

Vapor pressure of the substance during use: 1120Pa

Process temperature: 20°C

Duration and frequency of application: 60 mins. 5 days a week

Indoor/Outdoor: Internal use

Risk management measures

Provide a good standard of general or controlled ventilation (5 to 10 air changes per hour). Effectiveness: 70%

Wear chemically resistant gloves in combination with "basic" employee training. Effectiveness: 90%

Exposure estimation and reference to its source

Evaluation method: EASY TRA v4.1, ECETOC TRA v3.0, Worker. Worker - dermal, long-term - systemic.

Exposure estimation: 2.8286 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.257143

Evaluation method: EASY TRA v4.1, ECETOC TRA v3.0, Worker. Operator - inhalation, long-term - local.

Exposure estimation: 145.1979 mg/m³

Risk Characterization Ratio (RCR): 0.483993

Guidance for downstream users

For a comparison term, visit <http://www.ecetoc.org/tra>

Toluene

Identification of the exposure scenario

Product name: Toluene

CAS number: 108-88-3

EC number: 203-625-9

Review date: 02/03/2017

2 - INDUSTRIAL USES

Identified industrial uses of toluene and generic exposure scenario.

Table 1 lists the industrial uses identified for toluene.

If DUs wish to verify compliance with the ES, they should start with summary table 1 and, based on the textual description of the exposure scenarios, determine their own identified use, the PROC and the ERC associated with their specific activity.

DUs may identify the specific scenarios of their interest in section 2.2.1 for the environment, 2.2.2 for workers and 2.2.3 for consumers and verify the exposure and risk characterisation for the environment and for workers in section 2.3. The operating conditions described in each specific scenario do not necessarily apply to all sites. It may therefore be necessary to apply the graduated scaling method (appropriate adaptation to the actual conditions on site), in order to identify compliance with the conditions described in the exposure scenarios.

Table 1. Industrial contributing exposure scenarios identified for toluene

Identifier use: ES1 Manufacturing

Description: Manufacture of the substance or use as an intermediate, or as a process chemical or extraction agent. Includes recycling/recovery activities, material transfers, storage, sampling, associated laboratory activities, maintenance and loading (including on vessels/barges, tank wagons or tank trucks and large IBCs).

Sector of use (SU): 3, 8, 9

Process categories (PROC): 1, 2, 3, 4, 8a, 8b, 15

Environmental Release Categories (ERC): 1

Identifier use: ES2 Distribution

Description: Loading (including on vessel/barges, rail/road car and IBC loading) and repacking (including drums and small packs) of substance, including its distribution and associated laboratory activities.

Sector of use (SU): 3, 8, 9

Process categories (PROC): 1, 2, 3, 4, 8a, 8b, 9, 15

Environmental Release Categories (ERC): 1 (load) - 2 (repacking)

Identifier use: ES3 Use as an intermediate

Description: Use as an intermediate

Sector of use (SU): 3, 8, 9

Process categories (PROC): 1, 2, 3, 4, 8a, 8b, 15

Environmental Release Categories (ERC): 6a

Identifier use: ES5 Use in cleaning agents

Description: Covers the use as a component of cleaning products including transfer from storage, pouring/unloading from drums or containers. Exposures during mixing/diluting in the preparatory phase and cleaning activities (including spraying, brushing, dipping, wiping, automated and by hand), related equipment cleaning and maintenance.

Sector of use (SU): 3, 10

Process categories (PROC): 2, 3, 4, 7, 8a, 8b, 10, 13

Environmental Release Categories (ERC): 4

Identifier use: ES7 Use as fuel

Description: Covers the use as a fuel (or fuel additive) and includes activities associated with its transfer, use, equipment maintenance and handling of waste.

Sector of use (SU): 3, 10

Process categories (PROC): 1, 2, 3, 4, 8a, 8b, 16

Environmental Release Categories (ERC): 7

Identifier use: ES10 Use in coatings

Description: Covers use in coatings (paints, inks, adhesives, etc.), including exposures during use (including materials receipt, storage, preparation and bulk and semi-bulk transfer, application by spray, roller, spreader, dip, flow, fluidised bed on production lines and film formation) and equipment cleaning, maintenance and associated laboratory activities.

Sector of use (SU): 3, 10

Process categories (PROC): 1, 2, 3, 4, 5, 7, 8a, 8b, 9, 10, 13, 14, 15

Environmental Release Categories (ERC): 4

Identifier use: ES13 Use in oil field drilling and production operations

Description: Well drilling activities in oil and production fields (including drilling muds and well cleaning), including material transfers, on-site formulation, also wellhead operations, shaker room activities and related maintenance.

Sector of use (SU): 3, 10

Process categories (PROC): 1, 2, 3, 4, 8a, 8b

Environmental Release Categories (ERC): 4

Identifier use: ES14 Use in binders and release agents

Description: Covers the use as binders and release agents, including material transfers, mixing, application (including spraying and brushing), mould forming and casting and handling of waste.

Sector of use (SU): 3, 8, 9

Process categories (PROC): 1, 2, 3, 4, 6, 7, 8b, 10, 14

Environmental Release Categories (ERC): 5

Identifier use: ES16 Use as laboratory reagent

Description: Use of the substance within laboratory settings, including material transfers and equipment cleaning.

Sector of use (SU): 3, 10

Process categories (PROC): 10, 15

Environmental Release Categories (ERC): 2, 4

Identifier use: ES18 Use in functional fluids

Description: Use as functional fluids e.g. cable oils, transfer oils, coolants, insulators, refrigerants, hydraulic fluids in industrial equipment including maintenance and related material transfers.

Sector of use (SU): 3, 8, 9

Process categories (PROC): 1, 2, 3, 4, 8a, 8b, 9

Environmental Release Categories (ERC): 7

Identifier use: ES20 Use in rubber production and processing

Description: Manufacture of tyres and general rubber articles, including processing of raw (cured) rubber, handling and mixing of rubber additives, vulcanising, cooling and finishing.

Sector of use (SU): 10

Process categories (PROC): 1, 2, 3, 4, 5, 6, 7, 8a, 8b, 14, 15

Environmental Release Categories (ERC): 4, 6d

Identifier use: ES21 Formulation

Description: Formulation, packing and re-packing of the substance and its mixtures in batch or continuous operations, including storage, material transfers, mixing, large and small scale packing, maintenance and associated laboratory activities.

Sector of use (SU): 3, 10

Process categories (PROC): 1, 2, 3, 4, 5, 8a, 8b, 9, 14, 15

Environmental Release Categories (ERC): 2

2.1 INDUSTRIAL USES OF TOLUENE AND TOLUENE-CONTAINING PRODUCTS

Title: Industrial uses of toluene and toluene-containing products

Sectors of use: 3, 8, 9, 10

Process categories: 1, 2, 3, 4, 5, 6, 7, 8a, 8b, 9, 10, 13, 14, 15

Environmental Release Categories: 1, 2, 4, 5, 6a, 6d, 7

Scope of the process: Industrial processes relevant to toluene and toluene-containing products

2.2 OPERATING CONDITIONS AND RISK MANAGEMENT MEASURES

2.2.1. Contributing scenario controlling exposure for the environment

Method used for evaluation: EUSES 2.1.1 with use of predefined ESVOC SpERC release fractions (see Table 3 for the specific versions of each scenario).

Operating conditions

Product features: Toluene is a liquid of medium volatility. The water solubility of this category is 573 mg/l; the vapour pressure is 4030 Pa at 20°C; the log Kow is 2.73. Toluene is readily biodegradable.

Frequency and duration of use: Issue days: 300 days/year

Quantity used: See table 2.

Environmental factors not influenced by risk management: See table 2.

Other given operational conditions affecting environmental exposure: See table 2.

Risk Management Measures

Local technical conditions and measures to reduce and limit discharges, air emissions and soil release:

Treat air emission to provide a typical removal efficiency of [TCR7]; for each scenario, see Table 2 Typical onsite wastewater treatment technology provides removal efficiency of 93.3% [TCR11]. (unless otherwise specified).

ES5, ES7, ES10, ES14: Soil emission controls are not applicable as there is no direct release to soil [TCR4].

Organizational measures to prevent/limit release from site:

ES1, ES2, ES3, ES5, ES7, ES10, ES14, ES16, ES18, ES20, ES21: Do not apply industrial sludge to natural soils [OMS2].

ES3: Sewage sludge should be incinerated, contained or reclaimed [OMS3].

ES13: Prevent environmental discharge consistent with regulatory requirements.

Conditions and measures for the domestic sewage treatment plan:

Estimated substance removal from wastewater via municipal sewage treatment 93.3 (%) [STP3]. (unless otherwise specified).

Assumed domestic sewage treatment plant flow 2000 (m³/g) [STP5]. (unless otherwise specified).

Conditions and measures for external treatment of waste for disposal:

ES1: No waste of the substance is generated during production. [ETW4].

ES2, ES5, ES10, ES13, ES14, ES16, ES18, ES20, ES21: External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3].

ES3, ES7: This substance is consumed during use and no waste of the substance is generated [ETW5].

Conditions and measures for external recovery of waste:

ES1: No waste related to the substance [ERW2] is generated during production.

ES2, ES10, ES13, ES14, ES16, ES18, ES20, ES21: External recovery and recycling of waste should comply with applicable local and/or national regulations [ERW1].

ES3, ES5, ES7: This substance is consumed during use and no waste of the substance is generated [ERW3].

2.2.2 Contributing scenario controlling exposure for workers

Product features: Liquid, vapour pressure 0.5 - 10 kPa [OC4].

Concentration of the substance in the product: Covers a percentage substance in the product up to 100% (unless otherwise stated) [G13].

Frequency and duration of use/exposure: Covers a daily exposure up to 8 hours (unless otherwise specified) [G2].

Human factors not influenced by risk management: Not applicable.

Other given operating conditions affecting employee exposure:

Assumes use of the product at not more than 20°C above ambient temperature, unless otherwise specified [G15].

Assumes a good basic standard of occupational hygiene has been implemented [G1].

Users are advised to consider national Occupational Exposure Limits or other equivalent values [G38].

Operational conditions and risk management measures affecting worker exposure

General measures (skin irritants) (G19):

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear suitable gloves (tested to EN374) if hand contact with substance is likely. Remove impurities/product spills as they occur. Immediately remove any contamination with skin. Provide basic staff training so that exposure is minimised and any skin problems are reported (E3).

In addition (where there is potential for further significant aerosol exposure): Other skin protection measures, such as impermeable overalls and visors, will be necessary during activities involving high dispersion with the possible release of aerosols.

General measures for assessing the inhalation risk - qualitative assessment:

Do not swallow. Implement a good basic standard of occupational hygiene. Avoid contact with contaminated tools and objects. Management/supervision in place to check that the RMMs implemented are being used correctly and OCs followed. Staff training on good practices. Adequate standard of personal hygiene.

For the operational conditions and risk management measures for each scenario, see Table 3.

2.2.3 Contributing scenario controlling consumer exposure

There is no consumer exposure for this scenario.

2.3 EXPOSURE ESTIMATION AND REFERENCE TO ITS SOURCE

2.3.1 Contributing scenario for estimating environmental exposure

Tool used for evaluation: EUSES 2.1.1 with use of predefined ESVO release fractions (see Table 3 for the specific versions of each scenario).

When complying with the recommended risk management measures (RMMs) and operating conditions (OCs), exposure is not expected to exceed the PNECs and the risk characterisation ratios should be less than 1, as shown in table 2.

2.3.2 Contributing scenario for estimating worker exposure

Tool used for evaluation ECETOC TRA v2 (www.ecetoc.org/tra)

General parameters used:

Environment type: industrial

Dustiness: low (liquid substance)

Duration of exposure: > 4 hours/day, unless otherwise stated in the RMMs

Ventilation use: none, unless otherwise stated in the RMMs

Use of respiratory protection: none, unless otherwise stated in the RMMs

Use of skin protection: none, unless otherwise stated in the RMMs

Concentration in preparations: > 25%

When complying with the recommended risk management measures (RMMs) and operating conditions (OCs), exposure is not expected to exceed the DNELs and the risk characterisation ratios should be less than 1, as shown in table 3.

2.3.3 Contributing scenario for estimating consumer exposure

There is no consumer exposure for this scenario.

2.4. GUIDELINES FOR THE DU TO VERIFY COMPLIANCE WITH THE EXPOSURE SCENARIO

2.4.1 Guidelines for DU to verify compliance with the environmental exposure scenario

Confirm that the RMMs and OCs are as described or have equivalent efficiency.

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures [DSU1].

Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination [DSU2].

Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination [DSU3].

Further details on scaling and control technologies are provided in SPERC factsheet.

2.4.2 Guidelines for DU to verify compliance with the contributing scenario for worker exposure estimation

Predicted exposures are not expected to exceed the DNEL when the RMMs and OCs outlined in Table 3 are implemented [G22].

Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels [G23].

Risk characterisation ratios (RCRs) are calculated by comparing the estimated exposure levels with the corresponding DNELs ($RCR = \text{exposure level}/\text{DNEL}$).

Table 2.

identifiers			Operating Conditions and Risk Management Measures						Risk characterization					
		Quantity used	Dilution factors		RMM to be implemented									
	ERC/ SpERC	Tonnage per site t/ year	Fresh water	Sea water	Water treatment efficiency %	Air abatement efficiency %	Waste treatment total removal %	Domestic wastewater treatment flow m³/d	RCR fresh water	RCR marine water	RCR freshwater sediments	RCR marine water sediments	RCR soil	RCR STP extension
ES1	ESVOC SpERC 1.1.v1 for air and soil	300000	40	100	>93.3%	90%	93.3%	2000	0.125	0.0495	0.125	0.0494	0.029	0.246
ES2	ESVOC SpERC 1.1b.v1	300000	10	100	>93.3%	90%	93.3%	2000	5.14E-02	5.11E-03	5.14E-02	5.11E-03	7.37E-02	2.46E-02
ES3	ESVOC SpERC 6.1a.v1	12000	10	100	>93.3%	80%	93.3%	2000	5.93E-01	5.93E-02	5.93E-01	5.93E-02	8.77E-01	2.95E-01
ES5	ESVOC SpERC 4.4a.v1	1500	10	100	>93.3%	70%	93.3%	2000	2.79E-03	2.52E-04	2.79E-03	2.52E-04	1.96E-03	3.59E-04
ES7	ESVOC SpERC 7.12a.v1	15000	10	100	>93.3%	95%	93.3%	2000	4.47E-03	4.20E-04	4.46E-03	4.19E-04	4.31E-03	1.20E-03
ES10	ESVOC SpERC 4.3a.v1	4500	10	100	>93.3%	90%	93.3%	2000	5.05E-01	5.05E-02	5.05E-01	5.05E-02	7.55E-01	2.52E-01
ES13	Discharge into the aquatic environment is restricted by law and industry prohibits it: OSPAR Commission 2009. Discharges, Spills and Emissions from Offshore Oil and Gas installations in 2007, including the assessment of data reported in 2006 and 2007.													
ES14	ESVOC SpERC 4.10a.v1	1500	10	100	>93.3%	80%	93.3%	2000	2.79E-03	2.52E-04	2.79E-03	2.52E-04	6.71E-03	3.59E-04
ES16	SPERC proposes evaluation using ERC	1500	10	100	>93.3%	0%	93.3%	2000	4.81E-01	4.81E-02	4.81E-01	4.81E-02	7.12E-01	2.40E-01
ES18	ESVOC SpERC 7.13a.v1	1500	10	100	>93.3%	0%	93.3%	2000	9.26E-03	8.99E-04	9.26E-03	8.99E-04	1.10E-02	3.59E-03
ES20	ESVOC SpERC 4.19.v1	6000	10	100	>93.3%	0%	93.3%	2000	2.90E-01	2.89E-02	2.90E-01	2.89E-02	4.28E-01	1.44E-01
ES21	ESVOC SpERC 2.2.v1	15000	10	100	>93.3%	0%	93.3%	2000	4.95E-01	4.95E-02	4.95E-01	4.94E-02	7.38E-01	2.46E-01

Table 3. OC, RMM, Risk Characterization - Workers - Industrial uses

Identifier: ES1 PROC1

Operating Conditions and Risk Management Measures

Contributing scenario: General exposures (closed systems) [CS15].

OC and typical RMMs: Continuous; daily; 15 mins - 1 hour; Product temp. Outside. Process closed.

RMM to be implemented: No specific measures identified [EI18].

Risk characteristics

RCR Inhalation: 0.00

Dermal RCR: 0.00

RCR (all ways): 0.00

Identifier: ES2 PROC2

Operating Conditions and Risk Management Measures

Contributing scenario: General exposures (closed systems) [CS15]. With sample collection [CS56]. Product sampling [CS137].

OC and typical RMMs: Continuous; daily; 15 mins - 1 hour; Product temp. Outdoor Process included. Outdoor placement. Closed/semi-closed sampling point.

RMM to be implemented: No specific measures identified [EI18].

Risk characteristics

RCR Inhalation: 0.20

Dermal RCR: 0.00

RCR (all ways): 0.20

Identifier: ES1 PROC3

Operating Conditions and Risk Management Measures

Contributing scenario: General exposures (closed systems) [CS15]. Use in contained batch processes [CS37].

OC and typical RMMs: Batch process; daily; 15 mins - 1 hour; Product temp. Indoor/Outdoor. Closed equipment, sample point included or with venting.

RMM to be implemented: No specific measures identified [EI18].

Risk characteristics

RCR Inhalation: 0.49

Dermal RCR: 0.00

RCR (all ways): 0.49

Identifier: ES1 PROC4

Operating Conditions and Risk Management Measures

Contributing scenario: General exposures (open systems) [CS16]. Batch process [CS55]. With sample collection [CS56].

OC and typical RMMs: Daily; 15 mins - 1 hour; Product temp. Indoor/Outdoor Transfers included. Clean lines before decoupling.

RMM to be implemented: No specific measures identified [EI18].

Risk characteristics

RCR Inhalation: 0.39

Dermal RCR: 0.02

RCR (all ways): 0.41

Identifier: ES1 PROC8b

Operating Conditions and Risk Management Measures

Contributing scenario: In-Process Sampling [CS2].

OC and typical RMMs: Daily; <15 mins; Product temp. Indoor/Outdoor. Closed or ventilated sample points.

RMM to be implemented: Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11] Wear suitable respiratory protection (conforming to EN140 with type A filter or better) and gloves (type EN374) if regular skin contact likely [PPE21].

Risk characteristics

RCR Inhalation: 0.29 Ventilation dilution efficiency 70%.

Dermal RCR: 0.02

RCR (all ways): 0.31

Identifier: ES1 PROC15

Operating Conditions and Risk Management Measures

Contributing scenario: Laboratory activity [CS36].

OC and typical RMMs: Daily; 15 mins - 1 hour; Product temp. Indoor; hood. PPE.

RMM to be implemented: No specific measures identified [EI18].

Risk characteristics

RCR Inhalation: 0.20

Dermal RCR: 0.00

RCR (all ways): 0.20

Identifier: ES1 PROC8b

Operating Conditions and Risk Management Measures

Contributing scenario: Bulk product transfer [CS14]. (open systems) [CS108]. With potential for aerosol generation [CS138].

OC and typical RMMs: Daily; 15 mins - 1 hour; Product temp. Indoor/Outdoor Transfers included. Clean lines before decoupling.

RMM to be implemented: Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11]. Operate away from sources of emission or release of the substance. [E77]. If technical measures are not practical [G16], wear suitable respiratory protection (conforming to EN140 with type A filter or better) and gloves (type EN374) if regular skin contact likely [PPE21].

Risk characteristics

RCR Inhalation: 0.29 Ventilation dilution efficiency 70%.

Dermal RCR: 0.02

RCR (all ways): 0.31

Identifier: ES1 PROC8b

Operating Conditions and Risk Management Measures

Contributing scenario: Bulk product transfer [CS14]. (closed systems) [CS107].

OC and typical RMMs: Daily; 15 mins - 1 hour; Product temp. Indoor/Outdoor. Transfers included. Transfer points with vents. Clean lines before decoupling.

RMM to be implemented: Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11]. Operate activity away from sources of substance emission or release [E77]. If technical measures are not practical [G16], wear suitable respiratory protection (conforming to EN140 with type A filter or better) and gloves (type EN374) if regular skin contact likely [PPE21].

Risk characteristics

RCR Inhalation: 0.29 Ventilation dilution efficiency 70%.

Dermal RCR: 0.02

RCR (all ways): 0.31

Identifier: ES1 PROC8a

Operating Conditions and Risk Management Measures

Contributing scenario: Equipment cleaning and maintenance [CS39]

OC and typical RMMs: Daily; 15 mins - 1 hour; Product temp. Collection of line waste in containers. Indoor/Outdoor. Lines included. Retain drain downs in sealed storage pending disposal, use as a recycled material in subsequent formulations, or recycle. PPE.

RMM to be implemented: Drain down system prior to equipment break-in or maintenance [E65].

Risk characteristics

RCR Inhalation: 0.20 Additional exposure modifier: 0.2. Assumes LEV efficiency equivalent to SOP for drainage etc. before maintenance; additional LEV 80%.

Dermal RCR: 0.00 TRA dermal exposure LEV reduction factor 0.01.

RCR (all ways): 0.20

Identifier: ES2 PROC2

Operating Conditions and Risk Management Measures

Contributing scenario: Storage [CS67]. Product sampling [CS137].

OC and typical RMMs: Daily; 8 hours; Product temp. Samples collected at dedicated sample points.

RMM to be implemented: No specific measures identified [E118].

Risk characteristics

RCR Inhalation: 0.20

Dermal RCR: 0.00

RCR (all ways): 0.20

Identifier: ES2 PROC1

Operating Conditions and Risk Management Measures

Contributing scenario: General exposures (closed systems) [CS15].

OC and typical RMMs: Continuous; Daily; 15 mins - 1 hour; Product temp. Process closed. No exposure.

RMM to be implemented: No specific measures identified [E118].

Risk characteristics

RCR Inhalation: 0.00

Dermal RCR: 0.00

RCR (all ways): 0.00

Identifier: ES2 PROC2

Operating Conditions and Risk Management Measures

Contributing scenario: General exposures (closed systems) [CS15]. With sample collection [CS56]. Product sampling [CS137].

OC and typical RMMs: Continuous; Daily; 15 mins - 1 hour; Product temp. Outside. Process included. Closed/semi-closed sampling point.

RMM to be implemented: No specific measures identified [E118].

Risk characteristics

RCR Inhalation: 0.20

Dermal RCR: 0.00

RCR (all ways): 0.20

Identifier: ES2 PROC3

Operating Conditions and Risk Management Measures

Contributing scenario: General exposures (closed systems) [CS15]. Use in contained batch processes [CS37].

OC and typical RMMs: batch process; Daily; 15 mins - 1 hour; Product at temp. environment. Outside. Closed equipment, sample point included or with venting.

RMM to be implemented: No specific provision identified [E118]

Risk characteristics

RCR Inhalation: 0.49

Dermal RCR: 0.00

RCR (all ways): 0.49

Identifier: ES2 PROC4

Operating Conditions and Risk Management Measures

Contributing scenario: General exposures (open systems) [CS16]. Batch process [CS55]. With sample collection [CS56].

OC and typical RMMs: Daily; 15 mins - 1 hour; Product at temp. environment. Indoor/Outdoor. Transfers included. Clean lines before decoupling.

RMM to be implemented: No specific provision identified [E118]

Risk characteristics

RCR Inhalation: 0.39.

Dermal RCR: 0.02

RCR (all ways): 0.41

Identifier: ES2 PROC3

Operating Conditions and Risk Management Measures

Contributing scenario: In-Process Sampling [CS2].

OC and typical RMMs: Daily; <15 mins; Product at temp. environment. Outside. Closed or ventilated sample points.

RMM to be implemented: No specific measures identified [E118].

Risk characteristics

RCR Inhalation: 0.49

Dermal RCR: 0.00

RCR (all ways): 0.49

Identifier: ES2 PROC15

Operating Conditions and Risk Management Measures

Contributing scenario: Laboratory activity [CS36].

OC and typical RMMs: Continuous; Daily; 15 mins - 1 hour; Product at temp. environment. Inside. Hood. PPE

RMM to be implemented: No specific measures identified [E118].

Risk characteristics

RCR Inhalation: 0.20

Dermal RCR: 0.00

RCR (all ways): 0.20

Identifier: ES2 PROC8b

Operating Conditions and Risk Management Measures

Contributing scenario: Bulk product transfer [CS14]. (closed systems) [CS107]

OC and typical RMMs: Daily; 15 mins - 1 hour; Product at temp. environment. Outside. Potential exposure during interruption of connections. Transfers included. Clean lines before decoupling.

RMM to be implemented: Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11].

Risk characteristics

RCR Inhalation: 0.69 Ventilation dilution effectiveness 30%.

Dermal RCR: 0.02

RCR (all ways): 0.70

Identifier: ES2 PROC8b

Operating Conditions and Risk Management Measures

Contributing scenario: Bulk product transfer [CS14]. (open systems) [CS108]

OC and typical RMMs: Daily; 1 - 4 hours; Product at temp. environment. Outdoor Potential exposure due to emission of vapours from opening tanks. Transfers included. Submerged load through tank opening. Collection of drops from loading arm. May require LEV and/or RPE.

RMM to be implemented: Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11]. Operate activity away from sources of substance emission or release [E77]. If technical measures are not practical [G16], wear suitable respiratory protection (conforming to EN140 with type A filter or better) and gloves (type EN374) if regular skin contact likely [PPE21].

Risk characteristics

RCR Inhalation: 0.69 Ventilation dilution effectiveness 30%.

Dermal RCR: 0.02

RCR (all ways): 0.70

Identifier: ES2 PROC9

Operating Conditions and Risk Management Measures

Contributing scenario: Drum and small package filling [CS6].

OC and typical RMMs: Continuous; Daily; 8 hours; Product temp. Outside. Transfers included. Transfer points with vents. Dedicated filling lines.

RMM to be implemented: Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11]. Wear suitable respiratory protection (conforming to EN140 with type A filter or better) and gloves (type EN374) if regular skin contact likely [PPE21].

Risk characteristics

RCR Inhalation: 0.69. Ventilation dilution effectiveness 30%.

Dermal RCR: 0.02

RCR (all ways): 0.70

Identifier: ES2 PROC8a

Operating Conditions and Risk Management Measures

Contributing scenario: Cleaning and maintenance of equipment [CS39].

OC and typical RMMs: Daily; 15 mins - 1 hour; Product temp. Collection of line residues in a container. Lines included. Retain washes in sealed storage awaiting disposal or use as a recycled material in subsequent formulations. PPE.

RMM to be implemented: Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11]. Wear suitable respiratory protection (conforming to EN140 with type A filter or better) and gloves (type EN374) if regular skin contact likely [PPE21].

Risk characteristics

RCR Inhalation: 0.10 Additional exposure modifier 0.01. Assumes LEV efficiency equivalent to SOP for drainage etc. before maintenance.

Dermal RCR: 0.04

RCR (all ways): 0.13

Identifier: ES2 PROC2

Operating Conditions and Risk Management Measures

Contributing scenario: Storage [CS67]. Product sampling [CS137].

OC and typical RMMs: Daily; 8 hours; Product temp. Outside. Samples collected at dedicated sample points.

RMM to be implemented: No specific measures identified [E118].

Risk characteristics

RCR Inhalation: 0.20

Dermal RCR: 0.00

RCR (all ways): 0.20

Identifier: ES3

Human health assessment is not required for this use, use as an intermediate is included in the toluene production.

Identifier: ES5 PROC8a

Operating Conditions and Risk Management Measures

Contributing scenario: Bulk product transfer [CS14]. (open systems) [CS108]

OC and typical RMMs: Daily; 15 mins - 1 hour; Room temp. Collection of line residues in a container. Transfers included. Transfer points with vents. Clean lines before decoupling.

RMM to be implemented: Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11].

Risk characteristics

RCR Inhalation: 0.69 Ventilation dilution effectiveness 30%.

Dermal RCR: 0.04

RCR (all ways): 0.72

Identifier: ES5 PROC2

Operating Conditions and Risk Management Measures

Contributing scenario: Automated process with (semi) closed systems [CS93]. Use in contained systems [CS38].

OC and typical RMMs: Daily; 8 hours. Process included. closed/semi-closed.

RMM to be implemented: No specific measures identified [E118].

Risk characteristics

RCR Inhalation: 0.20

Dermal RCR: 0.00

RCR (all ways): 0.20

Identifier: ES5 PROC3

Operating Conditions and Risk Management Measures

Contributing scenario: Automated process with (semi) closed systems [CS93]. Use in contained systems [CS38]. Kegs/Batch Transfers [CS8].

OC and typical RMMs: Daily; 15 mins - 1 hour; Room temp. Process included. closed/semi-closed.

RMM to be implemented: No specific measures identified [E118].

Risk characteristics

RCR Inhalation: 0.49

Dermal RCR: 0.00

RCR (all ways): 0.49

Identifier: ES5 PROC2

Operating Conditions and Risk Management Measures

Contributing scenario: Application of cleaning products in closed systems [CS101].

OC and typical RMMs: Daily; 8 hours. Process included. closed/semi-closed.

RMM to be implemented: No specific measures identified [E118].

Risk characteristics

RCR Inhalation: 0.20

Dermal RCR: 0.00

RCR (all ways): 0.20

Identifier: ES5 PROC8b

Operating Conditions and Risk Management Measures

Contributing scenario: Filling of equipment from drums or containers [CS45]. Dedicated system [CS81].

OC and typical RMMs: Daily; 15 mins - 1 hour; Room temp. Pumping from drums to equipment.

RMM to be implemented: Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11]. If technical measures are not practical [G16], wear suitable respiratory protection (conforming to EN140 with type A filter or better) and gloves (type EN374) if regular skin contact likely [PPE21].

Risk characteristics

RCR Inhalation: 0.69 Ventilation dilution effectiveness 30%.

Dermal RCR: 0.00 TRA dermal exposure LEV reduction factor 0.1.

RCR (all ways): 0.69

Identifier: ES5 PROC4

Operating Conditions and Risk Management Measures

Contributing scenario: Use in contained batch processes [CS37]. Heating treatment [OC129].

OC and typical RMMs: Daily; 1 - 4 hours. Temperature above boiling point. Outdood Equipment closed. Transfer points included or with vent.

RMM to be implemented: Provide extract ventilation in points where emissions occur [E54].

Risk characteristics

RCR Inhalation: 0.20 TRA LEV efficiency 90%.

Dermal RCR: 0.00 TRA dermal exposure LEV reduction factor 0.1.

RCR (all ways): 0.20

Identifier: ES5 PROC13

Operating Conditions and Risk Management Measures

Contributing scenario: Degreasing small objects in cleaning station [CS41].

OC and typical RMMs: Daily; >4 hours; Environment. Local aspiration on open surfaces; eliminate leaks as soon as they occur. PPE.

RMM to be implemented: Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11].

Risk characteristics

RCR Inhalation: 0.69. Ventilation dilution effectiveness 30%.

Dermal RCR: 0.04

RCR (all ways): 0.72

Identifier: ES5 PROC10

Operating Conditions and Risk Management Measures

Contributing scenario: Cleaning with low-pressure washers [CS42].

OC and typical RMMs: Daily; 15 mins - 1 hour; Room temp. Specific training of workers. PPE.

RMM to be implemented: Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11].

Risk characteristics

RCR Inhalation: 0.69

Dermal RCR: 0.07

RCR (all ways): 0.76

Identifier: ES5 PROC7

Operating Conditions and Risk Management Measures

Contributing scenario: Cleaning with high pressure washers [CS44].

OC and typical RMMs: Daily; 15 mins - 1 hour; Room temp. Specific training of workers. PPE.

RMM to be implemented: Provide a good standard of general ventilation (not less than 10 to 15 air changes per hour) [E40]. Limit substance content in the product to 5 % [OC17].

Risk characteristics

RCR Inhalation: 0.15 Ventilation dilution efficiency 70%. TRA factor RPE half mask.

Dermal RCR: 0.11

RCR (all ways): 0.26

Identifier: ES5 PROC10

Operating Conditions and Risk Management Measures

Contributing scenario: Manual cleaning of surfaces. No spraying [CS60].

OC and typical RMMs: Daily; 15 mins - 1 hour; Room temp. Collection of waste and cleaning cloths in a container.

RMM to be implemented: Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11].

Risk characteristics

RCR Inhalation: 0.69 Ventilation dilution effectiveness 30%.

Dermal RCR: 0.07

RCR (all ways): 0.76

Identifier: ES5 PROC8a

Operating Conditions and Risk Management Measures

Contributing scenario: Cleaning and maintenance of equipment [CS39].

OC and typical RMMs: Daily; 15 mins -1 hour; Product temp. Collection of line waste in containers. Indoor/Outdoor. Lines included. Retain drain downs in sealed storage pending disposal, use as a recycled material in subsequent formulations, or recycle. PPE.

RMM to be implemented: Drain down system prior to equipment break-in or maintenance [E65].

Risk characteristics

RCR Inhalation: 0.20 Additional exposure modifier: 0.2. Efficiency of LEVs equivalent to drainage SOP etc. is assumed. before maintenance; additional LEV (80%).

Dermal RCR: 0.00 TRA dermal exposure LEV reduction factor 0.1.

RCR (all ways): 0.20

Identifier: ES5 PROC2

Operating Conditions and Risk Management Measures

Contributing scenario: Storage [CS67]. Product sampling [CS137].

OC and typical RMMs: Daily; <15 mins. Samples collected at dedicated sample points.

RMM to be implemented: No specific measures identified [E118].

Risk characteristics

RCR Inhalation: 0.20

Dermal RCR: 0.00

RCR (all ways): 0.20

Identifier: ES7 PROC4

Operating Conditions and Risk Management Measures

Contributing scenario: Bulk product transfer [CS14].

OC and typical RMMs: Daily; 1 - 4 hours; Room temp. Transfers included. Clean lines before decoupling.

RMM to be implemented: No specific measures identified [E118].

Risk characteristics

RCR Inhalation: 0.39

Dermal RCR: 0.02

RCR (all ways): 0.41

Identifier: ES7 PROC8b

Operating Conditions and Risk Management Measures

Contributing scenario: Drum/Batch Transfers [CS8].

OC and typical RMMs: Daily; 1 -4 hours; Room temp. Pumping from drums to equipment.

RMM to be implemented: Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11].

Risk characteristics

RCR Inhalation: 0.69 Ventilation dilution effectiveness 30%.

Dermal RCR: 0.02

RCR (all ways): 0.70

Identifier: ES7 PROC1

Operating Conditions and Risk Management Measures

Contributing scenario: General exposures (closed systems) [CS15].

OC and typical RMMs: Daily; >4 hours. Inside. Closed equipment; designed for easy maintenance. PPE.

No specific measure identified

RMM to be implemented: No specific measures identified [E118].

Risk characteristics

RCR Inhalation: 0.00

Dermal RCR: 0.00

RCR (all ways): 0.00

Identifier: ES7 PROC2

Operating Conditions and Risk Management Measures

Contributing scenario: General exposures (closed systems) [CS15]. Product sampling [CS137].

OC and typical RMMs: Daily; >4 hours. Inside. Closed equipment; designed for easy maintenance. PPE.

RMM to be implemented: No specific measures identified [E118].

Risk characteristics

RCR Inhalation: 0.20

Dermal RCR: 0.00

RCR (all ways): 0.20

Identifier: ES7 PROC3

Operating Conditions and Risk Management Measures

Contributing scenario: General exposures (closed systems) [CS15]. Batch process [CS55].

OC and typical RMMs: Daily; >4 hours. Inside. Closed equipment; designed for easy maintenance. PPE.

RMM to be implemented: No specific measures identified [EI18].

Risk characteristics

RCR Inhalation: 0.49

Dermal RCR: 0.00

RCR (all ways): 0.49

Identifier: ES7 PROC16

Operating Conditions and Risk Management Measures

Contributing scenario: General exposures (open systems) [CS16]. (closed systems) [CS107].

OC and typical RMMs: Daily; >4 hours, 100%. Equipment closed.

RMM to be implemented: No specific measures identified [EI18].

Risk characteristics

RCR Inhalation: 0.10

Dermal RCR: 0.00

RCR (all ways): 0.10

Identifier: ES7 PROC3

Operating Conditions and Risk Management Measures

Contributing scenario: General exposures (open systems) [CS16]. (closed systems) [CS107]. Batch process [CS55].

OC and typical RMMs: Daily; >4 hours, 100%. Equipment closed.

RMM to be implemented: No specific measures identified [EI18].

Risk characteristics

RCR Inhalation: 0.4

Dermal RCR: 0.00

RCR (all ways): 0.49

Identifier: ES7 PROC8a

Operating Conditions and Risk Management Measures

Contributing scenario: Equipment Maintenance [CS5].

OC and typical RMMs: Daily; >4 hours, 100%. Operator training.

RMM to be implemented: Drain down system prior to equipment break-in or maintenance [E55]. Wear coveralls to prevent skin exposure [PPE27].

Risk characteristics

RCR Inhalation: 0.20 Additional exposure modifier: 0.2. It is assumed that the SOPs reduce both inhalation and dermal exposure by up to 80%. (x0.2)

Dermal RCR: 0.01 TRA dermal exposure LEV reduction factor 0.2.

RCR (all ways): 0.20

Identifier: ES7 PROC8a

Operating Conditions and Risk Management Measures

Contributing scenario: Cleaning of containers and vessels [CS103].

OC and typical RMMs: Infrequent; >4 hours. Procedures for entry into containers. Store drainage liquids in sealed containers pending disposal. PPE.

RMM to be implemented: Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11].

Risk characteristics

RCR Inhalation: 0.69 Ventilation dilution effectiveness 30%.

Dermal RCR: 0.04

RCR (all ways): 0.72

Identifier: ES7 PROC1

Operating Conditions and Risk Management Measures

Contributing scenario: Storage [CS67].

OC and typical RMMs: Daily; 8 hours; Room temp. Samples collected at dedicated sample points.

RMM to be implemented: No specific measures identified [EI18].

Risk characteristics

RCR Inhalation: 0.00

Dermal RCR: 0.00

RCR (all ways): 0.00

Identifier: ES7 PROC2

Operating Conditions and Risk Management Measures

Contributing scenario: Storage [CS67]. Product sampling [CS137].

OC and typical RMMs: Daily; 8 hours; Room temp. Samples collected at dedicated sample points.

RMM to be implemented: No specific measures identified [EI18].

Risk characteristics

RCR Inhalation: 0.20

Dermal RCR: 0.00

RCR (all ways): 0.20

Identifier: ES10 PROC1

Operating Conditions and Risk Management Measures

Contributing scenario: General exposures (closed systems) [CS15].

OC and typical RMMs: Continuous; Daily; 8 hours. Process included. Closed/semi-closed sampling point.

RMM to be implemented: No specific provision identified [EI18]

Risk characteristics

RCR Inhalation: 0.00

Dermal RCR: 0.00

RCR (all ways): 0.00

Identifier: ES10 PROC2

Operating Conditions and Risk Management Measures

Contributing scenario: General exposures (closed systems) [CS15]. With sample collection [CS56]. Use in contained systems [CS38].

OC and typical RMMs: Continuous; Daily; 8 hours. Process included; closed/semi-closed sampling point.

RMM to be implemented: No specific provision identified [EI18]

Risk characteristics

RCR Inhalation: 0.20

Dermal RCR: 0.00

RCR (all ways): 0.20

Identifier: ES10 PROC2

Operating Conditions and Risk Management Measures

Contributing scenario: Film formation. Forced drying (50-100°C). Stoving (>100°C). UV / EB radiation finish [CS94].

OC and typical RMMs: Process included.

RMM to be implemented: No specific provision identified [EI18]

Risk characteristics

RCR Inhalation: 0.20

Dermal RCR: 0.00

RCR (all ways): 0.20

Identifier: ES10 PROC3

Operating Conditions and Risk Management Measures

Contributing scenario: Mixing operations (closed systems) [CS29]. General exposures (closed systems) [CS15].

OC and typical RMMs: -

RMM to be implemented: No specific measures identified [EI18].

Risk characteristics

RCR Inhalation: 0.49

Dermal RCR: 0.00

RCR (all ways): 0.49

Identifier: ES10 PROC4

Operating Conditions and Risk Management Measures

Contributing scenario: Film formation - air drying [CS95].

OC and typical RMMs: -

RMM to be implemented: No specific measures identified [EI18].

Risk characteristics

RCR Inhalation: 0.39

Dermal RCR: 0.02

RCR (all ways): 0.41

Identifier: ES10 PROC5

Operating Conditions and Risk Management Measures

Contributing scenario: Preparation of material for application [CS96]. Mixing operations (open systems) [CS30].

OC and typical RMMs: Liquid/powder products - batch. Indoor/Outdoor.

RMM to be implemented: Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11].

Risk characteristics

RCR Inhalation: 0.69 Ventilation dilution effectiveness 30%.

Dermal RCR: 0.04

RCR (all ways): 0.72

Identifier: ES10 PROC7

Operating Conditions and Risk Management Measures

Contributing scenario: Spray application (automatic/robotic) [CS97].

OC and typical RMMs: Daily; >4 hours; Product temp. Spray booth with vents. Specific training of operators. PPE.

RMM to be implemented: Carry out in a vented booth or extracted enclosure [E57].

Risk characteristics

RCR Inhalation: 0.05 TRA LEV: 99% efficiency.

Dermal RCR: 0.01 TRA dermal exposure LEV reduction factor 0.05.

RCR (all ways): 0.05

Identifier: ES10 PROC7

Operating Conditions and Risk Management Measures

Contributing scenario: Manual spray application.

OC and typical RMMs: Outside. Air mask/respirator.

RMM to be implemented: Carry out in a vented booth or extracted enclosure [E57]. Oppure, Provide a good standard of controlled ventilation (10 to 15 air changes per hour) [E40]. Wear a respirator conforming to EN140 with type A filter or better [PPE22].

Risk characteristics

RCR Inhalation: 0.1 Ventilation dilution efficiency 70%. TRA factor RPE half mask.

Dermal RCR: 0.011

RCR (all ways): 0.26

Identifier: ES10 PROC8a

Operating Conditions and Risk Management Measures

Contributing scenario: Material transfers [CS3]. Non-dedicated facility [CS82].

OC and typical RMMs: Daily; 15 mins - 1 hour; Product temp. Collection of line waste in containers. Outdoor/Indoor. Transfers included. Transfer points with vents. Clean lines before decoupling.

RMM to be implemented: Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11].

Risk characteristics

RCR Inhalation: 0.69 Ventilation dilution effectiveness 30%.

Dermal RCR: 0.04

RCR (all ways): 0.72

Identifier: ES10 PROC8a

Operating Conditions and Risk Management Measures

Contributing scenario: Material transfers [CS3]. Dedicated system [CS81].

OC and typical RMMs: Daily; 15 mins - 1 hour; Product at temp. environment. Collection of line waste in containers. Outdoor/Indoor. Transfers included. Transfer points with vents. Clean lines before decoupling.

RMM to be implemented: Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11].

Risk characteristics

RCR Inhalation: 0.69 Ventilation dilution effectiveness 30%.

Dermal RCR: 0.02

RCR (all ways): 0.70

Identifier: ES10 PROC10

Operating Conditions and Risk Management Measures

Contributing scenario: Application by roller, spatula, flux [CS98].

OC and typical RMMs: Daily; >4 hours; Product at temp. environment. Range from 2-3% up to 40-50%. Aspiration localized to the rollers. Eliminate leaks as they occur. PPE. Large scale (open equipment).

RMM to be implemented: Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11].

Risk characteristics

RCR Inhalation: 0.69 Ventilation dilution effectiveness 30%.

Dermal RCR: 0.07

RCR (all ways): 0.76

Identifier: ES10 PROC13

Operating Conditions and Risk Management Measures

Contributing scenario: Immersion, dipping and pouring [CS4].

OC and typical RMMs: Daily; >4 hours; Environment. Local aspiration on open surfaces. Eliminate leaks as they occur. PPE.

RMM to be implemented: Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11].

Risk characteristics

RCR Inhalation: 0.69 Ventilation dilution effectiveness 30%

Dermal RCR: 0.04

RCR (all ways): 0.72

Identifier: ES10 PROC15

Operating Conditions and Risk Management Measures

Contributing scenario: Laboratory activity [CS36].

OC and typical RMMs: Small-scale business. Small amounts. Daily 15 min.

RMM to be implemented: No specific measures identified [E118].

Risk characteristics

RCR Inhalation: 0.20

Dermal RCR: 0.00

RCR (all ways): 0.20

Identifier: ES10 PROC9

Operating Conditions and Risk Management Measures

Contributing scenario: Material transfers [CS3]. Kegs/Batch Transfers [CS8]. Transfer from / pour from containers [CS22].

OC and typical RMMs: Daily; 15 mins - 1 hour; Product temp. Use goggles gloves.

RMM to be implemented: Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11].

Risk characteristics

RCR Inhalation: 0.69 Ventilation dilution effectiveness 30%.

Dermal RCR: 0.02

RCR (all ways): 0.70

Identifier: ES10 PROC14

Operating Conditions and Risk Management Measures

Contributing scenario: Production of preparations or articles by tableting, compression, extrusion, pelettisation [CS100].

OC and typical RMMs: Daily; 15 mins - 1 hour; Product at temp. environment. Use protective goggles and gloves.

RMM to be implemented: Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11].

Risk characteristics

RCR Inhalation: 0.69 Ventilation dilution effectiveness 30%.

Dermal RCR: 0.01

RCR (all ways): 0.70

Identifier: ES10 PROC8a

Operating Conditions and Risk Management Measures

Contributing scenario: Cleaning and maintenance of equipment [CS39].

OC and typical RMMs: Daily; 15 mins - 1 hour; Product at temp. environment. Collection of line waste in containers. Indoor/Outdoor. Lines included. Retain drain downs in sealed storage pending disposal, use as a recycled material in subsequent formulations, or recycle. PPE.

RMM to be implemented: Drain down system prior to equipment break-in or maintenance [E65].

Risk characteristics

RCR Inhalation: 0.20 Additional exposure modifier: 0.2. Efficiency of LEVs equivalent to drainage SOP etc. is assumed. before maintenance; additional LEV (80%).

Dermal RCR: 0.00 TRA dermal exposure LEV reduction factor 0.01.

RCR (all ways): 0.20

Identifier: ES10 PROC2

Operating Conditions and Risk Management Measures

Contributing scenario: Storage [CS67]. Product sampling [CS137].

OC and typical RMMs: Daily; <15 mins; Product at temp. environment. Samples collected at dedicated sample points.

RMM to be implemented: No specific measures identified [E18].

Risk characteristics

RCR Inhalation: 0.20

Dermal RCR: 0.00

RCR (all ways): 0.20

Identifier: ES10 PROC8b

Operating Conditions and Risk Management Measures

Contributing scenario: Bulk product transfer [CS14].

OC and typical RMMs: Daily; 15 mins - 1 hour; Product at temp. environment. Transfers included. Clean lines before decoupling.

RMM to be implemented: Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11]. Oppure, Operate activity away from sources of substance emission or release [E77]. If technical measures are not feasible [G16]. Wear suitable respiratory protection (conforming to EN140 with type A filter or better) and gloves (type EN374) if regular skin contact likely [PPE21].

Risk characteristics

RCR Inhalation: 0.69 Ventilation dilution effectiveness 30%.

Dermal RCR: 0.02

RCR (all ways): 0.70

Identifier: ES10 PROC8b

Operating Conditions and Risk Management Measures

Contributing scenario: Filling of equipment from drums or containers [CS45].

OC and typical RMMs: Daily; 15 mins - 1 hour; Product at temp. environment. Pumping from drums to equipment.

RMM to be implemented: Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11].

Risk characteristics

RCR Inhalation: 0.69 Ventilation dilution effectiveness 30%.

Dermal RCR: 0.02

RCR (all ways): 0.70

Identifier: ES13 PROC3

Operating Conditions and Risk Management Measures

Contributing scenario: Ground drilling operations [CS116].

OC and typical RMMs: Daily; 1 - 4 hours; Product at temp. environment. Inside. Closed equipment, sample point included or with venting.

RMM to be implemented: No specific measures identified [E118].

Risk characteristics

RCR Inhalation: 0.49

Dermal RCR: 0.00

RCR (all ways): 0.49

Identifier: ES13 PROC4

Operating Conditions and Risk Management Measures

Contributing scenario: Ground drilling operations [CS116].

OC and typical RMMs: Daily; 1 - 4 hours; Product at temp. environment. Outside.

RMM to be implemented: Make sure the operation is done outdoors [E69]

Risk characteristics

RCR Inhalation: 0.39

Dermal RCR: 0.02

RCR (all ways): 0.41

Identifier: ES13 PROC4

Operating Conditions and Risk Management Measures

Contributing scenario: Solid filtering operations - steam exposures [CS118].

OC and typical RMMs: Daily; >4 hours. Inside. Product temperature approx. 60°C. LEV.

RMM to be implemented: Ensure material transfers are under containment or extract ventilation [E66].

Risk characteristics

RCR Inhalation: 0.39

Dermal RCR: 0.02

RCR (all ways): 0.41

Identifier: ES13 PROC4

Operating Conditions and Risk Management Measures

Contributing scenario: Solid filtering operations - aerosol exposures [CS119].

OC and typical RMMs: Daily; >4 hours. Inside. Product temperature approx. 60°C. LEV.

RMM to be implemented: Ensure material transfers are under containment or extract ventilation [E66].

Risk characteristics

RCR Inhalation: 0.39

Dermal RCR: 0.02

RCR (all ways): 0.41

Identifier: ES13 PROC8a

Operating Conditions and Risk Management Measures

Contributing scenario: Filtering operations of solids [CS117].

OC and typical RMMs: Daily; 15 mins - 1 hour; Product at temp. environment. Localized aspiration.

RMM to be implemented: Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11].

Risk characteristics

RCR Inhalation: 0.69 Ventilation dilution effectiveness 30%.

Dermal RCR: 0.04

RCR (all ways): 0.72

Identifier: ES13 PROC3

Operating Conditions and Risk Management Measures

Contributing scenario: Treatment and disposal of filtered solids [CS121].

OC and typical RMMs: Daily; 1 - 4 hours; Product at temp. environment. Outside. Base oil content 1-5%. Localized aspiration.

RMM to be implemented: No specific measures identified [E118].

Risk characteristics

RCR Inhalation: 0.49

Dermal RCR: 0.00

RCR (all ways): 0.49

Identifier: ES13 PROC3

Operating Conditions and Risk Management Measures

Contributing scenario: In-Process Sampling [CS2].

OC and typical RMMs: Daily; <15 mins; Product at temp. environment. Indoor or outdoor Sample point enclosed or vented.

RMM to be implemented: No specific provision identified [EI18]

Risk characteristics

RCR Inhalation: 0.49

Dermal RCR: 0.00

RCR (all ways): 0.49

Identifier: ES13 PROC1

Operating Conditions and Risk Management Measures

Contributing scenario: General exposures (closed systems) [CS15].

OC and typical RMMs: Daily; >4 hours; Product at temp. environment. Outside.

RMM to be implemented: No specific provision identified [EI18]

Risk characteristics

RCR Inhalation: 0.00

Dermal RCR: 0.00

RCR (all ways): 0.00

Identifier: ES13 PROC8a

Operating Conditions and Risk Management Measures

Contributing scenario: Pouring from small containers [CS9].

OC and typical RMMs: Daily; <15 mins; Product at temp. environment. Indoor or outdoor

RMM to be implemented: Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11]. Wear suitable gloves tested to EN374 [PPE15].

Risk characteristics

RCR Inhalation: 0.69 Ventilation dilution effectiveness 30%.

Dermal RCR: 0.04

RCR (all ways): 0.72

Identifier: ES13 PROC4

Operating Conditions and Risk Management Measures

Contributing scenario: General exposures (open systems) [CS16].

OC and typical RMMs: Daily; >4 hours; Product at temp. environment. Localized or external aspiration.

RMM to be implemented: Make sure the operation is performed outdoors [E69].

Risk characteristics

RCR Inhalation: 0.27 Ventilation dilution effectiveness 30%.

Dermal RCR: 0.02

RCR (all ways): 0.29

Identifier: ES13 PROC8a

Operating Conditions and Risk Management Measures

Contributing scenario: Cleaning and maintenance of equipment [CS39].

OC and typical RMMs: Daily; 15 mins - 1 hour; Product at temp. environment. Collection of line waste in containers. Lines included. Retain washes in sealed storage pending disposal or use as a recycled material in subsequent formulations. PPE.

RMM to be implemented: Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11]. Wear suitable gloves tested to EN374 [PPE15].

Risk characteristics

RCR Inhalation: 0.69 Ventilation dilution effectiveness 30%.

Dermal RCR: 0.04

RCR (all ways): 0.72

Identifier: ES13 PROC1

Operating Conditions and Risk Management Measures

Contributing scenario: Batch process [CS55].

OC and typical RMMs: Continuous; Daily; 8 hours. Process included. Closed/semi-closed sampling point.

RMM to be implemented: No specific provision identified [EI18]

Risk characteristics

RCR Inhalation: 0.00

Dermal RCR: 0.00

RCR (all ways): 0.00

Identifier: ES13 PROC2

Operating Conditions and Risk Management Measures

Contributing scenario: Batch process [CS55]. Product sampling [CS137].

OC and typical RMMs: Continuous; Daily; 8 hours. Process included. Closed/semi-closed sampling point.

RMM to be implemented: Provide extract ventilation in points where emissions occur [E54].

Risk characteristics

RCR Inhalation: 0.20

Dermal RCR: 0.00

RCR (all ways): 0.20

Identifier: ES14 PROC1

Operating Conditions and Risk Management Measures

Contributing scenario: Material transfers [CS3].

OC and typical RMMs: Daily; 1 - 4 hours; Room temp. Transfers included. Clean lines before decoupling.

RMM to be implemented: No specific measures identified [EI18].

Risk characteristics

RCR Inhalation: 0.00

Dermal RCR: 0.00

RCR (all ways): 0.00

Identifier: ES14 PROC2

Operating Conditions and Risk Management Measures

Contributing scenario: Material transfers [CS3]. Product sampling [CS137].

OC and typical RMMs: Daily; 1 - 4 hours; Room temp. Transfers included. Clean lines before decoupling.

RMM to be implemented: No specific measures identified [EI18].

Risk characteristics

RCR Inhalation: 0.20

Dermal RCR: 0.00

RCR (all ways): 0.20

Identifier: ES14 PROC3

Operating Conditions and Risk Management Measures

Contributing scenario: Material transfers [CS3]. Batch process [CS55]. (closed systems) [CS107].

OC and typical RMMs: Daily; 1 - 4 hours; Room temp. Transfers included. Clean lines before decoupling.

RMM to be implemented: No specific measures identified [EI18].

Risk characteristics

RCR Inhalation: 0.49

Dermal RCR: 0.00

RCR (all ways): 0.49

Identifier: ES14 PROC8b

Operating Conditions and Risk Management Measures

Contributing scenario: Kegs/Batch Transfers [CS8].

OC and typical RMMs: Daily; 15 mins - 1 hour; Room temp. Pumping from drums to equipment.

RMM to be implemented: Provide a good standard of controlled ventilation (10 to 15 air changes per hour) [E40].

Risk characteristics

RCR Inhalation: 0.29 Ventilation dilution efficiency 70%.

Dermal RCR: 0.02

RCR (all ways): 0.31

Identifier: ES14 PROC3

Operating Conditions and Risk Management Measures

Contributing scenario: Mixing operations (closed systems) [CS29].

OC and typical RMMs: Daily; >4 hours. Mixers included or vented.

RMM to be implemented: No specific measures identified [EI18].

Risk characteristics

RCR Inhalation: 0.49

Dermal RCR: 0.00

RCR (all ways): 0.49

Identifier: ES14 PROC4

Operating Conditions and Risk Management Measures

Contributing scenario: Mixing operations (open systems) [CS30].

OC and typical RMMs: Daily; >4 hours. Improved general ventilation.

RMM to be implemented: No specific measures identified [EI18].

Risk characteristics

RCR Inhalation: 0.39

Dermal RCR: 0.02

RCR (all ways): 0.41

Identifier: ES14 PROC14

Operating Conditions and Risk Management Measures

Contributing scenario: Stamping forming [CS31].

OC and typical RMMs: Daily; >4 hours; Room temp. PPE.

RMM to be implemented: Provide a good standard of controlled ventilation (10 to 15 air changes per hour) [E40].

Risk characteristics

RCR Inhalation: 0.29 Ventilation dilution efficiency 70%.

Dermal RCR: 0.01

RCR (all ways): 0.30

Identifier: ES14 PROC6

Operating Conditions and Risk Management Measures

Contributing scenario: Casting operations [CS32].

OC and typical RMMs: Daily; 1 - 4 hours. High temperature, sufficient to create fumes. Improved general ventilation. PPE.

RMM to be implemented: Provide extract ventilation in points where emissions occur [E54].

Risk characteristics

RCR Inhalation: 0.49 TRA LEV: 90% efficiency

Dermal RCR: 0.00 TRA dermal exposure LEV reduction factor 0.05.

RCR (all ways): 0.49

Identifier: ES14 PROC7

Operating Conditions and Risk Management Measures

Contributing scenario: Machine spraying.

OC and typical RMMs: Daily; 1 - 4 hours; Room temp. Production line included or ventilated. Automation.

RMM to be implemented: Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings [E60].

Risk characteristics

RCR Inhalation: 0.25 TRA LEV: 95% efficiency.

Dermal RCR: 0.01 TRA dermal exposure LEV reduction factor 0.05.

RCR (all ways): 0.25

Identifier: ES14 PROC10

Operating Conditions and Risk Management Measures

Contributing scenario: Manual application by roller or brush [CS13].

OC and typical RMMs: Daily; 1 - 4 hours; Room temp. PPE.

RMM to be implemented: Provide a good standard of controlled ventilation (10 to 15 air changes per hour) [E40].

Risk characteristics

RCR Inhalation: 0.29 Ventilation dilution efficiency 70%.

Dermal RCR: 0.07

RCR (all ways): 0.37

Identifier: ES14 PROC7

Operating Conditions and Risk Management Measures

Contributing scenario: Manual spraying

OC and typical RMMs: Daily; 1 - 4 hours; Room temp. PPE, mask.

RMM to be implemented: Carry out in a vented booth or extracted enclosure [E57].

Risk characteristics

RCR Inhalation: 0.05 TRA LEV: 99% efficiency.

Dermal RCR: 0.11

RCR (all ways): 0.16

Identifier: ES14 PROC1

Operating Conditions and Risk Management Measures

Contributing scenario: Storage [CS67].

OC and typical RMMs: Daily; 8 hours; Room temp. Samples collected at dedicated sample points.

RMM to be implemented: No specific measures identified [E118].

Risk characteristics

RCR Inhalation: 0.00

Dermal RCR: 0.00

RCR (all ways): 0.00

Identifier: ES14 PROC2

Operating Conditions and Risk Management Measures

Contributing scenario: Storage [CS67]. With occasional controlled exposure [CS137]

OC and typical RMMs: Daily; 8 hours; Room temp. Samples collected at dedicated sample points.

RMM to be implemented: No specific measures identified [E118].

Risk characteristics

RCR Inhalation: 0.20

Dermal RCR: 0.00

RCR (all ways): 0.20

Identifier: ES16 PROC15

Operating Conditions and Risk Management Measures

Contributing scenario: Laboratory [CS36]. On a small scale [CS61]. Handling of small amounts (<1000ml) for more than 4 hours/day - under hood.

OC and typical RMMs: Continuous; Daily; >4 hours; Room temp. Hood or ventilated glove box Selected disposable gloves.

RMM to be implemented: No specific measures identified [E118].

Risk characteristics

RCR Inhalation: 0.20

Dermal RCR: 0.00 TRA dermal exposure LEV reduction factor 0.1.

RCR (all ways): 0.20

Identifier: ES16 PROC10

Operating Conditions and Risk Management Measures

Contributing scenario: Cleaning [CS47]. Application by roller, brush [CS51]. Cleaning of containers and vessels [CS103]. Cleaning of equipment, glass etc. under general ventilation for 15 min - 1 hour/day.

OC and typical RMMs: Continuous; Daily; 15min - 1 hour/day; Room temp. Controlled general ventilation (10 air changes per hour). Selected disposable gloves.

RMM to be implemented: Provide a good standard of controlled ventilation (10 to 15 air changes per hour) [E40].

Risk characteristics

RCR Inhalation: 0.29 Ventilation dilution efficiency 70%.

Dermal RCR: 0.07

RCR (all ways): 0.37

Identifier: ES18 PROC1

Operating Conditions and Risk Management Measures

Contributing scenario: Bulk transfer [CS14]

OC and typical RMMs: Daily; 15 mins - 1 hour; Room temp. Transfers included. Clean lines before decoupling.

RMM to be implemented: No specific measures identified [E118].

Risk characteristics

RCR Inhalation: 0.00

Dermal RCR: 0.00

RCR (all ways): 0.00

Identifier: ES18 PROC2

Operating Conditions and Risk Management Measures

Contributing scenario: Bulk product transfer [CS14]. Product sampling [CS137].

OC and typical RMMs: Daily; 15 mins - 1 hour; Room temp. Transfers included. Clean lines before decoupling.

RMM to be implemented: No specific measures identified [E118].

Risk characteristics

RCR Inhalation: 0.20

Dermal RCR: 0.00

RCR (all ways): 0.20

Identifier: ES18 PROC3

Operating Conditions and Risk Management Measures

Contributing scenario: Bulk product transfer [CS14]. Batch process [CS55].

OC and typical RMMs: Daily; 15 mins - 1 hour; Room temp. Transfers included. Clean lines before decoupling.

RMM to be implemented: No specific measures identified [E118].

Risk characteristics

RCR Inhalation: 0.49

Dermal RCR: 0.00

RCR (all ways): 0.49

Identifier: ES18 PROC4

Operating Conditions and Risk Management Measures

Contributing scenario: Bulk transfer [CS14]

OC and typical RMMs: Daily; 15min - 1 hour; Room temp. Transfers included. Clean lines before decoupling.

RMM to be implemented: No specific measures identified [E118].

Risk characteristics

RCR Inhalation: 0.39

Dermal RCR: 0.02

RCR (all ways): 0.41

Identifier: ES18 PROC8b

Operating Conditions and Risk Management Measures

Contributing scenario: Kegs/Batch Transfers [CS8]. Dedicated system [CS81].

OC and typical RMMs: Continuous; Daily; 15min - 1 hour; Room temp. Pumping from drums to tanks.

RMM to be implemented: Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings [E60].

Risk characteristics

RCR Inhalation: 0.03 TRA LEV: 97% efficiency.

Dermal RCR: 0.00 TRA dermal exposure LEV reduction factor 0.1.

RCR (all ways): 0.03

Identifier: ES18 PROC9

Operating Conditions and Risk Management Measures

Contributing scenario: Pelletizing [CS53]. (closed systems) [CS107].

OC and typical RMMs: Daily; >4 hours; Room temp. Operations included. Size of openings minimized.

RMM to be implemented: Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings [E60].

Risk characteristics

RCR Inhalation: 0.10 TRA LEV: 90% efficiency.

Dermal RCR: 0.00 TRA dermal exposure LEV reduction factor 0.1.

RCR (all ways): 0.10

Identifier: ES18 PROC8a

Operating Conditions and Risk Management Measures

Contributing scenario: Filling of equipment from drums or containers [CS45].

OC and typical RMMs: Daily; 1 - 4 hours; Room temp. Pour carefully. Worker training.

RMM to be implemented: Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings [E60].

Risk characteristics

RCR Inhalation: 0.10 TRA LEV: 90% efficiency.

Dermal RCR: 0.00 TRA dermal exposure LEV reduction factor 0.1.

RCR (all ways): 0.10

Identifier: ES18 PROC2

Operating Conditions and Risk Management Measures

Contributing scenario: General exposures (closed systems) [CS15].

OC and typical RMMs: Daily; >4 hours; Room temp.

RMM to be implemented: No specific measures identified [E18].

Risk characteristics

RCR Inhalation: 0.20

Dermal RCR: 0.00

RCR (all ways): 0.209

Identifier: ES18 PROC4

Operating Conditions and Risk Management Measures

Contributing scenario: General exposures (open systems) [CS16].

OC and typical RMMs: Daily; >4 hours; Room temp. Ventilated area.

RMM to be implemented: No specific measures identified [E18].

Risk characteristics

RCR Inhalation: 0.39

Dermal RCR: 0.02

RCR (all ways): 0.41

Identifier: ES18 PROC4

Operating Conditions and Risk Management Measures

Contributing scenario: General exposures (open systems) [CS16].

OC and typical RMMs: Daily; >4 hours. (product at 80°C)

RMM to be implemented: No specific measures identified [E18].

Risk characteristics

RCR Inhalation: 0.39

Dermal RCR: 0.02

RCR (all ways): 0.41

Identifier: ES18 PROC9

Operating Conditions and Risk Management Measures

Contributing scenario: Rework rejected items [CS19].

OC and typical RMMs: Daily; >4 hours; Room temp. Working methods. Empty before the activity. Keep spills.

RMM to be implemented: Drain down system prior to equipment break-in or maintenance [E65].

Risk characteristics

RCR Inhalation: 0.20 Additional exposure modifier: 0.2. Discharging SOPs are equal to an 80% reduction in LEVs (x0.2).

Dermal RCR: 0.02

RCR (all ways): 0.21

Identifier: ES18 PROC8a

Operating Conditions and Risk Management Measures

Contributing scenario: Equipment Maintenance [CS5].

OC and typical RMMs: Daily; 1 - 4 hours; Product temp. environment. Working methods. Empty before the activity. Keep spills. Gloves.

RMM to be implemented: Drain down system prior to equipment break-in or maintenance [E65].

Risk characteristics

RCR Inhalation: 0.20 Additional exposure modifier: 0.2. Discharging SOPs are equal to an 80% reduction in LEVs (x0.2).

Dermal RCR: 0.00

RCR (all ways): 0.20

Identifier: ES18 PROC1

Operating Conditions and Risk Management Measures

Contributing scenario: Storage [CS67].

OC and typical RMMs: Daily; 8 hours; Product temp. environment. Samples collected at dedicated sample points.

RMM to be implemented: No specific measures identified [E118].

Risk characteristics

RCR Inhalation: 0.00

Dermal RCR: 0.00

RCR (all ways): 0.00

Identifier: ES18 PROC2

Operating Conditions and Risk Management Measures

Contributing scenario: Storage [CS67]. Product sampling [CS137].

OC and typical RMMs: Daily; 8 hours; Room temp. Samples collected at dedicated sample points.

RMM to be implemented: No specific measures identified [E118].

Risk characteristics

RCR Inhalation: 0.20

Dermal RCR: 0.00

RCR (all ways): 0.20

Identifier: ES20 PROC1

Operating Conditions and Risk Management Measures

Contributing scenario: Material transfers [CS3].

OC and typical RMMs: Daily; 15 mins - 1 hour; Room temp. Transfers included. Clean lines before decoupling.

RMM to be implemented: No specific measures identified [E118].

Risk characteristics

RCR Inhalation: 0.00

Dermal RCR: 0.00

RCR (all ways): 0.00

Identifier: ES20 PROC2

Operating Conditions and Risk Management Measures

Contributing scenario: Material transfers [CS3]. Product sampling [CS137].

OC and typical RMMs: Daily; 15 mins - 1 hour; Room temp. Transfers included. Clean lines before decoupling.

RMM to be implemented: No specific measures identified [E118].

Risk characteristics

RCR Inhalation: 0.20

Dermal RCR: 0.00

RCR (all ways): 0.20

Identifier: ES20 PROC8b

Operating Conditions and Risk Management Measures

Contributing scenario: Material transfers [CS3]. Dedicated system [CS81].

OC and typical RMMs: Daily; 15 mins - 1 hour; Room temp. General ventilation. Minimize spills.

RMM to be implemented: Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11].

Risk characteristics

RCR Inhalation: 0.69 Ventilation dilution effectiveness 30%.

Dermal RCR: 0.02

RCR (all ways): 0.70

Identifier: ES20 PROC1

Operating Conditions and Risk Management Measures

Contributing scenario: Bulk weighing [CS91].

OC and typical RMMs: Daily; 15 mins - 1 hour; Room temp. Activity included.

RMM to be implemented: No specific measures identified [E118].

Risk characteristics

RCR Inhalation: 0.00

Dermal RCR: 0.00

RCR (all ways): 0.00

Identifier: ES20 PROC2

Operating Conditions and Risk Management Measures

Contributing scenario: Bulk weighing [CS91]. Product sampling [CS137].
OC and typical RMMs: Daily; 15 mins - 1 hour; Room temp. Activity included.
RMM to be implemented: No specific measures identified [E118].

Risk characteristics

RCR Inhalation: 0.20
Dermal RCR: 0.00
RCR (all ways): 0.20

Identifier: ES20 PROC9

Operating Conditions and Risk Management Measures

Contributing scenario: Small Scale Weighing [CS90].
OC and typical RMMs: Daily; 15 mins - 1 hour; Room temp. LEV. Minimize spills. Operator training.
RMM to be implemented: Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11].

Risk characteristics

RCR Inhalation: 0.69 Ventilation dilution effectiveness 30%.
Dermal RCR: 0.02
RCR (all ways): 0.70

Identifier: ES20 PROC3

Operating Conditions and Risk Management Measures

Contributing scenario: Additive premixes [CS92].
OC and typical RMMs: Daily; 15 mins - 1 hour; Room temp. LEV. Minimize spills.
RMM to be implemented: No specific measures identified [E118].

Risk characteristics

RCR Inhalation: 0.49
Dermal RCR: 0.00
RCR (all ways): 0.49

Identifier: ES20 PROC4

Operating Conditions and Risk Management Measures

Contributing scenario: Additive premixes [CS92].
OC and typical RMMs: Daily; 15 mins - 1 hour; Room temp. LEV. Minimize spills.
RMM to be implemented: No specific measures identified [E118].

Risk characteristics

RCR Inhalation: 0.39
Dermal RCR: 0.02
RCR (all ways): 0.41

Identifier: ES20 PROC8b

Operating Conditions and Risk Management Measures

Contributing scenario: Material transfers [CS3]. Dedicated system [CS81].
OC and typical RMMs: Daily; 15 mins - 1 hour; Room temp. Activity included.
RMM to be implemented: Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11].

Risk characteristics

RCR Inhalation: 0.69 Ventilation dilution effectiveness 30%.
Dermal RCR: 0.02
RCR (all ways): 0.70

Identifier: ES20 PROC9

Operating Conditions and Risk Management Measures

Contributing scenario: Material transfers [CS3].
OC and typical RMMs: Daily; 15 mins - 1 hour; Room temp. Activity included.
RMM to be implemented: Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11].

Risk characteristics

RCR Inhalation: 0.69 Ventilation dilution effectiveness 30%.
Dermal RCR: 0.02
RCR (all ways): 0.72

Identifier: ES20 PROC5

Operating Conditions and Risk Management Measures

Contributing scenario: Additive premixes [CS92]. Batch process [CS55].
OC and typical RMMs: Daily; 1 - 4 hours; Room temp. LEV. Minimize spills.
RMM to be implemented: Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11].

Risk characteristics

RCR Inhalation: 0.69 Ventilation dilution effectiveness 30%.
Dermal RCR: 0.04
RCR (all ways): 0.72

Identifier: ES20 PROC6

Operating Conditions and Risk Management Measures

Contributing scenario: Calendering (including Banburys) [CS64].

OC and typical RMMs: Daily; >4 hours; High temperatures. LEV. Minimize area/size of openings.

RMM to be implemented: Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings [E60].

Risk characteristics

RCR Inhalation: 0.49 TRA LEV: 90% efficiency.

Dermal RCR: 0.00 TRA dermal exposure LEV reduction factor 0.05.

RCR (all ways): 0.49

Identifier: ES20 PROC6

Operating Conditions and Risk Management Measures

Contributing scenario: Calendering (including Banburys) [CS64].

OC and typical RMMs: Daily; >4 hours. High temperatures. LEV. Minimize area/size of openings.

RMM to be implemented: Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11].

Risk characteristics

RCR Inhalation: 0.69 Ventilation dilution effectiveness 30%.

Dermal RCR: 0.07

RCR (all ways): 0.76

Identifier: ES20 PROC14

Operating Conditions and Risk Management Measures

Contributing scenario: Pressing uncured rubber blanks [CS73].

OC and typical RMMs: Daily; 1 - 4 hours; Room temp. Good general ventilation

RMM to be implemented: Provide a good standard of general ventilation (not less than 10 to 15 air changes per hour) [E40].

Risk characteristics

RCR Inhalation: 0.29 Ventilation dilution efficiency 70%.

Dermal RCR: 0.01

RCR (all ways): 0.30

Identifier: ES20 PROC6

Operating Conditions and Risk Management Measures

Contributing scenario: Vulcanization [CS70].

OC and typical RMMs: Daily; > 4 hours. High temperatures. LEV at the points of issue. Minimize area/size of openings. Good general ventilation.

RMM to be implemented: Provide a good standard of controlled ventilation (10 to 15 air changes per hour) [E40].

Risk characteristics

RCR Inhalation: 0.59 Ventilation dilution efficiency 70%.

Dermal RCR: 0.07

RCR (all ways): 0.66

Identifier: ES20 PROC6

Operating Conditions and Risk Management Measures

Contributing scenario: Cooling cured articles [CS71].

OC and typical RMMs: Daily; > 4 hours; Room temp. LEV. Aspiration / hood.

RMM to be implemented: Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11].

Risk characteristics

RCR Inhalation: 0.69 Ventilation dilution effectiveness 30%.

Dermal RCR: 0.07

RCR (all ways): 0.76

Identifier: ES20 PROC15

Operating Conditions and Risk Management Measures

Contributing scenario: Laboratory activity [CS36]

OC and typical RMMs: Daily; >15 mins; Room temp. Localized aspiration at the filling point. PPE.

RMM to be implemented: No specific measures identified [E118].

Risk characteristics

RCR Inhalation: 0.20

Dermal RCR: 0.00

RCR (all ways): 0.20

Identifier: ES20 PROC8a

Operating Conditions and Risk Management Measures

Contributing scenario: Equipment Maintenance [CS5].

OC and typical RMMs: Daily; 15 mins - 1 hour; Room temp. Collection of line waste in containers. Lines included. Retain washes in sealed storage pending disposal or use as a recycled material in subsequent formulations. PPE.

RMM to be implemented: Drain or remove substance from equipment prior to break-in or maintenance [E81]

Risk characteristics

RCR Inhalation: 0.10 Additional exposure modifier: 0.1. Ninety percent LEV efficiency is assumed equivalent to the SOPs for drainage etc. before maintenance (0.1).

Dermal RCR: 0.04

RCR (all ways): 0.13

Identifier: ES21 PROC1

Operating Conditions and Risk Management Measures

Contributing scenario: General exposures (closed systems) [CS15]

OC and typical RMMs: Daily; 15 mins - 1 hour; Product temp. Processes closed.

RMM to be implemented: No specific measures identified [EI18].

Risk characteristics

RCR Inhalation: 0.00

Dermal RCR: 0.00

RCR (all ways): 0.00

Identifier: ES21 PROC2

Operating Conditions and Risk Management Measures

Contributing scenario: General exposures (closed systems) [CS15]. With sample collection [CS56]. Product sampling [CS137].

OC and typical RMMs: Continuous; Daily; 15 mins - 1 hour. Process included. Closed/semi-closed sampling point.

RMM to be implemented: No specific provision identified [EI18]

Risk characteristics

RCR Inhalation: 0.20

Dermal RCR: 0.00

RCR (all ways): 0.20

Identifier: ES21 PROC3

Operating Conditions and Risk Management Measures

Contributing scenario: General exposures (closed systems) [CS15]. Use in contained batch processes [CS37].

OC and typical RMMs: Daily; 15 mins - 1 hour; Product temp. Batch process. Equipment closed. Sample point enclosed or vented.

RMM to be implemented: No specific provision identified [EI18]

Risk characteristics

RCR Inhalation: 0.49

Dermal RCR: 0.00

RCR (all ways): 0.49

Identifier: ES21 PROC4

Operating Conditions and Risk Management Measures

Contributing scenario: General exposures (open systems) [CS16]. Batch process [CS55]. With sample collection [CS56]. With potential for aerosol generation [CS138].

OC and typical RMMs: Daily; 15 mins - 1 hour; Product temp. Inside. Transfers included. Clean lines before decoupling.

RMM to be implemented: No specific measures identified [EI18].

Risk characteristics

RCR Inhalation: 0.39

Dermal RCR: 0.02

RCR (all ways): 0.41

Identifier: ES21 PROC5

Operating Conditions and Risk Management Measures

Contributing scenario: Batch processes at elevated temperatures [CS136].

OC and typical RMMs: Daily; 15 mins - 1 hour. High product temp. Equipment closed. Sample point enclosed or vented.

RMM to be implemented: Ensure material transfers are under containment or extract ventilation [E66]. Provide extract ventilation in points where emissions occur [E54].

Risk characteristics

RCR Inhalation: 0.20 TRA LEV: 90% efficiency.

Dermal RCR: 0.00 TRA dermal exposure LEV reduction factor 0.1.

RCR (all ways): 0.20

Identifier: ES21 PROC6

Operating Conditions and Risk Management Measures

Contributing scenario: In-Process Sampling [CS2].

OC and typical RMMs: Daily; <15 mins; Product temp. Closed or ventilated sample points.

RMM to be implemented: No specific measures identified [EI18].

Risk characteristics

RCR Inhalation: 0.49

Dermal RCR: 0.00

RCR (all ways): 0.49

Identifier: ES21 PROC15

Operating Conditions and Risk Management Measures

Contributing scenario: Laboratory activity [CS36].

OC and typical RMMs: Daily; 15 mins - 1 hour; Product at temp. environment. Inside. Hood. PPE.

RMM to be implemented: No specific provision identified [EI18]

Risk characteristics

RCR Inhalation: 0.20

Dermal RCR: 0.00

RCR (all ways): 0.20

Identifier: ES21 PROC8b

Operating Conditions and Risk Management Measures

Contributing scenario: Bulk product transfer [CS14].

OC and typical RMMs: Daily; 15 mins - 1 hour; Product at temp. environment. Collection of line waste in containers. Transfers included. Transfer points with vents. Clean lines before decoupling.

RMM to be implemented: Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11].

Risk characteristics

RCR Inhalation: 0.69 Ventilation dilution effectiveness 30%.

Dermal RCR: 0.02

RCR (all ways): 0.70

Identifier: ES21 PROC5

Operating Conditions and Risk Management Measures

Contributing scenario: Mixing operations (open systems) [CS30]. With potential for aerosol generation [CS138].

OC and typical RMMs: Daily; 8 hours; Product at temp. environment. Inside. Batch process. LEV, PPE.

RMM to be implemented: Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11].

Risk characteristics

RCR Inhalation: 0.69 Ventilation dilution effectiveness 30%.

Dermal RCR: 0.04

RCR (all ways): 0.72

Identifier: ES21 PROC8a

Operating Conditions and Risk Management Measures

Contributing scenario: Transfer from / pour from containers [CS22]. manual [CS34].

OC and typical RMMs: Daily; 15 mins - 1 hour; Product at temp. environment. Inside. Manual transfers. LEV, PPE, RPE.

RMM to be implemented: Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11].

Risk characteristics

RCR Inhalation: 0.69 Ventilation dilution effectiveness 30%.

Dermal RCR: 0.04

RCR (all ways): 0.72

Identifier: ES21 PROC8b

Operating Conditions and Risk Management Measures

Contributing scenario: Kegs/Batch Transfers [CS8].

OC and typical RMMs: Daily; 15 mins - 1 hour; Product temp. Inside. Pumps for drums or dedicated drum handling equipment.

RMM to be implemented: Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11].

Risk characteristics

RCR Inhalation: 0.69 Ventilation dilution effectiveness 30%.

Dermal RCR: 0.02

RCR (all ways): 0.70

Identifier: ES21 PROC14

Operating Conditions and Risk Management Measures

Contributing scenario: Production of preparations or articles by tableting, compression, extrusion, pelettisation [CS100].

OC and typical RMMs: Daily; 8 hours; Product at temp. environment. Inside. LEV, PPE.

RMM to be implemented: Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11].

Risk characteristics

RCR Inhalation: 0.69 Ventilation dilution effectiveness 30%.

Dermal RCR: 0.01

RCR (all ways): 0.70

Identifier: ES21 PROC9

Operating Conditions and Risk Management Measures

Contributing scenario: Drum and small package filling [CS6].

OC and typical RMMs: Continuous; Daily; 8 hours; Product at temp. environment. Inside. Transfers included. Transfer points with vents.

RMM to be implemented: Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11].

Risk characteristics

RCR Inhalation: 0.69 Ventilation dilution effectiveness 30%.

Dermal RCR: 0.02

RCR (all ways): 0.70

Identifier: ES21 PROC8a

Operating Conditions and Risk Management Measures

Contributing scenario: Cleaning and maintenance of equipment [CS39].

OC and typical RMMs: Daily; 1 - 4 hours; Product at temp. environment. Inside. Collection of line waste in containers. Lines included. Retain drain downs in sealed storage pending disposal, use as a recycled material in subsequent formulations, or recycle. PPE.

RMM to be implemented: Drain down system prior to equipment break-in or maintenance. [E55]

Risk characteristics

RCR Inhalation: 0.10 Additional exposure modifier: 0.1. Assumes LEV efficiency equivalent to SOP for drainage etc. before maintenance. RPE (0.1x).

Dermal RCR: 0.00 TRA dermal exposure LEV reduction factor 0.1.

RCR (all ways): 0.10

Identifier: ES21 PROC2

Operating Conditions and Risk Management Measures

Contributing scenario: Storage [CS67] With occasional controlled exposure [CS137]

OC and typical RMMs: Daily; <15 mins; Product at temp. environment. Samples collected at dedicated sample points.

RMM to be implemented: No specific provision identified [EI18]

Risk characteristics

RCR Inhalation: 0.20

Dermal RCR: 0.00

RCR (all ways): 0.20

3 - PROFESSIONAL USES

Identified professional uses of Toluene and generic exposure scenario.

Table 4 lists the professional uses identified for toluene.

If DUs wish to verify compliance with the ES, they should start with summary table 4 and, based on the textual description of the exposure scenarios, determine their own identified use, the PROC and the ERC associated with their specific activity.

DU can identify the specific scenarios of their interest in section 3.2.1 for the environment, for workers 3.2.2 and 3.2.3 for the consumer, check in section 3.3 the exposure and risk characterization for the environment and for the workers. The operating conditions described in each specific scenario do not necessarily apply to all sites. It may therefore be necessary to apply the graduated scaling method (appropriate adaptation to the actual conditions on site), in order to identify compliance with the conditions described in the exposure scenarios.

Table 1. Contributing occupational exposure scenarios identified for toluene

Identifier use: ES4 Use in roads and construction

Description: Application of surface coatings and binders in road and construction activities, including paving, manual road surfacing and in the application of roofing and water-proofing membranes.

Sector of use (SU): 22

Process categories (PROC): 1, 2, 8a, 8b, 9, 10, 11, 13

Environmental Release Categories (ERC): 8d, 8f

Identifier use: ES6 Use in cleaning agents

Description: Covers the use as a component of cleaning products including transfer and unloading from drums or containers. Exposures during mixing/diluting in the preparatory phase of cleaning activities (including spraying, brushing, dipping, wiping, automated and by hand).

Sector of use (SU): 22

Process categories (PROC): 1, 2, 3, 4, 8a, 8b, 10, 11, 13

Environmental Release Categories (ERC): 8a, 8d

Identifier use: ES8 Use as fuel

Description: Covers the use as a fuel (or fuel additive) and includes activities associated with its transfer, use, equipment maintenance and handling of waste.

Sector of use (SU): 22

Process categories (PROC): 1, 2, 3, 4, 8a, 8b, 16

Environmental Release Categories (ERC): 9a, 9b

Identifier use: ES11 Use in coatings

Description: Covers the use in coatings (paints, inks, adhesives, etc.), including exposures during use (including materials receipt, storage, preparation and bulk and semi-bulk transfer, application by spray, roller, spreader and similar methods and film formation) and equipment cleaning, maintenance and associated laboratory activities.

Sector of use (SU): 22

Process categories (PROC): 1, 2, 3, 4, 5, 8a, 8b, 10, 11, 13, 15, 19

Environmental Release Categories (ERC): 8a, 8d

Identifier use: ES15 Use in binding and release agents

Description: Covers the use as binders and release agents, including material transfers, mixing, application by spraying and brushing and handling of waste.

Sector of use (SU): 22

Process categories (PROC): 1, 2, 3, 4, 6, 8a, 8b, 10, 11, 14

Environmental Release Categories (ERC): 8a, 8b, 8c, 8d, 8e, 8f

Identifier use: ES17 Use as laboratory reagent

Description: Use of the substance within laboratory settings, including material transfers and equipment cleaning.

Sector of use (SU): 22

Process categories (PROC): 10, 15

Environmental Release Categories (ERC): 8a

Identifier use: ES19 Use in functional fluids

Description: Use as functional fluids e.g. cable oils, transfer oils, coolants, insulators, refrigerants, hydraulic fluids in professional equipment, including maintenance and related material transfers.

Sector of use (SU): 22

Process categories (PROC): 1, 2, 3, 8a, 9, 20

Environmental Release Categories (ERC): 9a, 9b

3.1 PROFESSIONAL USE OF TOLUENE AND PRODUCTS CONTAINING TOLUENE

Title: Professional uses of toluene and products containing toluene

Sectors of use: Professional (SU22)

Process categories: 1, 2, 3, 4, 5, 6, 7, 8a, 8b, 9, 10, 11, 13, 14, 15, 19, 20

Environmental Release Categories: 8a, 8b, 8c, 8d, 8e, 8f, 9a, 9b

Scope of the process: Professional processes relevant to toluene and toluene-containing products

3.2 OPERATING CONDITIONS AND RISK MANAGEMENT MEASURES

3.2.1. Contributing scenario controlling exposure for the environment

Method used for evaluation: EUSES 2.1.1 with use of predefined ESVOc SpERC release fractions (see Table 5 for the specific versions of each scenario).

Operating conditions

Product features: Toluene is a liquid of medium volatility. The water solubility of this category is 573 mg/l; the vapour pressure is 4030 Pa at 20°C; the log Kow is 2.73. Toluene is readily biodegradable.

Frequency and duration of use: Issue days: 365 days/year

Quantity used: See table 5.

Environmental factors not influenced by risk management: See table 5.

Other given operational conditions affecting environmental exposure: See table 5.

Risk Management Measures

Local technical conditions and measures to reduce and limit discharges, air emissions and soil release:

Treat air emission to provide a typical removal efficiency of >0% [TCR7]. Typical onsite wastewater treatment technology provides removal efficiency of 93.3% [TCR11]. ES6, ES8, ES17, ES19: Soil emission controls are not applicable as there is no direct release to soil [TCR4].

Organizational measures to prevent/limit release from site:

ES4, ES6, ES8, ES11, ES17, ES19: Do not apply industrial sludge to natural soils [OMS2].

ES15: Not applicable.

Conditions and measures for the domestic sewage treatment plan:

Estimated substance removal from wastewater via municipal sewage treatment 93.3 (%) [STP3].

Assumed domestic sewage treatment plant flow 2000 (m³/g) [STP5].

Conditions and measures for external treatment of waste for disposal:

ES4, ES6, ES11, ES15, ES17, ES19: External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3].

ES8: This substance is consumed during use and no waste of the substance is generated [ETW5].

Conditions and measures for external recovery of waste:

ES4, ES6, ES11, ES15, ES17, ES19: External recovery and recycling of waste should comply with applicable local and/or national regulations [ERW1].

ES8: This substance is consumed during use and no waste of the substance is generated [EWR3].

3.2.2 Contributing scenario controlling exposure for workers

Product features: Liquid, vapour pressure 0.5 - 10 kPa [OC4].

Concentration of the substance in the product: Covers a percentage substance in the product up to 100% (unless otherwise stated) [G13].

Frequency and duration of use/exposure: Covers a daily exposure up to 8 hours (unless otherwise specified) [G2].

Human factors not influenced by risk management: Not applicable.

Other given operating conditions affecting employee exposure:

Assumes use of the product at not more than 20°C above ambient temperature, unless otherwise specified [G15].

Assumes a good basic standard of occupational hygiene has been implemented [G1].

Users are advised to consider national Occupational Exposure Limits or other equivalent values [G38].

Operational conditions and risk management measures affecting worker exposure

General measures (skin irritants) (G19):

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear suitable gloves (tested to EN374) if hand contact with substance is likely. Remove impurities/product spills as they occur. Immediately remove any contamination with skin. Provide basic staff training so that exposure is minimised and any skin problems are reported (E3).

In addition (where there is potential for further significant aerosol exposure): Other skin protection measures, such as impermeable overalls and visors, will be necessary during activities involving high dispersion with the possible release of aerosols.

General measures for assessing the inhalation risk - qualitative assessment:

Do not swallow. Implement a good basic standard of occupational hygiene. Avoid contact with contaminated tools and objects. Management/supervision in place to check that the RMMs implemented are being used correctly and OCs followed. Staff training on good practices. Adequate standard of personal hygiene.

For the operational conditions and risk management measures for each scenario, see Table 6.

3.2.3 Contributing scenario controlling consumer exposure

There is no consumer exposure for this scenario.

3.3 EXPOSURE ESTIMATION AND REFERENCE TO ITS SOURCE

3.3.1 Contributing scenario for estimating environmental exposure

Tool used for evaluation: EUSES 2.1.1 with use of predefined ESVOc SpERC release fractions (see Table 5 for the specific versions of each scenario).

When complying with the recommended risk management measures (RMMs) and operating conditions (OCs), exposure is not expected to exceed the PNECs and the risk characterisation ratios should be less than 1, as shown in Table 5.

3.3.2 Contributing scenario for estimating worker exposure

Tool used for evaluation ECETOC TRA v2 (www.ecetoc.org/tra)

General parameters used:

Environment type: professional

Dustiness: low (liquid substance)

Duration of exposure: > 4 hours/day, unless otherwise stated in the RMMs

Ventilation use: none, unless otherwise stated in the RMMs

Use of respiratory protection: none, unless otherwise stated in the RMMs

Use of skin protection: none, unless otherwise stated in the RMMs

Concentration in preparations: > 25%

When complying with the recommended risk management measures (RMMs) and operating conditions (OCs), exposure is not expected to exceed the DNELs and the risk characterisation ratios should be less than 1, as shown in table 6.

3.3.3 Contributing scenario for estimating consumer exposure

There is no consumer exposure for this scenario.

3.4. GUIDELINES FOR THE DU TO VERIFY COMPLIANCE WITH THE EXPOSURE SCENARIO

3.4.1 Guidelines for DU to verify compliance with the environmental exposure scenario

Confirm that the RMMs and OCs are as described or have equivalent efficiency.

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures [DSU1].

Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination [DSU2].

Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination [DSU3].

Further details on scaling and control technologies are provided in SPERC factsheet.

3.4.2 Guidelines for DU to verify compliance with the contributing scenario for worker exposure estimation

Predicted exposures are not expected to exceed the DNEL when the RMMs and OCs outlined in Table 3 are implemented (G22).

Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels [G23].

Risk characterisation ratios (RCRs) are calculated by comparing the estimated exposure levels with the corresponding DNELs (RCR = exposure level/DNEL).

Table 2.

identifiers			Operating Conditions and Risk Management Measures						Risk characterization					
		Quantity used	Dilution factors		RMM to be implemented									
	ERC/ SpERC	Tonnage per site t/ year	Fresh water	Sea water	Water treatment efficiency %	Air abatement efficiency %	Waste treatment total removal %	Domestic wastewater treatment flow m³/d	RCR fresh water	RCR marine water	RCR freshwater sediments	RCR marine water sediments	RCR soil	RCR STP extension
ES4	ESVOC SpERC 8.15.v1	6	10	100	>93.3%	>0%	93.3%	2000	2.86E-03	2.59E-04	2.86E-03	2.59E-04	1.33E-03	3.94E-04
ES6	ESVOC SpERC 8.4b.v1	3	10	100	>93.3%	>0%	93.3%	2000	2.07E-03	1.80E-04	2.07E-03	1.80E-04	6.42E-05	1.97E-06
ES8	ESVOC SpERC 9.12b.v1	30	10	100	>93.3%	>0%	93.3%	2000	2.07E-03	1.80E-04	2.07E-03	1.80E-04	6.36E-05	1.97E-06
ES11	ESVOC SpERC 8.3b.v1	30	10	100	>93.3%	>0%	93.3%	2000	6.01E-03	5.74E-04	6.01E-03	5.74E-04	6.45E-03	1.97E-03
ES15	ESVOC SpERC 8.10b.v1	3	10	100	>93.3%	>0%	93.3%	2000	3.05E-03	2.78E-04	3.05E-03	2.78E-04	1.57E-03	4.92E-04
ES17	ESVOC SpERC 8.17.v1	3	10	100	>93.3%	>0%	93.3%	2000	2.18E-02	2.15E-03	2.18E-02	2.15E-03	2.93E-02	9.85E-03
ES19	ESVOC SpERC 9.13b.v1	3	10	100	>93.3%	>0%	93.3%	2000	3.05E-03	2.78E-04	3.05E-03	2.78E-04	1.52E-03	4.92E-04

Table 6. OC, RMM, Risk Characterization - Workers - Professional use.

Identifier: ES4 PROC8a

Operating Conditions and Risk Management Measures

Contributing scenario: Kegs/Batch Transfers [CS8]. Non-dedicated facility [CS82].

OC and typical RMMs: Daily; > 4 hours; Product at temp. environment. Product transfer - non-dedicated systems.

RMM to be implemented: Provide a good standard of controlled ventilation (10 to 15 air changes per hour) [E40].

Risk characteristics

RCR Inhalation: 0.59 Ventilation dilution efficiency 70%.

Dermal RCR: 0.00

RCR (all ways): 0.59

Identifier: ES4 PROC8b

Operating Conditions and Risk Management Measures

Contributing scenario: Kegs/Batch Transfers [CS8]. Dedicated system [CS81].

OC and typical RMMs: Daily; > 4 hours. High product temperature. Product transfer - dedicated systems.

RMM to be implemented: Ensure material transfers are under containment or extract ventilation [E66].

Risk characteristics

RCR Inhalation: 0.49 TRA LEV: 90% efficiency.

Dermal RCR: 0.00 TRA dermal exposure LEV reduction factor 0.1.

RCR (all ways): 0.49

Identifier: ES4 PROC10

Operating Conditions and Risk Management Measures

Contributing scenario: Manual application by roller or brush [CS13].

OC and typical RMMs: Daily; >4 hours; Product at temp. environment. Outside.

RMM to be implemented: Make sure the operation is performed outdoors [E69].

Risk characteristics

RCR Inhalation: 0.14 Ventilation dilution effectiveness 30%. TRA factor RPE half mask.

Dermal RCR: 0.07

RCR (all ways): 0.21

Identifier: ES4 PROC11

Operating Conditions and Risk Management Measures

Contributing scenario: Spraying, machine mist application [CS25].

OC and typical RMMs: Daily; > 4 hours; Product at temp. environment. Outside. Mixed at 50% with diesel. Enclosed equipment, operator far from spraying point. PPE.

RMM to be implemented: Make sure the operation is performed outdoors [E69]. Wear a respirator conforming to EN140 with type A filter or better [PPE22].

Risk characteristics

RCR Inhalation: 0.14 TRA LEV: 80% efficiency. Ventilation dilution effectiveness 30%. TRA factor RPE half mask.

Dermal RCR: 0.01 TRA dermal exposure LEV reduction factor 0.02.

RCR (all ways): 0.14

Identifier: ES4 PROC13

Operating Conditions and Risk Management Measures

Contributing scenario: Immersion, dipping and pouring [CS4].

OC and typical RMMs: Daily; > 4 hours; Product at temp. environment. Outside.

RMM to be implemented: Make sure the operation is performed outdoors [E69].

Risk characteristics

RCR Inhalation: 0.59 Ventilation dilution efficiency 70%.

Dermal RCR: 0.04

RCR (all ways): 0.62

Identifier: ES4 PROC8a

Operating Conditions and Risk Management Measures

Contributing scenario: Cleaning and maintenance of equipment [CS39].

OC and typical RMMs: Daily; 15 mins - 1 hour; Product at temp. environment. Collection of line waste in sealed containers pending disposal. PPE.

RMM to be implemented: Provide a good standard of controlled ventilation (10 to 15 air changes per hour) [E40]. Retain drain downs in sealed storage pending disposal or for subsequent recycle [ENV4].

Risk characteristics

RCR Inhalation: 0.59 Ventilation dilution efficiency 70%.

Dermal RCR: 0.04

RCR (all ways): 0.62

Identifier: ES4 PROC1

Operating Conditions and Risk Management Measures

Contributing scenario: Storage [CS67].

OC and typical RMMs: Daily; 8 hours; Room temp. Samples collected at dedicated sample points.

RMM to be implemented: No specific measures identified [E118].

Risk characteristics

RCR Inhalation: 0.00

Dermal RCR: 0.00

RCR (all ways): 0.00

Identifier: ES4 PROC2

Operating Conditions and Risk Management Measures

Contributing scenario: Storage [CS67]. Product sampling [CS137].

OC and typical RMMs: Daily; 8 hours; Product temp. Samples collected at dedicated sample points.

RMM to be implemented: No specific measures identified [E118].

Risk characteristics

RCR Inhalation: 0.39

Dermal RCR: 0.00

RCR (all ways): 0.39

Identifier: ES6 PROC8b

Operating Conditions and Risk Management Measures

Contributing scenario: Filling of equipment from drums or containers [CS45]. Dedicated system [CS81].

OC and typical RMMs: Daily; 15 mins - 1 hour; Product temp. (<10%) Manual transfer from small packs to equipment for application.

RMM to be implemented: Provide a good standard of controlled ventilation (10 to 15 air changes per hour) [E40].

Risk characteristics

RCR Inhalation: 0.29 Ventilation dilution efficiency 70%.

Dermal RCR: 0.02

RCR (all ways): 0.31

Identifier: ES6 PROC2

Operating Conditions and Risk Management Measures

Contributing scenario: Automated process with (semi) closed systems [CS93]. Use in contained systems [CS38].

OC and typical RMMs: Daily; 8 hours. Process included; closed.

RMM to be implemented: No specific measures identified [E118].

Risk characteristics

RCR Inhalation: 0.39

Dermal RCR: 0.00

RCR (all ways): 0.40

Identifier: ES6 PROC3

Operating Conditions and Risk Management Measures

Contributing scenario: Automated process with (semi) closed systems [CS93]. Use in contained systems [CS38]. Kegs/Batch Transfers [CS8].

OC and typical RMMs: Daily; 15 mins - 1 hour. Process included; closed.

RMM to be implemented: No specific measures identified [E118].

Risk characteristics

RCR Inhalation: 0.49

Dermal RCR: 0.00

RCR (all ways): 0.49

Identifier: ES6 PROC4

Operating Conditions and Risk Management Measures

Contributing scenario: Semi-automated process. (e.g.: semi-automatic application of floor care and maintenance products) [CS76].

OC and typical RMMs: Daily; 8 hours. Semi-included process; closed.

RMM to be implemented: Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11].

Risk characteristics

RCR Inhalation: 0.69 Ventilation dilution effectiveness 30%.

Dermal RCR: 0.02

RCR (all ways): 0.70

Identifier: ES6 PROC8a

Operating Conditions and Risk Management Measures

Contributing scenario: Filling of equipment from drums or containers [CS45]. Outdoor [OC9].

OC and typical RMMs: Daily; 15 mins - 1 hour; Room temp. Outside. Manual transfer from small packs to equipment for application.

RMM to be implemented: Make sure the operation is performed outdoors [E69]. Avoid carrying out activities involving exposure for more than 4 hours [OC28].

Risk characteristics

RCR Inhalation: 0.82 Ventilation dilution effectiveness 30%. TRA duration factor 1-4 hours.

Dermal RCR: 0.04

RCR (all ways): 0.86

Identifier: ES6 PROC13

Operating Conditions and Risk Management Measures

Contributing scenario: Manual cleaning of surfaces. Immersion, dipping and pouring [CS4].

OC and typical RMMs: Daily; >4 hours; Room temp. No local aspiration on open surfaces; eliminate leaks as soon as they occur. PPE.

RMM to be implemented: Provide a good standard of controlled ventilation (10 to 15 air changes per hour) [E40].

Risk characteristics

RCR Inhalation: 0.59 Ventilation dilution efficiency 70%.

Dermal RCR: 0.04

RCR (all ways): 0.62

Identifier: ES6 PROC10

Operating Conditions and Risk Management Measures

Contributing scenario: Cleaning with low-pressure washers [CS42]. Application by roller, brush [CS51]. No spraying [CS60].

OC and typical RMMs: Daily; >4 hours; Room temp. Blends at 5% max. Specific training of workers. PPE.

RMM to be implemented: Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11]. Wear a respirator conforming to EN140 with type A filter or better [PPE22].

Risk characteristics

RCR Inhalation: 0.14 Ventilation dilution effectiveness 30%. TRA factor RPE half mask.

Dermal RCR: 0.07

RCR (all ways): 0.21

Identifier: ES6 PROC11

Operating Conditions and Risk Management Measures

Contributing scenario: Cleaning with high pressure washers [CS44]. Spray application [CS10]. Indoor [OC8].

OC and typical RMMs: Daily; 8 hours; Room temp. Inside. Blends at 0.5% max. Specific training of workers. PPE.

RMM to be implemented: Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11]. Wear a respirator conforming to EN140 with type A filter or better [PPE22].

Risk characteristics

RCR Inhalation: 0.69 Ventilation dilution effectiveness 30%. TRA factor RPE half mask.

Dermal RCR: 0.28

RCR (all ways): 0.97

Identifier: ES6 PROC11

Operating Conditions and Risk Management Measures

Contributing scenario: Cleaning with high pressure washers [CS44]. Spray application [CS10]. Outdoor [OC9].

OC and typical RMMs: Continuous; Daily; 8 hours; Room temp. Outside. Blends at 0.5% max. Specific training of workers. PPE.

RMM to be implemented: Make sure the operation is performed outdoors [E69]. Wear a respirator conforming to EN140 with type A filter or better [PPE22].

Risk characteristics

RCR Inhalation: 0.69 Ventilation dilution effectiveness 30%. TRA factor RPE half mask.

Dermal RCR: 0.28

RCR (all ways): 0.97

Identifier: ES6 PROC10

Operating Conditions and Risk Management Measures

Contributing scenario: Manual cleaning of surfaces. Spraying [CS10].

OC and typical RMMs: Daily; >4 hours; Room temp. Blends at 10% max. Waste is washed together with the wastewater, keep cleaning cloths in a container.

RMM to be implemented: Provide a basic standard of general ventilation. Natural ventilation is from doors, windows etc. Controlled ventilation means air is supplied or removed by a powered fan [E1]. Wear a respirator conforming to EN140 with type A filter or better [PPE22].

Risk characteristics

RCR Inhalation: 0.14 Ventilation dilution effectiveness 30%. TRA factor RPE half mask.

Dermal RCR: 0.07

RCR (all ways): 0.21

Identifier: ES6 PROC10

Operating Conditions and Risk Management Measures

Contributing scenario: Ad-hoc manual application via trigger sprays, dipping, etc. [CS27]. Application by roller, brush [CS51].

OC and typical RMMs: Daily; >4 hours; Room temp. In a workshop (with LEV). Waste is washed together with the wastewater, keep cleaning cloths in a container.

RMM to be implemented: Provide extract ventilation in points where emissions occur [E54].

Risk characteristics

RCR Inhalation: 0.39. TRA LEV: 80% efficiency.

Dermal RCR: 0.00 TRA dermal exposure. LEV reduction factor 0.05.

RCR (all ways): 0.40

Identifier: ES6 PROC10

Operating Conditions and Risk Management Measures

Contributing scenario: Ad-hoc manual application via trigger sprays, dipping, etc. [CS27]. Application by roller, brush [CS51].

OC and typical RMMs: Daily; <1 hour; Room temp. Occasional use. Waste is washed together with the wastewater, keep cleaning cloths in a container.

RMM to be implemented: Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11]. Wear a respirator conforming to EN140 with type A filter or better [PPE22].

Risk characteristics

RCR Inhalation: 0.14 Ventilation dilution effectiveness 30%. TRA factor RPE half mask.

Dermal RCR: 0.07

RCR (all ways): 0.21

Identifier: ES6 PROC4

Operating Conditions and Risk Management Measures

Contributing scenario: Application of cleaning products in closed systems [CS101]. Outdoor [OC9].

OC and typical RMMs: Daily; 8 hours. Process included. closed/semi-closed.

RMM to be implemented: Make sure the operation is performed outdoors [E69].

Risk characteristics

RCR Inhalation: 0.69 Ventilation dilution effectiveness 30%.

Dermal RCR: 0.02

RCR (all ways): 0.70

Identifier: ES6 PROC4

Operating Conditions and Risk Management Measures

Contributing scenario: Cleaning of medical devices [CS74].

OC and typical RMMs: Daily; 8 hours; Room temp. Process included. closed/semi-closed.

RMM to be implemented: Provide extract ventilation in points where emissions occur [E54].

Risk characteristics

RCR Inhalation: 0.20 TRA LEV: 80% efficiency.

Dermal RCR: 0.00 TRA dermal exposure. LEV reduction factor 0.1.

RCR (all ways): 0.20

Identifier: ES6 PROC8a

Operating Conditions and Risk Management Measures

Contributing scenario: Cleaning and maintenance of equipment [CS39].

OC and typical RMMs: Daily; 15 mins - 1 hour; Product temp. Collection of line waste in containers. Indoor/Outdoor. Lines included. Retain drain downs in sealed storage pending disposal, use as a recycled material in subsequent formulations, or recycle. PPE.

RMM to be implemented: Drain down system prior to equipment break-in or maintenance [E65].

Risk characteristics

RCR Inhalation: 0.39 Additional exposure modifier: 0.2. Assumes LEV efficiency equivalent to SOP for drainage etc. before maintenance. Additional LEV 80%.

Dermal RCR: 0.04.

RCR (all ways): 0.43

Identifier: ES6 PROC2

Operating Conditions and Risk Management Measures

Contributing scenario: Storage [CS67]. Product sampling [CS137].

OC and typical RMMs: Daily; <15 mins; Product temp. Samples collected at dedicated sample points.

RMM to be implemented: No specific measures identified [E18].

Risk characteristics

RCR Inhalation: 0.39

Dermal RCR: 0.00

RCR (all ways): 0.40

Identifier: ES8 PROC4

Operating Conditions and Risk Management Measures

Contributing scenario: Bulk product transfer [CS14].

OC and typical RMMs: Daily; 1 - 4 hours; Room temp. Transfers included. Clean lines before decoupling.

RMM to be implemented: Provide a good standard of controlled ventilation (10 to 15 air changes per hour) [E40].

Risk characteristics

RCR Inhalation: 0.29 Ventilation dilution efficiency 70%.

Dermal RCR: 0.02

RCR (all ways): 0.31

Identifier: ES8 PROC8b

Operating Conditions and Risk Management Measures

Contributing scenario: Kegs/Batch Transfers [CS8].

OC and typical RMMs: Daily; 15 mins - 1 hour; Room temp. Pumping from drums to equipment.

RMM to be implemented: Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11].

Risk characteristics

RCR Inhalation: 0.69 Ventilation dilution effectiveness 30%.

Dermal RCR: 0.01

RCR (all ways): 0.70

Identifier: ES8 PROC8b

Operating Conditions and Risk Management Measures

Contributing scenario: Immersion, dipping and pouring [CS4].

OC and typical RMMs: Daily; >4 hours. At 100%. Pumping to the vehicle.

RMM to be implemented: Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11].

Risk characteristics

RCR Inhalation: 0.69 Ventilation dilution effectiveness 30%.

Dermal RCR: 0.01

RCR (all ways): 0.70

Identifier: ES8 PROC1

Operating Conditions and Risk Management Measures

Contributing scenario: General exposures (closed systems) [CS15].

OC and typical RMMs: Daily; >4 hours. Equipment closed.

RMM to be implemented: No specific measures identified [E18].

Risk characteristics

RCR Inhalation: 0.00

Dermal RCR: 0.00

RCR (all ways): 0.00

Identifier: ES8 PROC2

Operating Conditions and Risk Management Measures

Contributing scenario: (closed systems) [CS15]. Product sampling [CS137].

OC and typical RMMs: Daily; > 4 hours. Equipment closed.

RMM to be implemented: No specific measures identified [E18].

Risk characteristics

RCR Inhalation: 0.39

Dermal RCR: 0.00

RCR (all ways): 0.39

Identifier: ES8 PROC3

Operating Conditions and Risk Management Measures

Contributing scenario: General exposures (open systems) [CS16]. (closed systems) [CS107]. Batch process [CS55].

OC and typical RMMs: Daily; >4 hours. Blends up to 100%. Mixers included or vented.

RMM to be implemented: No specific measures identified [E18].

Risk characteristics

RCR Inhalation: 0.49

Dermal RCR: 0.00

RCR (all ways): 0.49

Identifier: ES8 PROC16

Operating Conditions and Risk Management Measures

Contributing scenario: General exposures (open systems) [CS16]. (closed systems) [CS107].

OC and typical RMMs: Daily; >4 hours. At 100%. Equipment included.

RMM to be implemented: Handle substance within a closed system [E47]. No other specific measures identified [E120].

Risk characteristics

RCR Inhalation: 0.20

Dermal RCR: 0.00

RCR (all ways): 0.20

Identifier: ES8 PROC8a

Operating Conditions and Risk Management Measures

Contributing scenario: Cleaning and maintenance of equipment [CS39].

OC and typical RMMs: Daily; >4 hours. At 100%. PPE. Operator training.

RMM to be implemented: Drain down system prior to equipment break-in or maintenance [E55].

Risk characteristics

RCR Inhalation: 0.39 Additional exposure modifier: 0.2. Eighty percent LEV efficiency is assumed equivalent to the SOPs for drainage etc. before maintenance (x0.2).

Dermal RCR: 0.04

RCR (all ways): 0.43

Identifier: ES8 PROC8a

Operating Conditions and Risk Management Measures

Contributing scenario: Cleaning of containers and vessels [CS103].

OC and typical RMMs: Daily; >4 hours. At 100%. Procedures for entry into containers. Retain washes in sealed storage pending disposal. PPE.

RMM to be implemented: Drain down system prior to equipment break-in or maintenance [E65].

Risk characteristics

RCR Inhalation: 0.39 Additional exposure modifier: 0.2 Eighty percent LEV efficiency is assumed equivalent to the SOPs for drainage etc. before maintenance. Additional LEV 80% (x0.2).

Dermal RCR: 0.04

RCR (all ways): 0.43

Identifier: ES8 PROC1

Operating Conditions and Risk Management Measures

Contributing scenario: Storage [CS67].

OC and typical RMMs: Daily; 8 hours; Room temp. Samples collected at dedicated sample points.

RMM to be implemented: Store substance in a closed system [E84].

Risk characteristics

RCR Inhalation: 0.00

Dermal RCR: 0.00

RCR (all ways): 0.00

Identifier: ES11 PROC1

Operating Conditions and Risk Management Measures

Contributing scenario: General exposures (closed systems) [CS15].

OC and typical RMMs: Continuous; Daily; 8 hours. Closed.

RMM to be implemented: No specific provision identified [E118]

Risk characteristics

RCR Inhalation: 0.00

Dermal RCR: 0.00

RCR (all ways): 0.00

Identifier: ES11 PROC2

Operating Conditions and Risk Management Measures

Contributing scenario: Filling of equipment from drums or containers [CS45].

OC and typical RMMs: Continuous. Closed.

RMM to be implemented: No specific provision identified [E118]

Risk characteristics

RCR Inhalation: 0.39

Dermal RCR: 0.00

RCR (all ways): 0.40

Identifier: ES11 PROC2

Operating Conditions and Risk Management Measures

Contributing scenario: General exposures (closed systems) [CS15]. Use in contained systems [CS38].

OC and typical RMMs: Continuous; Daily; 8 hours. Process included. Closed/semi-closed sampling point.

RMM to be implemented: No specific measures identified [E118].

Risk characteristics

RCR Inhalation: 0.39

Dermal RCR: 0.00

RCR (all ways): 0.40

Identifier: ES11 PROC3

Operating Conditions and Risk Management Measures

Contributing scenario: Preparation of material for application [CS96].

OC and typical RMMs: Continuous. Closed.

RMM to be implemented: No specific measures identified [E118].

Risk characteristics

RCR Inhalation: 0.49

Dermal RCR: 0.00

RCR (all ways): 0.49

Identifier: ES11 PROC4

Operating Conditions and Risk Management Measures

Contributing scenario: Film formation - air drying [CS95]. Outdoor [OC9].

OC and typical RMMs: Outdoor

RMM to be implemented: Make sure the operation is performed outdoors [E69].

Risk characteristics

RCR Inhalation: 0.69 Ventilation dilution effectiveness 30%.

Dermal RCR: 0.02

RCR (all ways): 0.70

Identifier: ES11 PROC4

Operating Conditions and Risk Management Measures

Contributing scenario: Film formation - air drying [CS95]. Indoor [OC8].

OC and typical RMMs: Daily; >4 hours; Product at temp. environment. Inside. Good general ventilation (equivalent to outdoor activity) with added LEV.

RMM to be implemented: Provide a good standard of controlled ventilation (10 to 15 air changes per hour) [E40].

Risk characteristics

RCR Inhalation: 0.29 Ventilation dilution efficiency 70%.

Dermal RCR: 0.02

RCR (all ways): 0.31

Identifier: ES11 PROC5

Operating Conditions and Risk Management Measures

Contributing scenario: Preparation of material for application [CS96]. Indoor [OC8].

OC and typical RMMs: Discontinuous Inside. Wit/without LEV.

RMM to be implemented: Provide a good standard of controlled ventilation (10 to 15 air changes per hour) [E40].

Risk characteristics

RCR Inhalation: 0.59 Ventilation dilution efficiency 70%.

Dermal RCR: 0.04

RCR (all ways): 0.62

Identifier: ES11 PROC5

Operating Conditions and Risk Management Measures

Contributing scenario: Preparation of material for application [CS96]. Outdoor [OC9].

OC and typical RMMs: Outside.

RMM to be implemented: Make sure the operation is performed outdoors [E69].

Risk characteristics

RCR Inhalation: 0.82 Ventilation dilution effectiveness 30%. TRA duration factor 1-4 hours.

Dermal RCR: 0.04

RCR (all ways): 0.86

Identifier: ES11 PROC8a

Operating Conditions and Risk Management Measures

Contributing scenario: Material transfers [CS3]. Kegs/Batch Transfers [CS8].

OC and typical RMMs: Daily; 15 mins - 1 hour; Product at temp. environment. Inside. Outside. Pumping from drums to equipment. With and without LEV.

RMM to be implemented: Use drum pumps or carefully pour from container [E64].

Risk characteristics

RCR Inhalation: 0.39 TRA LEV: 80% efficiency.

Dermal RCR: 0.00 TRA dermal exposure LEV reduction factor 0.1.

RCR (all ways): 0.40

Identifier: ES11 PROC8b

Operating Conditions and Risk Management Measures

Contributing scenario: Material transfers [CS3]. Drum/Batch Transfers [CS8].

OC and typical RMMs: Daily; 15 min - 1 hour; Product at temp. environment. Inside. Pumping from drums to equipment. With LEV.

RMM to be implemented: Use drum pumps or carefully pour from container [E64].

Risk characteristics

RCR Inhalation: 0.20 TRA LEV: 80% efficiency.

Dermal RCR: 0.00 TRA dermal exposure LEV reduction factor 0.1.

RCR (all ways): 0.20

Identifier: ES11 PROC10

Operating Conditions and Risk Management Measures

Contributing scenario: Application by roller, spatula, flux [CS98]. Indoor [OC8].

OC and typical RMMs: Inside.

RMM to be implemented: Provide a good standard of controlled ventilation (10 to 15 air changes per hour) [E40].

Risk characteristics

RCR Inhalation: 0.59 Ventilation dilution efficiency 70%.

Dermal RCR: 0.07

RCR (all ways): 0.66

Identifier: ES11 PROC10

Operating Conditions and Risk Management Measures

Contributing scenario: Application by roller, spatula, flux [CS98]. Outdoor. [OC9].

OC and typical RMMs: Outside. PPE.

RMM to be implemented: Make sure the operation is performed outdoors [E69].

Risk characteristics

RCR Inhalation: 0.14 Ventilation dilution effectiveness 30%. TRA factor RPE half mask.

Dermal RCR: 0.07

RCR (all ways): 0.21

Identifier: ES11 PROC11

Operating Conditions and Risk Management Measures

Contributing scenario: Manual [CS34]. Spray application [CS10]. Indoor [OC8].

OC and typical RMMs: Daily; >4 hours; Environment. Inside. Spray booth with vents Specific training of operators. PPE.

RMM to be implemented: Carry out in a vented booth or extracted enclosure [E57].

Risk characteristics

RCR Inhalation: 0.98 TRA LEV: 90% efficiency.

Dermal RCR: 0.01 TRA dermal exposure LEV reduction factor 0.02.

RCR (all ways): 0.99

Identifier: ES11 PROC11

Operating Conditions and Risk Management Measures

Contributing scenario: Manual [CS34]. Spray application [CS10]. Outdoor. [OC9].

OC and typical RMMs: Outside. 4 hours. PPE.

RMM to be implemented: Make sure the operation is performed outdoors [E69]. Wear a respirator conforming to EN140 with type A filter or better [PPE22].

Risk characteristics

RCR Inhalation: 0.69 Ventilation dilution effectiveness 30%. TRA factor RPE half mask.

Dermal RCR: 0.28

RCR (all ways): 0.97

Identifier: ES11 PROC13

Operating Conditions and Risk Management Measures

Contributing scenario: Immersion, dipping and pouring [CS4]. Indoor [OC8].

OC and typical RMMs: Daily; >4 hours; Environment. Local aspiration on open surfaces. Eliminate leaks as they occur. PPE.

RMM to be implemented: Provide extract ventilation in points where emissions occur [E54].

Risk characteristics

RCR Inhalation: 0.39 TRA LEV: 80% efficiency.

Dermal RCR: 0.00 TRA dermal exposure LEV reduction factor 0.05.

RCR (all ways): 0.39

Identifier: ES11 PROC13

Operating Conditions and Risk Management Measures

Contributing scenario: Immersion, dipping and pouring [CS4]. Outdoor [OC9].

OC and typical RMMs: Daily; >4 hours; Environment. Outside. PPE.

RMM to be implemented: Make sure the operation is performed outdoors [E69]. Wear suitable respiratory protection (conforming to EN140 with type A filter or better) and gloves (type EN374) if regular skin contact likely [PPE21].

Risk characteristics

RCR Inhalation: 0.14 Ventilation dilution effectiveness 30%. TRA factor RPE half mask.

Dermal RCR: 0.04

RCR (all ways): 0.17

Identifier: ES11 PROC15

Operating Conditions and Risk Management Measures

Contributing scenario: Laboratory activity [CS36].

OC and typical RMMs: Daily; >4 hours; Environment.

RMM to be implemented: No specific measures identified [E18].

Risk characteristics

RCR Inhalation: 0.20

Dermal RCR: 0.00

RCR (all ways): 0.20

Identifier: ES11 PROC19

Operating Conditions and Risk Management Measures

Contributing scenario: Hand application - finger paints, pastels, adhesives [CS72]. Indoor [OC8].

OC and typical RMMs: Daily; >4 hours. Environment. Inside.

RMM to be implemented: Provide a good standard of controlled ventilation (10 to 15 air changes per hour) [E40]. Make sure doors and windows are open [E72].

Risk characteristics

RCR Inhalation: 0.59 Ventilation dilution efficiency 70%.

Dermal RCR: 0.37

RCR (all ways): 0.96

Identifier: ES11 PROC19

Operating Conditions and Risk Management Measures

Contributing scenario: Hand application - finger paints, pastels, adhesives [CS72]. Outdoor [OC9].

OC and typical RMMs: 15 min. Environment. Outside. PPE.

RMM to be implemented: Make sure the operation is performed outdoors [E69]. Wear suitable respiratory protection (conforming to EN140 with type A filter or better) and gloves (type EN374) if regular skin contact likely [PPE21].

Risk characteristics

RCR Inhalation: 0.14 Ventilation dilution effectiveness 30%. TRA factor RPE half mask.

Dermal RCR: 0.37

RCR (all ways): 0.51

Identifier: ES11 PROC8a

Operating Conditions and Risk Management Measures

Contributing scenario: Cleaning and maintenance of equipment [CS39].

OC and typical RMMs: Daily; 15 mins - 1 hour; Product temp. Collection of line waste in containers. Indoor/Outdoor. Lines included. Retain washes in sealed storage pending disposal or use as a recycled material in subsequent formulations. PPE.

RMM to be implemented: Drain down system prior to equipment break-in or maintenance [E65].

Risk characteristics

RCR Inhalation: 0.39 Additional exposure modifier: 0.2. Eighty percent LEV efficiency is assumed equivalent to the SOPs for drainage etc. before maintenance. Additional LEV 80%.

Dermal RCR: 0.04

RCR (all ways): 0.43

Identifier: ES11 PROC2

Operating Conditions and Risk Management Measures

Contributing scenario: Storage [CS67]. Product sampling [CS137].

OC and typical RMMs: Daily; <15 mins; Product at temp. environment. Samples collected at dedicated sample points.

RMM to be implemented: No specific measures identified [E118].

Risk characteristics

RCR Inhalation: 0.39

Dermal RCR: 0.00

RCR (all ways): 0.40

Identifier: ES15 PROC1

Operating Conditions and Risk Management Measures

Contributing scenario: Material transfers [CS3]. (closed systems) [CS107].

OC and typical RMMs: Daily; 1 - 4 hours; Ambient temp. Transfers included. Clean lines before decoupling.

RMM to be implemented: No specific measures identified [E118].

Risk characteristics

RCR Inhalation: 0.00

Dermal RCR: 0.00

RCR (all ways): 0.00

Identifier: ES15 PROC2

Operating Conditions and Risk Management Measures

Contributing scenario: Material transfers [CS3]. (closed systems) [CS107]. Product sampling [CS137].

OC and typical RMMs: Daily; 1 - 4 hours; Room temp. Transfers included. Clean lines before decoupling.

RMM to be implemented: No specific measures identified [E118].

Risk characteristics

RCR Inhalation: 0.39

Dermal RCR: 0.00

RCR (all ways): 0.40

Identifier: ES15 PROC3

Operating Conditions and Risk Management Measures

Contributing scenario: Material transfers [CS3]. (closed systems) [CS107]. Batch process [CS55].

OC and typical RMMs: Daily; 1 - 4 hours; Room temp. Transfers included. Clean lines before decoupling.

RMM to be implemented: No specific measures identified [E118].

Risk characteristics

RCR Inhalation: 0.49

Dermal RCR: 0.00

RCR (all ways): 0.49

Identifier: ES15 PROC8b

Operating Conditions and Risk Management Measures

Contributing scenario: Drum/batch transfers [CS8]

OC and typical RMMs: Daily; 15 mins - 1 hour; Room temp. Pumping from drums to equipment.

RMM to be implemented: Transfer materials directly to mixing vessels [E45].

Risk characteristics

RCR Inhalation: 0.59 Additional exposure modifier: 0.6. Direct transfers assume to provide a reduction of 0.6x.

Dermal RCR: 0.02

RCR (all ways): 0.61

Identifier: ES15 PROC3

Operating Conditions and Risk Management Measures

Contributing scenario: Mixing operations (closed systems) [CS29].

OC and typical RMMs: Daily; > 4 hours. Mixers included or vented.

RMM to be implemented: No specific measures identified [E118].

Risk characteristics

RCR Inhalation: 0.49

Dermal RCR: 0.00

RCR (all ways): 0.49

Identifier: ES15 PROC4

Operating Conditions and Risk Management Measures

Contributing scenario: Mixing operations (open systems) [CS30].

OC and typical RMMs: Daily; > 4 hours.

RMM to be implemented: Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11].

Risk characteristics

RCR Inhalation: 0.69 Ventilation dilution effectiveness 30%.

Dermal RCR: 0.02

RCR (all ways): 0.70

Identifier: ES15 PROC14

Operating Conditions and Risk Management Measures

Contributing scenario: Stamping forming [CS31].

OC and typical RMMs: Daily; >4 hours; Room temp. PPE.

RMM to be implemented: Provide a good standard of controlled ventilation (10 to 15 air changes per hour) [E40].

Risk characteristics

RCR Inhalation: 0.59 Ventilation dilution efficiency 70%.

Dermal RCR: 0.01

RCR (all ways): 0.60

Identifier: ES15 PROC6

Operating Conditions and Risk Management Measures

Contributing scenario: Casting operations [CS32]. (open systems) [CS108].

OC and typical RMMs: Daily; 1 - 4 hours. Temp. high enough to create fumes. Improved general ventilation. PPE.

RMM to be implemented: Provide a good standard of controlled ventilation (10 to 15 air changes per hour) [E40].

Risk characteristics

RCR Inhalation: 0.59 Ventilation dilution efficiency 70%.

Dermal RCR: 0.07

RCR (all ways): 0.66

Identifier: ES15 PROC11

Operating Conditions and Risk Management Measures

Contributing scenario: Manual [CS34]. Spray application [CS10].

OC and typical RMMs: Daily; 1 - 4 hours; Room temp. Ventilated environment.

RMM to be implemented: Carry out in a vented booth or extracted enclosure [E57]. Provide a good standard of controlled ventilation (10 to 15 air changes per hour) [E40].

Risk characteristics

RCR Inhalation: 0.59 Ventilation dilution efficiency 70%. TRA LEV: 80% efficiency.

Dermal RCR: 0.01 TRA dermal exposure LEV reduction factor 0.02.

RCR (all ways): 0.59

Identifier: ES15 PROC10

Operating Conditions and Risk Management Measures

Contributing scenario: Manual application by roller or brush [CS13].

OC and typical RMMs: Daily; 1 - 4 hours; Room temp. PPE.

RMM to be implemented: Provide a good standard of controlled ventilation (10 to 15 air changes per hour) [E40].

Risk characteristics

RCR Inhalation: 0.59 Ventilation dilution efficiency 70%.

Dermal RCR: 0.07

RCR (all ways): 0.66

Identifier: ES15 PROC11

Operating Conditions and Risk Management Measures

Contributing scenario: Manual [CS34]. Spray application [CS10].

OC and typical RMMs: Daily; 1 - 4 hours; Room temp. PPE. Facial mask.

RMM to be implemented: Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11]. Wear a respirator conforming to EN140 with type A filter or better [PPE22].

Risk characteristics

RCR Inhalation: 0.69 Ventilation dilution effectiveness 30%. TRA factor RPE half mask.

Dermal RCR: 0.28

RCR (all ways): 0.97

Identifier: ES15 PROC1

Operating Conditions and Risk Management Measures

Contributing scenario: Storage [CS67].

OC and typical RMMs: Daily; 8 hours; Room temp. Samples collected at dedicated sample points.

RMM to be implemented: No specific measures identified [E118].

Risk characteristics

RCR Inhalation: 0.00

Dermal RCR: 0.00

RCR (all ways): 0.00

Identifier: ES15 PROC2

Operating Conditions and Risk Management Measures

Contributing scenario: Storage [CS67]. Product sampling [CS137].

OC and typical RMMs: Daily; 8 hours; Room temp. Samples collected at dedicated sample points.

RMM to be implemented: No specific measures identified [E118].

RCR Inhalation: 0.39

Dermal RCR: 0.00

RCR (all ways): 0.39

Identifier: ES17 PROC15

Operating Conditions and Risk Management Measures

Contributing scenario: Laboratory activity [CS36]. On a small scale [CS61]. Handling of small amounts (<1000ml) for more than 4 hours/day - under hood.

OC and typical RMMs: Continuous; Daily; >4 hours; Room temp. Under hood or in ventilated glove box. Use disposable gloves.

RMM to be implemented: No specific measures identified [E118].

Risk characteristics

RCR Inhalation: 0.20

Dermal RCR: 0.00 TRA dermal exposure LEV reduction factor 0.01.

RCR (all ways): 0.20

Identifier: ES17 PROC10

Operating Conditions and Risk Management Measures

Contributing scenario: Cleaning [CS47]. Application by roller, brush [CS51]. Cleaning of containers and vessels [CS103]. Cleaning of equipment, glass etc. under general ventilation for 15 min - 1 hour/day.

OC and typical RMMs: Continuous; Daily; 15 min - 1 hour/day; Room temp. Controlled general ventilation (10 air changes per hour). Use disposable gloves.

RMM to be implemented: Provide a good standard of controlled ventilation (10 to 15 air changes per hour) [E40].

Risk characteristics

RCR Inhalation: 0.59 Ventilation dilution efficiency 70%.

Dermal RCR: 0.07

RCR (all ways): 0.66

Identifier: ES19 PROC8a

Operating Conditions and Risk Management Measures

Contributing scenario: Drum/Batch Transfers [CS8]. Non-dedicated facility [CS82].

OC and typical RMMs: Daily; 15 mins - 1 hour; Room temp. Pumping from drums to equipment.

RMM to be implemented: Use drum pumps or carefully pour from container [E64].

Risk characteristics

RCR Inhalation: 0.39 Additional exposure modifier: 0.2. Use of drum pumps equals 80% (x0.2).

Dermal RCR: 0.04

RCR (all ways): 0.43

Identifier: ES19 PROC9

Operating Conditions and Risk Management Measures

Contributing scenario: Transfer from / pour from containers [CS22].

OC and typical RMMs: Daily; >4 hours. Environment. Operations included. Size of openings minimized. LEV at the points of issue.

RMM to be implemented: Use drum pumps or carefully pour from container [E64].

Risk characteristics

RCR Inhalation: 0.39 Additional exposure modifier: 0.2. Use of drum pumps equals 80% (x0.2).

Dermal RCR: 0.02

RCR (all ways): 0.41

Identifier: ES19 PROC9

Operating Conditions and Risk Management Measures

Contributing scenario: Filling of equipment from drums or containers [CS45].

OC and typical RMMs: Daily; 1 - 4 hours. Environment. Pumping from drums to item/machinery.

RMM to be implemented: Use drum pumps or carefully pour from container [E64].

Risk characteristics

RCR Inhalation: 0.39 Additional exposure modifier: 0.2. Use of drum pumps equals 80% (x0.2).

Dermal RCR: 0.02

RCR (all ways): 0.41

Identifier: ES19 PROC1

Operating Conditions and Risk Management Measures

Contributing scenario: General exposures (closed systems) [CS15].

OC and typical RMMs: Daily; > 4 hours. Environment.

RMM to be implemented: No specific measures identified [EI18].

Risk characteristics

RCR Inhalation: 0.00

Dermal RCR: 0.00

RCR (all ways): 0.00

Identifier: ES19 PROC2

Operating Conditions and Risk Management Measures

Contributing scenario: General exposures (closed systems) [CS15]. Product sampling [CS137].

OC and typical RMMs: Daily; > 4 hours. Environment.

RMM to be implemented: No specific measures identified [EI18].

Risk characteristics

RCR Inhalation: 0.39 Handle substance within a predominantly closed system provided with extract ventilation [E49].

Dermal RCR: 0.00

RCR (all ways): 0.40

Identifier: ES19 PROC20

Operating Conditions and Risk Management Measures

Contributing scenario: General exposures (open systems) [CS16]. At high temperatures (product at 80°C).

OC and typical RMMs: Daily; >4 hours. Environment. (product at 80°C).

RMM to be implemented: Handle substance within a predominantly closed system provided with extract ventilation [E49].

Risk characteristics

RCR Inhalation: 0.20 TRA LEV: 80% efficiency.

Dermal RCR: 0.00 TRA dermal exposure LEV reduction factor 0.1.

RCR (all ways): 0.20

Identifier: ES19 PROC9

Operating Conditions and Risk Management Measures

Contributing scenario: Remanufacture of reject articles [CS19].

OC and typical RMMs: Daily; 1 - 4 hours. Environment. Working methods. Empty before operation. Keep spills.

RMM to be implemented: Drain down system prior to equipment break-in or maintenance [E65].

Risk characteristics

RCR Inhalation: 0.39 Additional exposure modifier: 0.2. Drainage SOPs are equivalent to a reduction of 80% (x0.2).

Dermal RCR: 0.00

RCR (all ways): 0.39

Identifier: ES19 PROC8a

Operating Conditions and Risk Management Measures

Contributing scenario: Equipment Maintenance [CS5]. Non-dedicated facility [CS82].

OC and typical RMMs: Daily; 1 -4 hours. Environment. Working methods. Empty before operation. Keep spills. Use gloves.

RMM to be implemented: Drain down system prior to equipment break-in or maintenance [E65].

Risk characteristics

RCR Inhalation: 0.39 Additional exposure modifier: 0.2. Drainage SOPs are equivalent to a reduction of 80% (x0.2).

Dermal RCR: 0.00

RCR (all ways): 0.39

Identifier: ES19 PROC1

Operating Conditions and Risk Management Measures

Contributing scenario: Storage [CS67].

OC and typical RMMs: Daily; 8 hours; Room temp. Samples collected at dedicated sample points.

RMM to be implemented: No specific provision identified [EI18]

Risk characteristics

RCR Inhalation: 0.00

Dermal RCR: 0.00

RCR (all ways): 0.00

Identifier: ES19 PROC2

Operating Conditions and Risk Management Measures

Contributing scenario: Storage [CS67]. Product sampling [CS137].

OC and typical RMMs: Daily; 8 hours; Room temp. Samples collected at dedicated sample points.

RMM to be implemented: No specific provision identified [EI18]

Risk characteristics

RCR Inhalation: 0.39

Dermal RCR: 0.00

RCR (all ways): 0.39

Xylene

Identification of the exposure scenario

Product name: Xylene

Reach registration number: 01-2119488216-32-XXXX

CAS number: 1330-20-7

EC number: 215-535-7

Review date: 14/02/2022 rev. 3.0

USE IN COATINGS - INDUSTRIAL USE

1. Title of the exposure scenario

Process purpose: Includes use in coatings (varnishes, inks, adhesives, etc.), including exposure during application (including material receipt, storage, bulk and semi-bulk preparation and transfer, application by spray, roller, manual spraying, dip, flow, fluid layers in production lines and in film formation) and system cleaning, maintenance and related laboratory activities.

Main sector: SU3 Industrial uses

Environment

Environmental Release Categories [ERC]: ERC4 Use of non-reactive processing aid at industrial site (no inclusion into or onto article).

Specific Environmental Release Category [SPERC]: ESVOC SPERC 4.3a.v1

Worker

Process categories:

PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions.

PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions.

PROC 3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment conditions.

PROC4 Production of chemicals with the possibility of exposure.

PROC5 Mixing or blending in batch processes

PROC7 Industrial spraying.

PROC8a Transfer of a substance or preparation (charging/discharging) at non-dedicated facilities.

PROC8a Transfer of substance or mixture (charging/discharging) at non-dedicated facilities.

PROC10 Application with rollers or brushes.

PROC13 Treatment of articles by dipping and pouring.

PROC15 Use as laboratory reagent.

PROC24 High (mechanical) energy work-up of substances bound in/on materials and/or articles.

2. Other conditions of use affecting exposure (Industrial - Environment 1)

Products features

Form: Liquid, vapor pressure 0.5 - 10 kPa at STP

Easily biodegradable.

Amounts used:

Annual amount per site: 2500 tonnes

Frequency and duration of use

Issue days: 300 days/year

Additional operating conditions relating to environmental exposure

Emission factor - air

Air release rate produced by the process (initial release prior to risk management measures): 0.98

Emission factor - water

Waste water release rate produced by the process (initial release prior to risk management measures): 0.007

Emission factor - soil

Soil release rate produced by the process (initial release prior to risk management measures): 0

Environmental factors that are not influenced by risk management

Dilution

Local fresh water dilution factor: 10

Local seawater dilution factor: 100

Risk management measures

Sewage Treatment Plant Data (STP)

Estimated substance removal from waste water via domestic sewage treatment: 95.8%

Assumed domestic sewage treatment plant flow: 2000 m³/day

Local technical conditions and measures to reduce and limit discharges and air emissions

Air:

Treat air emission to provide a typical removal efficiency of > 90%.

Water:

Avoid releasing the undiluted substance into local waste water or recover it on site. The typical on-site purification technique has a removal efficiency of 95.8%.

Ground:

Soil emission controls are not applicable as there is no direct release to soil.

Conditions and measures for external treatment of waste

Sludge treatment:

Do not spread industrial sludge on natural soils. Sewerage sludge should be burned, stored or regenerated.

Waste treatment:

No waste of the substance is formed during production.

2. Other conditions of use affecting exposure (Workers - Health 1)

Products features

Form:

Liquid, vapor pressure 0.5 - 10 kPa at STP

Concentration information: Includes concentrations up to 100%, unless otherwise indicated.

Quantities used

Not applicable.

Frequency and duration of use

Covers daily exposures up to 8 hours (unless stated differently).

Other operational conditions affecting worker exposure

Temperature: (unless stated differently) assumes use at not more than 20°C above ambient temperature.

Ventilation Rate: Ensure a sufficient amount of controlled ventilation (10 to 15 air changes per hour). Assumes a good basic standard of occupational hygiene is implemented.

Technical conditions and process-level (source) measures to prevent releases

Technical protective measures:

Handle substance within a closed system. Provide supplementary ventilation to points where emissions occur. Ensure material transfers are managed using closed or air exhaust systems. Drain or remove substance from equipment before opening or servicing PROC7 Industrial spraying: spraying (automatic/robotic) should be carried out in a ventilated booth with laminar air flow.

Risk management measures:

PROC7 Industrial spraying.

Manual spraying.

Wear respiratory protection in accordance with EN 140 with filter type A or better.

3. Verification of exposure (Environment 1)

Environmental exposure:

Predicted exposures are not expected to exceed the specific risks (listed in chapter 8 of the safety datasheet), when the risk management measures/operational conditions outlined in section 2 are implemented.

Maximum allowable site tonnage (M_{safe}), based on release following total waste water treatment removal: 9874 kg/day

3. Exposure Verification (Health 1)

Exposure

Predicted workplace exposures are not expected to exceed the DNEL when risk identification measures are implemented.

4. Guidance to check compliance with the exposure scenario (Environment 1)

Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Guidance is based on assumed operating conditions which may not be applicable to all sites, thus, scaling may be necessary to define appropriate site-specific risk management measures.

Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination.

Required removal efficiency for waste water can be achieved using on-site/off-site technologies, either alone or in combination.

Further details on scaling and control technologies are provided in SpERC factsheet (<http://cefic.org/en/reach-for-industries-libraries.html>).

4. Guidance to check compliance with the exposure scenario (Health 1)

Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

USE IN COATINGS - PROFESSIONAL USE

1. Title of the exposure scenario

Process purpose: Includes use in coatings (varnishes, inks, adhesives, etc.), including exposure during application (including material receipt, storage, bulk and semi-bulk preparation and transfer, application by spray, roller, brush and manual spraying or similar processes and film formation) and system cleaning, maintenance and related laboratory activities.

Main sector: SU22 Professional uses

Environment

Environmental Release Categories [ERC]:

ERC8a Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor).

ERC8d Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor).

ERC8c Widespread use leading to inclusion into/onto article (indoor).

ERC8f Widespread use leading to inclusion into/onto article (outdoor).

Specific Environmental Release Category [SPERC]: ESVOC SPERC 8.3b.v1

Worker

Process categories:

PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions.

PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions.

PROC 3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment conditions.

PROC4 Production of chemicals with the possibility of exposure.

PROC5 Mixing or blending in batch processes

PROC8a Transfer of a substance or preparation (charging/discharging) at non-dedicated facilities.

PROC8a Transfer of substance or mixture (charging/discharging) at non-dedicated facilities.

PROC10 Application with rollers or brushes.

PROC11 Non-industrial spray application.

PROC13 Treatment of articles by dipping and pouring.

PROC15 Use as laboratory reagent.

PROC19 Manual activities with direct contact.

PROC24 High (mechanical) energy work-up of substances bound in/on materials and/or articles.

2. Other conditions of use affecting exposure (Industrial - Environment 1)

Products features

Form: Liquid, vapor pressure 0.5 - 10 kPa at STP Easily biodegradable.

Quantities used

Annual amount per site: 10 tonnes

Frequency and duration of use

Issue days: 365 days/year

Additional operating conditions relating to environmental exposure

Emission factor - air

Air release rate produced by the process (initial release prior to risk management measures): 0.98

Emission factor - water

Waste water release rate produced by the process (initial release prior to risk management measures): 0.01

Emission factor - soil

Soil release rate produced by the process (initial release prior to risk management measures): 0.01

Environmental factors that are not influenced by risk management

Dilution

Local fresh water dilution factor: 10

Local seawater dilution factor: 100

Risk management measures

Sewage Treatment Plant Data (STP)

Estimated substance removal from waste water via domestic sewage treatment 95.8%

Assumed domestic sewage treatment plant flow: 2000 m³/day

Local technical conditions and measures to reduce and limit discharges and air emissions

Air: Treat air emission to provide a typical removal efficiency of 0%.

Water: The typical on-site purification technique has a removal efficiency of 95.8%.

Conditions and measures for external treatment of waste

Waste treatment: External treatment and disposal of waste should comply with applicable local and/or national regulations.

2. Other conditions of use affecting exposure (Workers - Health 1)

Products features

Form:

Liquid, vapor pressure 0.5 - 10 kPa at STP

Concentration information:

Includes concentrations up to 100%, unless otherwise indicated.

Quantities used

Not applicable.

Frequency and duration of use

Covers daily exposures up to 8 hours (unless stated differently).

Other operational conditions affecting worker exposure

Temperature:

(unless stated differently) assumes use at not more than 20°C above ambient temperature.

Ventilation Rate:

Provide a good standard of controlled ventilation (10 to 15 air changes per hour) or ensure operation is undertaken outdoors.

Assumes a good basic standard of occupational hygiene is implemented.

Technical conditions and process-level (source) measures to prevent releases

Technical protective measures:

Handle substance within a closed system. Provide supplementary ventilation to points where emissions occur. Ensure material transfers are managed using closed or air exhaust systems. Clean/flush equipment prior to opening or maintenance. Transport on closed roads. PROC11 Non-industrial spray application. Indoor use. Perform in a laminar flow ventilated booth. PROC15 Use as laboratory reagents handle under fume hood or extract air.

Organizational measures to prevent/limit releases, dispersion and exposure

Organizational measures

Avoid activities with an exposure of more than 4 hours.

Hand Application - Finger Paints, Chalks, Stickers:

Limit the amount of substance in the mixture to 5%.

Risk management measures

Wear protective gloves according to EN 374, resistant to solvents.

PROC10 Application with rollers or brushes.

PROC11 Non-industrial spray application. Outdoor use.

PROC13 Treatment of articles by dipping and pouring. Outdoor use.

Wear respiratory protection in accordance with EN 140 with filter type A or better.

3. Verification of exposure (Environment 1)

Environmental exposure

Predicted exposures are not expected to exceed the specific risks (listed in chapter 8 of the safety datasheet), when the risk management measures/operational conditions outlined in section 2 are implemented.

Maximum allowable site tonnage (M_{safe}), based on release following total waste water treatment removal: 5969 kg/day

3. Exposure Verification (Health 1)

Exposure

Predicted workplace exposures are not expected to exceed the DNEL when risk identification measures are implemented.

4. Guidance to check compliance with the exposure scenario (Environment 1)

Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Guidance is based on assumed operating conditions which may not be applicable to all sites, thus, scaling may be necessary to define appropriate site-specific risk management measures.

Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination.

Required removal efficiency for waste water can be achieved using on-site/off-site technologies, either alone or in combination.

Further details on scaling and control technologies are provided in SpERC factsheet (<http://cefic.org/en/reach-for-industries-libraries.html>).

4. Guidance to check compliance with the exposure scenario (Health 1)

Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Amines, polyethylenepoly-, triethylenetetramine fraction

Substance identification

Chemical Name: Amines, polyethylenepoly-, triethylenetetramine fraction

CAS number: 90640-67-8

INDUSTRIAL APPLICATION OF COATINGS AND PAINTS - INDUSTRIAL USE

1. TITLE SECTION

Exposure scenario name: Industrial application of coatings and paints

Date - Version: 15/07/2020 - 1.0

Life cycle stage: Use at industrial sites

Main user group: Industrial uses

Sector(s) of use: Industrial uses (SU3)

Contributing scenario - Environment

CS1 Wet polymerization: ERC4

Contributing scenario - Worker

CS2 Blend Operations: PROC5

CS3 Spraying: PROC7

CS4 Material Transfers: PROC8a

CS5 Material Transfers: PROC8b

CS6 Material Transfers: PROC9

CS7 Roller and brush application: PROC10

2. CONDITIONS OF USE AFFECTING EXPOSURE

2.1. Contributing Scenario CS1 - Environment: Wet polymerization (ERC4)

Environmental release categories: Use of non-reactive processing aid at industrial site (no inclusion into or onto article). (ERC4)

Product features (article)

Physical form of the product: Liquid

Amount used, frequency and duration of use

Amounts used: Daily quantity per site 2114 kg/day

Release Type: Continuous release

Issue days: 220 days a year

Measures and technical-organizational conditions

Control measures to prevent releases: No specific measures identified.

Other operational conditions affecting environmental exposure

Local fresh water dilution factor: 1000

2.2. CS2 Contributing Scenario - Worker: Mixing Operations (PROC5)

Process categories: Mixing or Blending in Batch Processes (PROC5)

Product features (article)

Physical form of the product: Liquid

Vapor pressure: < 500Pa

Concentration of the substance in the product: Includes substance shares in the product up to 25%

Amount used, frequency and duration of use/exposure

Duration: Includes use up to 60 min.

Measures and technical-organizational conditions

Technical organizational measures: Provide supplementary ventilation to points where emissions occur. Inhalation - minimum 90% efficiency.

Conditions and measures related to personal protection, hygiene and health verification

Personal protective equipment: Wear suitable gloves, tested according to EN347.

Additional conditions for human health: Assumes a good basic standard of occupational hygiene is implemented.

Other operational conditions affecting worker exposure

Indoor use

Further information on good practices. The requirements set out in the REACH Regulation Article 37(4) do not apply.

Further information on good practices: Supervise the implementation of risk management measures and compliance with the required operational conditions.

2.3. CS3 Contributing Scenario - Worker: Spray (PROC7)

Process categories: Industrial spray application (PROC7)

Product features (article)

Physical form of the product: Liquid

Vapor pressure: < 500Pa

Concentration of the substance in the product: Includes concentrations up to 15%.

Amount used, frequency and duration of use/exposure

Duration: Covers up to 8 hours of daily exposure.

Measures and technical-organizational conditions

Technical organizational measures: Provide supplementary ventilation to points where emissions occur. Inhalation - minimum 90% efficiency.

Conditions and measures related to personal protection, hygiene and health verification

Personal protective equipment: Wear suitable gloves, tested according to EN347. Dermal - minimum 95% efficiency. Wear suitable respiratory protection.

Additional conditions for human health: Assumes a good basic standard of occupational hygiene is implemented.

Other operational conditions affecting worker exposure

Indoor use

Further information on good practices. The requirements set out in the REACH Regulation Article 37(4) do not apply.

Further information on good practices: Supervise the implementation of risk management measures and compliance with the required operational conditions.

2.4. CS4 Contributing Scenario - Worker: Material transfers (PROC8a)

Process categories: Transfer of a substance or a preparation (filling/emptying) at non-dedicated facilities (PROC8a)

Product features (article)

Physical form of the product: Liquid

Vapor pressure: < 500Pa

Concentration of the substance in the product: Includes concentrations up to 25%.

Amount used, frequency and duration of use/exposure

Duration: Covers up to 8 hours of daily exposure.

Measures and technical-organizational conditions

Technical organizational measures: Provide supplementary ventilation to points where emissions occur. Inhalation - minimum 90% efficiency.

Conditions and measures related to personal protection, hygiene and health verification

Personal protective equipment: Wear suitable gloves, tested according to EN347.

Additional conditions for human health: Assumes a good basic standard of occupational hygiene is implemented.

Other operational conditions affecting worker exposure

Indoor use

Further information on good practices. The requirements set out in the REACH Regulation Article 37(4) do not apply.

Further information on good practices: Supervise the implementation of risk management measures and compliance with the required operational conditions.

2.5. CS5 Contributing Scenario - Worker: Material transfers (PROC8b)

Process categories: Transfer of a substance or a preparation (filling/emptying) at dedicated facilities (PROC8b)

Product features (article)

Physical form of the product: Liquid

Vapor pressure: < 500Pa

Concentration of the substance in the product: Includes concentrations up to 25%.

Amount used, frequency and duration of use/exposure

Duration: Covers up to 8 hours of daily exposure.

Measures and technical-organizational conditions

Technical organizational measures: Provide supplementary ventilation to points where emissions occur. Inhalation - minimum 90% efficiency.

Conditions and measures related to personal protection, hygiene and health verification

Personal protective equipment: Wear suitable gloves, tested according to EN347. Dermal - minimum 90% efficiency. Wear suitable respiratory protection.

Additional conditions for human health: Assumes a good basic standard of occupational hygiene is implemented.

Other operational conditions affecting worker exposure

Indoor use

Further information on good practices. The requirements set out in the REACH Regulation Article 37(4) do not apply.

Further information on good practices: Supervise the implementation of risk management measures and compliance with the required operational conditions.

2.6 Contributing Scenario CS6 - Worker: Material transfers (PROC9)

Process categories: Transfer of a substance or preparation into small containers (dedicated filling line, including weighing) (PROC9)

Product features (article)

Physical form of the product: Liquid

Vapor pressure: < 500Pa

Concentration of the substance in the product: Includes concentrations up to 15%.

Amount used, frequency and duration of use/exposure

Duration: Covers up to 8 hours of daily exposure.

Measures and technical-organizational conditions

Technical organizational measures: Provide supplementary ventilation to points where emissions occur. Inhalation - minimum 90% efficiency.

Conditions and measures related to personal protection, hygiene and health verification

Personal protective equipment: Wear suitable gloves, tested according to EN347. Dermal - minimum 90% efficiency. Wear suitable respiratory protection.

Additional conditions for human health: Assumes a good basic standard of occupational hygiene is implemented.

Other operational conditions affecting worker exposure

Indoor use

Further information on good practices. The requirements set out in the REACH Regulation Article 37(4) do not apply.

Further information on good practices: Supervise the implementation of risk management measures and compliance with the required operational conditions.

2.7 CS7 Contributing Scenario - Worker: Roller and brush application (PROC10)

Process categories: Roller and brush application (PROC10)

Product features (article)

Physical form of the product: Liquid

Vapor pressure: < 500Pa

Concentration of the substance in the product: Includes concentrations up to 15%.

Amount used, frequency and duration of use/exposure

Duration: Includes use up to 60 min.

Additional conditions for human health: Limit the amount of substance in the product to 0.5%

Measures and technical-organizational conditions

Technical organizational measures: Provide supplementary ventilation to points where emissions occur. Inhalation - minimum 90% efficiency.

Conditions and measures related to personal protection, hygiene and health verification

Personal protective equipment: Wear suitable gloves, tested according to EN347. Dermal - minimum 90% efficiency. Wear suitable respiratory protection.

Additional conditions for human health: Assumes a good basic standard of occupational hygiene is implemented.

Other operational conditions affecting worker exposure

Indoor use

Further information on good practices. The requirements set out in the REACH Regulation Article 37(4) do not apply.

Further information on good practices: Supervise the implementation of risk management measures and compliance with the required operational conditions.

3. EXPOSURE ESTIMATION AND REFERENCE TO ITS SOURCE

3.1. Contributing Scenario CS1 - Environment: Wet polymerization (ERC4)

Protection target	Degree of exposure	Calculation method	Risk characterization ratio (RCR)
fresh water	0.00317 mg/l	EUSES	0.017
fresh water sediment	1.6 mg/kg bw/day	EUSES	0.017
sea water	0.00042 mg/l	EUSES	0.008
Marine sediment	0.212 mg/kg bw/day	EUSES	0.008
ground	0.114 mg/kg bw/day	EUSES	0.006

3.2. CS2 Contributing Scenario - Worker: Mixing Operations (PROC5)

Route of Exposure, Impact on Health, Exposure Indicator	Degree of exposure	Calculation method	Risk characterization ratio (RCR)
skin contact, systemic, long-term	0.68 mg/kg bw/day	N.d.	0.12
by inhalation, systemic, long-term	0.365 mg/m ³	N.d.	0.366
by inhalation, systemic, short-term	0.731 mg/m ³	N.d.	<0.001
combined routes, systemic, long-term	N.d.	N.d.	0.486

3.3. CS3 Contributing Scenario - Worker: Spray (PROC7)

Route of Exposure, Impact on Health, Exposure Indicator	Degree of exposure	Calculation method	Risk characterization ratio (RCR)
skin contact, systemic, long-term	0.128 mg/kg bw/day	N.d.	0.226
by inhalation, systemic, long-term	0.457 mg/m ³	N.d.	0.457
by inhalation, systemic, short-term	0.914 mg/m ³	N.d.	<0.001
combined routes, systemic, long-term	N.d.	N.d.	0.683

3.4. CS4 Contributing Scenario - Worker: Material transfers (PROC8a)

Route of Exposure, Impact on Health, Exposure Indicator	Degree of exposure	Calculation method	Risk characterization ratio (RCR)
skin contact, systemic, long-term	0.041 mg/kg bw/day	N.d.	0.072
by inhalation, systemic, long-term	0.548 mg/m ³	N.d.	0.548
by inhalation, systemic, short-term	1,097 mg/m ³	N.d.	<0.001
combined routes, systemic, long-term	N.d.	N.d.	0.621

3.5. CS5 Contributing Scenario - Worker: Material transfers (PROC8b)

Route of Exposure, Impact on Health, Exposure Indicator	Degree of exposure	Calculation method	Risk characterization ratio (RCR)
skin contact, systemic, long-term	0.034 mg/kg bw/day	N.d.	0.06
by inhalation, systemic, long-term	0.548 mg/m ³	N.d.	0.548
by inhalation, systemic, short-term	1.096 mg/m ³	N.d.	<0.001
combined routes, systemic, long-term	N.d.	N.d.	0.609

3.6. Contributing Scenario CS6 - Worker: Material transfers (PROC9)

Route of Exposure, Impact on Health, Exposure Indicator	Degree of exposure	Calculation method	Risk characterization ratio (RCR)
skin contact, systemic, long-term	0.068 mg/kg bw/day	N.d.	0.12
by inhalation, systemic, long-term	0.365 mg/m ³	N.d.	0.366
by inhalation, systemic, short-term	1.22 mg/m ³	N.d.	<0.001
combined routes, systemic, long-term	N.d.	N.d.	0.706

3.7. CS7 Contributing Scenario - Worker: Roller and brush application (PROC10)

Route of Exposure, Impact on Health, Exposure Indicator	Degree of exposure	Calculation method	Risk characterization ratio (RCR)
skin contact, systemic, long-term	0.082 mg/kg bw/day	N.d.	0.144
by inhalation, systemic, long-term	0.457 mg/m ³	N.d.	0.229
by inhalation, systemic, short-term	0.914 mg/m ³	N.d.	<0.001
combined routes, systemic, long-term	N.d.	N.d.	0.373

4. GUIDANCE FOR DOWNSTREAM USERS TO ASSESS WHETHER THEY COMPLY WITH THE LIMITS SET BY THE EXPOSURE SCENARIO

Guidance to check compliance with the exposure scenario: Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

USE IN RIGID FOAM, COATINGS, ADHESIVES AND SEALANTS - INDUSTRIAL USE

1. TITLE SECTION

Exposure scenario name: Use in rigid foam, coatings, adhesives and sealants

Date - Version: 03/18/2020 - 1.0

Life cycle stage: Use at industrial sites

Main user group: Industrial uses

Sector(s) of use: Industrial uses (SU3)

Contributing scenario - Environment

CS1 Wet polymerization: ERC4

Contributing scenario - Worker

CS2 Blend Operations: PROC5

CS3 Spraying: PROC7

CS4 Material Transfers: PROC8a

CS5 Material Transfers: PROC8b

CS6 Material Transfers: PROC9

CS7 Roller and brush application: PROC10

2. CONDITIONS OF USE AFFECTING EXPOSURE

2.1. Contributing Scenario CS1 - Environment: Wet polymerization (ERC4)

Environmental release categories: Use of non-reactive processing aid at industrial site (no inclusion into or onto article). (ERC4)

Product features (article)

Physical form of the product: Liquid

Amount used, frequency and duration of use

Amounts used: Daily quantity per site 2114 kg/day

Release Type: Continuous release

Issue days: 220 days a year

Measures and technical-organizational conditions

Control measures to prevent releases: No specific measures identified.

Other operational conditions affecting environmental exposure

Local fresh water dilution factor: 1000

2.2. CS2 Contributing Scenario - Worker: Mixing Operations (PROC5)

Process categories: Mixing or Blending in Batch Processes (PROC5)

Product features (article)

Physical form of the product: Liquid

Vapor pressure: < 500Pa

Concentration of the substance in the product: Includes substance shares in the product up to 25%

Amount used, frequency and duration of use/exposure

Duration: Includes use up to 60 min.

Measures and technical-organizational conditions

Technical organizational measures: Provide supplementary ventilation to points where emissions occur. Inhalation - minimum 90% efficiency.

Conditions and measures related to personal protection, hygiene and health verification

Personal protective equipment: Wear suitable gloves, tested according to EN347.

Additional conditions for human health: Assumes a good basic standard of occupational hygiene is implemented.

Other operational conditions affecting worker exposure

Indoor use

Further information on good practices. The requirements set out in the REACH Regulation Article 37(4) do not apply.

Further information on good practices: Supervise the implementation of risk management measures and compliance with the required operational conditions.

2.3. CS3 Contributing Scenario - Worker: Spray (PROC7)

Process categories: Industrial spray application (PROC7)

Product features (article)

Physical form of the product: Liquid

Vapor pressure: < 500Pa

Concentration of the substance in the product: Includes concentrations up to 15%.

Amount used, frequency and duration of use/exposure

Duration: Covers up to 8 hours of daily exposure.

Measures and technical-organizational conditions

Technical organizational measures: Provide supplementary ventilation to points where emissions occur. Inhalation - minimum 90% efficiency.

Conditions and measures related to personal protection, hygiene and health verification

Personal protective equipment: Wear suitable gloves, tested according to EN347. Dermal - minimum 95% efficiency. Wear suitable respiratory protection.

Additional conditions for human health: Assumes a good basic standard of occupational hygiene is implemented.

Other operational conditions affecting worker exposure

Indoor use

Further information on good practices. The requirements set out in the REACH Regulation Article 37(4) do not apply.

Further information on good practices: Supervise the implementation of risk management measures and compliance with the required operational conditions.

2.4. CS4 Contributing Scenario - Worker: Material transfers (PROC8a)

Process categories: Transfer of a substance or a preparation (filling/emptying) at non-dedicated facilities (PROC8a)

Product features (article)

Physical form of the product: Liquid

Vapor pressure: < 500Pa

Concentration of the substance in the product: Includes concentrations up to 25%.

Amount used, frequency and duration of use/exposure

Duration: Covers up to 8 hours of daily exposure.

Measures and technical-organizational conditions

Technical organizational measures: Provide supplementary ventilation to points where emissions occur. Inhalation - minimum 90% efficiency.

Conditions and measures related to personal protection, hygiene and health verification

Personal protective equipment: Wear suitable gloves, tested according to EN347.

Additional conditions for human health: Assumes a good basic standard of occupational hygiene is implemented.

Other operational conditions affecting worker exposure

Indoor use

Further information on good practices. The requirements set out in the REACH Regulation Article 37(4) do not apply.

Further information on good practices: Supervise the implementation of risk management measures and compliance with the required operational conditions.

2.5. CS5 Contributing Scenario - Worker: Material transfers (PROC8b)

Process categories: Transfer of a substance or a preparation (filling/emptying) at dedicated facilities (PROC8b)

Product features (article)

Physical form of the product: Liquid

Vapor pressure: < 500Pa

Concentration of the substance in the product: Includes concentrations up to 25%.

Amount used, frequency and duration of use/exposure

Duration: Covers up to 8 hours of daily exposure.

Measures and technical-organizational conditions

Technical organizational measures: Provide supplementary ventilation to points where emissions occur. Inhalation - minimum 90% efficiency.

Conditions and measures related to personal protection, hygiene and health verification

Personal protective equipment: Wear suitable gloves, tested according to EN347. Dermal - minimum 90% efficiency. Wear suitable respiratory protection.

Additional conditions for human health: Assumes a good basic standard of occupational hygiene is implemented.

Other operational conditions affecting worker exposure

Indoor use

Further information on good practices. The requirements set out in the REACH Regulation Article 37(4) do not apply.

Further information on good practices: Supervise the implementation of risk management measures and compliance with the required operational conditions.

2.6. Contributing Scenario CS6 - Worker: Material transfers (PROC9)

Process categories: Transfer of a substance or preparation into small containers (dedicated filling line, including weighing) (PROC9)

Product features (article)

Physical form of the product: Liquid

Vapor pressure: < 500Pa

Concentration of the substance in the product: Includes concentrations up to 15%.

Amount used, frequency and duration of use/exposure

Duration: Covers up to 8 hours of daily exposure.

Measures and technical-organizational conditions

Technical organizational measures: Provide supplementary ventilation to points where emissions occur. Inhalation - minimum 90% efficiency.

Conditions and measures related to personal protection, hygiene and health verification

Personal protective equipment: Wear suitable gloves, tested according to EN347. Dermal - minimum 90% efficiency. Wear suitable respiratory protection.

Additional conditions for human health: Assumes a good basic standard of occupational hygiene is implemented.

Other operational conditions affecting worker exposure

Indoor use

Further information on good practices. The requirements set out in the REACH Regulation Article 37(4) do not apply.

Further information on good practices: Supervise the implementation of risk management measures and compliance with the required operational conditions.

2.7. CS7 Contributing Scenario - Worker: Roller and brush application (PROC10)

Process categories: Roller and brush application (PROC10)

Product features (article)

Physical form of the product: Liquid

Vapor pressure: < 500Pa

Concentration of the substance in the product: Includes concentrations up to 5%.

Amount used, frequency and duration of use/exposure

Duration: Covers up to 8 hours of daily exposure.

Additional conditions for human health: Limit the amount of substance in the product to 0.5%

Measures and technical-organizational conditions

Technical organizational measures: Provide supplementary ventilation to points where emissions occur. Inhalation - minimum 90% efficiency.

Conditions and measures related to personal protection, hygiene and health verification

Personal protective equipment: -Wear suitable gloves, tested according to EN347. Dermal - minimum 90% efficiency. Wear suitable respiratory protection.

Additional conditions for human health: Assumes a good basic standard of occupational hygiene is implemented.

Other operational conditions affecting worker exposure

Indoor use

Further information on good practices. The requirements set out in the REACH Regulation Article 37(4) do not apply.

Further information on good practices: Supervise the implementation of risk management measures and compliance with the required operational conditions.

3. EXPOSURE ESTIMATION AND REFERENCE TO ITS SOURCE

3.1. Contributing Scenario CS1 - Environment: Wet polymerization (ERC4)

Protection target	Degree of exposure	Calculation method	Risk characterization ratio (RCR)
fresh water	0.00317 mg/l	EUSES	0.017
fresh water sediment	1.6 mg/kg bw/day	EUSES	0.017
sea water	0.00042 mg/l	EUSES	0.008
Marine sediment	0.212 mg/kg bw/day	EUSES	0.008
ground	0.114 mg/kg bw/day	EUSES	0.006

3.2. CS2 Contributing Scenario - Worker: Mixing Operations (PROC5)

Route of Exposure, Impact on Health, Exposure Indicator	Degree of exposure	Calculation method	Risk characterization ratio (RCR)
skin contact, systemic, long-term	0.68 mg/kg bw/day	N.d.	0.12
by inhalation, systemic, long-term	0.365 mg/m ³	N.d.	0.366
by inhalation, systemic, short-term	0.731 mg/m ³	N.d.	<0.001
combined routes, systemic, long-term	N.d.	N.d.	0.486

3.3. CS3 Contributing Scenario - Worker: Spray (PROC7)

Route of Exposure, Impact on Health, Exposure Indicator	Degree of exposure	Calculation method	Risk characterization ratio (RCR)
skin contact, systemic, long-term	0.128 mg/kg bw/day	N.d.	0.226
by inhalation, systemic, long-term	0.457 mg/m ³	N.d.	0.457
by inhalation, systemic, short-term	0.914 mg/m ³	N.d.	<0.001
combined routes, systemic, long-term	N.d.	N.d.	0.683

3.4. CS4 Contributing Scenario - Worker: Material transfers (PROC8a)

Route of Exposure, Impact on Health, Exposure Indicator	Degree of exposure	Calculation method	Risk characterization ratio (RCR)
skin contact, systemic, long-term	0.041 mg/kg bw/day	N.d.	0.072
by inhalation, systemic, long-term	0.548 mg/m ³	N.d.	0.548
by inhalation, systemic, short-term	1.097 mg/m ³	N.d.	<0.001
combined routes, systemic, long-term	N.d.	N.d.	0.621

3.5. CS5 Contributing Scenario - Worker: Material transfers (PROC8b)

Route of Exposure, Impact on Health, Exposure Indicator	Degree of exposure	Calculation method	Risk characterization ratio (RCR)
skin contact, systemic, long-term	0.034 mg/kg bw/day	N.d.	0.06
by inhalation, systemic, long-term	0.548 mg/m ³	N.d.	0.548
by inhalation, systemic, short-term	1.096 mg/m ³	N.d.	<0.001
combined routes, systemic, long-term	N.d.	N.d.	0.609

3.6. Contributing Scenario CS6 - Worker: Material transfers (PROC9)

Route of Exposure, Impact on Health, Exposure Indicator	Degree of exposure	Calculation method	Risk characterization ratio (RCR)
skin contact, systemic, long-term	0.068 mg/kg bw/day	N.d.	0.12
by inhalation, systemic, long-term	0.365 mg/m ³	N.d.	0.366
by inhalation, systemic, short-term	1.22mg/m ³	N.d.	<0.001
combined routes, systemic, long-term	N.d.	N.d.	0.706

3.7. CS7 Contributing Scenario - Worker: Roller and brush application (PROC10)

Route of Exposure, Impact on Health, Exposure Indicator	Degree of exposure	Calculation method	Risk characterization ratio (RCR)
skin contact, systemic, long-term	0.082 mg/kg bw/day	N.d.	0.144
by inhalation, systemic, long-term	0.457 mg/m ³	N.d.	0.229
by inhalation, systemic, short-term	0.914 mg/m ³	N.d.	<0.001
combined routes, systemic, long-term	N.d.	N.d.	0.373

4. GUIDANCE FOR DOWNSTREAM USERS TO ASSESS WHETHER THEY COMPLY WITH THE LIMITS SET BY THE EXPOSURE SCENARIO

Guidance to check compliance with the exposure scenario: Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

- INDUSTRIAL APPLICATION OF COATINGS AND PAINTS - PROFESSIONAL USE

1. TITLE SECTION

Exposure scenario name: Industrial application of coatings and paints

Date - Version: 03/18/2020 - 1.0

Life cycle stage: Generalized use by professional operators

Main user group: Professional uses

Sector(s) of use: Professional uses (SU22)

Contributing scenario - Environment

CS1 Wet polymerization: ERC8a - ERC8d

Contributing scenario - Worker

CS2 Blend Operations: PROC5

CS3 Material Transfers: PROC8a

CS4 Material Transfers: PROC8b

CS5 Material Transfers: PROC9

CS6 Roller and brush application: PROC10

2. CONDITIONS OF USE AFFECTING EXPOSURE

2.1. Contributing Scenario CS1 - Environment: Wet polymerization (ERC4)

Environmental release categories: Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor). (ERC8a, ERC8d)

Product features (article)

Physical form of the product: Liquid

Amount used, frequency and duration of use

Amounts used: Daily quantity per site 15500kg/day

Release Type: Continuous release

Issue days: 300 days/year

Measures and technical-organizational conditions

Control measures to prevent releases: Preventive treatment of wastewater by neutralization. No other specific measures identified.

Other operational conditions affecting environmental exposure

Local fresh water dilution factor: 1000

2.2. CS2 Contributing Scenario - Worker: Mixing Operations (PROC5)

Process categories: Mixing or Blending in Batch Processes (PROC5)

Product features (article)

Physical form of the product: Liquid

Vapor pressure: < 500Pa

Concentration of the substance in the product: Includes substance shares in the product up to 25%

Amount used, frequency and duration of use/exposure

Duration: Includes use up to 60 min.

Measures and technical-organizational conditions

Technical organizational measures: Provide supplementary ventilation to points where emissions occur. Inhalation - minimum 90% efficiency.

Conditions and measures related to personal protection, hygiene and health verification

Personal protective equipment: Wear suitable gloves, tested according to EN347.

Additional conditions for human health: Assumes a good basic standard of occupational hygiene is implemented.

Other operational conditions affecting worker exposure

Indoor use

Further information on good practices. The requirements set out in the REACH Regulation Article 37(4) do not apply.

Further information on good practices: Supervise the implementation of risk management measures and compliance with the required operational conditions.

2.3. CS3 Contributing Scenario - Worker: Material transfers (PROC8a)

Process categories: Transfer of a substance or a preparation (filling/emptying) at non-dedicated facilities (PROC8a)

Product features (article)

Physical form of the product: Liquid

Vapor pressure: < 500Pa

Concentration of the substance in the product: Includes substance shares in the product up to 25%

Amount used, frequency and duration of use/exposure

Duration: Includes use up to 15 min.

Measures and technical-organizational conditions

Technical organizational measures: Provide supplementary ventilation to points where emissions occur. Inhalation - minimum 90% efficiency.

Conditions and measures related to personal protection, hygiene and health verification

Personal protective equipment: Wear suitable gloves, tested according to EN347. Inhalation - minimum 95% efficiency. Wear suitable respiratory protection.

Additional conditions for human health: Assumes a good basic standard of occupational hygiene is implemented.

Other operational conditions affecting worker exposure

Indoor use

Further information on good practices. The requirements set out in the REACH Regulation Article 37(4) do not apply.

Further information on good practices: Supervise the implementation of risk management measures and compliance with the required operational conditions.

2.4. CS4 Contributing Scenario - Worker: Material transfers (PROC8b)

Process categories: Transfer of a substance or a preparation (filling/emptying) at dedicated facilities (PROC8b)

Product features (article)

Physical form of the product: Liquid

Vapor pressure: < 500Pa

Concentration of the substance in the product: Includes substance shares in the product up to 5%.

Amount used, frequency and duration of use/exposure

Duration: Covers up to 8 hours of daily exposure.

Measures and technical-organizational conditions

Technical organizational measures: Provide supplementary ventilation to points where emissions occur. Inhalation - minimum 90% efficiency.

Conditions and measures related to personal protection, hygiene and health verification

Personal protective equipment: Wear suitable gloves, tested according to EN347. Dermal - minimum 90% efficiency. Wear suitable respiratory protection.

Additional conditions for human health: Assumes a good basic standard of occupational hygiene is implemented.

Other operational conditions affecting worker exposure

Indoor use

Further information on good practices. The requirements set out in the REACH Regulation Article 37(4) do not apply.

Further information on good practices: Supervise the implementation of risk management measures and compliance with the required operational conditions.

2.5. CS5 Contributing Scenario - Worker: Material transfers (PROC9)

Process categories: Transfer of a substance or preparation into small containers (dedicated filling line, including weighing) (PROC9)

Product features (article)

Physical form of the product: Liquid

Vapor pressure: < 500Pa

Concentration of the substance in the product: Includes concentrations up to 25%.

Amount used, frequency and duration of use/exposure

Duration: Covers up to 8 hours of daily exposure.

Measures and technical-organizational conditions

Technical organizational measures: Provide supplementary ventilation to points where emissions occur. Inhalation - minimum 90% efficiency.

Conditions and measures related to personal protection, hygiene and health verification

Personal protective equipment: Wear suitable gloves, tested according to EN347. Dermal - minimum 90% efficiency. Wear suitable respiratory protection.

Additional conditions for human health: Assumes a good basic standard of occupational hygiene is implemented.

Other operational conditions affecting worker exposure

Indoor use

Further information on good practices. The requirements set out in the REACH Regulation Article 37(4) do not apply.

Further information on good practices: Supervise the implementation of risk management measures and compliance with the required operational conditions.

2.6. Contributing Scenario CS6 - Worker: Roller and brush application (PROC10)

Process categories: Roller and brush application (PROC10)

Product features (article)

Physical form of the product: Liquid

Vapor pressure: < 500Pa

Concentration of the substance in the product: Includes concentrations up to 5%.

Amount used, frequency and duration of use/exposure

Duration: Covers up to 8 hours of daily exposure.

Additional conditions for human health: Limit the amount of substance in the product to 2%

Measures and technical-organizational conditions

Technical organizational measures: Provide supplementary ventilation to points where emissions occur. Inhalation - minimum 90% efficiency.

Conditions and measures related to personal protection, hygiene and health verification

Personal protective equipment: Wear suitable gloves, tested according to EN347. Dermal - minimum 90% efficiency. Wear suitable respiratory protection.

Additional conditions for human health: Assumes a good basic standard of occupational hygiene is implemented.

Other operational conditions affecting worker exposure

Indoor use

Further information on good practices. The requirements set out in the REACH Regulation Article 37(4) do not apply.

Further information on good practices: Supervise the implementation of risk management measures and compliance with the required operational conditions.

3. EXPOSURE ESTIMATION AND REFERENCE TO ITS SOURCE

3.1. Contributing Scenario CS1 - Environment: Wet polymerization (ERC8a, ERC8d)

Protection target	Degree of exposure	Calculation method	Risk characterization ratio (RCR)
fresh water	0.0037 mg/l	EUSES	N.d.
fresh water sediment	1.6 mg/kg bw/day	EUSES	N.d.
sea water	0.00042 mg/l	EUSES	N.d.
Marine sediment	0.212 mg/kg bw/day	EUSES	N.d.
ground	0.114 mg/kg bw/day	EUSES	N.d.

3.2. CS2 Contributing Scenario - Worker: Mixing Operations (PROC5)

Route of Exposure, Impact on Health, Exposure Indicator	Degree of exposure	Calculation method	Risk characterization ratio (RCR)
skin contact, systemic, long-term	0.68 mg/kg bw/day	N.d.	0.12
by inhalation, systemic, long-term	0.365 mg/m ³	N.d.	0.366
by inhalation, systemic, short-term	0.731 mg/m ³	N.d.	<0.001
combined routes, systemic, long-term	N.d.	N.d.	0.486

3.3. CS3 Contributing Scenario - Worker: Material transfers (PROC8a)

Route of Exposure, Impact on Health, Exposure Indicator	Degree of exposure	Calculation method	Risk characterization ratio (RCR)
skin contact, systemic, long-term	0.09 mg/kg bw/day	N.d.	0.15
by inhalation, systemic, long-term	0.61 mg/m ³	N.d.	0.609
by inhalation, systemic, short-term	1.22mg/m ³	N.d.	<0.001
combined routes, systemic, long-term	N.d.	N.d.	0.76

3.4. CS4 Contributing Scenario - Worker: Material transfers (PROC8b)

Route of Exposure, Impact on Health, Exposure Indicator	Degree of exposure	Calculation method	Risk characterization ratio (RCR)
skin contact, systemic, long-term	0.14 mg/kg bw/day	N.d.	0.248
by inhalation, systemic, long-term	0.76 mg/m ³	N.d.	0.076
by inhalation, systemic, short-term	1.52 mg/m ³	N.d.	<0.001
combined routes, systemic, long-term	N.d.	N.d.	0.324

3.5. CS5 Contributing Scenario - Worker: Material transfers (PROC9)

Route of Exposure, Impact on Health, Exposure Indicator	Degree of exposure	Calculation method	Risk characterization ratio (RCR)
skin contact, systemic, long-term	0.14 mg/kg bw/day	N.d.	0.248
by inhalation, systemic, long-term	0.76 mg/m ³	N.d.	0.076
by inhalation, systemic, short-term	1.52 mg/m ³	N.d.	<0.001
combined routes, systemic, long-term	N.d.	N.d.	0.324

3.6. Contributing Scenario CS6 - Worker: Roller and brush application (PROC10)

Route of Exposure, Impact on Health, Exposure Indicator	Degree of exposure	Calculation method	Risk characterization ratio (RCR)
skin contact, systemic, long-term	0.14 mg/kg bw/day	N.d.	0.248
by inhalation, systemic, long-term	0.76 mg/m ³	N.d.	0.076
by inhalation, systemic, short-term	0.243 mg/m ³	N.d.	<0.001
combined routes, systemic, long-term	N.d.	N.d.	0.498

4. GUIDANCE FOR DOWNSTREAM USERS TO ASSESS WHETHER THEY COMPLY WITH THE LIMITS SET BY THE EXPOSURE SCENARIO

Guidance to check compliance with the exposure scenario: Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

USE IN RIGID FOAM, COATINGS, ADHESIVES AND SEALANTS - PROFESSIONAL USE

1. TITLE SECTION

Exposure scenario name: Industrial application of coatings and paints

Date - Version: 03/18/2020 - 1.0

Life cycle stage: Use in rigid foam, coatings, adhesives and sealants

Main user group: Professional uses

Sector(s) of use: Professional uses (SU22)

Contributing scenario - Environment

CS1 Wet polymerization: ERC8a - ERC8d

Contributing scenario - Worker

CS2 Blend Operations: PROC5

CS3 Material Transfers: PROC8a

CS4 Material Transfers: PROC8b

CS5 Material Transfers: PROC9

CS6 Roller and brush application: PROC10

2. CONDITIONS OF USE AFFECTING EXPOSURE

2.1. Contributing Scenario CS1 - Environment: Wet polymerization (ERC4)

Environmental release categories: Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor). (ERC8a, ERC8d)

Product features (article)

Physical form of the product: Liquid

Amount used, frequency and duration of use

Amounts used: Daily quantity per site 15500kg/day

Release Type: Continuous release

Issue days: 300 days/year

Measures and technical-organizational conditions

Control measures to prevent releases: Preventive treatment of wastewater by neutralization. No other specific measures identified.

Other operational conditions affecting environmental exposure

Local fresh water dilution factor: 1000

2.2. CS2 Contributing Scenario - Worker: Mixing Operations (PROC5)

Process categories: Mixing or Blending in Batch Processes (PROC5)

Product features (article)

Physical form of the product: Liquid

Vapor pressure: < 500Pa

Concentration of the substance in the product: Includes substance shares in the product up to 25%

Amount used, frequency and duration of use/exposure

Duration: Includes use up to 60 min.

Measures and technical-organizational conditions

Technical organizational measures: Provide supplementary ventilation to points where emissions occur. Inhalation - minimum 90% efficiency.

Conditions and measures related to personal protection, hygiene and health verification

Personal protective equipment: Wear suitable gloves, tested according to EN347.

Additional conditions for human health: Assumes a good basic standard of occupational hygiene is implemented.

Other operational conditions affecting worker exposure

Indoor use

Further information on good practices. The requirements set out in the REACH Regulation Article 37(4) do not apply.

Further information on good practices: Supervise the implementation of risk management measures and compliance with the required operational conditions.

2.3. CS3 Contributing Scenario - Worker: Material transfers (PROC8a)

Process categories: Transfer of a substance or a preparation (filling/emptying) at non-dedicated facilities (PROC8a)

Product features (article)

Physical form of the product: Liquid

Vapor pressure: < 500Pa

Concentration of the substance in the product: Includes substance shares in the product up to 25%

Amount used, frequency and duration of use/exposure

Duration: Includes use up to 15 min.

Measures and technical-organizational conditions

Technical organizational measures: Provide supplementary ventilation to points where emissions occur. Inhalation - minimum 90% efficiency.

Conditions and measures related to personal protection, hygiene and health verification

Personal protective equipment: Wear suitable gloves, tested according to EN347. Inhalation - minimum 95% efficiency. Wear suitable respiratory protection.

Additional conditions for human health: Assumes a good basic standard of occupational hygiene is implemented.

Other operational conditions affecting worker exposure

Indoor use

Further information on good practices. The requirements set out in the REACH Regulation Article 37(4) do not apply.

Further information on good practices: Supervise the implementation of risk management measures and compliance with the required operational conditions.

2.4. CS4 Contributing Scenario - Worker: Material transfers (PROC8b)

Process categories: Transfer of a substance or a preparation (filling/emptying) at dedicated facilities (PROC8b)

Product features (article)

Physical form of the product: Liquid

Vapor pressure: < 500Pa

Concentration of the substance in the product: Includes concentrations up to 0.5 %

Amount used, frequency and duration of use/exposure

Duration: Covers up to 8 hours of daily exposure.

Measures and technical-organizational conditions

Technical organizational measures: No specific measures identified.

Conditions and measures related to personal protection, hygiene and health verification

Personal protective equipment: Wear suitable gloves, tested according to EN347.

Additional conditions for human health: Assumes a good basic standard of occupational hygiene is implemented.

Other operational conditions affecting worker exposure

Indoor use

Further information on good practices. The requirements set out in the REACH Regulation Article 37(4) do not apply.

Further information on good practices: Supervise the implementation of risk management measures and compliance with the required operational conditions.

2.5. CS5 Contributing Scenario - Worker: Material transfers (PROC9)

Process categories: Transfer of a substance or preparation into small containers (dedicated filling line, including weighing) (PROC9)

Product features (article)

Physical form of the product: Liquid

Vapor pressure: < 500Pa

Concentration of the substance in the product: Includes substance shares in the product up to 5%.

Amount used, frequency and duration of use/exposure

Duration: Covers up to 8 hours of daily exposure.

Measures and technical-organizational conditions

Technical organizational measures: Provide supplementary ventilation to points where emissions occur. Inhalation - minimum 90% efficiency.

Conditions and measures related to personal protection, hygiene and health verification

Personal protective equipment: Wear suitable gloves, tested according to EN347. Dermal - minimum 90% efficiency. Wear suitable respiratory protection.

Additional conditions for human health: Assumes a good basic standard of occupational hygiene is implemented.

Other operational conditions affecting worker exposure

Indoor use

Further information on good practices. The requirements set out in the REACH Regulation Article 37(4) do not apply.

Further information on good practices: Supervise the implementation of risk management measures and compliance with the required operational conditions.

2.6. Contributing Scenario CS6 - Worker: Roller and brush application (PROC10)

Process categories: Roller and brush application (PROC10)

Product features (article)

Physical form of the product: Liquid

Vapor pressure: < 500Pa

Concentration of the substance in the product: Includes concentrations up to 5%.

Amount used, frequency and duration of use/exposure

Duration: Covers up to 8 hours of daily exposure.

Measures and technical-organizational conditions

Technical organizational measures: Provide supplementary ventilation to points where emissions occur. Inhalation - minimum 90% efficiency.

Conditions and measures related to personal protection, hygiene and health verification

Personal protective equipment: Wear suitable gloves, tested according to EN347. Dermal - minimum 90% efficiency. Wear suitable respiratory protection.

Additional conditions for human health: Assumes a good basic standard of occupational hygiene is implemented.

Other operational conditions affecting worker exposure

Indoor use

Further information on good practices. The requirements set out in the REACH Regulation Article 37(4) do not apply.

Further information on good practices: Supervise the implementation of risk management measures and compliance with the required operational conditions.

3. EXPOSURE ESTIMATION AND REFERENCE TO ITS SOURCE

3.1. Contributing Scenario CS1 - Environment: Wet polymerization (ERC8a, ERC8d)

Protection target	Degree of exposure	Calculation method	Risk characterization ratio (RCR)
fresh water	0.0037 mg/l	EUSES	N.d.
fresh water sediment	1.6 mg/kg bw/day	EUSES	N.d.
sea water	0.00042 mg/l	EUSES	N.d.
Marine sediment	0.212 mg/kg bw/day	EUSES	N.d.
ground	0.114 mg/kg bw/day	EUSES	N.d.

3.2. CS2 Contributing Scenario - Worker: Mixing Operations (PROC5)

Route of Exposure, Impact on Health, Exposure Indicator	Degree of exposure	Calculation method	Risk characterization ratio (RCR)
skin contact, systemic, long-term	0.68 mg/kg bw/day	N.d.	0.12
by inhalation, systemic, long-term	0.365 mg/m ³	N.d.	0.366
by inhalation, systemic, short-term	0.731 mg/m ³	N.d.	<0.001
combined routes, systemic, long-term	N.d.	N.d.	0.486

3.3. CS3 Contributing Scenario - Worker: Material transfers (PROC8a)

Route of Exposure, Impact on Health, Exposure Indicator	Degree of exposure	Calculation method	Risk characterization ratio (RCR)
skin contact, systemic, long-term	0.09 mg/kg bw/day	N.d.	0.15
by inhalation, systemic, long-term	0.61 mg/m ³	N.d.	0.609
by inhalation, systemic, short-term	1.22mg/m ³	N.d.	<0.001
combined routes, systemic, long-term	N.d.	N.d.	0.76

3.4. CS4 Contributing Scenario - Worker: Material transfers (PROC8b)

Route of Exposure, Impact on Health, Exposure Indicator	Degree of exposure	Calculation method	Risk characterization ratio (RCR)
skin contact, systemic, long-term	0.14 mg/kg bw/day	N.d.	0.248
by inhalation, systemic, long-term	0.76 mg/m ³	N.d.	0.076
by inhalation, systemic, short-term	1.52 mg/m ³	N.d.	<0.001
combined routes, systemic, long-term	N.d.	N.d.	0.324

3.5. CS5 Contributing Scenario - Worker: Material transfers (PROC9)

Route of Exposure, Impact on Health, Exposure Indicator	Degree of exposure	Calculation method	Risk characterization ratio (RCR)
skin contact, systemic, long-term	0.14 mg/kg bw/day	N.d.	0.248
by inhalation, systemic, long-term	0.76 mg/m ³	N.d.	0.076
by inhalation, systemic, short-term	1.52 mg/m ³	N.d.	<0.001
combined routes, systemic, long-term	N.d.	N.d.	0.324

3.6. Contributing Scenario CS6 - Worker: Roller and brush application (PROC10)

Route of Exposure, Impact on Health, Exposure Indicator	Degree of exposure	Calculation method	Risk characterization ratio (RCR)
skin contact, systemic, long-term	0.14 mg/kg bw/day	N.d.	0.248
by inhalation, systemic, long-term	0.76 mg/m ³	N.d.	0.076
by inhalation, systemic, short-term	1.52 mg/m ³	N.d.	<0.001
combined routes, systemic, long-term	N.d.	N.d.	0.373

4. GUIDANCE FOR DOWNSTREAM USERS TO ASSESS WHETHER THEY COMPLY WITH THE LIMITS SET BY THE EXPOSURE SCENARIO

Guidance to check compliance with the exposure scenario: Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Benzyl alcohol

Substance identification

Chemical Name: Benzyl alcohol

CAS number: 100-51-6

Date: 07/12/2012

INDUSTRIAL USE

Exposure scenario for industrial use in adhesives, sealants, coatings and paints, fillers, finger paints, metallic and non-metallic surface treatment products, inks and toners (PC1, PC9a, PC9b, PC9c, PC14, PC15, PC18)

1. TITLE

Systematic title based on the use descriptor: SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites

Processes, activities covered:

Mixing or dilution in batch processes

Processing by compression/pelletisation, calendaring or use during foam production

Transfer operations from/to large or small containers

Treatment of objects by brush/roller application, spraying or immersion/pouring

Lubrication at high energy conditions

Use as a laboratory agent

Handling of substances bound in materials/articles

Evaluation method:

ECETOC TRA (April 2010), EUSES (v.2.1)

2. OPERATING CONDITIONS AND RISK MANAGEMENT MEASURES

Process categories for human health and environmental release categories for exposure assessment:

PC1: PROC5, 7, 8a, 8b, 9, 10, 12, 13, 14 spERC ESVO 5 (related to ERC4)

PC9a/b/c: PROC5, 7, 8a, 8b, 9, 10, 13 spERC ESVO 5 (related to ERC4)

PC14: PROC5, 8a, 8b, 9, 15, 23, 24, 25 spERC ESVO 5 (related to ERC4)

PC15: PROC5, 8a, 8b, 9, 15 spERC ESVO 5 (related to ERC4)

PC18: PROC7, 8a, 8b, 9, 10, 13 spERC ESVO 5 (related to ERC4)

2.1 EXPOSURE SCENARIO CONTROLLING WORKER EXPOSURE FOR PROC5, PROC7, PROC8a, PROC8b, PROC9, PROC10, PROC12, PROC13, PROC14, PROC15

Product features

Concentration ≤ 40%

Physical state: liquid

Quantity used

Not applicable

Frequency and duration of use/exposure

Duration of exposure per day: 8h (full shift, indoors)

Duration of exposure per year: 230 days

Human factors not influenced by risk management

Breathing volume in the conditions of use: 10 m³/8h-day (light activity)

Body weight: 70kg (worker)

Other operational conditions affecting worker exposure

Internal use

Use at room temperature

Technical conditions and measures to control dispersion from source to the worker

Local vapor ventilation (efficiency > 90 %) or other adequate ventilation required

Organizational measures to prevent/limit releases, dispersion and exposure

Only properly trained and authorized personnel can handle the substance. Substance handling procedures must be well documented and controlled.

Conditions and measures related to personal protection, hygiene and health evaluation

PROC7:

Respiratory protection recommended (95% efficiency) as described in section 8.

Wear safety goggles as described in section 8.

Wear protective clothing as described in section 8.

2.2 EXPOSURE SCENARIO CONTROLLING WORKER EXPOSURE FOR PROC23, PROC24, PROC25

Product features

Concentration ≤ 40%

Physical state: liquid

Quantity used

Not applicable

Frequency and duration of use/exposure

Duration of exposure per day: 8h (full shift, indoors and outdoors)

Duration of exposure per year: 230 days

Human factors not influenced by risk management

Breathing volume in the conditions of use: 10 m³/8h-day (light activity)

Body weight: 70kg (worker)

Other operational conditions affecting worker exposure

Indoor use.

Use at room temperature

Technical conditions and measures to control dispersion from source to the worker

Local vapor ventilation (efficiency > 90 %) or other adequate ventilation required.

Organizational measures to prevent/limit releases, dispersion and exposure

Only properly trained and authorized personnel can handle the substance. Substance handling procedures must be well documented and controlled.

Conditions and measures related to personal protection, hygiene and health evaluation

Wear safety goggles as described in section 8.

Wear protective clothing as described in section 8.

2.3 EXPOSURE SCENARIO CONTROLLING ENVIRONMENTAL EXPOSURE FOR SPERC ESVOC 5 - RELATED TO ERC4

Product features

Not relevant

Quantity used

Number of sites: > 1

Yearly amount used in the region: PC 1, 9a, 9b, 9c, 14, 15, 18: 412 to: 570 to (10 % rule applies)

Frequency and duration of use

spERC ESVOC 5 (related to ERC4): 300 days/year

Environmental factors not influenced by risk management

Local fresh water dilution factor: 10

Receiving surface water flow: 18,000 m³/d

Local seawater dilution factor 100

Other operational conditions affecting environmental exposure

Indoor and outdoor use

Technical conditions and measures at process level (source) to prevent release

spERC ESVOC 5 (related to ERC4):

Fraction of tonnage released to air: 9,8 %

Fraction of tonnage released to wastewater: 2 %

Fraction of tonnage released into industrial ground: 0 %

Local technical conditions and measures to reduce and limit discharges, atmospheric emissions and soil release

Waste water must be sent to a dedicated treatment plant or treated with other suitable techniques. Floors should be waterproof and resistant to liquids.

Organizational measures to prevent/limit release from site

Only properly trained and authorized personnel can handle the substance. Substance handling procedures must be well documented and controlled.

Conditions and measures for the domestic sewage treatment plant

Dimensions of wastewater treatment plant: 2000 m³/d (removal rate: 87.4 %)

Conditions and measures for external treatment of waste for disposal

No specific measures. For general conditions and measures, see section 13.

Conditions and measures for external recovery of waste

No specific measures. For general conditions and measures, see section 13.

3. EXPOSURE ESTIMATION AND REFERENCE TO ITS SOURCE

Workers

Exposure assessment (human):

ECETOC TRA model (April 2010 version). Dermal exposure estimates of ECETOC TRA have been corrected for concentration.

Exposure estimation:

Individual and combined (skin and inhalation) exposure values are below the DNELs (RCR ratios < 1).

Environment

Exposure assessment (environment):

EUSES 2.1: ERC4 modified with ESVOC 5 (ESVOC SPERC 4.3a.v1)

Exposure estimation:

The predicted exposure concentrations for air, water and soil are lower than the derived PNECs, giving an RCR < 1.

4. GUIDANCE FOR DOWNSTREAM USERS TO ASSESS WHETHER THEY COMPLY WITH THE LIMITS SET BY THE EXPOSURE SCENARIO

Environment:

Under the conditions listed above the process is considered safe. Direct release to water and soil should be avoided, air emissions should be minimised. Other conditions should be considered only when adequate measurements or calculations demonstrate that the RCR remains < 1.

Health:

Under the conditions listed above the process is considered safe. Other conditions should be considered only when adequate measurements or calculations demonstrate that the RCR remains < 1.

Further good practice advice beyond the REACH CSA

Environment: Not applicable

Health: On possible contact with the product (sampling, use, spills, product leaks, cleaning): wear protective clothing. Wear protective gloves and safety goggles. See section 8 for information on appropriate personal protective equipment.

PROFESSIONAL USE

Exposure scenario for professional uses of benzyl alcohol consisting of mixing/loading and charging/discharging, roller, brush, spray or dip application (PC0, PC1, PC09a, 9b, 9c, PC14, PC15, PC18, PC21, PC26, PC31, PC32).

1. TITLE

Systematic title based on the use descriptor: SU22 - Professional uses: Generalized use

Processes, activities covered:

Mixing or dilution in batch processes BY HAND

Transfer operations from/to large or small containers

Treatment of objects by brush/roller application, spraying or immersion/pouring

Hand mixing with intimate contact and only PSD available

Handling of substances bound in materials/articles

Evaluation method:

ECETOC TRA (April 2010), EUSES (v.2.1)

2. OPERATING CONDITIONS AND RISK MANAGEMENT MEASURES

Process categories for human health and environmental release categories for exposure assessment:

PC0: PROC5, 8a, 8b, 9, 10, 11, 13, 19 - ERC8a, 8d

PC1: PROC5, 8a, 8b, 9, 10, 11, 13, 19 - ERC8a, 8d

PC9a, 9b, 9c: PROC5, 8a, 8b, 9, 10, 11, 13, 19 - ERC8a, 8d

PC14: PROC8a, 8b, 9, 10, 11, 13, 19, 23, 24, 25 - ERC8a, 8d

PC15: PROC8a, 8b, 9, 10, 11, 13, 19 - ERC8a, 8d

PC18: PROC5, 8a, 8b, 10, 11, 13, 19 - ERC8a, 8d

PC21: PROC8a, 8b, 15 - ERC8a, 8d

PC26: PROC5, 6, 8a, 8b, 11, 13, 14, 19, 21 - ERC8a, 8d

PC30: PROC8a, 8b - ERC8a, 8d

PC31: PROC8b, 10, 11 - ERC8a, 8d

PC32: PROC8a, 8b, 9, 10, 11 - ERC8a, 8d

Number of sites: > 1

2.1 EXPOSURE SCENARIO CONTROLLING WORKER EXPOSURE FOR PROC5, PROC7, PROC8a, PROC8b, PROC9, PROC10, PROC12, PROC13, PROC14, PROC15

Product features

Concentration ≤ 40%

Physical state: liquid

Quantity used

Not applicable

Frequency and duration of use/exposure

Duration of exposure per day: 8h (full shift, indoors and outdoors)

Duration of exposure per year: 230 days

Human factors not influenced by risk management

Breathing volume in the conditions of use: 10 m³/8h-day (light activity)

Body weight: 70kg (worker)

Other operational conditions affecting worker exposure

Internal use

Use at room temperature

Technical conditions and measures to control dispersion from source to the worker

No special measures are required.

Organizational measures to prevent/limit releases, dispersion and exposure

Only properly trained and authorized personnel can handle the substance. Substance handling procedures must be well documented and controlled.

Conditions and measures related to personal protection, hygiene and health evaluation

Personal protection:

PROC8b, PROC9, PROC14, PROC15: concentration ≤ 40 %: no RMM required.

PROC5, PROC8a, PROC13: > 25 % - ≤ 40 %: gloves (90 % efficiency) are required as described in section 8.

PROC6: > 5 % - ≤ 40 %: gloves (90 % efficiency) are required as described in section 8.

PROC10: < 5 % (indoor and outdoor environment): No RMMs required.

> 5 - ≤ 40 % (indoor and outdoor environment): gloves (90 % efficiency) are required as described in point 8.

Wear safety goggles as described in section 8.

Wear protective clothing as described in section 8.

2.2 EXPOSURE SCENARIO CONTROLLING WORKER EXPOSURE FOR PROC11

Product features

Concentration ≤ 40 %

Physical state: liquid

Quantity used

Not applicable

Frequency and duration of use/exposure

Duration of exposure per day: 8h (full shift, indoors and outdoors)

Duration of exposure per year: 230 days

Human factors not influenced by risk management

Breathing volume in the conditions of use: $10 \text{ m}^3/8\text{h-day}$ (light activity)

Body weight: 70kg (worker)

Other operational conditions affecting worker exposure

Indoor and outdoor use

Use at room temperature

Technical conditions and measures to control dispersion from source to the worker

No special measures are required.

Organizational measures to prevent/limit releases, dispersion and exposure

Only properly trained and authorized personnel can handle the substance. Substance handling procedures must be well documented and controlled.

Conditions and measures related to personal protection, hygiene and health evaluation

Personal protection:

≤ 5 % (indoor and outdoor environment): Respiratory protection (95 % efficiency) required as described in section 8.

> 5 % ≤ 40 % (indoor and outdoor environment): Respiratory protection (95 % efficiency) and gloves (90 % efficiency) required as described in section 8.

Wear safety goggles as described in section 8.

Wear protective clothing as described in section 8.

2.3 EXPOSURE SCENARIO CONTROLLING WORKER EXPOSURE FOR PROC19

Product features

Concentration ≤ 40 %

Physical state: liquid

Quantity used

Not applicable

Frequency and duration of use/exposure

Duration of exposure per day (concentration ≤ 25 %): 8 hours (indoors and outdoors)

Duration of exposure per day (concentration $>25\% \leq 40\%$): 4 hours (indoors and outdoors)

Duration of exposure per year: 230 days

Human factors not influenced by risk management

Breathing volume in the conditions of use: 10 m³/8h-day (light activity)

Body weight: 70kg (worker)

Other operational conditions affecting worker exposure

Indoor and outdoor use

Use at room temperature

Technical conditions and measures to control dispersion from source to the worker

No special measures are required.

Organizational measures to prevent/limit releases, dispersion and exposure

Only properly trained and authorized personnel can handle the substance. Substance handling procedures must be well documented and controlled.

Conditions and measures related to personal protection, hygiene and health evaluation

Personal protection:

> 1 % (indoor): gloves (90 % efficiency) are required as described in section 8.

> 5% - 40% (outdoors): gloves (90 % efficiency) are required as described in section 8.

Wear safety goggles as described in section 8.

Wear protective clothing as described in section 8.

2.4 EXPOSURE SCENARIO CONTROLLING ENVIRONMENTAL EXPOSURE FOR ERC8a, ERC8d

Product features

Not relevant

Quantity used

Yearly amount used in the region: the 10% rule applies

ERC8a PC0, 1, 9a, 9b, 9c, 14, 15, 18, 21, 26, 30, 31, 32, 34, 35: 1,785t

ERC8d PC0, 1, 9a, 9b, 9c, 14, 15, 18, 21, 26, 31, 32, 34, 35: 1,775t

Fraction of main local source: 0.002 (default)

Issue days per site: 365 days/year (default)

Frequency and duration of use

Continuous release: 365 days/year

Environmental factors not influenced by risk management

Local fresh water dilution factor: 10

Receiving surface water flow: 18,000 m³/d

Local seawater dilution factor local: 100

Other operational conditions affecting environmental exposure

Indoor / outdoor environment

Technical conditions and measures at process level (source) to prevent release

No special measures are required.

Local technical conditions and measures to reduce and limit discharges, atmospheric emissions and soil release

Waste water must be sent to a dedicated treatment plant or treated with other suitable techniques.

Organizational measures to prevent release from site

Only properly trained and authorized personnel can handle the substance. Substance handling procedures must be well documented and controlled.

Conditions and measures for the domestic sewage treatment plant

Dimensions of wastewater treatment plant: 2000 m³/d (removal rate: 87.4 %)

Conditions and measures for external treatment of waste for disposal

No specific measures. For general conditions and measures, see section 13.

Conditions and measures for external recovery of waste

No specific measures. For general conditions and measures, see section 13.

3. EXPOSURE ESTIMATION AND REFERENCE TO ITS SOURCE

Workers

PROC5, PROC6, PROC8a, PROC8b, PROC9, PROC10, PROC11, PROC13, PROC14, PROC15, PROC19

Exposure assessment (human):

PROC5, PROC6, PROC8b, PROC9, PROC11, PROC13, PROC14, PROC15

ECETOC TRA model (April 2010 version). Dermal exposure estimates of ECETOC TRA have been linearly corrected for concentration.

PROC8a, PROC10

ECETOC TRA model (April 2010 version). Dermal exposure estimates of ECETOC TRA have been linearly corrected for concentration. Local and systemic exposure via inhalation of ECETOC TRA has been linearly scaled based on the concentration.

PROC19

ECETOC TRA model (April 2010 version). The dermal exposure estimates of ECETOC TRA have been linearly corrected for the concentration and according to the EMFs of CEFIC for the duration of exposure. Local exposure via inhalation of ECETOC TRA has been linearly scaled based on the concentration and in accordance with the CEFIC EMFs for the duration of exposure. Systemic exposure via inhalation has been linearly scaled for the duration of exposure.

Exposure estimation:

Individual and combined (skin and inhalation) exposure values are below the DNELs (RCR ratios < 1).

Environment

ERC8a, ERC8d

Exposure assessment (environment):

EUSES 2.1.

Exposure estimation:

The predicted exposure concentrations for air, water and soil are lower than the derived PNECs, giving an RCR < 1.

4. GUIDANCE FOR DOWNSTREAM USERS TO ASSESS WHETHER THEY COMPLY WITH THE LIMITS SET BY THE EXPOSURE SCENARIO

Environment:

Under the conditions listed above the process is considered safe. Direct release to water and soil should be avoided, air emissions should be minimised. Other conditions should be considered only when adequate measurements or calculations demonstrate that the RCR remains < 1.

Health:

Under the conditions listed above the process is considered safe. Other conditions should be considered only when adequate measurements or calculations demonstrate that the RCR remains < 1.

Further good practice advice beyond the REACH CSA

Environment: Not applicable

Health: On possible contact with the product (sampling, use, spills, product leaks, cleaning): wear protective clothing. Wear protective gloves and safety goggles. See section 8 for information on appropriate personal protective equipment.

PROFESSIONAL USE

Exposure scenario for professional use in photochemicals (PC30)

1. TITLE

Systematic title based on the use descriptor: SU22 - Professional uses: Generalized use

Processes, activities covered:

Transfer operations from/to large or small containers

Evaluation method:

ECETOC TRA (April 2010), EUSES (v.2.1)

2. OPERATING CONDITIONS AND RISK MANAGEMENT MEASURES

Human Health Exposure/Environmental Exposure:

PC30: PROC8a, 8b - ERC8a, 8d

Number of sites: > 1

2.1 EXPOSURE SCENARIO CONTROLLING WORKER EXPOSURE FOR PROC8a E PROC8b

Product features

Concentration ≤ 40%

Physical state: liquid

Quantity used

Not applicable

Frequency and duration of use/exposure

Duration of exposure per day: 8h (full shift, indoors and outdoors)

Duration of exposure per year: 230 days

Human factors not influenced by risk management

Breathing volume in the conditions of use: 10 m³/8h-day (light activity)

Body weight: 70kg (worker)

Other operational conditions affecting worker exposure

Internal use

Use at room temperature

Technical conditions and measures to control dispersion from source to the worker

No special measures are required.

Organizational measures to prevent/limit releases, dispersion and exposure

Only properly trained and authorized personnel can handle the substance. Substance handling procedures must be well documented and controlled.

Conditions and measures related to personal protection, hygiene and health evaluation

Personal protection:

PROC8b: concentration ≤ 40 %: no RMM required.

PROC8a: > 25 % - ≤ 40 %: gloves (90 % efficiency) are required as described in section 8.

Wear safety goggles as described in section 8.

Wear protective clothing as described in section 8.

2.2 EXPOSURE SCENARIO CONTROLLING ENVIRONMENTAL EXPOSURE FOR ERC8a, ERC8b

Product features

Not relevant

Quantity used

Yearly amount used in the region: the 10% rule applies

ERC8a PC30: 1.785 t

ERC8d PC30: 190 t

Fraction of main local source: 0.002 (default)

Issue days per site: 365 days/year (default)

Frequency and duration of use

Continuous release: 365 days/year

Environmental factors not influenced by risk management

Local fresh water dilution factor: 10

Receiving surface water flow: 18,000 m³/d

Local seawater dilution factor local: 100

Other operational conditions affecting environmental exposure

No special measures are required.

Technical conditions and measures at process level (source) to prevent release

No special measures are required.

Local technical conditions and measures to reduce and limit discharges, atmospheric emissions and soil release

Waste water must be sent to a dedicated treatment plant or treated with other suitable techniques.

Organizational measures to prevent release from site

Only properly trained and authorized personnel can handle the substance. Substance handling procedures must be well documented and controlled.

Conditions and measures for the domestic sewage treatment plant

Dimensions of wastewater treatment plant: 2000 m³/d (removal rate: 87.4 %)

Conditions and measures for external treatment of waste for disposal

No specific measures. For general conditions and measures, see section 13.

Conditions and measures for external recovery of waste

No specific measures. For general conditions and measures, see section 13.

3. EXPOSURE ESTIMATION AND REFERENCE TO ITS SOURCE

Workers

PROC8a, PROC8b

Exposure assessment (human):

PROC8a

ECETOC TRA model (April 2010 version). Dermal exposure estimates of ECETOC TRA have been linearly corrected for concentration. Local and systemic exposure via inhalation of ECETOC TRA has been linearly scaled based on the concentration.

PROC8b

ECETOC TRA model (April 2010 version). Dermal exposure estimates of ECETOC TRA have been linearly corrected for concentration.

Exposure estimation:

Individual and combined (skin and inhalation) exposure values are below the DNELs (RCR ratios < 1).

Environment

ERC8a, ERC8b

Exposure assessment (environment):

EUSES 2.1.

Exposure estimation:

The predicted exposure concentrations for air, water and soil are lower than the derived PNECs, giving an RCR < 1.

4. GUIDANCE FOR DOWNSTREAM USERS TO ASSESS WHETHER THEY COMPLY WITH THE LIMITS SET BY THE EXPOSURE SCENARIO

Environment:

Under the conditions listed above the process is considered safe. Direct release to water and soil should be avoided, air emissions should be minimised. Other conditions should be considered only when adequate measurements or calculations demonstrate that the RCR remains < 1.

Health:

Under the conditions listed above the process is considered safe. Other conditions should be considered only when adequate measurements or calculations demonstrate that the RCR remains < 1.

Further good practice advice beyond the REACH CSA

Environment: Not applicable

Health: On possible contact with the product (sampling, use, spills, product leaks, cleaning): wear protective clothing. Wear protective gloves and safety goggles. See section 8 for information on appropriate personal protective equipment.

PROFESSIONAL USE

Exposure scenario for professional use in washing and cleaning products, cosmetics and personal care products (PC35, PC39)

1. TITLE

Systematic title based on the use descriptor: SU22 - Professional uses: Generalized use

Processes, activities covered:

Transfer operations from/to large or small containers
Treatment of objects by roller/brush, spray or dip/pour application
Mixing or dilution in batch processes or by hand

Evaluation method:

ECETOC TRA (April 2010), EUSES (v.2.1)

2. OPERATING CONDITIONS AND RISK MANAGEMENT MEASURES

Human Health Exposure/Environmental Exposure:

PC35: PROC8a, 8b, 9, 10, 11, 13, 19 - ERC8a, 8b, 8d, 8e

PC39: PROC13 - ERC8a, 8b, 8d, 8e

Number of sites: > 1

2.1 EXPOSURE SCENARIO CONTROLLING WORKER EXPOSURE FOR PROC8a, PROC8b, PROC9, PROC10, PROC13

Product features

Concentration ≤ 40%
Physical state: liquid

Quantity used

Not applicable

Frequency and duration of use/exposure

Duration of exposure per day: 8h (full shift, indoors and outdoors)
Duration of exposure per year: 230 days

Human factors not influenced by risk management

Breathing volume in the conditions of use: 10 m³/8h-day (light activity)
Body weight: 70kg (worker)

Other operational conditions affecting worker exposure

Internal use
Use at room temperature

Technical conditions and measures to control dispersion from source to the worker

No special measures are required.

Organizational measures to prevent/limit releases, dispersion and exposure

Only properly trained and authorized personnel can handle the substance. Substance handling procedures must be well documented and controlled.

Conditions and measures related to personal protection, hygiene and health evaluation

Personal protection:

PROC8b, PROC9: concentration ≤ 40 %: no RMM required.

PROC8a, PROC13: > 25 % - ≤ 40 %: gloves (90 % efficiency) are required as described in section 8.

PROC10: < 5 % (indoor and outdoor environment): No RMMs required

> 5 - ≤ 40 % (indoor and outdoor environment): gloves (90 % efficiency) are required as described in section 8.

Wear safety goggles as described in section 8.

Wear protective clothing as described in section 8.

2.2 EXPOSURE SCENARIO CONTROLLING WORKER EXPOSURE FOR PROC11

Product features

Concentration $\leq 40\%$

Physical state: liquid

Quantity used

Not applicable

Frequency and duration of use/exposure

Duration of exposure per day: 8h (full shift, indoors and outdoors)

Duration of exposure per year: 230 days

Human factors not influenced by risk management

Breathing volume in the conditions of use: 10 m³/8h-day (light activity)

Body weight: 70kg (worker)

Other operational conditions affecting worker exposure

Internal use

Use at room temperature

Technical conditions and measures to control dispersion from source to the worker

No special measures are required.

Organizational measures to prevent/limit releases, dispersion and exposure

Only properly trained and authorized personnel can handle the substance. Substance handling procedures must be well documented and controlled.

Conditions and measures related to personal protection, hygiene and health evaluation

Personal protection:

$\leq 5\%$ (indoor and outdoor environment): Respiratory protection (95 % efficiency) required as described in section 8.

$> 5\% - \leq 40\%$ (indoor and outdoor environment): Respiratory protection (95 % efficiency) and gloves (90 % efficiency) required as described in section 8.

Wear safety goggles as described in section 8.

Wear protective clothing as described in section 8.

2.3 EXPOSURE SCENARIO CONTROLLING WORKER EXPOSURE FOR PROC19

Product features

Concentration $\leq 40\%$

Physical state: liquid

Quantity used

Not applicable

Frequency and duration of use/exposure

Duration of exposure per day (concentration $\leq 25\%$): 8 h (indoor and outdoor)

Duration of exposure per day (concentration $>25\% - \leq 40\%$): 4 hours (indoors and outdoors)

Duration of exposure per year: 230 days

Human factors not influenced by risk management

Breathing volume in the conditions of use: 10 m³/8h-day (light activity)

Body weight: 70kg (worker)

Other operational conditions affecting worker exposure

Internal use

Use at room temperature

Technical conditions and measures to control dispersion from source to the worker

No special measures are required.

Organizational measures to prevent/limit releases, dispersion and exposure

Only properly trained and authorized personnel can handle the substance. Substance handling procedures must be well documented and controlled.

Conditions and measures related to personal protection, hygiene and health evaluation

Personal protection:

> 1 % (indoor): gloves (90 % efficiency) are required as described in section 8.

> 5% - 40% (outdoors): gloves (90 % efficiency) are required as described in section 8..

Wear safety goggles as described in section 8.

Wear protective clothing as described in section 8.

2.4 EXPOSURE SCENARIO CONTROLLING ENVIRONMENTAL EXPOSURE FOR ERC8a, ERC8b, ERC8d, ERC8e

Product features

Not relevant

Quantity used

Yearly amount used in the region: the 10% rule applies

ERC8a PC35/PC39: 1,785 t

ERC8b PC35/PC39: 190 t

ERC8d PC35/PC39: 1,775 t

ERC8e PC35/PC39: 190 t

Fraction of main local source: 0.002 (default)

Issue days per site: 365 days/year (default)

Frequency and duration of use

Continuous release: 365 days/year

Environmental factors not influenced by risk management

Local fresh water dilution factor: 10

Receiving surface water flow: 18,000 m³/d

Local seawater dilution factor local: 100

Other operational conditions affecting environmental exposure

No special measures are required.

Technical conditions and measures at process level (source) to prevent release

No special measures are required.

Local technical conditions and measures to reduce and limit discharges, atmospheric emissions and soil release

Waste water must be sent to a dedicated treatment plant or treated with other suitable techniques.

Organizational measures to prevent release from site

Only properly trained and authorized personnel can handle the substance. Substance handling procedures must be well documented and controlled.

Conditions and measures for the domestic sewage treatment plant

Dimensions of wastewater treatment plant: 2000 m³/d (removal rate: 87.4 %)

Conditions and measures for external treatment of waste for disposal

No specific measures. For general conditions and measures, see section 13.

Conditions and measures for external recovery of waste

No specific measures. For general conditions and measures, see section 13.

3. EXPOSURE ESTIMATION AND REFERENCE TO ITS SOURCE

Workers

Exposure assessment (human):

PROC8b, PROC9, PROC11, PROC13

ECETOC TRA model (April 2010 version). Dermal exposure estimates of ECETOC TRA have been corrected for concentration.

PROC8a, PROC10

ECETOC TRA model (April 2010 version). Dermal exposure estimates of ECETOC TRA have been linearly corrected for concentration. Local and systemic exposure via inhalation of ECETOC TRA has been linearly scaled based on the concentration.

PROC19

ECETOC TRA model (April 2010 version). The dermal exposure estimates of ECETOC TRA have been linearly corrected for the concentration and according to the EMFs of CEFIC for the duration of exposure. Local exposure via inhalation of ECETOC TRA has been linearly scaled based on the concentration and in accordance with the CEFIC EMFs for the duration of exposure. Systemic exposure via inhalation has been linearly scaled for the duration of exposure.

Exposure estimation:

Individual and combined (skin and inhalation) exposure values are below the DNELs (RCR ratios < 1).

Environment

ERC8a, ERC8b, ERC8d, ERC8e

Exposure assessment (environment):

EUSES 2.1.

Exposure estimation:

The predicted exposure concentrations for air, water and soil are lower than the derived PNECs, giving an RCR < 1.

4. GUIDANCE FOR DOWNSTREAM USERS TO ASSESS WHETHER THEY COMPLY WITH THE LIMITS SET BY THE EXPOSURE SCENARIO

Environment:

Under the conditions listed above the process is considered safe. Direct release to water and soil should be avoided, air emissions should be minimised. Other conditions should be considered only when adequate measurements or calculations demonstrate that the RCR remains < 1.

Health:

Under the conditions listed above the process is considered safe. Other conditions should be considered only when adequate measurements or calculations demonstrate that the RCR remains < 1.

Further good practice advice beyond the REACH CSA

Environment: Not applicable

Health: On possible contact with the product (sampling, use, spills, product leaks, cleaning): wear protective clothing. Wear protective gloves and safety goggles. See section 8 for information on appropriate personal protective equipment.

Fatty acids, C18-unsatd., dimers, oligomeric reaction products with tall-oil fatty acids and triethylenetetramine

Substance identification

Chemical Name: Fatty acids, C18-unsatd., dimers, oligomeric reaction products with tall-oil fatty acids and triethylenetetramine
CAS number: 68082-29-1

USE AT INDUSTRIAL USES

1. TITLE SECTION

Exposure scenario name: Industrial production of varnishes and enamels - Industrial application of coatings and paints - Use in rigid foam, coatings, adhesives and sealants - Use in composite and foundry materials

Date - Version: 03/12/2020 - 1.0

Life cycle stage: Use at industrial sites

Main user group: Industrial uses

Sector(s) of use: Industrial uses (SU3)

Contributing scenario - Environment

CS1 Wet polymerization: ERC5

Contributing scenario - Worker

CS2 Hardening: PROC4

CS3 Spraying - Dermal Exposure Assessment: PROC7

CS4 Spraying - Dermal Exposure Assessment: PROC7

CS5 Material transfers: PROC8b

CS6 Material Transfers: PROC9

2. CONDITIONS OF USE AFFECTING EXPOSURE

2.1. CS1 Environment Contributing Scenario: Wet Polymerization (ERC5)

Environmental release categories: Industrial use leading to inclusion into/onto an article (ERC5)

Product features (article)

Physical form of the product: Liquid

Amount used, frequency and duration of use

Amounts used: Daily quantity per site 3.33 tons/day - Yearly amount per site 999 tons/year

Release Type: Continuous release

Issue days: 300 days/year

Conditions and measures for the municipal sewage treatment plant

Type of sewage treatment plant (STP): Municipal STP - Water: minimum efficiency of 91.34%

STP effluent (m³/day): 2000

Conditions and measures for waste treatment (including the product waste)

Waste treatment: No specific measures identified.

Other operational conditions affecting environmental exposure

Flow rate of receiving surface water: 18000 m³/day

2.2. Contributing Scenario CS2 - Worker: Curing (PROC4)

Process categories: Chemical production where opportunity for exposure arises (PROC4)

Product features (article)

Physical form of the product: Liquid

Concentration of the substance in the product: Includes substance shares in the product up to 25%

Amount used, frequency and duration of use/exposure

Duration: Covers a daily exposure up to 8 hours.

Measures and technical-organizational conditions

Technical organizational measures:

Provide a good standard of general ventilation (up to 3 air changes per hour).

Ensure personnel are trained to minimize exposure.

Dermal - minimum efficiency 90%

Inhalation - minimum efficiency 90%

Conditions and measures for personal protection, hygiene and health verification

Personal protective equipment:

Wear an appropriate apron to avoid skin exposure.

Wear suitable gloves, tested according to EN347.

Dermal - minimum efficiency 95%

Other operational conditions affecting worker exposure

Indoor use

Temperature: A process temperature of up to 40°C is assumed

Ventilation Rate: Provide a basic level of general ventilation (1 to 3 air changes per hour). 90%

Body parts exposed: Possible skin contact is believed to be limited to the hands.

2.3. Contributing Scenario CS3 - Spraying: Dermal Exposure Assessment (PROC7)

Process categories: Industrial spray application (PROC7)

Product features (article)

Physical form of the product: Liquid

Concentration of the substance in the product: Includes substance shares in the product up to 25%

Amount used, frequency and duration of use/exposure

Duration: Covers a daily exposure up to 8 hours.

Measures and technical-organizational conditions

Technical organizational measures:

Provide a good standard of general ventilation (up to 3 air changes per hour).

Ensure personnel are trained to minimize exposure.

Dermal - minimum efficiency 95%

Inhalation - minimum efficiency 90%

Conditions and measures for personal protection, hygiene and health verification

Personal protective equipment:

Wear an appropriate apron to avoid skin exposure.

Wear suitable gloves, tested according to EN347.

Dermal - minimum efficiency 95%

Other operational conditions affecting worker exposure

Indoor use

Temperature: A process temperature of up to 40°C is assumed

Ventilation Rate: Provide a basic level of general ventilation (1 to 3 air changes per hour). 90%

Body parts exposed: Possible skin contact is believed to be limited to the hands and forearms.

2.4. Contributing Scenario CS4 - Spraying: Inhalation Exposure Assessment (PROC7)

Process categories: Industrial spray application (PROC7)

Product features (article)

Physical form of the product: Liquid

Vapor pressure: 7.9E-08 Pa

Concentration of the substance in the product: Includes substance shares in the product up to 25%

Amount used, frequency and duration of use/exposure

Duration: For each application, avoid using for a duration exceeding 480 min.

Conditions and measures for personal protection, hygiene and health verification

Personal protective equipment: Wear suitable respiratory protection. Inhalation - minimum efficiency 95%

Other operational conditions affecting worker exposure

Indoor use

Room size: Covers use in a room size of 300m².

Temperature: Includes use at room temperature.

Ventilation Rate: Provide a basic level of general ventilation (1 to 3 air changes per hour). 90%

Body parts exposed: Possible skin contact is believed to be limited to the hands and forearms.

Additional conditions for human health: Moderate amount used (0.3-3 l/minute)

Learn more about good practices. The obligations set out in the REACH Regulation in Article 37(4) do not apply.

Further information on good practices: Use a splash guard. For further data, see section 8 of the safety data sheet. Wear suitable respiratory protection.

2.5. Contributing Scenario CS5 - Worker: Material Transfers (PROC8b)

Process categories: Transfer of a substance or a preparation (filling/emptying) at dedicated facilities (PROC8b)

Product features (article)

Physical form of the product: Liquid

Concentration of the substance in the product: Includes substance shares in the product up to 25%

Amount used, frequency and duration of use/exposure

Duration: Covers a daily exposure up to 8 hours.

Measures and technical-organizational conditions

Technical organizational measures:

Provide a good standard of general ventilation (up to 3 air changes per hour).

Ensure personnel are trained to minimize exposure.

Dermal - minimum efficiency 95%

Inhalation - minimum efficiency 95%

Conditions and measures for personal protection, hygiene and health verification

Personal protective equipment:

Wear an appropriate apron to avoid skin exposure.

Wear suitable gloves, tested according to EN347.

Dermal - minimum efficiency 95 %

Other operational conditions affecting worker exposure

Indoor use

Temperature: A process temperature of up to 40°C is assumed

Ventilation Rate: Provide a basic level of general ventilation (1 to 3 air changes per hour). 90%

Body parts exposed: Possible skin contact is believed to be limited to the hands and forearms.

2.6. Contributing Scenario CS6 - Worker: Material Transfers (PROC9)

Process categories: Transfer of a substance or preparation (filling/emptying) (dedicated filling line, including weighing) (PROC9)

Product features (article)

Physical form of the product: Liquid

Concentration of the substance in the product: Includes substance shares in the product up to 25%

Amount used, frequency and duration of use/exposure

Duration: Covers a daily exposure up to 8 hours.

Measures and technical-organizational conditions

Technical organizational measures:

Provide a good standard of general ventilation (up to 3 air changes per hour).

Ensure personnel are trained to minimize exposure.

Dermal - minimum efficiency 90%

Inhalation - minimum efficiency 90%

Conditions and measures for personal protection, hygiene and health verification

Personal protective equipment:

Wear an appropriate apron to avoid skin exposure.

Wear suitable gloves, tested according to EN347.

Dermal - minimum efficiency 95 %

Other operational conditions affecting worker exposure

Indoor use

Temperature: A process temperature of up to 40°C is assumed

Ventilation Rate: Provide a basic level of general ventilation (1 to 3 air changes per hour). 90%

Body parts exposed: Possible skin contact is believed to be limited to the hands.

3. EXPOSURE ESTIMATION AND REFERENCE TO ITS SOURCE

3.1. CS1 Environment Contributing Scenario: Wet Polymerization (ERC5)

Release route	Release rate	Release evaluation method
Water	0.666 kg/day	spERC
Air	8.325 kg/day	spERC
Ground	0.01 %	spERC

Protection target	Degree of exposure	Calculation method	Risk characterization ratio (RCR)
fresh water	0.001 mg/l	N.d.	0.279
fresh water sediment	121.3 mg/kg dry weight	N.d.	0.279
sea water	0.0001251 mg/l	N.d.	0.288
Marine sediment	12.51 mg/kg dry weight	N.d.	0.288
agricultural land	7.992 mg/kg dry weight	N.d.	0.292
environmentally exposed people - Inhalation	0.002 mg/m ³	N.d.	< 0.01
environmentally exposed people - Oral	208.8 mg/kg bw/day	N.d.	372.8
All ways	N.d.	N.d.	372.8

3.2. Contributing Scenario CS2 - Worker: Curing (PROC4)

Route of Exposure, Impact on Health, Exposure Indicator	Degree of exposure	Calculation method	Risk characterization ratio (RCR)
by inhalation, systemic, long-term	0.17 mg/m ³	ECETOC TRA worker v2.0	0.044
skin contact, systemic, long-term	0.009 mg/kg bw/day	ECETOC TRA worker v2.0	0.008
combined routes, systemic, long-term	N.d.	ECETOC TRA worker v2.0	0.051

3.3. Contributing Scenario CS3 - Spraying: Dermal Exposure Assessment (PROC7)

Route of Exposure, Impact on Health, Exposure Indicator	Degree of exposure	Calculation method	Risk characterization ratio (RCR)
by inhalation, systemic, long-term	0.21 mg/m ³	ECETOC TRA worker v2.0	0.054
skin contact, systemic, long-term	0.027 mg/kg bw/day	ECETOC TRA worker v2.0	0.024
combined routes, systemic, long-term	N.d.	ECETOC TRA worker v2.0	0.078

3.4. Contributing Scenario CS4 - Spraying: Inhalation Exposure Assessment (PROC7)

Route of Exposure, Impact on Health, Exposure Indicator	Degree of exposure	Calculation method	Risk characterization ratio (RCR)
by inhalation, systemic, long-term	0.21 mg/m ³	ECETOC TRA worker v2.0	0.054
skin contact, systemic, long-term	0.027 mg/kg bw/day	ECETOC TRA worker v2.0	0.024
combined routes, systemic, long-term	N.d.	ECETOC TRA worker v2.0	0.078

3.5. Contributing Scenario CS5 - Worker: Material Transfers (PROC8b)

Route of Exposure, Impact on Health, Exposure Indicator	Degree of exposure	Calculation method	Risk characterization ratio (RCR)
by inhalation, systemic, long-term	0.085 mg/m ³	ECETOC TRA worker v2.0	0.022
skin contact, systemic, long-term	0.009 mg/kg bw/day	ECETOC TRA worker v2.0	0.008
combined routes, systemic, long-term	N.d.	ECETOC TRA worker v2.0	0.03

3.6. Contributing Scenario CS6 - Worker: Material Transfers (PROC9)

Route of Exposure, Impact on Health, Exposure Indicator	Degree of exposure	Calculation method	Risk characterization ratio (RCR)
by inhalation, systemic, long-term	0.17 mg/m ³	ECETOC TRA worker v2.0	0.044
skin contact, systemic, long-term	0.009 mg/kg bw/day	ECETOC TRA worker v2.0	0.008
combined routes, systemic, long-term	N.d.	ECETOC TRA worker v2.0	0.051

4. GUIDANCE FOR DOWNSTREAM USERS TO ASSESS WHETHER THEY COMPLY WITH THE LIMITS SET BY THE EXPOSURE SCENARIO

Guidance to check compliance with the exposure scenario: Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

GENERALIZED USE BY PROFESSIONAL OPERATORS

1. TITLE SECTION

Exposure scenario name: Industrial production of varnishes and enamels - Industrial application of coatings and paints - Use in rigid foam, coatings, adhesives and sealants - Use in composite and foundry materials

Date - Version: 03/12/2020 - 1.0

Life cycle stage: Use at industrial sites

Main user group: Generalized use by professional traders

Sector(s) of use: Professional uses (SU22)

Contributing scenario - Environment

CS1 Wet polymerization: ERC8C

Contributing scenario - Worker

CS2 Blend Operations: PROC5

CS3 Material Transfers: PROC8b

CS4 Material Transfers: PROC9

2. CONDITIONS OF USE AFFECTING EXPOSURE

2.1. CS1 Environment Contributing Scenario: Wet Polymerization (ERC8c)

Environmental release categories: Widespread use resulting in an inclusion into or onto the surface of an article (indoor use) (ERC8c)

Product features (article)

Physical form of the product: Liquid

Amount used, frequency and duration of use

Amounts used: Daily quantity at site 0.0005494 tons/day

Conditions and measures for the municipal sewage treatment plant

Type of sewage treatment plant (STP): Municipal STP - Water: minimum efficiency of 91.34%

STP effluent (m³/day): 2000

Conditions and measures for waste treatment (including the product waste)

Waste treatment: No specific measures identified.

Other operational conditions affecting environmental exposure

Flow rate of receiving surface water: 18000 m³/day

2.2. Contributing Scenario CS2 - Worker: Blending Operations (PROC5)

Process categories: Mixing or Blending in Batch Processes (PROC5)

Product features (article)

Physical form of the product: Liquid

Concentration of the substance in the product: Includes substance shares in the product up to 25%

Amount used, frequency and duration of use/exposure

Duration: Covers a daily exposure up to 4 hours.

Measures and technical-organizational conditions

Technical organizational measures:

Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

Ensure personnel are trained to minimize exposure.

Conditions and measures for personal protection, hygiene and health verification

Personal protective equipment:

Wear an appropriate apron to avoid skin exposure.

Wear suitable gloves, tested according to EN347.

Dermal - minimum efficiency 95 %

Other operational conditions affecting worker exposure

Indoor use

Temperature: A process temperature of up to 40°C is assumed

Body parts exposed: Possible skin contact is believed to be limited to the hands.

2.3. CS3 Worker Contributing Scenario: Material Transfers (PROC8a)

Process categories: Transfer of a substance or a preparation (filling/emptying) at non-dedicated facilities (PROC8a)

Product features (article)

Physical form of the product: Liquid

Concentration of the substance in the product: Includes substance shares in the product up to 25%

Amount used, frequency and duration of use/exposure

Duration: Covers a daily exposure up to 4 hours.

Measures and technical-organizational conditions

Technical organizational measures:

Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

Ensure personnel are trained to minimize exposure.

Conditions and measures for personal protection, hygiene and health verification

Personal protective equipment:

Wear an appropriate apron to avoid skin exposure.

Wear suitable gloves, tested according to EN347.

Dermal - minimum efficiency 95 %

Other operational conditions affecting worker exposure

Indoor use

Temperature: A process temperature of up to 40°C is assumed

Body parts exposed: Possible skin contact is believed to be limited to the hands and forearms.

2.4. CS4 Worker Contributing Scenario: Material Transfers (PROC8b)

Process categories: Transfer of a substance or a preparation (filling/emptying) at dedicated facilities (PROC8b)

Product features (article)

Physical form of the product: Liquid

Concentration of the substance in the product: Includes substance shares in the product up to 25%

Amount used, frequency and duration of use/exposure

Duration: Covers a daily exposure up to 4 hours.

Measures and technical-organizational conditions

Technical organizational measures:

Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

Ensure personnel are trained to minimize exposure.

Conditions and measures for personal protection, hygiene and health verification

Personal protective equipment:

Wear an appropriate apron to avoid skin exposure.

Wear suitable gloves, tested according to EN347.

Dermal - minimum efficiency 95 %

Other operational conditions affecting worker exposure

Indoor use

Temperature: A process temperature of up to 40°C is assumed

Body parts exposed: Possible skin contact is believed to be limited to the hands and forearms.

3. EXPOSURE ESTIMATION AND REFERENCE TO ITS SOURCE

3.1. CS1 Environment Contributing Scenario: Wet Polymerization (ERC8c)

Release route	Release rate	Release evaluation method
Water	0.008 kg/day	spERC
Air	0 %	spERC
Ground	0 %	spERC

Protection target	Degree of exposure	Calculation method	Risk characterization ratio (RCR)
fresh water	7.3E-05 mg/l	N.d.	0.017
fresh water sediment	7.301 mg/kg dry weight	N.d.	0.017
sea water	1.113E-05 mg/l	N.d.	0.026
Marine sediment	1.113 mg/kg dry weight	N.d.	0.026
agricultural land	7.318 mg/kg dry weight	N.d.	0.084
environmentally exposed people - Inhalation	9.158E-07 mg/m ³	N.d.	< 0.01
environmentally exposed people - Oral	190.8 mg/kg bw/day	N.d.	340.7
All ways	N.d.	N.d.	340.7

3.2. Contributing Scenario CS2 - Worker: Blending Operations (PROC5)

Route of Exposure, Impact on Health, Exposure Indicator	Degree of exposure	Calculation method	Risk characterization ratio (RCR)
by inhalation, systemic, long-term	0.714 mg/m ³	ECETOC TRA worker v2.0	0.183
skin contact, systemic, long-term	0.171 mg/kg bw/day	ECETOC TRA worker v2.0	0.156
combined routes, systemic, long-term	N.d.	ECETOC TRA worker v2.0	0.339

3.3. CS3 Worker Contributing Scenario: Material Transfers (PROC8a)

Route of Exposure, Impact on Health, Exposure Indicator	Degree of exposure	Calculation method	Risk characterization ratio (RCR)
by inhalation, systemic, long-term	0.714 mg/m ³	ECETOC TRA worker v2.0	0.183
skin contact, systemic, long-term	0.171 mg/kg bw/day	ECETOC TRA worker v2.0	0.156
combined routes, systemic, long-term	N.d.	ECETOC TRA worker v2.0	0.339

3.4. CS4 orker Contributing Scenario: Material Transfers (PROC8b)

Route of Exposure, Impact on Health, Exposure Indicator	Degree of exposure	Calculation method	Risk characterization ratio (RCR)
by inhalation, systemic, long-term	0.714 mg/m ³	ECETOC TRA worker v2.0	0.183
skin contact, systemic, long-term	0.171 mg/kg bw/day	ECETOC TRA worker v2.0	0.156
combined routes, systemic, long-term	N.d.	ECETOC TRA worker v2.0	0.339

4 GUIDANCE FOR DOWNSTREAM USERS TO ASSESS WHETHER THEY COMPLY WITH THE LIMITS SET BY THE EXPOSURE SCENARIO

Guidance to check compliance with the exposure scenario: Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

2-methoxy-1-methylethyl acetate

Substance identification

Chemical Name: 2-methoxy-1-methylethyl acetate

CAS number: 108-65-6

Date - Version: 02/08/2021 18.0

4. USE IN COATINGS. - USE IN INDUSTRIAL PLANTS

Short title of the exposure scenario: Use in coatings. - Use in industrial plants

SU3; ERC4; PROC1, PROC2, PROC3, PROC4, PROC5, PROC7, PROC8a, PROC8b, PROC9, PROC10, PROC13, PROC14, PROC15

EXPOSURE CONTROL AND RISK MANAGEMENT MEASURES

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: ERC4: Industrial use of processing aids not becoming part of articles.

Operating conditions

Yearly amount used in EU: 63,050,000 kg

Daily amount per site: 105.087 kg

Minimum continuous emission days per year: 300

Emission factor to air: 27%

Emission factor in water: 2%

Emission factor in soil: 0.1%

Releases based on A&B tables from TGD 2003

Freshwater dilution factor: 10

Marine water dilution factor: 100

Risk management measures

Treat air emissions to provide a typical removal efficiency of 70%.

Prevent discharge of undissolved substance, or recover from wastewater.

Type of treatment plant: Municipal sewage treatment plant.

Total removal efficiency of the substance from the wastewater after Risk Management Measures and treatment in the treatment plant (5): 87.3%

Assumed treatment plant flow: 2,000 m³/day

Measures relative to the waste

Dispose of waste cans and containers according to local regulations.

Exposure estimation and reference to its source

Risk Characterization Ratio (RCR): 0.1338

Risk from environmental exposure is driven by freshwater and marine water.

Maximum safe use amount: 79,180 kg/day

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC1: Use in closed process, no likelihood of exposure.

Area of use: Industrial

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥0 - ≤100%

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 0.04 mg/m³

Risk Characterization Ratio (RCR): 0.0001

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 0.34 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.01

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC2: Use in closed, continuous process with occasional controlled exposure.
General exposure. Continuous process (closed system) with sample collection.

Area of use: Industrial

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥0 - ≤100%

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 37.54 mg/m³

Risk Characterization Ratio (RCR): 0.1

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 1.37 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.03

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC2: Use in closed, continuous process with occasional controlled exposure.
Film formation - Fast drying.

Area of use: Industrial

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥0 - ≤100%

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Operation is carried out at elevated temperature (> 20°C above ambient temperature).

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 187.71 mg/m³

Risk Characterization Ratio (RCR): 0.5

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 1.37 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.03

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC3: Use in batch process (synthesis or formulation). Mixing operations. General exposure (closed system).

Area of use: Industrial

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 100\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 93.85 mg/m³

Risk Characterization Ratio (RCR): 0.25

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 0.34 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.01

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC4: Use in batch process (synthesis) where opportunity for exposure arises. Film formation - Air drying.

Area of use: Industrial

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 100\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 75.08 mg/m³

Risk Characterization Ratio (RCR): 0.2

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 6.86 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.14

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC5: Mixing in batch processes for formulation of preparations and articles (multistage and/or significant contact). Preparation of material for application. Mixing operations (open systems).

Area of use: Industrial

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 100\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 187.71 mg/m³

Risk Characterization Ratio (RCR): 0.51

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 13.71 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.27

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC7: Industrial spray application. Spraying (automatic/robotic).

Area of use: Industrial

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥0 - ≤100%

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Risk management measures

Carry out in a vented booth or extracted enclosure. Effectiveness: 95%.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 46.93 mg/m³

Risk Characterization Ratio (RCR): 0.13

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 2.14 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.04

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC7: Industrial spray application. Spraying (manual).

Area of use: Industrial

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥0 - ≤100%

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Risk management measures

Provide a good standard of controlled ventilation (10 to 15 air changes per hour). Effectiveness: 70%.

Wear suitable gloves compliant with EN ISO 374-1. Effectiveness: 80%.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 281.56 mg/m³

Risk Characterization Ratio (RCR): 0.76

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 8.57 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.17

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities. Material transfers. Non-dedicated system.

Area of use: Industrial

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 100\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 187.71 mg/m³

Risk Characterization Ratio (RCR): 0.51

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 13.71 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.27

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities. Material transfers. Dedicated plant.

Area of use: Industrial

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 100\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 187.71 mg/m³

Risk Characterization Ratio (RCR): 0.51

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 6.86 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.14

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing). Material transfers. Drum/batch transfers. Transfer from containers. Dedicated plant.

Area of use: Industrial

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 100\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 187.71 mg/m³

Risk Characterization Ratio (RCR): 0.51

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 6.86 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.14

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC10: Application with rollers or brushes. Roller, spatula, jet application.

Area of use: Industrial

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥0 - ≤100%

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Risk management measures

Wear suitable gloves compliant with EN ISO 374-1. Effectiveness: 80%

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 187.71 mg/m³

Risk Characterization Ratio (RCR): 0.51

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 5.49 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.11

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC13: Treatment of articles by dipping, pouring, enamelling.

Area of use: Industrial

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥0 - ≤100%

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 187.71 mg/m³

Risk Characterization Ratio (RCR): 0.51

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 13.71 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.27

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC14: Production of preparations or articles by tableting, compression, extrusion or pelletising. Production or preparation of articles by tableting, compression, extrusion.

Area of use: Industrial

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 100\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 187.71 mg/m³

Risk Characterization Ratio (RCR): 0.51

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 3.43 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.07

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC15: Use as laboratory reagent. Laboratory activities.

Area of use: Industrial

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 100\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 37.54 mg/m³

Risk Characterization Ratio (RCR): 0.1

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 0.34 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.01

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

5. USE IN COATINGS. - USE IN INDUSTRIAL PLANTS

Short title of the exposure scenario: Use in coatings. - Use in industrial plants

SU3; ERC4; PROC1, PROC2, PROC3, PROC4, PROC5, PROC7, PROC8a, PROC8b, PROC9, PROC10, PROC13, PROC14, PROC15

EXPOSURE CONTROL AND RISK MANAGEMENT MEASURES

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: ERC4: Industrial use of processing aids not becoming part of articles.

Operating conditions

Yearly amount used in EU: 2,600,000 kgs

Daily amount per site: 430kg

Minimum continuous emission days per year: 300

Emission factor to air: 80%

Emission factor in water: 10%

Emission factor in soil: 0.1%

Releases based on A&B tables from TGD 2003

Freshwater dilution factor: 10

Marine water dilution factor: 100

Risk management measures

Prevent discharge of undissolved substance, or recover from wastewater.

Type of treatment plant: Municipal sewage treatment plant.

Total removal efficiency of the substance from the wastewater after Risk Management Measures and treatment in the treatment plant (5): 87.3%

Assumed treatment plant flow: 2,000 m³/day

Measures relative to the waste

Dispose of waste cans and containers according to local regulations.

Exposure estimation and reference to its source

Risk Characterization Ratio (RCR): 0.029

Risk from environmental exposure is driven by freshwater and marine water.

Maximum safe use amount: 140.104 kg/day

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC1: Use in closed process, no likelihood of exposure (closed system). General exposure.

Area of use: Industrial

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥0 - ≤5%

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Workers - all relevant routes of exposure.

If the operating conditions identified and risk management measures are applied, the use has been assessed as safe.

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC2: Use in closed, continuous process with occasional controlled exposure. General exposure. Continuous process (closed system) with sample collection.

Area of use: Industrial

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 5\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 7.51 mg/m³

Risk Characterization Ratio (RCR): 0.02

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 1.37 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.03

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC2: Use in closed, continuous process with occasional controlled exposure. Film formation - Fast drying.

Area of use: Industrial

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 5\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Operation is carried out at elevated temperature ($> 20^\circ\text{C}$ above ambient temperature).

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 37.54 mg/m³

Risk Characterization Ratio (RCR): 0.1

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 1.37 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.03

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC3: Use in batch process (synthesis or formulation). Mixing operations. General exposure (closed system).

Area of use: Industrial

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 5\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 18.77 mg/m³

Risk Characterization Ratio (RCR): 0.05

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 0.34 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.01

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC4: Use in batch process (synthesis) where opportunity for exposure arises. Film formation - Air drying.

Area of use: Industrial

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 5\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 15.02 mg/m³

Risk Characterization Ratio (RCR): 0.04

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 6.86 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.14

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC5: Mixing in batch processes for formulation of preparations and articles (multistage and/or significant contact). Preparation of material for application. Mixing operations (open systems).

Area of use: Industrial

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 5\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 37.54 mg/m³

Risk Characterization Ratio (RCR): 0.1

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 13.71 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.27

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC7: Industrial spray application. Spraying (automatic/robotic). Spraying (manual)

Area of use: Industrial

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 5\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Risk management measures

Wear suitable gloves compliant with EN ISO 374-1. Effectiveness: 80%.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 187.71 mg/m³

Risk Characterization Ratio (RCR): 0.51

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 8.57 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.17

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC7: Industrial spray application. Spraying (manual).

Area of use: Industrial

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥0 - ≤5%

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Risk management measures

Wear suitable gloves compliant with EN ISO 374-1.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Workers - all relevant routes of exposure

If the operating conditions identified and risk management measures are applied, the use has been assessed as safe.

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities. Material transfers. Non-dedicated system.

Area of use: Industrial

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥0 - ≤5%

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 37.54 mg/m³

Risk Characterization Ratio (RCR): 0.1

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 13.71 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.27

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities. Material transfers. Dedicated plant.

Area of use: Industrial

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 5\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 37.54 mg/m³

Risk Characterization Ratio (RCR): 0.1

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 6.86 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.14

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing). Material transfers. Drum/batch transfers. Transfer from containers. Dedicated plant.

Area of use: Industrial

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 5\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 37.54 mg/m³

Risk Characterization Ratio (RCR): 0.1

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 6.86 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.14

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC10: Application with rollers or brushes. Roller, spatula, jet application.

Area of use: Industrial

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 5\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 37.54 mg/m³

Risk Characterization Ratio (RCR): 0.1

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 27.43 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.54

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC13: Treatment of articles by dipping, pouring, enamelling.

Area of use: Industrial

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 5\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 37.54 mg/m³

Risk Characterization Ratio (RCR): 0.1

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 13.71 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.27

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC14: Production of preparations or articles by tableting, compression, extrusion or pelletising. Production or preparation of articles by tableting, compression, extrusion.

Area of use: Industrial

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 5\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 37.54 mg/m³

Risk Characterization Ratio (RCR): 0.1

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 3.43 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.07

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC15: Use as laboratory reagent. Laboratory activities.

Area of use: Industrial

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 5\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 7.51 mg/m³

Risk Characterization Ratio (RCR): 0.02

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 0.34 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.01

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

7 USE IN COATINGS. - USE IN INDUSTRIAL PLANTS

Short title of the exposure scenario: Use in coatings. - Use in professional installations

SU22; ERC8a, ERC8d; PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC10, PROC11, PROC13, PROC15, PROC19

EXPOSURE CONTROL AND RISK MANAGEMENT MEASURES

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: ERC8a: Wide dispersive indoor use of processing aids in open systems.

Operating conditions

Yearly amount used in EU: 2,600,000 kgs

Daily amount per site: 433 kg

Minimum continuous emission days per year: 300

Emission factor to air: 80%

Emission factor in water: 10%

Emission factor in soil: 0.1%

Releases based on A&B tables from TGD 2003

Freshwater dilution factor: 10

Marine water dilution factor: 100

Risk management measures

Prevent discharge of undissolved substance, or recover from wastewater.

Type of treatment plant: Municipal sewage treatment plant.

Total removal efficiency of the substance from the wastewater after Risk Management Measures and treatment in the treatment plant (5): 87.3%

Assumed treatment plant flow: 2,000 m³/day

Measures relative to the waste

Dispose of waste cans and containers according to local regulations.

Exposure estimation and reference to its source

Risk Characterization Ratio (RCR): 0.029

Risk from environmental exposure is driven by freshwater and marine water.

Maximum safe use amount: 15,141 kg/day

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: ERC8d: Wide dispersive outdoor use of processing aids in open systems.

Operating conditions

Yearly amount used in EU: 2,600,000 kgs

Daily amount per site: 433 kg

Minimum continuous emission days per year: 300

Emission factor to air: 80%

Emission factor in water: 10%

Emission factor in soil: 0.1%

Releases based on A&B tables from TGD 2003

Freshwater dilution factor: 10

Marine water dilution factor: 100

Risk management measures

Prevent discharge of undissolved substance, or recover from wastewater.

Type of treatment plant: Municipal sewage treatment plant.

Total removal efficiency of the substance from the wastewater after Risk Management Measures and treatment in the treatment plant (5): 87.3%

Assumed treatment plant flow: 2,000 m³/day

Measures relative to the waste

Dispose of waste cans and containers according to local regulations.

Exposure estimation and reference to its source

Risk Characterization Ratio (RCR): 0.029

Risk from environmental exposure is driven by freshwater and marine water.

Maximum safe use amount: 15,141 kg/day

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC1: Use in closed process, no likelihood of exposure.

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 100\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 0.04 mg/m³

Risk Characterization Ratio (RCR): 0.0001

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 0.34 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.01

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC2: Use in closed, continuous process with occasional controlled exposure.

Filling/Preparation of equipment required for drums and containers.

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 100\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Workers - all relevant routes of exposure.

The use has been assessed as safe.

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC2: Use in closed, continuous process with occasional controlled exposure.

General exposure. Use in confined systems (closed system). Filling/Preparation of equipment required for drums and containers.

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 100\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Operation is carried out at elevated temperature ($> 20^\circ\text{C}$ above ambient temperature).

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 75.08 mg/m³

Risk Characterization Ratio (RCR): 0.2

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 1.37 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.03

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC3: Use in batch process (synthesis or formulation). Preparation of material for application

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥0 - ≤100%

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 93.85 mg/m³

Risk Characterization Ratio (RCR): 0.25

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 0.34 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.01

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC4: Use in batch process (synthesis) where opportunity for exposure arises. Film formation - Air drying.

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥0 - ≤100%

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 187.71 mg/m³

Risk Characterization Ratio (RCR): 0.51

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 6.86 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.14

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC4: Use in batch and other processes (synthesis) where opportunity for exposure arises. Film formation - Air drying.

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 100\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Workers - all relevant routes of exposure.

The use has been assessed as safe.

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC5: Mixing in batch processes for formulation of preparations and articles (multistage and/or significant contact). Preparation of material for application.

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 100\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Risk management measures

Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Effectiveness: 30%.

Alternatively: Ensure that operations are carried out externally.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 269.79 mg/m³

Risk Characterization Ratio (RCR): 0.71

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 13.71 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.27

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC5: Mixing in batch processes for formulation of preparations and articles (multistage and/or significant contact). Preparation of material for application.

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 100\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Risk management measures

Ensure that operations are carried out externally.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Workers - all relevant routes of exposure

If the operating conditions identified and risk management measures are applied, the use has been assessed as safe.

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities. Material transfers. Drum/batch transfers. Non-dedicated system.

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 100\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Risk management measures

Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Effectiveness: 30%.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 262.79 mg/m³

Risk Characterization Ratio (RCR): 0.71

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 13.71 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.27

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities. Material transfers. Drum/batch transfers Dedicated plant.

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 100\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 187.71 mg/m³

Risk Characterization Ratio (RCR): 0.51

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 6.86 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.14

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC10: Application with rollers or brushes. Roller, spatula, jet application.

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 100\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Risk management measures

Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Effectiveness: 30%.

Wear suitable gloves compliant with EN ISO 374-1. Effectiveness: 80%

If there is no general ventilation, ensure that operations are carried out outdoors.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 262.79 mg/m³

Risk Characterization Ratio (RCR): 0.71

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 5.49 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.11

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC10: Application with rollers or brushes. Roller, spatula, jet application.

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 100\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Risk management measures

Ensure that operations are carried out externally.

Wear suitable gloves compliant with EN ISO 374-1.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Workers - all relevant routes of exposure

If the operating conditions identified and risk management measures are applied, the use has been assessed as safe.

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC11: Non-industrial spray application. Spraying (manual).

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 100\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Risk management measures

Carry out in a vented booth or extracted enclosure. Effectiveness: 80%.

Wear a respirator conforming to EN140 with type A filter or better. Effectiveness: 90%.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 37.54 mg/m³

Risk Characterization Ratio (RCR): 0.1

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 2.14 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.04

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC11: Non-industrial spray application. Spraying (manual).

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥0 - ≤100%

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Risk management measures

Ensure that operations are carried out externally. Effectiveness: 30%.

Wear a respirator conforming to EN140 with type A filter or better. Effectiveness: 90%.

Wear suitable gloves compliant with EN ISO 374-1. Effectiveness: 80%.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 131.4 mg/m³

Risk Characterization Ratio (RCR): 0.36

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 21.43 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.42

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC13: Treatment of articles by dipping, pouring, enamelling.

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥0 - ≤100%

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Risk management measures

Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Effectiveness: 30%.

Alternatively: Ensure that operations are carried out externally.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 262.79 mg/m³

Risk Characterization Ratio (RCR): 0.71

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 13.71 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.27

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC13: Treatment of articles by dipping, pouring, enamelling.

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 100\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Risk management measures

Ensure that operations are carried out externally.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Workers - all relevant routes of exposure

If the operating conditions identified and risk management measures are applied, the use has been assessed as safe.

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC15: Use as laboratory reagent. Laboratory activities.

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 100\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 37.54 mg/m³

Risk Characterization Ratio (RCR): 0.1

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 0.34 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.01

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC19: Manual mixing with direct contact using only personal protective equipment. Hand application - fingerpaints, pastels, adhesives.

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 100\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Risk management measures

Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Effectiveness: 30%.

Wear chemically resistant gloves in combination with "basic" employee training. Effectiveness: 90%.

If there is no general ventilation, ensure that operations are carried out outdoors.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 262.79 mg/m³

Risk Characterization Ratio (RCR): 0.71

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 14.14 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.28

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC19: Manual mixing with direct contact using only personal protective equipment. Hand application - fingerpaints, pastels, adhesives.

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥0 - ≤100%

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Risk management measures

Ensure that operations are carried out externally.

Wear chemically resistant gloves in combination with "basic" employee training.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Workers - all relevant routes of exposure

If the operating conditions identified and risk management measures are applied, the use has been assessed as safe.

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

8. USE IN COATINGS. - USE IN INDUSTRIAL PLANTS

Short title of the exposure scenario: Use in coatings. - Use in professional installations

SU22; ERC8a, ERC8d; PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC10, PROC11, PROC13, PROC15, PROC19

EXPOSURE CONTROL AND RISK MANAGEMENT MEASURES

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: ERC8a: Wide dispersive indoor use of processing aids in open systems.

Operating conditions

Yearly amount used in EU: 2,600,000 kgs

Daily amount per site: 433 kg

Minimum continuous emission days per year: 300

Emission factor to air: 80%

Emission factor in water: 10%

Emission factor in soil: 0.1%

Releases based on A&B tables from TGD 2003

Freshwater dilution factor: 10

Marine water dilution factor: 100

Risk management measures

Prevent discharge of undissolved substance, or recover from wastewater.

Type of treatment plant: Municipal sewage treatment plant.

Total removal efficiency of the substance from the wastewater after Risk Management Measures and treatment in the treatment plant (5): 87.3%

Assumed treatment plant flow: 2,000 m³/day

Measures relative to the waste

Dispose of waste cans and containers according to local regulations.

Exposure estimation and reference to its source

Risk Characterization Ratio (RCR): 0.029

Risk from environmental exposure is driven by freshwater and marine water.

Maximum safe use amount: 15,141 kg/day

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: ERC8d: Wide dispersive outdoor use of processing aids in open systems.

Operating conditions

Yearly amount used in EU: 2,600,000 kgs

Daily amount per site: 433 kg

Minimum continuous emission days per year: 300

Emission factor to air: 80%

Emission factor in water: 10%

Emission factor in soil: 0.1%

Releases based on A&B tables from TGD 2003

Freshwater dilution factor: 10

Marine water dilution factor: 100

Risk management measures

Prevent discharge of undissolved substance, or recover from wastewater.

Type of treatment plant: Municipal sewage treatment plant.

Total removal efficiency of the substance from the wastewater after Risk Management Measures and treatment in the treatment plant (5): 87.3%

Assumed treatment plant flow: 2,000 m³/day

Measures relative to the waste

Dispose of waste cans and containers according to local regulations.

Exposure estimation and reference to its source

Risk Characterization Ratio (RCR): 0.029

Risk from environmental exposure is driven by freshwater and marine water.

Maximum safe use amount: 15,141 kg/day

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC1: Use in closed process, no likelihood of exposure. General exposure (closed system).

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 5\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Workers - all relevant routes of exposure

If the operating conditions identified and risk management measures are applied, the use has been assessed as safe.

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC2: Use in closed, continuous process with occasional controlled exposure. Filling/Preparation of equipment required for drums and containers.

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 5\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Workers - all relevant routes of exposure

If the operating conditions identified and risk management measures are applied, the use has been assessed as safe.

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC2: Use in closed, continuous process with occasional controlled exposure. General exposure. Use in confined systems (closed system). Filling/Preparation of equipment required for drums and containers.

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 5\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Operation is carried out at elevated temperature ($> 20^\circ\text{C}$ above ambient temperature).

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 15.02 mg/m³

Risk Characterization Ratio (RCR): 0.4

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 1.37 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.03

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC3: Use in batch process (synthesis or formulation). Preparation of material for application

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥0 - ≤5%

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 18.77 mg/m³

Risk Characterization Ratio (RCR): 0.05

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 0.34 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.01

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC4: Use in batch and other processes (synthesis) where opportunity for exposure arises. Film formation - Air drying.

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥0 - ≤5%

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 37.54 mg/m³

Risk Characterization Ratio (RCR): 0.1

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 6.86 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.14

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC4: Use in batch and other processes (synthesis) where opportunity for exposure arises. Film formation - Air drying.

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 5\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Indoor/Outdoor: Indoor use.

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Workers - all relevant routes of exposure

If the operating conditions identified and risk management measures are applied, the use has been assessed as safe.

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC5: Mixing in batch processes for formulation of preparations and articles (multistage and/or significant contact). Preparation of material for application.

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 5\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 75.08 mg/m³

Risk Characterization Ratio (RCR): 0.2

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 13.71 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.27

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC5: Mixing in batch processes for formulation of preparations and articles (multistage and/or significant contact). Preparation of material for application.

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 5\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Risk management measures

Ensure that operations are carried out externally.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Workers - all relevant routes of exposure

If the operating conditions identified and risk management measures are applied, the use has been assessed as safe.

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities. Material transfers. Drum/batch transfers. Non-dedicated system.

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 5\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 75.08 mg/m³

Risk Characterization Ratio (RCR): 0.2

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 13.71 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.27

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities. Material transfers. Drum/batch transfers Dedicated plant.

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 5\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 37.54 mg/m³

Risk Characterization Ratio (RCR): 0.1

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 6.86 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.14

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC10: Application with rollers or brushes. Roller, spatula, jet application.

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 5\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 75.08 mg/m³

Risk Characterization Ratio (RCR): 0.2

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 27.43 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.54

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC10: Application with rollers or brushes. Roller, spatula, jet application.

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥0 - ≤5%

Indoor/Outdoor: Outdoor use.

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Workers - all relevant routes of exposure

If the operating conditions identified and risk management measures are applied, the use has been assessed as safe.

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC11: Non-industrial spray application. Spraying (manual).

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥0 - ≤5%

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Risk management measures

Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Effectiveness: 30%.

Wear chemically resistant gloves in combination with "basic" employee training. Effectiveness: 90%.

If there is no general ventilation, ensure that operations are carried out outdoors.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 262.79 mg/m³

Risk Characterization Ratio (RCR): 0.71

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 10.71 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.21

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC11: Non-industrial spray application. Spraying (manual).

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 5\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Risk management measures

Ensure that operations are carried out externally.

Wear chemically resistant gloves in combination with "basic" employee training.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Workers - all relevant routes of exposure

If the operating conditions identified and risk management measures are applied, the use has been assessed as safe.

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC13: Treatment of articles by dipping, pouring, enamelling.

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 5\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 75.08 mg/m³

Risk Characterization Ratio (RCR): 0.2

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 13.71 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.27

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC13: Treatment of articles by dipping, pouring, enamelling.

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 5\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Indoor/Outdoor: Indoor use.

Assumes use at not more than 20°C above ambient temperature.

Risk management measures

Ensure that operations are carried out externally.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Workers - all relevant routes of exposure

If the operating conditions identified and risk management measures are applied, the use has been assessed as safe.

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC15: Use as laboratory reagent. Laboratory activities.

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 5\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 7.51 mg/m³

Risk Characterization Ratio (RCR): 0.02

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 0.34 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.01

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC19: Manual mixing with direct contact using only personal protective equipment. Hand application - fingerpaints, pastels, adhesives.

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 5\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Assumes use at not more than 20°C above ambient temperature.

Risk management measures

Wear suitable gloves compliant with EN ISO 374-1. Effectiveness: 80%.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Worker - inhalation, long-term - systemic.

Exposure estimation: 75.08 mg/m³

Risk Characterization Ratio (RCR): 0.2

Evaluation method: ESIG GES tool, Operator. Worker - dermal, long-term - systemic.

Exposure estimation: 28.29 mg/kg/day (body weight)

Risk Characterization Ratio (RCR): 0.56

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

EXPOSURE SCENARIO CONSIDERED

Covered use descriptors: PROC19: Manual mixing with direct contact using only personal protective equipment. Hand application - fingerpaints, pastels, adhesives.

Area of use: Professional

Operating conditions

Substance concentration: 1-methoxy-2-propanol content: ≥ 0 - $\leq 5\%$

Physical state: liquid, medium volatility

Duration and frequency of application: 480 mins. 5 days a week

Indoor/Outdoor: Outdoor use.

Assumes use at not more than 20°C above ambient temperature.

Risk management measures

Wear suitable gloves compliant with EN ISO 374-1.

Exposure estimation and reference to its source

Evaluation method: ESIG GES tool, Operator. Workers - all relevant routes of exposure

If the operating conditions identified and risk management measures are applied, the use has been assessed as safe.

Guidance for downstream users

<http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3>

Xylene

Identification of the exposure scenario

Product name: Xylene

Reach registration number: 01-2119488216-32-XXXX

CAS number: 1330-20-7

EC number: 215-535-7

Review date: 14/02/2022 rev. 3.0

USE IN COATINGS - INDUSTRIAL USE

1. Title of the exposure scenario

Process purpose: Includes use in coatings (varnishes, inks, adhesives, etc.), including exposure during application (including material receipt, storage, bulk and semi-bulk preparation and transfer, application by spray, roller, manual spraying, dip, flow, fluid layers in production lines and in film formation) and system cleaning, maintenance and related laboratory activities.

Main sector: SU3 Industrial uses

Environment

Environmental Release Categories [ERC]: ERC4 Use of non-reactive processing aid at industrial site (no inclusion into or onto article).

Specific Environmental Release Category [SPERC]: ESVOC SPERC 4.3a.v1

Worker

Process categories:

PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions.

PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions.

PROC 3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment conditions.

PROC4 Production of chemicals with the possibility of exposure.

PROC5 Mixing or blending in batch processes

PROC7 Industrial spraying.

PROC8a Transfer of a substance or preparation (charging/discharging) at non-dedicated facilities.

PROC8a Transfer of substance or mixture (charging/discharging) at non-dedicated facilities.

PROC10 Application with rollers or brushes.

PROC13 Treatment of articles by dipping and pouring.

PROC15 Use as laboratory reagent.

PROC24 High (mechanical) energy work-up of substances bound in/on materials and/or articles.

2. Other conditions of use affecting exposure (Industrial - Environment 1)

Products features

Form: Liquid, vapor pressure 0.5 - 10 kPa at STP

Easily biodegradable.

Amounts used:

Annual amount per site: 2500 tonnes

Frequency and duration of use

Issue days: 300 days/year

Additional operating conditions relating to environmental exposure

Emission factor - air

Air release rate produced by the process (initial release prior to risk management measures): 0.98

Emission factor - water

Waste water release rate produced by the process (initial release prior to risk management measures): 0.007

Emission factor - soil

Soil release rate produced by the process (initial release prior to risk management measures): 0

Environmental factors that are not influenced by risk management

Dilution

Local fresh water dilution factor: 10

Local seawater dilution factor: 100

Risk management measures

Sewage Treatment Plant Data (STP)

Estimated substance removal from waste water via domestic sewage treatment: 95.8%

Assumed domestic sewage treatment plant flow: 2000 m³/day

Local technical conditions and measures to reduce and limit discharges and air emissions

Air:

Treat air emission to provide a typical removal efficiency of > 90%.

Water:

Avoid releasing the undiluted substance into local waste water or recover it on site. The typical on-site purification technique has a removal efficiency of 95.8%.

Ground:

Soil emission controls are not applicable as there is no direct release to soil.

Conditions and measures for external treatment of waste

Sludge treatment:

Do not spread industrial sludge on natural soils. Sewerage sludge should be burned, stored or regenerated.

Waste treatment:

No waste of the substance is formed during production.

2. Other conditions of use affecting exposure (Workers - Health 1)

Products features

Form:

Liquid, vapor pressure 0.5 - 10 kPa at STP

Concentration information: Includes concentrations up to 100%, unless otherwise indicated.

Quantities used

Not applicable.

Frequency and duration of use

Covers daily exposures up to 8 hours (unless stated differently).

Other operational conditions affecting worker exposure

Temperature: (unless stated differently) assumes use at not more than 20°C above ambient temperature.

Ventilation Rate: Ensure a sufficient amount of controlled ventilation (10 to 15 air changes per hour). Assumes a good basic standard of occupational hygiene is implemented.

Technical conditions and process-level (source) measures to prevent releases

Technical protective measures:

Handle substance within a closed system. Provide supplementary ventilation to points where emissions occur. Ensure material transfers are managed using closed or air exhaust systems. Drain or remove substance from equipment before opening or servicing PROC7 Industrial spraying: spraying (automatic/robotic) should be carried out in a ventilated booth with laminar air flow.

Risk management measures:

PROC7 Industrial spraying.

Manual spraying.

Wear respiratory protection in accordance with EN 140 with filter type A or better.

3. Verification of exposure (Environment 1)

Environmental exposure:

Predicted exposures are not expected to exceed the specific risks (listed in chapter 8 of the safety datasheet), when the risk management measures/operational conditions outlined in section 2 are implemented.

Maximum allowable site tonnage (M_{safe}), based on release following total waste water treatment removal: 9874 kg/day

3. Exposure Verification (Health 1)

Exposure

Predicted workplace exposures are not expected to exceed the DNEL when risk identification measures are implemented.

4. Guidance to check compliance with the exposure scenario (Environment 1)

Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Guidance is based on assumed operating conditions which may not be applicable to all sites, thus, scaling may be necessary to define appropriate site-specific risk management measures.

Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination.

Required removal efficiency for waste water can be achieved using on-site/off-site technologies, either alone or in combination.

Further details on scaling and control technologies are provided in SpERC factsheet (<http://cefic.org/en/reach-for-industries-libraries.html>).

4. Guidance to check compliance with the exposure scenario (Health 1)

Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

USE IN COATINGS - PROFESSIONAL USE

1. Title of the exposure scenario

Process purpose: Includes use in coatings (varnishes, inks, adhesives, etc.), including exposure during application (including material receipt, storage, bulk and semi-bulk preparation and transfer, application by spray, roller, brush and manual spraying or similar processes and film formation) and system cleaning, maintenance and related laboratory activities.

Main sector: SU22 Professional uses

Environment

Environmental Release Categories [ERC]:

ERC8a Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor).

ERC8d Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor).

ERC8c Widespread use leading to inclusion into/onto article (indoor).

ERC8f Widespread use leading to inclusion into/onto article (outdoor).

Specific Environmental Release Category [SPERC]: ESVOC SPERC 8.3b.v1

Worker

Process categories:

PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions.

PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions.

PROC 3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment conditions.

PROC4 Production of chemicals with the possibility of exposure.

PROC5 Mixing or blending in batch processes

PROC8a Transfer of a substance or preparation (charging/discharging) at non-dedicated facilities.

PROC8a Transfer of substance or mixture (charging/discharging) at non-dedicated facilities.

PROC10 Application with rollers or brushes.

PROC11 Non-industrial spray application.

PROC13 Treatment of articles by dipping and pouring.

PROC15 Use as laboratory reagent.

PROC19 Manual activities with direct contact.

PROC24 High (mechanical) energy work-up of substances bound in/on materials and/or articles.

2. Other conditions of use affecting exposure (Industrial - Environment 1)

Products features

Form: Liquid, vapor pressure 0.5 - 10 kPa at STP Easily biodegradable.

Quantities used

Annual amount per site: 10 tonnes

Frequency and duration of use

Issue days: 365 days/year

Additional operating conditions relating to environmental exposure

Emission factor - air

Air release rate produced by the process (initial release prior to risk management measures): 0.98

Emission factor - water

Waste water release rate produced by the process (initial release prior to risk management measures): 0.01

Emission factor - soil

Soil release rate produced by the process (initial release prior to risk management measures): 0.01

Environmental factors that are not influenced by risk management

Dilution

Local fresh water dilution factor: 10

Local seawater dilution factor: 100

Risk management measures

Sewage Treatment Plant Data (STP)

Estimated substance removal from waste water via domestic sewage treatment 95.8%

Assumed domestic sewage treatment plant flow: 2000 m³/day

Local technical conditions and measures to reduce and limit discharges and air emissions

Air: Treat air emission to provide a typical removal efficiency of 0%.

Water: The typical on-site purification technique has a removal efficiency of 95.8%.

Conditions and measures for external treatment of waste

Waste treatment: External treatment and disposal of waste should comply with applicable local and/or national regulations.

2. Other conditions of use affecting exposure (Workers - Health 1)

Products features

Form:

Liquid, vapor pressure 0.5 - 10 kPa at STP

Concentration information:

Includes concentrations up to 100%, unless otherwise indicated.

Quantities used

Not applicable.

Frequency and duration of use

Covers daily exposures up to 8 hours (unless stated differently).

Other operational conditions affecting worker exposure

Temperature:

(unless stated differently) assumes use at not more than 20°C above ambient temperature.

Ventilation Rate:

Provide a good standard of controlled ventilation (10 to 15 air changes per hour) or ensure operation is undertaken outdoors.

Assumes a good basic standard of occupational hygiene is implemented.

Technical conditions and process-level (source) measures to prevent releases

Technical protective measures:

Handle substance within a closed system. Provide supplementary ventilation to points where emissions occur. Ensure material transfers are managed using closed or air exhaust systems. Clean/flush equipment prior to opening or maintenance. Transport on closed roads. PROC11 Non-industrial spray application. Indoor use. Perform in a laminar flow ventilated booth. PROC15 Use as laboratory reagents handle under fume hood or extract air.

Organizational measures to prevent/limit releases, dispersion and exposure

Organizational measures

Avoid activities with an exposure of more than 4 hours.

Hand Application - Finger Paints, Chalks, Stickers:

Limit the amount of substance in the mixture to 5%.

Risk management measures

Wear protective gloves according to EN 374, resistant to solvents.

PROC10 Application with rollers or brushes.

PROC11 Non-industrial spray application. Outdoor use.

PROC13 Treatment of articles by dipping and pouring. Outdoor use.

Wear respiratory protection in accordance with EN 140 with filter type A or better.

3. Verification of exposure (Environment 1)

Environmental exposure

Predicted exposures are not expected to exceed the specific risks (listed in chapter 8 of the safety datasheet), when the risk management measures/operational conditions outlined in section 2 are implemented.

Maximum allowable site tonnage (Msafe), based on release following total waste water treatment removal: 5969 kg/day

3. Exposure Verification (Health 1)

Exposure

Predicted workplace exposures are not expected to exceed the DNEL when risk identification measures are implemented.

4. Guidance to check compliance with the exposure scenario (Environment 1)

Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Guidance is based on assumed operating conditions which may not be applicable to all sites, thus, scaling may be necessary to define appropriate site-specific risk management measures.

Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination.

Required removal efficiency for waste water can be achieved using on-site/off-site technologies, either alone or in combination.

Further details on scaling and control technologies are provided in SpERC factsheet (<http://cefic.org/en/reach-for-industries-libraries.html>).

4. Guidance to check compliance with the exposure scenario (Health 1)

Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.