

## ODJELJAK 1.: Identifikacija tvari/smjese i podaci o društvu/poduzeću

### 1.1. Identifikacijska oznaka proizvoda

Identifikacija preparata:

Trgovačko ime: ADYWOOD 2K COMP.A

Trgovački kod: 580

UFI: 7TK1-G0VK-V008-AK3U

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

Preporučana upotreba: Dvokomponentno ljepilo za drvene podove

### 1.3. Podaci o dobavljaču koji isporučuje sigurnosno-tehnički list

Tvrtka: FASSA Srl

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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. 1

Može izazvati alergijsku reakciju na koži.

Aquatic Chronic 3

Štetno 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



Upozorenje

#### Oznake upozorenja

H315

Nadražuje kožu.

H317

Može izazvati alergijsku reakciju na koži.

H319

Uzrokuje jako nadraživanje oka.

H412

Štetno za vodeni okoliš s dugotrajnim učincima.

#### Oznake obavijesti

P261

Izbjegavati udisanje para.

P264

Temeljito oprati velikom količinom vodom i sapuna nakon rukovanja.

P280

Nositi zaštitne rukavice te zaštitu za oči/zaštitu za lice.

P333+P313

U slučaju nadražaja ili osipa na koži: zatražiti savjet/pomoć liječnika.

P362+P364

Skinuti zagađenu odjeću i oprati je prije ponovne uporabe.

#### Posebna osiguranja:

EUH205

Sadrži epoksidne sastojke. Može izazvati alergijsku reakciju.

#### Sadrži:

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

Ulje ljuske indijskog oraha

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

Produkti reakcije oligomerizacije i alkilacije 2-fenilpropen i fenol

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

Niti jedan

2.3. Ostale opasnosti

PBT, vPvB ili drugi endokrini disruptori prisutni u koncentraciji > = 0,1 %:

Sastojak	Ident. Broj.	Količina	Svojstva:
Produkti reakcije oligomerizacije i alkilacije 2-fenilpropen i fenol	EINECS: 700-960-7	>=1 - <3 %	vPvB

Nema ostalih rizika

ODJELJAK 3.: Sastav/informacije o sastojcima

3.1. Tvari

Ne primjenjuje se.

3.2. Smjese

Identifikacija preparata: ADYWOOD 2K COMP.A

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

Količina	Naziv	Ident. Broj.	Klasifikacija	Broj registriranih slučajeva:	Svojstva:
≥5 - <10 %	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	
≥1 - <3 %	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	
≥1 - <3 %	Produkti reakcije oligomerizacije i alkilacije 2-fenilpropen i fenol	EC:700-960-7	Skin Irrit. 2, H315; Skin Sens. 1B, H317; Aquatic Chronic 3, H412	01-2119555274-38-xxxx	vPvB
≥1 - <3 %	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	01-2119485289-22-xxxx	
≥1 - <3 %	Ulje ljuske indijskog oraha	CAS:8007-24-7 EC:700-991-6	Acute Tox. 4, H302 Acute Tox. 4, H312 Eye Dam. 1, H318 Skin Irrit. 2, H315 Skin Sens. 1A, H317  Procjena akutne toksičnosti: ATE - Oralno: 500mg/kg t.m. ATE - Dermalno: 1100mg/kg t.m.	01-2119502450-57-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 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 svježi 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).

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### **ODJELJAK 5.: Mjere za suzbijanje požara**

#### **5.1. Sredstva za gašenje**

Prikladna sredstva za gašenje požara:

CO<sub>2</sub>, 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.

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### **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.

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### **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**

ODJELJAK 8.: Nadzor nad izloženosti/osobna zaštita  
8.1. Nadzorni parametri

Spisak komponenti sa OEL vrijedostima

etil-acetat			
CAS: 141-78-6	OEL Tip	ACGIH	Dugoročno 400 ppm Napomene: URT and eye irr
	OEL Tip	UE	Dugoročno 734 mg/m3 - 200 ppm; Kratkoročno 1468 mg/m3 - 400 ppm
	OEL Tip	MAK    Austrija	Dugoročno 734 mg/m3 - 200 ppm; Kratkoročno 1468 mg/m3 - 400 ppm
	OEL Tip	MAK    Njemačka	Dugoročno 750 mg/m3 - 200 ppm; Kratkoročno 1500 mg/m3 - 400 ppm
	OEL Tip	VLEP    Belgija	Dugoročno 734 mg/m3 - 200 ppm; Kratkoročno 1468 mg/m3 - 400 ppm
	OEL Tip	VLEP    Francuska	Dugoročno 734 mg/m3 - 200 ppm; Kratkoročno 1468 mg/m3 - 400 ppm
	OEL Tip	VLEP    Italija	Dugoročno 734 mg/m3 - 200 ppm; Kratkoročno 1468 mg/m3 - 400 ppm
	OEL Tip	VLEP    Rumunjska	Dugoročno 400 mg/m3 - 111 ppm; Kratkoročno 500 mg/m3 - 139 ppm
	OEL Tip	TLV    Bugarska	Dugoročno 734 mg/m3 - 200 ppm; Kratkoročno 1468 mg/m3 - 400 ppm
	OEL Tip	TLV    Češka	Dugoročno 700 mg/m3 - 191.1 ppm; Kratkoročno 900 mg/m3 - 245.7 ppm
	OEL Tip	VLA    Španjolska	Dugoročno 734 mg/m3 - 200 ppm; Kratkoročno 1460 mg/m3 - 400 ppm
	OEL Tip	ÁK    Mađarska	Dugoročno 1400 mg/m3; Kratkoročno 1400 mg/m3
	OEL Tip	VLE    Portugal	Dugoročno 734 mg/m3 - 200 ppm; Kratkoročno 1468 mg/m3 - 400 ppm
	OEL Tip	SUVA    Švicarska	Dugoročno 730 mg/m3 - 200 ppm; Kratkoročno 1470 mg/m3 - 400 ppm
	OEL Tip	WEL    U.K.	Dugoročno 730 mg/m3 - 200 ppm; Kratkoročno 1460 mg/m3 - 400 ppm
	OEL Tip	GVI    Hrvatska	Dugoročno 734 mg/m3 - 200 ppm; Kratkoročno 1468 mg/m3 - 400 ppm
	OEL Tip	AGW    Njemačka	Dugoročno 730 mg/m3 - 200 ppm; Kratkoročno 1460 mg/m3 - 400 ppm
	OEL Tip	NDS    Poljska	Dugoročno 734 mg/m3; Kratkoročno 1468 mg/m3
	OEL Tip	MV    Slovenija	Dugoročno 734 mg/m3 - 200 ppm; Kratkoročno 1468 mg/m3 - 400 ppm
	OEL Tip	IPRV    Litva	Dugoročno 500 mg/m3 - 150 ppm; Kratkoročno 1100 mg/m3 - 300 ppm

Granične vrijednosti izloženosti PNEC

bis[4-(2,3-epoksi)propoksi]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
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
Produkti reakcije oligomerizacije i alkilacije 2-fenilpropen i fenol	
	Putevi izloženosti: Svježa voda; PNEC Ograničiti: 0.014 mg/l Putevi izloženosti: Morska voda; PNEC Ograničiti: 0.001 µg/l Putevi izloženosti: Sedimenti svježe vode; PNEC Ograničiti: 1064 mg/kg Putevi izloženosti: Sedimenti morske vode; PNEC Ograničiti: 106 mg/kg Putevi izloženosti: Mikroorganizmi u postrojenjima za obradu otpadnih voda (STP); PNEC Ograničiti: 2.4

mg/l

Putevi izloženosti: Tlo (poljoprivredno); PNEC Ograničiti: 212.2 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

Ulje ljuske indijskog oraha

CAS: 8007-24-7 Putevi izloženosti: Svježa voda; PNEC Ograničiti: 0.003 mg/l

Putevi izloženosti: Morska voda; PNEC Ograničiti: 0.03 mg/l

Putevi izloženosti: Sedimenti svježe vode; PNEC Ograničiti: 0.97 mg/kg

Putevi izloženosti: Sedimenti morske vode; PNEC Ograničiti: 0.088 mg/kg

Putevi izloženosti: Tlo (poljoprivredno); PNEC Ograničiti: 6.71 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/m<sup>3</sup>; Potrošač: 0.87 mg/m<sup>3</sup>

Putevi izloženosti: Ljudi oralno; Učestalost izloženosti: Kratkotrajni, sistemski učinci  
Potrošač: 0.5 mg/kg

etil-acetat

CAS: 141-78-6 Putevi izloženosti: Ljudi inhalacijski; Učestalost izloženosti: Dugotrajni, sistemski učinci  
Profesionalni djelatnik: 734 mg/m<sup>3</sup>; Potrošač: 367 mg/m<sup>3</sup>

Putevi izloženosti: Ljudi inhalacijski; Učestalost izloženosti: Dugotrajni, lokalni učinci  
Profesionalni djelatnik: 734 mg/m<sup>3</sup>; Potrošač: 367 mg/m<sup>3</sup>

Putevi izloženosti: Ljudi inhalacijski; Učestalost izloženosti: Kratkotrajni, sistemski učinci  
Profesionalni djelatnik: 1468 mg/m<sup>3</sup>; Potrošač: 734 mg/m<sup>3</sup>

Putevi izloženosti: Ljudi inhalacijski; Učestalost izloženosti: Kratkotrajni, lokalni učinci  
Profesionalni djelatnik: 1468 mg/m<sup>3</sup>; Potrošač: 734 mg/m<sup>3</sup>

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

Produkti reakcije oligomerizacije i alkilacije 2-fenilpropen i fenol

Putevi izloženosti: Ljudi oralno; Učestalost izloženosti: Dugotrajni, sistemski učinci  
Potrošač: 0.2 mg/kg

Putevi izloženosti: Ljudi inhalacijski; Učestalost izloženosti: Dugotrajni, sistemski učinci  
Profesionalni djelatnik: 1.4 mg/m<sup>3</sup>; Potrošač: 0.35 mg/m<sup>3</sup>

Putevi izloženosti: Ljudi dermalno; Učestalost izloženosti: Dugotrajni, sistemski učinci  
Potrošač: 1.7 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/m<sup>3</sup>; Potrošač: 0.87 mg/m<sup>3</sup>

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

Ulje ljuske indijskog oraha

CAS: 8007-24-7    Putevi izloženosti: Ljudi inhalacijski; Učestalost izloženosti: Dugotrajni, sistemski učinci  
Profesionalni djelatnik: 0.88 mg/m<sup>3</sup>; Potrošač: 0.2 mg/m<sup>3</sup>

Putevi izloženosti: Ljudi dermalno; Učestalost izloženosti: Dugotrajni, sistemski učinci  
Profesionalni djelatnik: 0.5 mg/kg; Potrošač: 0.25 mg/kg

Putevi izloženosti: Ljudi oralno; Učestalost izloženosti: Dugotrajni, sistemski učinci  
Potrošač: 0.25 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.

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## ODJELJAK 9.: Fizikalna i kemijska svojstva

### 9.1. Informacije o osnovnim fizikalnim i kemijskim svojstvima

Izgled: kašasta tekućina

Boja: tamnosmeđe

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: > 60°C / 93°C

Temperatura samozapaljenja: N.D.

Temperatura raspadanja: N.D.

pH: Ne primjenjuje se. ( Ne odnosi se zbog prirode proizvoda )

Kinematička viskoznost: > 20.5 mm<sup>2</sup>/s (40 °C)

Gustoća i/ili relativna gustoća: 1,8 kg/l ( Interna metoda )

Relativna gustoća pare: N.D.

Tlak pare: N.D.

Topljivost u vodi: Ne miješa 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 )

Brzina isparavanja: Ne primjenjuje se.

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## 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 izvorā 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

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. 1(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	Nije kategorizirano Na temelju dostupnih podataka kriteriji za razvrstavanje nisu ispunjeni.
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 Na temelju dostupnih podataka kriteriji za razvrstavanje nisu ispunjeni.
j) opasnost u slučaju udisanja	Nije kategorizirano Na temelju dostupnih podataka kriteriji za razvrstavanje nisu ispunjeni.

#### Podaci o toksičnosti glavnih sastojaka u proizvodu:

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

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

Produkti reakcije oligomerizacije i alkilacije 2-fenilpropen i fenol

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

Ulje ljuske indijskog oraha

CAS: 8007-24-7 a) akutna toksičnost ATE - Oralno: 500 mg/kg t.m.  
ATE - Dermalno: 1100 mg/kg t.m.  
LD50 Koža Štakor > 2000 mg/kg  
LD50 Oralno Štakor 5000 mg/kg

## 11.2. Informacije o drugim opasnostima

### Svojstva endokrine disrupcije:

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

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## ODJELJAK 12.: Ekološke informacije

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

### 12.1. Toksičnost

Eko-Toksikološke informacije:

Štetno za vodeni okoliš s dugotrajnim učincima.

#### Popis eko-toksikoloških svojstava proizvoda

Proizvod je razvrstan kao: Aquatic Chronic 3(H412)

#### 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

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

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

### 12.2. Postojanost i razgradivost

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

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

etil-acetat

CAS: 141-78-6 Brzo-biološki razgradiv

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

CAS: 68609-97-2 Brzo-biološki razgradiv

Ulje ljuske indijskog oraha

CAS: 8007-24-7 Brzo-biološki razgradiv

### 12.3. Bioakumulacijski potencijal

Ne primjenjuje se.

### 12.4. Pokretljivost u tlu

Ne primjenjuje se.

### 12.5. Rezultati procjene svojstava PBT i vPvB

#### Popis sastojaka sa eko-toksikološkim svojstvima

Produkti reakcije oligomerizacije i alkilacije 2-fenilpropan i fenol

>=1 - <3 % vPvB

### 12.6. Svojstva endokrine disrupcije

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



## 12.7. Ostali štetni učinci

Ne primjenjuje se.

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## ODJELJAK 13.: Zbrinjavanje

### 13.1. Metode obrade otpada

Regenerirati ako je moguće. Pri tome se pridržavati propisanih lokalnih i državnih propisa.

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.

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## ODJELJAK 14.: Informacije o prijevozu

Nije klasificirano kao opasno po propisima za transport.

### 14.1. UN broj ili identifikacijski broj

N/A

### 14.2. Ispravno otpremno ime prema UN-u

ADR-Naziv za otpremu: N/A

IATA-Naziv za otpremu: N/A

IMDG-Naziv za otpremu: N/A

### 14.3. Razred(i) opasnosti pri prijevozu

ADR-Razred: N/A

IATA-Razred: N/A

IMDG-Razred: N/A

### 14.4. Skupina pakiranja

ADR-Grupa pakiranja: N/A

IATA-Grupa pakiranja: N/A

IMDG-Grupa pakiranja: N/A

### 14.5. Opasnosti za okoliš

Morski polutant: Ne

Zagađivači okoliša: Ne

IMDG-EMS: N/A

### 14.6. Posebne mjere opreza za korisnika

Ceste i Željeznica (ADR-RID):

ADR oslobađa:

ADR-Označavanje: N/A

ADR - Identifikacijski broj opasnosti: N/A

ADR-Posebne odredbe: N/A

ADR ograničenja prijevoza u tunelu:

Zrak (IATA):

IATA-Putnički zrakoplov: N/A

IATA-Teretni zrakoplov: N/A

IATA-Označavanje: N/A

IATA-Sporedni opasnosti: N/A

IATA-Erg: N/A

IATA-Posebne odredbe: N/A

More (IMDG):

IMDG-Skladištenje i rukovanje: N/A

IMDG-Segregacija: N/A

IMDG-Sporedni opasnosti: N/A

IMDG-Posebne odredbe: N/A

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

Ne primjenjuje se.

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## 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)

**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)**

Niti jedan

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

Nijedna tvar nije navedena

**Njemačka klasifikacija opasnosti za vodu.**

Klasa 2: zagađuje vodu.

**SVHC tvari:**

**Tvari na popisu kandidata (Člt. 59 Ur. 1907/2006, REACH):**

Sastojak	Ident. Broj.	Količina	Svojstva:
Produkti reakcije oligomerizacije i alkilacije 2-fenilpropen i fenol	EINECS: 700-960-7	>=1 - <3 %	SVHC - vPvB

**15.2. Procjena kemijske sigurnosti**

Procjena kemijske sigurnosti nije provedena za smjesu

**ODJELJAK 16.: Ostale informacije**

Šifra	Opis
EUH066	Ponavljano izlaganje može prouzročiti sušenje ili pucanje kože.
H225	Lako zapaljiva tekućina i para.
H302	Štetno ako se proguta.
H312	Štetno u dodiru s kožom.
H315	Nadražuje kožu.
H317	Može izazvati alergijsku reakciju na koži.
H318	Uzrokuje teške ozljede oka.
H319	Uzrokuje jako nadraživanje oka.
H336	Može izazvati pospanost ili vrtoglavicu.
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
3.1/4/Dermal	Acute Tox. 4	Akutna toksičnost (preko kože), kategorija 4
3.1/4/Oral	Acute Tox. 4	Akutna toksičnost (gutanje), kategorija 4
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
3.8/3	STOT SE 3	Specifična toksičnost za ciljane organe – jednokratno izlaganje, Kategorija 3
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. 1, H317	Računska metoda
Aquatic Chronic 3, H412	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 2.: Identifikacija opasnosti
- ODJELJAK 3.: Sastav/informacije o sastojcima
- ODJELJAK 6.: Mjere kod slučajnog ispuštanja
- ODJELJAK 8.: Nadzor nad izloženošću/osobna zaštita
- ODJELJAK 9.: Fizikalna i kemijska svojstva
- ODJELJAK 11.: Toksikološke informacije
- ODJELJAK 12.: Ekološke informacije
- ODJELJAK 13.: Zbrinjavanje
- ODJELJAK 14.: Informacije o prijevozu
- 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 <sup>3</sup> (ECETOC TRA worker v3)	< 0.01
inhalation	systemic	Short term	0.147 mg/m <sup>3</sup> (ECETOC TRA worker v3)	< 0.01
inhalation	local	Long-term	0.037 mg/m <sup>3</sup> (ECETOC TRA worker v3)	< 0.01
inhalation	local	Short term	0.147 mg/m <sup>3</sup> (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 <sup>3</sup> (ECETOC TRA worker v3)	0.125
inhalation	systemic	Short term	361.7 mg/m <sup>3</sup> (ECETOC TRA worker v3)	0.25
inhalation	local	Long-term	91.77 mg/m <sup>3</sup> (ECETOC TRA worker v3)	0.125
inhalation	local	Short term	361.7 mg/m <sup>3</sup> (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 <sup>3</sup> (ECETOC TRA worker v3)	0.125
inhalation	systemic	Short term	361.7 mg/m <sup>3</sup> (ECETOC TRA worker v3)	0.25
inhalation	local	Long-term	91.77 mg/m <sup>3</sup> (ECETOC TRA worker v3)	0.125
inhalation	local	Short term	361.7 mg/m <sup>3</sup> (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 <sup>3</sup> (ECETOC TRA worker v3)	0.25
inhalation	systemic	Short term	734.2 mg/m <sup>3</sup> (ECETOC TRA worker v3)	0.5
inhalation	local	Long-term	183.5 mg/m <sup>3</sup> (ECETOC TRA worker v3)	0.25
inhalation	local	Short term	734.2 mg/m <sup>3</sup> (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 <sup>3</sup> (ECETOC TRA worker v3)	0.05
inhalation	systemic	Short term	146.8 mg/m <sup>3</sup> (ECETOC TRA worker v3)	0.1
inhalation	local	Long-term	36.71 mg/m <sup>3</sup> (ECETOC TRA worker v3)	0.05
inhalation	local	Short term	146.8 mg/m <sup>3</sup> (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 <sup>3</sup> (ECETOC TRA worker v3)	0.125
inhalation	systemic	Short term	367.1 mg/m <sup>3</sup> (ECETOC TRA worker v3)	0.25
inhalation	local	Long-term	91.77 mg/m <sup>3</sup> (ECETOC TRA worker v3)	0.125
inhalation	local	Short term	367.1 mg/m <sup>3</sup> (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 <sup>3</sup> (ECETOC TRA worker v3)	0.125
inhalation	systemic	Short term	367.1 mg/m <sup>3</sup> (ECETOC TRA worker v3)	0.25
inhalation	local	Long-term	91.77 mg/m <sup>3</sup> (ECETOC TRA worker v3)	0.125
inhalation	local	Short term	367.1 mg/m <sup>3</sup> (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 <sup>3</sup> (ECETOC TRA worker v3)	0.125
inhalation	systemic	Short term	367.1 mg/m <sup>3</sup> (ECETOC TRA worker v3)	0.25
inhalation	local	Long-term	91.77 mg/m <sup>3</sup> (ECETOC TRA worker v3)	0.125
inhalation	local	Short term	367.1 mg/m <sup>3</sup> (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 <sup>3</sup> (ECETOC TRA worker v3)	0.125
inhalation	systemic	Short term	367.1 mg/m <sup>3</sup> (ECETOC TRA worker v3)	0.25
inhalation	local	Long-term	91.77 mg/m <sup>3</sup> (ECETOC TRA worker v3)	0.125
inhalation	local	Short term	367.1 mg/m <sup>3</sup> (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 <sup>3</sup> (ECETOC TRA worker v3)	0.038
inhalation	systemic	Short term	110.1 mg/m <sup>3</sup> (ECETOC TRA worker v3)	0.075
inhalation	local	Long-term	27.53 mg/m <sup>3</sup> (ECETOC TRA worker v3)	0.038
inhalation	local	Short term	110.1 mg/m <sup>3</sup> (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 <sup>3</sup> (ECETOC TRA worker v3)	0.125
inhalation	systemic	Short term	367.1 mg/m <sup>3</sup> (ECETOC TRA worker v3)	0.25
inhalation	local	Long-term	91.77 mg/m <sup>3</sup> (ECETOC TRA worker v3)	0.125
inhalation	local	Short term	367.1 mg/m <sup>3</sup> (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 <sup>3</sup> (ECETOC TRA worker v3)	0.125
inhalation	systemic	Short term	367.1 mg/m <sup>3</sup> (ECETOC TRA worker v3)	0.25
inhalation	local	Long-term	91.77 mg/m <sup>3</sup> (ECETOC TRA worker v3)	0.125
inhalation	local	Short term	367.1 mg/m <sup>3</sup> (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 <sup>3</sup> (ECETOC TRA worker v3)	0.25
inhalation	systemic	Short term	734.2 mg/m <sup>3</sup> (ECETOC TRA worker v3)	0.5
inhalation	local	Long-term	183.5 mg/m <sup>3</sup> (ECETOC TRA worker v3)	0.25
inhalation	local	Short term	734.2 mg/m <sup>3</sup> (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 <sup>3</sup> (ECETOC TRA worker v3)	0.1
inhalation	systemic	Short term	293.6 mg/m <sup>3</sup> (ECETOC TRA worker v3)	0.2
inhalation	local	Long-term	73.42 mg/m <sup>3</sup> (ECETOC TRA worker v3)	0.1
inhalation	local	Short term	293.6 mg/m <sup>3</sup> (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 <sup>3</sup> (ECETOC TRA worker v3)	0.125
inhalation	systemic	Short term	367.1 mg/m <sup>3</sup> (ECETOC TRA worker v3)	0.25
inhalation	local	Long-term	91.77 mg/m <sup>3</sup> (ECETOC TRA worker v3)	0.125
inhalation	local	Short term	367.1 mg/m <sup>3</sup> (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 <sup>3</sup> (ECETOC TRA worker v3)	< 0.01
inhalation	systemic	Short term	1.468 mg/m <sup>3</sup> (ECETOC TRA worker v3)	< 0.01
inhalation	local	Long-term	0.367 mg/m <sup>3</sup> (ECETOC TRA worker v3)	< 0.01
inhalation	local	Short term	1.468 mg/m <sup>3</sup> (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 <sup>3</sup> (ECETOC TRA worker v3)	0.25
inhalation	systemic	Short term	734.2 mg/m <sup>3</sup> (ECETOC TRA worker v3)	0.5
inhalation	local	Long-term	183.5 mg/m <sup>3</sup> (ECETOC TRA worker v3)	0.25
inhalation	local	Short term	734.2 mg/m <sup>3</sup> (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 <sup>3</sup> (ECETOC TRA worker v3)	0.25
inhalation	local	Short term	734.2 mg/m <sup>3</sup> (ECETOC TRA worker v3)	0.5
inhalation	local	Long-term	183.5 mg/m <sup>3</sup> (ECETOC TRA worker v3)	0.25
inhalation	systemic	Short term	734.2 mg/m <sup>3</sup> (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 <sup>3</sup> (ECETOC TRA worker v3)	0.35
inhalation	systemic	Short term	1.03 g/m <sup>3</sup> (ECETOC TRA worker v3)	0.7
inhalation	local	Long-term	256.9 mg/m <sup>3</sup> (ECETOC TRA worker v3)	0.35
inhalation	local	Short term	1.03 g/m <sup>3</sup> (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 <sup>3</sup> (ECETOC TRA worker v3)	0.175
inhalation	systemic	Short term	513.9 mg/m <sup>3</sup> (ECETOC TRA worker v3)	0.35
inhalation	local	Long-term	128.4 mg/m <sup>3</sup> (ECETOC TRA worker v3)	0.175
inhalation	local	Short term	513.9 mg/m <sup>3</sup> (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 <sup>3</sup> (ECETOC TRA worker v3)	0.35
inhalation	systemic	Short term	1.03 g/m <sup>3</sup> (ECETOC TRA worker v3)	0.7
inhalation	local	Long-term	256.9 mg/m <sup>3</sup> (ECETOC TRA worker v3)	0.35
inhalation	local	Short term	1.03 g/m <sup>3</sup> (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 <sup>3</sup> (ECETOC TRA worker v3)	0.35
inhalation	systemic	Short term	1.03 g/m <sup>3</sup> (ECETOC TRA worker v3)	0.7
inhalation	local	Long-term	256.9 mg/m <sup>3</sup> (ECETOC TRA worker v3)	0.35
inhalation	local	Short term	1.03 g/m <sup>3</sup> (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 <sup>3</sup> (ECETOC TRA worker v3)	0.175
inhalation	systemic	Short term	513.9 mg/m <sup>3</sup> (ECETOC TRA worker v3)	0.35
inhalation	local	Long-term	128.4 mg/m <sup>3</sup> (ECETOC TRA worker v3)	0.175
inhalation	local	Short term	513.9 mg/m <sup>3</sup> (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 <sup>3</sup> (ECETOC TRA worker v3)	0.35
inhalation	systemic	Short term	1.03 g/m <sup>3</sup> (ECETOC TRA worker v3)	0.7
inhalation	local	Long-term	256.9 mg/m <sup>3</sup> (ECETOC TRA worker v3)	0.35
inhalation	local	Short term	1.03 g/m <sup>3</sup> (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 <sup>3</sup> (ECETOC TRA worker v3)	0.125
inhalation	systemic	Short term	367.1 mg/m <sup>3</sup> (ECETOC TRA worker v3)	0.25
inhalation	local	Long-term	91.77 mg/m <sup>3</sup> (ECETOC TRA worker v3)	0.125
inhalation	local	Short term	367.1 mg/m <sup>3</sup> (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 <sup>3</sup> (ECETOC TRA worker v3)	0.35
inhalation	systemic	Short term	1.03 g/m <sup>3</sup> (ECETOC TRA worker v3)	0.7
inhalation	local	Long-term	256.9 mg/m <sup>3</sup> (ECETOC TRA worker v3)	0.35
inhalation	local	Short term	1.03 g/m <sup>3</sup> (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 <sup>3</sup> (ECETOC TRA worker v3)	0.175
inhalation	systemic	Short term	513.9 mg/m <sup>3</sup> (ECETOC TRA worker v3)	0.35
inhalation	local	Long-term	128.4 mg/m <sup>3</sup> (ECETOC TRA worker v3)	0.175
inhalation	local	Short term	513.9 mg/m <sup>3</sup> (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 <sup>3</sup> (ECETOC TRA worker v3)	0.42
inhalation	systemic	Short term	mg/m <sup>3</sup> (ECETOC TRA worker v3)	0.84
inhalation	local	Long-term	308.3 mg/m <sup>3</sup> (ECETOC TRA worker v3)	0.42
inhalation	local	Short term	mg/m <sup>3</sup> (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 <sup>3</sup> (ECETOC TRA worker v3)	0.21
inhalation	systemic	Short term	616.7 mg/m <sup>3</sup> (ECETOC TRA worker v3)	0.42
inhalation	local	Long-term	154.1 mg/m <sup>3</sup> (ECETOC TRA worker v3)	0.21
inhalation	local	Short term	616.7 mg/m <sup>3</sup> (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 <sup>3</sup> (ECETOC TRA worker v3)	0.225
inhalation	systemic	Short term	660.7 mg/m <sup>3</sup> (ECETOC TRA worker v3)	0.45
inhalation	local	Long-term	165.1 mg/m <sup>3</sup> (ECETOC TRA worker v3)	0.225
inhalation	local	Short term	660.7 mg/m <sup>3</sup> (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 <sup>3</sup> (ECETOC TRA worker v3)	0.053
inhalation	systemic	Short term	154.1 mg/m <sup>3</sup> (ECETOC TRA worker v3)	0.105
inhalation	local	Long-term	38.54 mg/m <sup>3</sup> (ECETOC TRA worker v3)	0.053
inhalation	local	Short term	154.1 mg/m <sup>3</sup> (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 <sup>3</sup> (ECETOC TRA worker v3)	0.25
inhalation	systemic	Short term	734.2 mg/m <sup>3</sup> (ECETOC TRA worker v3)	0.5
inhalation	local	Long-term	183.5 mg/m <sup>3</sup> (ECETOC TRA worker v3)	0.25
inhalation	local	Short term	734.2 mg/m <sup>3</sup> (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 <sup>3</sup> (ECETOC TRA worker v3)	0.45
inhalation	systemic	Short term	1.32 g/m <sup>3</sup> (ECETOC TRA worker v3)	0.9
inhalation	local	Long-term	330.3 mg/m <sup>3</sup> (ECETOC TRA worker v3)	0.45
inhalation	local	Short term	1.32 g/m <sup>3</sup> (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 <sup>3</sup> (ECETOC TRA worker v3)	0.35
inhalation	systemic	Short term	mg/m <sup>3</sup> (ECETOC TRA worker v3)	0.7
inhalation	local	Long-term	256.9 mg/m <sup>3</sup> (ECETOC TRA worker v3)	0.35
inhalation	local	Short term	mg/m <sup>3</sup> (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 <sup>3</sup> (ECETOC TRA worker v3)	0.225
inhalation	systemic	Short term	660.7 mg/m <sup>3</sup> (ECETOC TRA worker v3)	0.45
inhalation	local	Long-term	165.1 mg/m <sup>3</sup> (ECETOC TRA worker v3)	0.225
inhalation	local	Short term	660.7 mg/m <sup>3</sup> (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 <sup>3</sup> (ECETOC TRA worker v3)	0.15
inhalation	local	Long-term	110.1 mg/m <sup>3</sup> (ECETOC TRA worker v3)	0.15
inhalation	local	Short term	440.5 mg/m <sup>3</sup> (ECETOC TRA worker v3)	0.3
inhalation	systemic	Short term	440.5 mg/m <sup>3</sup> (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 <sup>3</sup> (ECETOC TRA worker v3)	0.3
inhalation	systemic	Short term	881.0 mg/m <sup>3</sup> (ECETOC TRA worker v3)	0.6
inhalation	local	Long-term	220.2 mg/m <sup>3</sup> (ECETOC TRA worker v3)	0.3
inhalation	local	Short term	881.0 mg/m <sup>3</sup> (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 <sup>3</sup> (ECETOC TRA worker v3)	0.225
inhalation	systemic	Short term	660.7 mg/m <sup>3</sup> (ECETOC TRA worker v3)	0.45
inhalation	local	Long-term	165.1 mg/m <sup>3</sup> (ECETOC TRA worker v3)	0.225
inhalation	local	Short term	660.7 mg/m <sup>3</sup> (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 <sup>3</sup> (ECETOC TRA worker v3)	0.105
inhalation	systemic	Short term	308.3 mg/m <sup>3</sup> (ECETOC TRA worker v3)	0.21
inhalation	local	Long-term	77.09 mg/m <sup>3</sup> (ECETOC TRA worker v3)	0.105
inhalation	local	Short term	308.3 mg/m <sup>3</sup> (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 <sup>3</sup> (ECETOC TRA worker v3)	0.225
inhalation	systemic	Short term	660.7 mg/m <sup>3</sup> (ECETOC TRA worker v3)	0.45
inhalation	local	Long-term	165.1 mg/m <sup>3</sup> (ECETOC TRA worker v3)	0.225
inhalation	local	Short term	660.7 mg/m <sup>3</sup> (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 <sup>3</sup> (ECETOC TRA worker v3)	0.45
inhalation	systemic	Short term	mg/m <sup>3</sup> (ECETOC TRA worker v3)	0.9
inhalation	local	Long-term	330.3 mg/m <sup>3</sup> (ECETOC TRA worker v3)	0.45
inhalation	local	Short term	mg/m <sup>3</sup> (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 <sup>3</sup> (ECETOC TRA worker v3)	0.3
inhalation	systemic	Short term	881.0 mg/m <sup>3</sup> (ECETOC TRA worker v3)	0.6
inhalation	local	Long-term	220.2 mg/m <sup>3</sup> (ECETOC TRA worker v3)	0.3
inhalation	local	Short term	881.0 mg/m <sup>3</sup> (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 <sup>3</sup> (ECETOC TRA worker v3)	0.35
inhalation	systemic	Short term	1.03 g/m <sup>3</sup> (ECETOC TRA worker v3)	0.7
inhalation	local	Long-term	256.9 mg/m <sup>3</sup> (ECETOC TRA worker v3)	0.35
inhalation	local	Short term	1.03 g/m <sup>3</sup> (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 <sup>3</sup> (ECETOC TRA worker v3)	0.35
inhalation	systemic	Short term	1.03 g/m <sup>3</sup> (ECETOC TRA worker v3)	0.7
inhalation	local	Long-term	256.9 mg/m <sup>3</sup> (ECETOC TRA worker v3)	0.35
inhalation	local	Short term	1.03 g/m <sup>3</sup> (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 <sup>3</sup> (ECETOC TRA worker v3)	0.3
inhalation	systemic	Short term	881.0 mg/m <sup>3</sup> (ECETOC TRA worker v3)	0.6
inhalation	local	Long-term	220.2 mg/m <sup>3</sup> (ECETOC TRA worker v3)	0.3
inhalation	local	Short term	881.0 mg/m <sup>3</sup> (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 <sup>3</sup> (ECETOC TRA worker v3)	0.053
inhalation	systemic	Short term	154.1 mg/m <sup>3</sup> (ECETOC TRA worker v3)	0.105
inhalation	local	Long-term	38.54 mg/m <sup>3</sup> (ECETOC TRA worker v3)	0.053
inhalation	local	Short term	154.1 mg/m <sup>3</sup> (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 <sup>3</sup> (ECETOC TRA worker v3)	0.15
inhalation	systemic	Short term	440.5 mg/m <sup>3</sup> (ECETOC TRA worker v3)	0.3
inhalation	local	Long-term	110.1 mg/m <sup>3</sup> (ECETOC TRA worker v3)	0.15
inhalation	local	Short term	440.5 mg/m <sup>3</sup> (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/>

# bis-[4-(2,3-epoxipropoxy)phenyl]propane

## Substance identification

Chemical Name: bis-[4-(2,3-epoxipropoxy)phenyl]propane

CAS number: 1675-54-3

Date - Version: 29/12/2021 - 1.3

## INDUSTRIAL USE - PROFESSIONAL USES: PUBLIC SECTOR (ADMINISTRATION, EDUCATION, ENTERTAINMENT, SERVICES, CRAFTS) (SU22).

### 1. TITLE SECTION

**Exposure scenario name:** Industrial use.

**Structured short title:** Professional uses: public sector (administration, education, entertainment, service, crafts) (SU22).

**Substance:** 2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane

EC number: 216-823-5

Registration number: 01-2119456619-26

### ENVIRONMENT

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

### WORKER

**SC 2:** Use as laboratory reagents PROC15

**SC 3:** Treatment of articles by dipping and pouring PROC13

**SC 4:** Tableting, compression, extrusion, pelletising, granulation PROC14

**SC 5:** General greasing/lubrication in high energy conditions PROC18

**SC 6** Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities PROC8a

### 2. CONDITIONS OF USE AFFECTING EXPOSURE

#### 2.1. ENVIRONMENTAL EXPOSURE CONTROL: Use of non-reactive processing aid at industrial site (no inclusion in article) (ERC4)

##### *Product features (article)*

Physical form of the product: Liquid

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

Daily amount per site: 0,6 ton/day

Annual amount per site: 20 ton/year

##### *Conditions and measures related to sewage treatment plant*

STP Type: Municipal wastewater treatment plant.

Learn more about STP: biological elimination.

STP sludge treatment: It may be landfilled when allowed by local regulations.

STP effluent: 2,000 m³/day

##### *Other conditions affecting environmental exposure*

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

Outdoor / Indoor Indoor use.

#### 2.2. WORKERS EXPOSURE CONTROL: Use as laboratory reagents (PROC15)

##### *Product features (article)*

Covers the percentage of substance in the product up to 100%.

Physical form of the product: Liquid.

Temperature: < 40°C

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

Duration: Covers daily exposures up to 8 hours.

### ***Organizational and technical measures and conditions***

Assumes a good basic standard of occupational hygiene is implemented.

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

Dermal: minimum efficiency of 0%.

Inhalation: minimum yield of 30%.

### ***Conditions and measures for personal protection, hygiene and health assessment***

Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.

Use adequate eye protection.

Dermal: minimum efficiency of 95%.

Inhalation: minimum yield of 0%.

### ***Other conditions affecting worker exposure***

Outdoor / Indoor Inside.

Temperature: < 40°C

## **2.3. WORKERS EXPOSURE CONTROL: Treatment of articles by dipping and pouring (PROC13)**

### ***Product features (article)***

Covers the percentage of substance in the product up to 25%.

Physical form of the product: Liquid.

Vapour pressure: 0,00741 Pa

Temperature: < 70°C

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

Duration: Covers daily exposures up to 8 hours.

### ***Organizational and technical measures and conditions***

Assumes a good basic standard of occupational hygiene is implemented.

Provide a good standard of general ventilation (not less than 1 to 3 air changes per hour).

Dermal: minimum efficiency of 0%.

Inhalation: minimum yield of 0%.

### ***Conditions and measures for personal protection, hygiene and health assessment***

Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.

Use adequate eye protection.

Dermal: minimum efficiency of 95%.

Inhalation: minimum yield of 0%.

Wear suitable respirator.

Inhalation: minimum yield of 90%.

### ***Other conditions affecting worker exposure***

Outdoor / Indoor Inside.

Temperature: < 40°C

## **2.4. WORKERS EXPOSURE CONTROL: Tableting, compression, extrusion, pelletising, granulation (PROC14)**

### ***Product features (article)***

Covers the percentage of substance in the product up to 100%.

Physical form of the product: Liquid.

Temperature: < 40°C

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

Duration: Covers daily exposures up to 8 hours.

### ***Organizational and technical measures and conditions***

Assumes a good basic standard of occupational hygiene is implemented.

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

Dermal: minimum efficiency of 0%.

Inhalation: minimum yield of 30%.



### ***Conditions and measures for personal protection, hygiene and health assessment***

Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.

Use adequate eye protection.

Dermal: minimum efficiency of 95%.

Inhalation: minimum yield of 0%.

### ***Other conditions affecting worker exposure***

Outdoor / Indoor Inside.

Temperature: < 40°C

## **2.5. WORKERS EXPOSURE CONTROL: General greasing/lubrication in high energy conditions (PROC18)**

### ***Product features (article)***

Covers concentrations up to 20%.

Physical form of the product: Liquid.

Temperature: ≤ 800°C

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

Duration: Covers daily exposures up to 8 hours.

### ***Conditions and measures for personal protection, hygiene and health assessment***

Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.

Use adequate eye protection.

Dermal: minimum efficiency of 95%.

Inhalation: minimum yield of 0%.

Wear suitable respirator.

Inhalation: minimum yield of 90%.

### ***Other conditions affecting worker exposure***

Outdoor / Indoor Outside.

Industrial or professional environments: Professional use.

Temperature: ≤ 800°C

## **2.6. WORKERS EXPOSURE CONTROL: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities (PROC8a)**

### ***Product features (article)***

Covers the percentage of substance in the product up to 25%.

Physical form of the product: Liquid.

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

Duration: Covers daily exposures up to 8 hours.

### ***Conditions and measures for personal protection, hygiene and health assessment***

Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.

Use adequate eye protection.

Dermal: minimum efficiency of 95%.

Inhalation: minimum yield of 0%.

### ***Other conditions affecting worker exposure***

Outdoor / Indoor Outside.

Industrial or professional environments: Professional use.

Temperature: A process temperature of up to < 40°C is assumed.

### 3. EXPOSURE ESTIMATION AND REFERENCE TO ITS SOURCE

#### 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	1.2E-10kg/day	FEICA SPERC 5.1 a.v1
air	3E-4kg/day	FEICA SPERC 5.1 a.v1
Soil	0%	FEICA SPERC 5.1 a.v1

Protection target	Estimated Exposure (EUSES v2.1)	RCR
Fresh water	3.76E-4mg/l	0.063
Fresh water sediments	0.018mg/l	0.053
Sea water	2.95E-5mg/kg dry weight	0.049
Marine sediment	1.42E-3mg/kg dry weight	0.042
Sewage treatment plant	5.68E-11mg/l	< 0.01
Farmland	2.88E-6mg/kg dry weight	< 0.01
Prey for predators (freshwater)	mg/kg wet weight (EUSES v2.1)	< 0.01
Prey for predators (marine water)	9.13E-4mg/kg wet weight	< 0.01
Main predator prey (marine water)	9.13E-4mg/kg wet weight	< 0.01
Prey for Predators (Terrestrial)	1.68E-4mg/kg wet weight	< 0.01
Man through the environment - inhalation	7.65E-9mg/m <sup>3</sup>	< 0.01
Man through the environment - oral	3E-5mg/kgbw/day	< 0.01
Population exposed through the environment	-	< 0.01

#### 3.2. Worker exposure: Use as laboratory reagents (PROC15)

Exposure routes	Health effect	Exposure indicator	Estimated exposure (ECETOC TRA worker v3)	RCR
inhalation	systemic	Long-term	0.993mg/m <sup>3</sup>	0.201
inhalation	local	Long-term	0.993mg/m <sup>3</sup>	-
inhalation	local	Short term	0.993mg/m <sup>3</sup>	-
dermal	systemic	Long-term	0.172mg/kg bw/day	0.045
dermal	local	Short term	9.92E-3mg/cm <sup>2</sup>	-
combined routes	-	-	-	0.247

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

Exposure routes	Health effect	Exposure indicator	Estimated exposure (ECETOC TRA worker v3)	RCR
inhalation	systemic	Long-term	0.085mg/m <sup>3</sup>	0.017
inhalation	local	Long-term	0.085mg/m <sup>3</sup>	-
inhalation	local	Short term	0.085mg/m <sup>3</sup>	-
dermal	systemic	Long-term	0.411mg/kgbw/day	0.548
dermal	local	Short term	0.06mg/cm <sup>2</sup>	-
combined routes	-	-	-	0.566

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

Exposure routes	Health effect	Exposure indicator	Estimated exposure (ECETOC TRA worker v3)	RCR
inhalation	systemic	Long-term	0.993mg/m <sup>3</sup>	0.201
inhalation	local	Long-term	0.993mg/m <sup>3</sup>	-
inhalation	local	Short term	0.993mg/m <sup>3</sup>	-
dermal	systemic	Long-term	0.172mg/kg bw/day	0.229
dermal	local	Short term	0.0025mg/cm <sup>2</sup>	-
combined routes	-	-	-	0.43

### 3.5. Worker exposure: General greasing/lubrication in high energy conditions (PROC18)

Exposure routes	Health effect	Exposure indicator	Estimated exposure (ECETOC TRA worker v3)	RCR
inhalation	systemic	Long-term	0.596mg/m <sup>3</sup>	0.121
inhalation	local	Long-term	0.596mg/m <sup>3</sup>	-
inhalation	local	Short term	0.596mg/m <sup>3</sup>	-
dermal	systemic	Long-term	0.411mg/kgbw/day	0.548
dermal	local	Short term	0.03mg/cm <sup>2</sup>	-
combined routes	-	-	-	0.669

### 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 (ECETOC TRA worker v3)	RCR
inhalation	systemic	Long-term	0.596mg/m <sup>3</sup>	0.121
inhalation	local	Long-term	0.596mg/m <sup>3</sup>	-
inhalation	local	Short term	0.596mg/m <sup>3</sup>	-
dermal	systemic	Long-term	0.411mg/kgbw/day	0.548
dermal	local	Short term	0.03mg/cm <sup>2</sup>	-
combined routes	-	-	-	0.669

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

Predicted exposures are not expected to exceed the applicable exposure limits (given in Section 8 of the SDS) when the operational conditions/risk management measures given in Section 2 are implemented.

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.

## PROFESSIONAL USE - PROFESSIONAL USES: PUBLIC SECTOR (ADMINISTRATION, EDUCATION, ENTERTAINMENT, SERVICES, CRAFTS) (SU22).

### 1. TITLE SECTION

**Exposure scenario name:** Professional.

**Structured short title:** Professional uses: public sector (administration, education, entertainment, service, crafts) (SU22).

**Substance:** 2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane

EC number: 216-823-5

Registration number: 01-2119456619-26

### ENVIRONMENT

**SC 1:** Use at an industrial site leading to inclusion in article ERC5

### WORKER

**SC 2:** Industrial spraying PROC7

**SC 3** Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities PROC8a

**SC 4:** Transfer of substance or mixture (charging/discharging) from/to vessels/large containers at dedicated facilities. PROC8b

**SC 5:** Transfer of substance or mixture into small containers (dedicated filling line, including weighing) PROC9

**SC 6:** Application with rollers or brushes PROC10

**SC 7:** Non-industrial spraying PROC11

### 2. CONDITIONS OF USE AFFECTING EXPOSURE

#### 2.1. ENVIRONMENTAL EXPOSURE CONTROL: Use at an industrial site leading to inclusion in article (ERC5)

##### *Product features (article)*

Covers a percentage of substance in the product up to 100%.

Physical form of the product: Liquid

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

Annual amount per site: 30,000 tons/year

Daily amount per site: 100 tons/day

##### *Conditions and measures related to sewage treatment plant*

STP Type: Municipal wastewater treatment plant.

Learn more about STP: biological elimination.

STP sludge treatment: It may be landfilled when allowed by local regulations.

STP effluent: 2,000 m<sup>3</sup>/day

##### *Other conditions affecting environmental exposure*

Water flow on the receiving surface: 18,000 m<sup>3</sup>/day

#### 2.2. WORKERS EXPOSURE CONTROL: Industrial spraying (PROC7)

##### *Product features (article)*

Covers the percentage of substance in the product up to 25%.

Physical form of the product: Liquid.

Vapour pressure: 0,00741 Pa

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

Duration: Covers daily exposures up to 8 hours.

##### *Organizational and technical measures and conditions*

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

### ***Conditions and measures for personal protection, hygiene and health assessment***

Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.

Use adequate eye protection.

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.

Wear suitable respirator.

Dermal: minimum efficiency of 99%.

Inhalation: minimum yield of 90%.

### ***Other conditions affecting worker exposure***

Outdoor / Indoor Inside.

Industrial or professional environments Professional use.

Temperature: Process temperature up to 70°C is assumed.

## **2.3. WORKERS EXPOSURE CONTROL: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities (PROC8a)**

### ***Product features (article)***

Covers the percentage of substance in the product up to 25%.

Physical form of the product: Liquid.

Vapour pressure: 0,00741 Pa

Temperature: 70°C

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

Duration: Covers daily exposures up to 8 hours.

### ***Organizational and technical measures and conditions***

Provide a good standard of general ventilation (not less than 1 to 3 air changes per hour).

Dermal: minimum efficiency of 0%.

Inhalation: minimum yield of 0%.

### ***Conditions and measures for personal protection, hygiene and health assessment***

Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.

Use adequate eye protection.

Dermal: minimum efficiency of 95%.

Inhalation: minimum yield of 0%.

### ***Other conditions affecting worker exposure***

Outdoor / Indoor Inside.

Industrial or professional environments Professional use.

Temperature: 70°C

## **2.4. WORKERS EXPOSURE CONTROL: Transfer of substance or mixture (charging/discharging) from/to vessels/large containers at dedicated facilities. (PROC8b)**

### ***Product features (article)***

Covers the percentage of substance in the product up to 100%.

Physical form of the product: Liquid.

Vapour pressure: 0,00741 Pa

Temperature: 70°C

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

Duration: Covers daily exposures up to 8 hours.

### ***Organizational and technical measures and conditions***

Assumes a good basic standard of occupational hygiene is implemented.

Provide a good standard of general ventilation (not less than 1 to 3 air changes per hour).

### ***Conditions and measures for personal protection, hygiene and health assessment***

Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.

Use adequate eye protection.

Dermal: minimum efficiency of 95%.

Inhalation: minimum yield of 0%.

Wear suitable respirator.

Inhalation: minimum yield of 90%.

### ***Other conditions affecting worker exposure***

Outdoor / Indoor Inside.

Temperature: 70°C

## **2.5. WORKERS EXPOSURE CONTROL: Transfer of substance or mixture into small containers (dedicated filling line, including weighing) (PROC9)**

### ***Product features (article)***

Covers concentrations up to 100%.

Physical form of the product: Liquid.

Vapour pressure: 0,00741 Pa

Temperature: < 50°C

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

Duration: Covers daily exposures up to 8 hours.

### ***Organizational and technical measures and conditions***

Assumes a good basic standard of occupational hygiene is implemented.

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

Dermal: minimum efficiency of 0%.

Inhalation: minimum yield of 30%.

### ***Conditions and measures for personal protection, hygiene and health assessment***

Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.

Use adequate eye protection.

Dermal: minimum efficiency of 95%.

Inhalation: minimum yield of 0%.

Wear suitable respirator.

Inhalation: minimum yield of 90%.

### ***Other conditions affecting worker exposure***

Outdoor / Indoor Inside.

Temperature: < 50°C

## **2.6. WORKERS EXPOSURE CONTROL: Application with rollers or brushes (PROC10)**

### ***Product features (article)***

Covers the percentage of substance in the product up to 25%.

Physical form of the product: Liquid.

Vapour pressure: 0,00741 Pa

Temperature: < 70°C

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

Duration: Covers daily exposures up to 8 hours.

### ***Organizational and technical measures and conditions***

Assumes a good basic standard of occupational hygiene is implemented.

Provide a good standard of general ventilation (not less than 1 to 3 air changes per hour).

Local exhaust ventilation.

Dermal: minimum efficiency of 0%.

Inhalation: minimum yield of 90%.

### ***Conditions and measures for personal protection, hygiene and health assessment***

Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.

Use adequate eye protection.

Dermal: minimum efficiency of 99%.

Inhalation: minimum yield of 0%.

### ***Other conditions affecting worker exposure***

Outdoor / Indoor Inside.

Temperature: < 70°C.

## 2.7. WORKERS EXPOSURE CONTROL: Non-industrial spraying (PROC11)

### **Product features (article)**

Covers the percentage of substance in the product up to 25%.

Physical form of the product: Liquid.

Temperature: < 40°C

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

Duration: Covers daily exposures up to 8 hours.

### **Organizational and technical measures and conditions**

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

### **Conditions and measures for personal protection, hygiene and health assessment**

Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.

Use adequate eye protection.

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.

Wear suitable respirator.

Dermal: minimum efficiency of 99%.

Inhalation: minimum yield of 90%.

### **Other conditions affecting worker exposure**

Outdoor / Indoor Inside.

Temperature: < 40°C.

## 3. EXPOSURE ESTIMATION AND REFERENCE TO ITS SOURCE

### **3.1. Environmental release and exposure: Use at an industrial site leading to inclusion in article (ERC5)**

Route release	Release rate	Method for estimating for release
water	0.06 kg/day	FEICA SPERC 8c.1 b.v1
air	0 kg/day	FEICA SPERC 8c.1 b.v1
Soil	0%	FEICA SPERC 8c.1 b.v1

Protection target	Estimated Exposure (EUSES v2.1)	RCR
Fresh water	3.22E-3mg/l	0,536
Fresh water sediments	0.155mg/l	0,454
Sea water	3.14E-4mg/l	0,523
Marine sediment	0.015mg/kg dry weight	0,442
Sewage treatment plant	0.028mg/l	< 0.01
Farmland	0.05mg/kg dry weight	0,779
Prey for predators (freshwater)	0.048mg/kg wet weight	< 0.01
Prey for predators (marine water)	4.53E-3mg/kg wet weight	< 0.01
Main predator prey (marine water)	1.64E-3mg/kg wet weight	< 0.01
Prey for Predators (Terrestrial)	0.056mg/kg wet weight	< 0.01
Man through the environment - inhalation	Concentration in air: 3.45E-11 mg/m <sup>3</sup>	< 0.01
Man through the environment - oral	1.47E-3mg/kg pc/giorno	< 0.01
Population exposed through the environment	-	< 0.01



### 3.2. Worker exposure: Industrial spraying (PROC7)

Exposure routes	Health effect	Exposure indicator	Estimated exposure	RCR
inhalation	systemic	Long-term	0.34mg/m <sup>3</sup> (ART v1.5)	0.069
inhalation	local	Long-term	0.34mg/m <sup>3</sup> (ART v1.5)	-
inhalation	local	Short term	0.78mg/m <sup>3</sup> (ART v1.5)	-
dermal	systemic	Long-term	0.257mg/kgbw/day (ECETOC TRA worker v3)	0.343
dermal	local	Short term	0.012mg/cm <sup>2</sup> (ECETOC TRA worker v3)	-
combined routes	-	-	-	0.412

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

Exposure routes	Health effect	Exposure indicator	Estimated exposure (ECETOC TRA worker v3)	RCR
inhalation	systemic	Long-term	0.851mg/m <sup>3</sup>	0.173
inhalation	local	Long-term	0.851mg/m <sup>3</sup>	-
inhalation	local	Short term	0.851mg/m <sup>3</sup>	-
dermal	systemic	Long-term	0.411mg/kgbw/day	0.548
dermal	local	Short term	0.03mg/cm <sup>2</sup>	-
combined routes	-	-	-	0.721

### 3.4. Worker exposure: Transfer of a substance or a mixture (fill/discharge) at dedicated facilities (PROC8b)

Exposure routes	Health effect	Exposure indicator	Estimated exposure (ECETOC TRA worker v3)	RCR
inhalation	systemic	Long-term	0.085mg/m <sup>3</sup>	0.017
inhalation	local	Long-term	0.085mg/m <sup>3</sup>	-
inhalation	local	Short term	0.0851mg/m <sup>3</sup>	-
dermal	systemic	Long-term	0.411mg/kgbw/day	0.548
dermal	local	Short term	0.03mg/cm <sup>2</sup>	-
combined routes	-	-	-	0.566

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

Exposure routes	Health effect	Exposure indicator	Estimated exposure (ECETOC TRA worker v3)	RCR
inhalation	systemic	Long-term	0.099mg/m <sup>3</sup>	0.02
inhalation	local	Long-term	0.099mg/m <sup>3</sup>	-
inhalation	local	Short term	0.993mg/m <sup>3</sup>	-
dermal	systemic	Long-term	0.343mg/kgbw/day	0.457
dermal	local	Short term	0.05mg/cm <sup>2</sup>	-
combined routes	-	-	-	0.659



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

Exposure routes	Health effect	Exposure indicator	Estimated exposure (ECETOC TRA worker v3)	RCR
inhalation	systemic	Long-term	0.085mg/m <sup>3</sup>	0.017
inhalation	local	Long-term	0.085mg/m <sup>3</sup>	-
inhalation	local	Short term	0.085mg/m <sup>3</sup>	-
dermal	systemic	Long-term	0.165mg/kgbw/day	0.219
dermal	local	Short term	0.012mg/cm <sup>2</sup>	-
combined routes	-	-	-	0.237

### 3.7. Worker exposure: Non-industrial spraying (PROC11)

Exposure routes	Health effect	Exposure indicator	Estimated exposure	RCR
inhalation	systemic	Long-term	0.34mg/m <sup>3</sup> (ART v1 .5)	0.069
inhalation	local	Long-term	0.34mg/m <sup>3</sup> (ART v1 .5)	-
inhalation	local	Short term	0.78mg/m <sup>3</sup> (ART v1 .5)	-
dermal	systemic	Long-term	0.643mg/kgbw/day (ECETOC TRA worker v3)	0.857
dermal	local	Short term	0.03mg/cm <sup>2</sup> (ECETOC TRA worker v3)	-
combined routes	-	-	-	0.926

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

Predicted exposures are not expected to exceed the applicable exposure limits (given in Section 8 of the SDS) when the operational conditions/risk management measures given in Section 2 are implemented.

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.

## ODJELJAK 1.: Identifikacija tvari/smjese i podaci o društvu/poduzeću

### 1.1. Identifikacijska oznaka proizvoda

Identifikacija preparata:

Trgovačko ime: ADYWOOD 2K COMP.B

Trgovački kod: 580.B

UFI: 1Y1H-H0UT-P00J-9JXM

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

Preporučana upotreba: Poliaminsko sredstvo za stvrdnjavanje

Nepreporučljiva upotreba: Isključivo samo za profesionalne korisnike.

### 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 Irrit. 2

Nadražuje kožu.

Eye Dam. 1

Uzrokuje teške ozljede oka.

Skin Sens. 1

Može izazvati alergijsku reakciju na koži.

Aquatic Chronic 3

Štetno 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.

H318

Uzrokuje teške ozljede oka.

H412

Štetno za vodeni okoliš s dugotrajnim učincima.

#### Oznake obavijesti

P261

Izbjegavati udisanje para.

P273

Izbjegavati ispuštanje u okoliš.

P280

Nositi zaštitne rukavice te zaštitu za oči/zaštitu za lice.

P302+P352

U SLUČAJU DODIRA S KOŽOM: oprati velikom količinom sapuna i vode.

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:

3-aminometil-3,5,5-trimetilcikloheksilamin

Masne kiseline, C18-nezasićene, dimeri, oligomerni produkti reakcije s masnim kiselinama iz tal ulja i trietilentetramina

Produkt reakcije masnih kiselina, C18 alkil s aminima, frakcija polietilenpoli-tetraetilenpentamina

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: ADYWOOD 2K COMP.B

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

Količina	Naziv	Ident. Broj.	Klasifikacija	Broj registriranih slučajeva:
≥20 - <30 %	Produkt reakcije masnih kiselina, C18 alkil s aminima, frakcija polietilenpoli-tetraetilenpentamina	EC:701-046-0	Skin Irrit. 2, H315; Eye Dam. 1, H318; Skin Sens. 1A, H317; Aquatic Chronic 2, H411	01-2119972321-42-xxxx
≥10 - <20 %	Masne kiseline, C18-nezasićene, dimeri, oligomerni produkti reakcije s masnim kiselinama iz tal ulja i trietilentetramina	CAS:68082-29-1 EC:500-191-5	Skin Irrit. 2, H315; Eye Irrit. 2, H319; Skin Sens. 1, H317	
≥3 - <5 %	2,4,6-tris(dimetilaminometil)fenol	CAS:90-72-2 EC:202-013-9 Index:603-069-00-0	Acute Tox. 4, H302 Skin Irrit. 2, H315 Eye Irrit. 2, H319  Procjena akutne toksičnosti: ATE - Oralno: 500mg/kg t.m.	01-2119560597-27-xxxx
≥1 - <3 %	3-aminometil-3,5,5-trimetilcikloheksilamin	CAS:2855-13-2 EC:220-666-8 Index:612-067-00-9	Acute Tox. 4, H302 Skin Corr. 1B, H314 Eye Dam. 1, H318 Skin Sens. 1A, H317  Specifične granične vrijednosti koncentracije: C ≥ 0.001%: Skin Sens. 1A H317  Procjena akutne toksičnosti: ATE - Oralno: 1030mg/kg t.m.	01-2119514687-32-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 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.

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.

4.2. Najvažniji simptomi i učinci, akutni i odgođeni

Simptomi i ucinci 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:

CO<sub>2</sub>, 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.

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### **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.

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### **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

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### **ODJELJAK 8.: Nadzor nad izloženošću/osobna zaštita**

#### **8.1. Nadzorni parametri**

## Granične vrijednosti izloženosti PNEC

Produkt reakcije masnih kiselina, C18 alkil s aminima, frakcija polietilenpoli-tetraetilenpentamina

Putevi izloženosti: Svježa voda; PNEC Ograničiti: 2.63 µg/l

Putevi izloženosti: Morska voda; PNEC Ograničiti: 0.263 µg/l

Putevi izloženosti: Sedimenti svježe vode; PNEC Ograničiti: 263.01 mg/kg

Putevi izloženosti: Sedimenti morske vode; PNEC Ograničiti: 26.301 mg/kg

Putevi izloženosti: Povremena ispuštanja (slatka voda); PNEC Ograničiti: 0.026 mg/l

Putevi izloženosti: Mikroorganizmi u postrojenjima za obradu otpadnih voda (STP); PNEC Ograničiti: 7.21 mg/l

Masne kiseline, C18-nezasićene, dimeri, oligomerni produkti reakcije s masnim kiselinama iz tal ulja i trietilentetramina

CAS: 68082-29-1 Putevi izloženosti: Svježa voda; PNEC Ograničiti: 0.004 mg/l

Putevi izloženosti: Morska voda; PNEC Ograničiti: 0 mg/l

Putevi izloženosti: Mikroorganizmi u postrojenjima za obradu otpadnih voda (STP); PNEC Ograničiti: 3.84 mg/l

Putevi izloženosti: Sedimenti svježe vode; PNEC Ograničiti: 434.02 mg/kg

Putevi izloženosti: Sedimenti morske vode; PNEC Ograničiti: 43.4 mg/kg

Putevi izloženosti: Tlo (poljoprivredno); PNEC Ograničiti: 86.78 mg/kg

2,4,6-tris(dimetilaminometil)fenol

CAS: 90-72-2 Putevi izloženosti: Svježa voda; PNEC Ograničiti: 0.046 mg/l

Putevi izloženosti: Morska voda; PNEC Ograničiti: 0.005 mg/l

Putevi izloženosti: Mikroorganizmi u postrojenjima za obradu otpadnih voda (STP); PNEC Ograničiti: 0.2 mg/l

Putevi izloženosti: Sedimenti svježe vode; PNEC Ograničiti: 0.262 mg/kg

Putevi izloženosti: Sedimenti morske vode; PNEC Ograničiti: 0.026 mg/kg

Putevi izloženosti: Zemlja; PNEC Ograničiti: 0.025 mg/kg

3-aminometil-3,5,5-trimetilcikloheksilamin

CAS: 2855-13-2 Putevi izloženosti: Svježa voda; PNEC Ograničiti: 0.06 mg/l

Putevi izloženosti: Morska voda; PNEC Ograničiti: 0.006 mg/l

Putevi izloženosti: Mikroorganizmi u postrojenjima za obradu otpadnih voda (STP); PNEC Ograničiti: 3.18 mg/l

Putevi izloženosti: Sedimenti svježe vode; PNEC Ograničiti: 5.784 mg/kg

Putevi izloženosti: Sedimenti morske vode; PNEC Ograničiti: 0.578 mg/kg

Putevi izloženosti: Tlo (poljoprivredno); PNEC Ograničiti: 1.121 mg/kg

## Izvedena razina bez učinka. (DNEL)

Produkt reakcije masnih kiselina, C18 alkil s aminima, frakcija polietilenpoli-tetraetilenpentamina

Putevi izloženosti: Ljudi oralno; Učestalost izloženosti: Dugotrajni, sistemski učinci  
Potrošač: 0.56

Putevi izloženosti: Ljudi inhalacijski; Učestalost izloženosti: Dugotrajni, sistemski učinci  
Profesionalni djelatnik: 3.9 mg/m<sup>3</sup>; Potrošač: 0.97 mg/m<sup>3</sup>

Putevi izloženosti: Ljudi dermalno; Učestalost izloženosti: Dugotrajni, sistemski učinci  
Profesionalni djelatnik: 1.1 mg/kg; Potrošač: 0.56 mg/m<sup>3</sup>

Masne kiseline, C18-nezasićene, dimeri, oligomerni produkti reakcije s masnim kiselinama iz tal ulja i trietilentetramina

CAS: 68082-29-1 Putevi izloženosti: Ljudi inhalacijski; Učestalost izloženosti: Dugotrajni, sistemski učinci  
Profesionalni djelatnik: 0.952 mg/m<sup>3</sup>; Potrošač: 0.169 mg/m<sup>3</sup>

Putevi izloženosti: Ljudi dermalno; Učestalost izloženosti: Dugotrajni, sistemski učinci  
Profesionalni djelatnik: 0.272 mg/kg; Potrošač: 97.2 µg/kg

2,4,6-tris(dimetilaminometil)fenol

CAS: 90-72-2 Putevi izloženosti: Ljudi inhalacijski; Učestalost izloženosti: Dugotrajni, sistemski učinci  
Profesionalni djelatnik: 0.53 mg/m<sup>3</sup>; Potrošač: 0.13 mg/m<sup>3</sup>

Putevi izloženosti: Ljudi inhalacijski; Učestalost izloženosti: Kratkotrajni, sistemski učinci  
Profesionalni djelatnik: 2.1 mg/m<sup>3</sup>; Potrošač: 0.13 mg/m<sup>3</sup>

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

Profesionalni djelatnik: 0.15 mg/kg; Potrošač: 0.075 mg/kg

Putevi izloženosti: Ljudi dermalno; Učestalost izloženosti: Kratkotrajni, sistemski učinci  
Profesionalni djelatnik: 0.6 mg/kg; Potrošač: 0.075 mg/kg

Putevi izloženosti: Ljudi oralno; Učestalost izloženosti: Dugotrajni, sistemski učinci  
Potrošač: 0.075 mg/kg

## 8.2. Nadzor nad izloženosti

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 izloženosti (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.

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## ODJELJAK 9.: Fizikalna i kemijska svojstva

### 9.1. Informacije o osnovnim fizikalnim i kemijskim svojstvima

Izgled: kašasta tekućina

Boja: tamnosmeđe

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: Ne primjenjuje se. ( Ne odnosi se zbog prirode proizvoda )

Kinematička viskoznost: > 20.5 mm²/s (40 °C)

Gustoća i/ili relativna gustoća: 1,2 - 1,3 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 )

Brzina isparavanja: Ne primjenjuje se.

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## 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.

Mogu nastati zapaljivi i/ili otrovni plinovi u kontaktu s elementarnim metalima (alkalijske i zemnoalkalijske zemlje), oksidirajućim mineralnim kiselinama, halogeniranim organskim tvarima, organskim peroksidima i hidroperoksidima, snažnim oksidansima, snažnim redukcijskim sredstvima.

### 10.4. Uvjeti koje treba izbjegavati

Čuvati odvojeno od izvora topline.

### 10.5. Inkompatibilni materijali

Vidi točku 10.3

### 10.6. Opasni proizvodi raspadanja

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

Vidi točku 5.2

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## 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 Irrit. 2(H315)
c) teške očne ozljede/teško očno nadraživanje	Proizvod je razvrstan kao: Eye Dam. 1(H318)
d) izazivanje kožne ili dišne preosjetljivosti	Proizvod je razvrstan kao: Skin Sens. 1(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	Nije kategorizirano Na temelju dostupnih podataka kriteriji za razvrstavanje nisu ispunjeni.
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 Na temelju dostupnih podataka kriteriji za razvrstavanje nisu ispunjeni.
j) opasnost u slučaju udisanja	Nije kategorizirano Na temelju dostupnih podataka kriteriji za razvrstavanje nisu ispunjeni.

#### Podaci o toksičnosti glavnih sastojaka u proizvodu:

Proizvod reakcije masnih kiselina, C18 alkil s aminima, frakcija polietilenpoli-tetraetilenpentamina

a) akutna toksičnost	LD50 Oralno Štakor > 2000 mg/kg LD50 Koža Štakor > 2000 mg/kg
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Masne kiseline, C18-nezasićene, dimeri, oligomerni produkti reakcije s masnim kiselinama iz tal ulja i trietilentetramina

CAS: 68082-29-1	a) akutna toksičnost	LD50 Oralno Štakor > 2000 LD50 Koža Štakor > 2000
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2,4,6-tris(dimetilaminometil)fenol

CAS: 90-72-2	a) akutna toksičnost	ATE - Oralno: 500 mg/kg t.m. LD50 Koža Štakor > 1 mg/kg 6h
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3-aminometil-3,5,5-trimetilcikloheksilamin

CAS: 2855-13-2	a) akutna toksičnost	ATE - Oralno: 1030 mg/kg t.m.
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### 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:

Štetno za vodeni okoliš s dugotrajnim učincima.

#### Popis eko-toksikoloških svojstava proizvoda

Proizvod je razvrstan kao: Aquatic Chronic 3(H412)

#### Popis sastojaka sa eko-toksikološkim svojstvima

Produkt reakcije masnih kiselina, C18 alkil s aminima, frakcija polietilenpoli-tetraetilenpentamina

- a) Akutna otrovnost na vodene organizme: LC50 Ribe 7.07 mg/l 96h
- a) Akutna otrovnost na vodene organizme: EC50 Daphnia 5.18 mg/l 48h
- a) Akutna otrovnost na vodene organizme: EC50 Algae 2.63 mg/l 72h
- b) Hronična otrovnost na vodene organizme: NOEC Ribe 5 mg/l
- b) Hronična otrovnost na vodene organizme: NOEC Algae 0.5 mg/l

Masne kiseline, C18-nezasićene, dimeri, oligomerni produkti reakcije s masnim kiselinama iz tal ulja i trietilentetramina

- 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 5.18 mg/l 48h
  - a) Akutna otrovnost na vodene organizme: EC50 Algae 2.63 mg/l 72h
  - b) Hronična otrovnost na vodene organizme: NOEC Ribe 5 mg/l
  - b) Hronična otrovnost na vodene organizme: NOEC Algae 0.5 mg/l

2,4,6-tris(dimetilaminometil)fenol

- CAS: 90-72-2
- a) Akutna otrovnost na vodene organizme: LC50 Ribe 175 mg/l 96h
  - a) Akutna otrovnost na vodene organizme: LC50 Daphnia 718 mg/l 96h
  - a) Akutna otrovnost na vodene organizme: ErC50 Algae 84 mg/l 72h
  - a) Akutna otrovnost na vodene organizme: NOEC Algae 6.25 mg/l 72h

3-aminometil-3,5,5-trimetilcikloheksilamin

- CAS: 2855-13-2
- a) Akutna otrovnost na vodene organizme: LC50 Ribe 110 mg/l 96h
  - a) Akutna otrovnost na vodene organizme: EC50 Daphnia 23 mg/l 48h
  - a) Akutna otrovnost na vodene organizme: EC50 Algae > 50 mg/l 72h

### 12.2. Postojanost i razgradivost

Produkt reakcije masnih kiselina, C18 alkil s aminima, frakcija polietilenpoli-tetraetilenpentamina

Nepostojan i biorazgradiv

Masne kiseline, C18-nezasićene, dimeri, oligomerni produkti reakcije s masnim kiselinama iz tal ulja i trietilentetramina

CAS: 68082-29-1 Nije brzo-biološki razgradiv

2,4,6-tris(dimetilaminometil)fenol

CAS: 90-72-2 Nije brzo-biološki razgradiv

3-aminometil-3,5,5-trimetilcikloheksilamin

CAS: 2855-13-2 Nije brzo-biološki razgradiv

### 12.3. Bioakumulacijski potencijal

Ne primjenjuje se.

### 12.4. Pokretljivost u tlu

Ne primjenjuje se.

### 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.

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## 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.

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## **ODJELJAK 14.: Informacije o prijevozu**

Nije klasificirano kao opasno po propisima za transport.

### **14.1. UN broj ili identifikacijski broj**

N/A

### **14.2. Ispravno otpremno ime prema UN-u**

ADR-Naziv za otpremu: N/A

IATA-Naziv za otpremu: N/A

IMDG-Naziv za otpremu: N/A

### **14.3. Razred(i) opasnosti pri prijevozu**

ADR-Razred: N/A

IATA-Razred: N/A

IMDG-Razred: N/A

### **14.4. Skupina pakiranja**

ADR-Grupa pakiranja: N/A

IATA-Grupa pakiranja: N/A

IMDG-Grupa pakiranja: N/A

### **14.5. Opasnosti za okoliš**

Morski polutant: Ne

Zagađivači okoliša: Ne

IMDG-EMS: N/A

### **14.6. Posebne mjere opreza za korisnika**

Ceste i Željeznica (ADR-RID):

ADR oslobađa:

ADR-Označavanje: N/A

ADR - Identifikacijski broj opasnosti: N/A

ADR-Posebne odredbe: N/A

ADR ograničenja prijevoza u tunelu:

Zrak (IATA):

IATA-Putnički zrakoplov: N/A

IATA-Teretni zrakoplov: N/A

IATA-Označavanje: N/A

IATA-Sporedni opasnosti: N/A

IATA-Erg: N/A

IATA-Posebne odredbe: N/A

More (IMDG):

IMDG-Skladištenje i rukovanje: N/A

IMDG-Segregacija: N/A

IMDG-Sporedni opasnosti: N/A

IMDG-Posebne odredbe: N/A

### **14.7. Prijevoz morem u različenom stanju u skladu s instrumentima IMO-a**

Ne primjenjuje se.

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## **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)

**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: 75

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

Niti jedan

**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 nije provedena za smjesu

**ODJELJAK 16.: Ostale informacije**

Šifra	Opis
H302	Štetno ako se proguta.
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.
H411	Otrovno za vodeni okoliš s dugotrajnim učincima.
H412	Štetno za vodeni okoliš s dugotrajnim učincima.

Šifra	Razred opasnosti i kategorija opasnosti Opis	
3.1/4/Oral	Acute Tox. 4	Akutna toksičnost (gutanje), kategorija 4
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
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 Dam. 1, H318	Računska metoda
Skin Sens. 1, 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 objavljene 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 2.: Identifikacija opasnosti
- ODJELJAK 6.: Mjere kod slučajnog ispuštanja
- ODJELJAK 8.: Nadzor nad izloženosti/osobna zaštita
- ODJELJAK 9.: Fizikalna i kemijska svojstva
- ODJELJAK 11.: Toksikološke informacije

- ODJELJAK 12.: Ekološke informacije
- ODJELJAK 13.: Zbrinjavanje
- ODJELJAK 14.: Informacije o prijevozu
- ODJELJAK 16.: Ostale informacije

## 2,4,6-tris(dimethylaminomethyl)phenol

### Substance identification

Chemical Name: 2,4,6-tris(dimethylaminomethyl)phenol

CAS number: 90-72-2

EU index number: 603-069-00-0

EINECS number: 202-013-9

## INDUSTRIAL APPLICATION OF COATINGS AND PAINTS - INDUSTRIAL USE

### 1. TITLE SECTION

**Exposure scenario name:** Industrial application of coatings and paints

**Date - Version:** 16/03/2020 - 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 Roller, spray and stream application:** PROC10

### 2. CONTRIBUTIVE SCENARIOS

#### 2.1. Contributing Scenario CS1 - Environment: 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 ≤ 0.8 tons/day

Annual amount per site ≤ 20 tons/year

**Release Type:** Continuous release

**Issue days:** 220 days a year

#### **Measures and technical-organizational conditions**

**Control measures to prevent releases:** No substance input into waste water.

#### **Conditions and measures relating to municipal sewage treatment plants**

**Type of sewage treatment plant (STP):** Municipal STP

**STP effluent (m<sup>3</sup>/day):** 2000

#### **Conditions and measures for waste treatment (including the product waste)**

**Waste treatment:** Collect and dispose of waste in accordance with local regulations. Refer to section 13.

#### **Other operational conditions affecting environmental exposure**

**Flow rate of receiving surface water:** 18000 m<sup>3</sup>/day

**Further information on good practices. The requirements set out in the REACH Regulation Article 37(4) do not apply.**

**Further information on good practices:** For further data, see section 8 of the safety data sheet.

## 2.2. CS2 Contributing Scenario - Worker: Roller, spray and flow application (PROC10)

**Process categories:** Roller and brush application (PROC10)

### ***Product features (article)***

**Physical form of the product:** Liquid

**Vapor pressure:** 0,075 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:** Covers up to 8 hours of daily exposure.

### ***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). Inhalation - minimum 30% efficiency.  
Local aspiration system. Ensure operating personnel are trained to minimize exposure. Inhalation - minimum 90% efficiency.

### ***Conditions and measures related to personal protection, hygiene and health verification***

#### **Personal protective equipment:**

During the specific training wear gloves resistant to chemicals (tested according to EN 374). Dermal - minimum 95% efficiency.  
Wear full face respirator conforming to EN136. Inhalation - minimum 99% efficiency.  
Wear waterproof clothing. Dermal - 97% minimum efficiency.  
For further data, see section 8 of the safety data sheet.

### ***Other operational conditions affecting worker exposure***

**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.

### 3. EXPOSURE ESTIMATION AND REFERENCE TO ITS SOURCE

#### 3.1. Contributing Scenario CS1 - Environment: Wet polymerization (ERC5)

Protection target	Degree of exposure	Calculation method	Risk characterization ratio (RCR)
fresh water	0.001 mg/l	EUSES	0.017
fresh water sediment	0.006 mg/kg	EUSES	< 1
sea water	0.000138 mg/l	EUSES	0.016
Marine sediment	0.000564 mg/kg	EUSES	< 1
ground	0.001 mg/kg	EUSES	< 1
sewage treatment plant	0 mg/l	EUSES	< 0.01
environmentally exposed people - Inhalation	2.5E-05 mg/l	EUSES	< 1

#### 3.2. CS2 Contributing Scenario - Worker: Roller, spray and flow application (PROC10)

Route of Exposure, Impact on Health, Exposure Indicator	Degree of exposure	Calculation method	Risk characterization ratio (RCR)
by inhalation, systemic, long-term	0.046 mg/m <sup>3</sup>	chesar v 2.2	0.357
by inhalation, systemic, short-term	0.186 mg/m <sup>3</sup>	chesar v 2.2	0.357
skin contact, systemic, long-term	0.025 mg/kg bw/day	chesar v 2.2	0.164
combined routes, systemic, long-term	N.d.	chesar v 2.2	0.521

### 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:** 16/03/2020 - 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:** ERC8c

### **Contributing scenario - Worker**

**CS2 Roller, spray and stream application:** PROC10

## 2. CONTRIBUTIVE SCENARIOS

### 2.1. Contributing Scenario CS1 - Environment: Wet polymerization (ERC8c)

**Environmental release categories:** Widespread use resulting in inclusion in or on 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:** Quantity per use  $\leq 0.000218$  tons/year

#### **Measures and technical-organizational conditions**

**Control measures to prevent releases:** No entry of substance into waste water.

#### **Conditions and measures relating to municipal sewage treatment plants**

**Type of sewage treatment plant (STP):** Municipal STP Water - minimum efficiency of 0.059%.

**STP effluent (m<sup>3</sup>/day):** 2000

#### **Conditions and measures for waste treatment (including the product waste)**

**Waste treatment:** Collect and dispose of waste in accordance with local regulations. Refer to section 13.

#### **Other operational conditions affecting environmental exposure**

**Flow rate of receiving surface water:** 18000 m<sup>3</sup>/day

**Further information on good practices. The requirements set out in the REACH Regulation Article 37(4) do not apply.**

**Further information on good practices:** For further data, see section 8 of the safety data sheet.

### 2.2. CS2 Contributing Scenario - Worker: Roller, spray and flow application (PROC10)

**Process categories:** Roller and brush application (PROC10)

#### **Product features (article)**

**Physical form of the product:** Liquid

**Vapor pressure:** 0,075 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:** Includes use 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). Inhalation - minimum 30% efficiency.

Local aspiration system. Ensure operating personnel are trained to minimize exposure. Inhalation - minimum 80% efficiency.

Provide supplementary ventilation and other openings. Inhalation - minimum efficiency of 44%.



### Conditions and measures related to personal protection, hygiene and health verification

#### Personal protective equipment:

During the specific training wear gloves resistant to chemicals (tested according to EN 374). Dermal - minimum 90% efficiency.

Wear full face respirator conforming to EN136. Inhalation - minimum 99% efficiency.

Wear waterproof clothing. Dermal - 97% minimum efficiency.

For further data, see section 8 of the safety data sheet.

#### 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.

## 3. EXPOSURE ESTIMATION AND REFERENCE TO ITS SOURCE

### 3.1. Contributing Scenario CS1 - Environment: Wet polymerization (ERC8c)

Protection target	Degree of exposure	Calculation method	Risk characterization ratio (RCR)
fresh water	0.002 mg/l	EUSES	0.018
fresh water sediment	0.006 mg/kg	EUSES	< 1
sea water	0.000149 mg/l	EUSES	0.018
Marine sediment	0.000608 mg/kg	EUSES	< 1
ground	0.001 mg/kg	EUSES	< 1
sewage treatment plant	0.001 mg/l	EUSES	< 0.01
environmentally exposed people - Inhalation	1.03E-08 mg/l	EUSES	< 1

### 3.2. CS2 Contributing Scenario - Worker: Roller, spray and flow application (PROC10)

Route of Exposure, Impact on Health, Exposure Indicator	Degree of exposure	Calculation method	Risk characterization ratio (RCR)
by inhalation, systemic, long-term	0.078 mg/m <sup>3</sup>	chesar v 2.2	0.599
by inhalation, systemic, short-term	0.52 mg/m <sup>3</sup>	chesar v 2.2	1
skin contact, systemic, long-term	0.049 mg/kg bw/day	chesar v 2.2	0.329
combined routes, systemic, long-term	N.d.	chesar v 2.2	0.928

## 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.

## 3-aminomethyl-3,5,5-trimethylcyclohexylamine

### Substance identification

Chemical Name: 3-aminomethyl-3,5,5-trimethylcyclohexylamine

CAS number: 2855-13-2

EU index number: 612-067-00-9

EINECS number: 220-666-8

## ES1 Formulation or repackaging - INDUSTRIAL USES

### 1. TITLE SECTION

**Exposure scenario name:** Preparation and repackaging of substances and mixtures

**Date - Version:** 15/07/2020 - 1.0

**Life cycle stage:** Formulation or repackaging

**Main user group:** Industrial uses

**Sector(s) of use:** Industrial uses (SU3) - Large-scale production of basic chemicals (including petroleum products) (SU8) - Formulation [blending] of preparations and/or repackaging (SU10)

#### **Contributing scenario - Environment**

**CS1 Wet formulation:** ERC2

#### **Contributing scenario - Worker**

**CS2 Use in closed systems:** PROC3

**CS3 Material Transfers:** PROC8a

**CS4 Material Transfers:** PROC8b

**CS5 Material Transfers:** PROC9

**CS6 Blend Operations:** PROC5

### 2. CONDITIONS OF USE AFFECTING EXPOSURE

#### 2.1. CS1 Environment Contributing Scenario: Wet Formulation (ERC2)

**Environmental release categories:** Formulation of mixtures (ERC2)

#### **Product features (article)**

**Physical form of the product:** Liquid

**Vapor pressure:** 1.57 Pa

#### **Amount used, frequency and duration of use**

**Amounts used:** Annual amount per site 2500 t

**Release Type:** Continuous release

**Issue days:** 300 days/year

**Further environmental conditions:**

Wet formulation

Air - minimum efficiency of: 0.25 %

Ground - minimum efficiency of: 0.01 %

Water - minimum efficiency of: 0.5 %

#### **Measures and technical-organizational conditions**

**Control measures to prevent releases:**

Air - minimum efficiency of: 0.25 %

Ground - minimum efficiency of: 0.01 %

Water - minimum efficiency of: 0.5 %

#### **Conditions and measures for the municipal sewage treatment plant**

**Type of sewage treatment plant (STP):** Municipal STP

**STP effluent (m<sup>3</sup>/day):** 8640

#### **Conditions and measures for waste treatment (including the product waste)**

**Waste treatment:** Do not spread industrial sludge on natural soils.

### ***Other operational conditions affecting environmental exposure***

Local seawater dilution factor: 100

Local fresh water dilution factor: 11

Flow rate of receiving surface water: 86400

Indoor use

## **2.2. CS2 Worker Contributing Scenario: Use in Closed Systems (PROC3)**

**Process categories:** Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment conditions (PROC3)

### ***Product features (article)***

**Physical form of the product:** Liquid

**Vapor pressure:** 1.57 Pa

### ***Amount used, frequency and duration of use/exposure***

**Duration:** 480 min

**Frequency:** 5 days/week

### ***Measures and technical-organizational conditions***

**Technical organizational measures:** For further data, see section 8 of the safety data sheet.

### ***Conditions and measures related to personal protection, hygiene and health verification***

**Personal protective equipment:**

Wear suitable gloves, tested according to EN347.

Dermal - minimum efficiency of: 95 %

### ***Other operational conditions affecting worker exposure***

Indoor use

**Ventilation Rate:** Provide a basic level of general ventilation (1 to 3 air changes per hour). 90%

**Body parts exposed:** Palm of a hand.

***Learn more about good practices. The requirements set out in the REACH Regulation Article 37(4) do not apply.***

**Further information on good practices:** Wear waterproof clothing. Ensure regular inspection, cleaning and maintenance of machines and systems. Wear a suitable apron to avoid skin exposure.

## **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

**Vapor pressure:** 1.57 Pa

### ***Amount used, frequency and duration of use/exposure***

**Duration:** 240 min

**Frequency:** 5 days/week

### ***Measures and technical-organizational conditions***

**Technical organizational measures:** For further data, see section 8 of the safety data sheet.

### ***Conditions and measures related to personal protection, hygiene and health verification***

**Personal protective equipment:** Wear suitable gloves, tested according to EN347. Dermal - minimum efficiency of: 98 %

### ***Other operational conditions affecting worker exposure***

Indoor use

**Ventilation Rate:** Provide a basic level of general ventilation (1 to 3 air changes per hour). 90%

**Body parts exposed:** Palm of a hand.

**Learn more about good practices. The requirements set out in the REACH Regulation Article 37(4) do not apply.**

**Further information on good practices:** Wear waterproof clothing. Ensure regular inspection, cleaning and maintenance of machines and systems. Wear a suitable apron to avoid skin exposure.

## 2.4. CS4 orker 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

**Vapor pressure:** 1.57 Pa

### **Amount used, frequency and duration of use/exposure**

**Duration:** 480 min

**Frequency:** 5 days/week

### **Measures and technical-organizational conditions**

**Technical organizational measures:** For further data, see section 8 of the safety data sheet.

### **Conditions and measures related to personal protection, hygiene and health verification**

**Personal protective equipment:** Wear suitable gloves, tested according to EN347.

Dermal - minimum efficiency of: 98 %

### **Other operational conditions affecting worker exposure**

Indoor use

**Ventilation Rate:** Provide a basic level of general ventilation (1 to 3 air changes per hour). 97%

**Body parts exposed:** Palm of a hand. Possible skin contact is believed to be limited to the hands.

**Learn more about good practices. The requirements set out in the REACH Regulation Article 37(4) do not apply.**

**Further information on good practices:** Wear waterproof clothing. Ensure regular inspection, cleaning and maintenance of machines and systems. Wear a suitable apron to avoid skin exposure. Wear suitable face protection.

## 2.5. CS5 Worker Contributing Scenario: 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

**Vapor pressure:** 1.57 Pa

### **Amount used, frequency and duration of use/exposure**

**Duration:** 480 min

**Frequency:** 5 days/week

### **Measures and technical-organizational conditions**

**Technical organizational measures:** For further data, see section 8 of the safety data sheet.

### **Conditions and measures related to personal protection, hygiene and health verification**

**Personal protective equipment:** Wear suitable gloves, tested according to EN347.

Dermal - minimum efficiency of: 98 %

### **Other operational conditions affecting worker exposure**

Indoor use

**Ventilation Rate:** Provide a basic level of general ventilation (1 to 3 air changes per hour). 90%

**Body parts exposed:** Palm of a hand. Possible skin contact is believed to be limited to the hands.

**Learn more about good practices. The requirements set out in the REACH Regulation Article 37(4) do not apply.**

**Further information on good practices:** Wear waterproof clothing. Ensure regular inspection, cleaning and maintenance of machines and systems. Wear a suitable apron to avoid skin exposure. Wear suitable face protection.

## 2.6. CS6 Worker Contributing Scenario: Mixing Operations (PROC5)

**Process categories:** Mixing or Blending in Batch Processes (PROC5)

### **Product features (article)**

**Physical form of the product:** Liquid

**Vapor pressure:** 1.57 Pa

### **Amount used, frequency and duration of use/exposure**

**Duration:** 480 min

**Frequency:** 5 days/week

### **Measures and technical-organizational conditions**

**Technical organizational measures:** For further data, see section 8 of the safety data sheet.

### **Conditions and measures related to personal protection, hygiene and health verification**

**Personal protective equipment:** Wear suitable gloves, tested according to EN347. Dermal - minimum efficiency of: 98 %

### **Other operational conditions affecting worker exposure**

Indoor use

**Ventilation Rate:** Provide a basic level of general ventilation (1 to 3 air changes per hour). 90%

**Body parts exposed:** Palm of a hand.

**Learn more about good practices. The requirements set out in the REACH Regulation Article 37(4) do not apply.**

**Further information on good practices:** Wear waterproof clothing. Ensure regular inspection, cleaning and maintenance of machines and systems. Wear a suitable apron to avoid skin exposure.

## 3. EXPOSURE ESTIMATION AND REFERENCE TO ITS SOURCE

### 3.1. CS1 Environment Contributing Scenario: Wet Formulation (ERC2)

Protection target	Degree of exposure	Calculation method	Risk characterization ratio (RCR)
sea water	1,025 kg/day	ECETOC TRA environment v2.0	0.81

### 3.2. CS2 Worker Contributing Scenario: Use in Closed Systems (PROC3)

Route of Exposure, Impact on Health, Exposure Indicator	Degree of exposure	Calculation method	Risk characterization ratio (RCR)
by inhalation, local, short-term	4,258 mg/m <sup>3</sup>	ECETOC TRA worker v2.0	0.212

### 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, local, short-term	14,192 mg/m <sup>3</sup>	ECETOC TRA worker v2.0	0.706
by inhalation, systemic, short-term	14,192 mg/m <sup>3</sup>	ECETOC TRA worker v2.0	0.706

### 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, local, short-term	2,129 mg/m <sup>3</sup>	ECETOC TRA worker v2.0	0.106
by inhalation, systemic, short-term	2,129 mg/m <sup>3</sup>	ECETOC TRA worker v2.0	0.106

### 3.5. CS5 Worker Contributing Scenario: Material Transfers (PROC9)

Route of Exposure, Impact on Health, Exposure Indicator	Degree of exposure	Calculation method	Risk characterization ratio (RCR)
by inhalation, local, short-term	7,096 mg/m <sup>3</sup>	ECETOC TRA worker v2.0	0.353
by inhalation, systemic, short-term	7,096 mg/m <sup>3</sup>	ECETOC TRA worker v2.0	0.353

### 3.6. CS6 Worker Contributing Scenario: Mixing Operations (PROC5)

Route of Exposure, Impact on Health, Exposure Indicator	Degree of exposure	Calculation method	Risk characterization ratio (RCR)
by inhalation, local, short-term	7,096 mg/m <sup>3</sup>	ECETOC TRA worker v2.0	0.353
by inhalation, systemic, short-term	7,096 mg/m <sup>3</sup>	ECETOC TRA worker v2.0	0.353

## 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.

## ES2 Formulation or repackaging - PROFESSIONAL USES

### 1. TITLE SECTION

**Exposure scenario name:** Preparation and repackaging of substances and mixtures

**Date - Version:** 10/03/2020 - 1.0

**Life cycle stage:** Formulation or repackaging

**Main user group:** Professional uses

**Sector(s) of use:** Manufacture of bulk, large scale chemicals (including petroleum products) (SU8) - Formulation [mixing] of preparations and/or re-packaging (SU10) - Professional uses (SU22)

#### ***Contributing scenario - Environment***

**CS1 Wet formulation:** ERC2

#### ***Contributing scenario - Worker***

**CS2 Use in closed systems:** PROC3

**CS3 Material Transfers:** PROC8a

**CS3 Material Transfers:** PROC8b

**CS3 Material Transfers:** PROC9

**CS6 Blend Operations:** PROC5

### 2. CONDITIONS OF USE AFFECTING EXPOSURE

#### 2.2. CS1 Environment Contributing Scenario: Wet Formulation (ERC2)

**Environmental release categories:** Formulation of mixtures (ERC2)

#### ***Product features (article)***

**Physical form of the product:** Liquid

**Vapor pressure:** 1.57 Pa

#### ***Amount used, frequency and duration of use***

**Amounts used:** Annual amount per site 2500 t

**Release Type:** Continuous release

**Issue days:** 300 days/year

**Further environmental conditions:**

Wet formulation

Air - minimum efficiency of: 0.25 %

Ground - minimum efficiency of: 0.01 %

Water - minimum efficiency of: 0.5 %

#### ***Measures and technical-organizational conditions***

**Control measures to prevent releases:**

Air - minimum efficiency of: 0.25 %

Ground - minimum efficiency of: 0.01 %

Water - minimum efficiency of: 0.5 %

#### ***Conditions and measures for the municipal sewage treatment plant***

**Type of sewage treatment plant (STP):** Municipal STP

**STP effluent (m<sup>3</sup>/day):** 8640

#### ***Conditions and measures for waste treatment (including the product waste)***

**Waste treatment:** Do not spread industrial sludge on natural soils.

#### ***Other operational conditions affecting environmental exposure***

**Local seawater dilution factor:** 100

**Local fresh water dilution factor:** 11

**Flow rate of receiving surface water:** 86400

Indoor use



## 2.2. CS2 Worker Contributing Scenario: Use in Closed Systems (PROC3)

**Process categories:** Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment conditions (PROC3)

### **Product features (article)**

**Physical form of the product:** Liquid

**Vapor pressure:** 1.57 Pa

### **Amount used, frequency and duration of use/exposure**

**Duration:** 480 min

**Frequency:** 5 days/week

### **Measures and technical-organizational conditions**

**Technical organizational measures:** For further data, see section 8 of the safety data sheet.

### **Conditions and measures related to personal protection, hygiene and health verification**

**Personal protective equipment:** Wear suitable gloves, tested according to EN347. Dermal - minimum efficiency of: 95 %

### **Other operational conditions affecting worker exposure**

Indoor use

**Ventilation Rate:** Provide a basic level of general ventilation (1 to 3 air changes per hour). 90%

**Body parts exposed:** Palm of a hand.

**Learn more about good practices. The requirements set out in the REACH Regulation Article 37(4) do not apply.**

**Further information on good practices:** Wear waterproof clothing. Ensure regular inspection, cleaning and maintenance of machines and systems. Wear a suitable apron to avoid skin exposure.

## 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

**Vapor pressure:** 1.57 Pa

### **Amount used, frequency and duration of use/exposure**

**Duration:** 240 min

**Frequency:** 5 days/week

### **Measures and technical-organizational conditions**

**Technical organizational measures:** For further data, see section 8 of the safety data sheet.

### **Conditions and measures related to personal protection, hygiene and health verification**

**Personal protective equipment:** Wear suitable gloves, tested according to EN347. Dermal - minimum efficiency of: 98 %

### **Other operational conditions affecting worker exposure**

Indoor use

**Ventilation Rate:** Provide a basic level of general ventilation (1 to 3 air changes per hour). 90%

**Body parts exposed:** Palm of a hand.

**Learn more about good practices. The requirements set out in the REACH Regulation Article 37(4) do not apply.**

**Further information on good practices:** Wear waterproof clothing. Ensure regular inspection, cleaning and maintenance of machines and systems. Wear a suitable apron to avoid skin exposure.



## 2.4. CS4 orker 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

**Vapor pressure:** 1.57 Pa

### **Amount used, frequency and duration of use/exposure**

**Duration:** 240 min

**Frequency:** 5 days/week

### **Measures and technical-organizational conditions**

**Technical organizational measures:** For further data, see section 8 of the safety data sheet.

### **Conditions and measures related to personal protection, hygiene and health verification**

**Personal protective equipment:** Wear suitable gloves, tested according to EN347. Dermal - minimum efficiency of: 98 %

### **Other operational conditions affecting worker exposure**

Indoor use

**Ventilation Rate:** Provide a basic level of general ventilation (1 to 3 air changes per hour). 90%

**Body parts exposed:** Palm of a hand. Possible skin contact is believed to be limited to the hands.

**Learn more about good practices. The requirements set out in the REACH Regulation Article 37(4) do not apply.**

**Further information on good practices:** Wear waterproof clothing. Ensure regular inspection, cleaning and maintenance of machines and systems. Wear a suitable apron to avoid skin exposure. Wear suitable face protection.

## 2.5. CS5 Worker Contributing Scenario: 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

**Vapor pressure:** 1.57 Pa

### **Amount used, frequency and duration of use/exposure**

**Duration:** 240 min

**Frequency:** 5 days/week

### **Measures and technical-organizational conditions**

**Technical organizational measures:** For further data, see section 8 of the safety data sheet.

### **Conditions and measures related to personal protection, hygiene and health verification**

**Personal protective equipment:** Wear suitable gloves, tested according to EN347. Dermal - minimum efficiency of: 98 %

### **Other operational conditions affecting worker exposure**

Indoor use

**Ventilation Rate:** Provide a basic level of general ventilation (1 to 3 air changes per hour). 90%

**Body parts exposed:** Palm of a hand. Possible skin contact is believed to be limited to the hands.

**Learn more about good practices. The requirements set out in the REACH Regulation Article 37(4) do not apply.**

**Further information on good practices:** Wear waterproof clothing. Ensure regular inspection, cleaning and maintenance of machines and systems. Wear a suitable apron to avoid skin exposure. Wear suitable face protection.

## 2.6. CS6 Worker Contributing Scenario: Mixing Operations (PROC5)

**Process categories:** Mixing or Blending in Batch Processes (PROC5)

### **Product features (article)**

**Physical form of the product:** Liquid

**Vapor pressure:** 1.57 Pa

### **Amount used, frequency and duration of use/exposure**

**Duration:** 60 min

**Frequency:** 5 days/week

### **Measures and technical-organizational conditions**

**Technical organizational measures:** For further data, see section 8 of the safety data sheet.

### **Conditions and measures related to personal protection, hygiene and health verification**

**Personal protective equipment:** Wear suitable gloves, tested according to EN347. Dermal - minimum efficiency of: 98 %

### **Other operational conditions affecting worker exposure**

Indoor use

**Ventilation Rate:** Provide a basic level of general ventilation (1 to 3 air changes per hour). 90%

**Body parts exposed:** Palm of a hand. Possible skin contact is believed to be limited to the hands.

**Learn more about good practices. The requirements set out in the REACH Regulation Article 37(4) do not apply.**

**Further information on good practices:** Wear waterproof clothing. Ensure regular inspection, cleaning and maintenance of machines and systems. Wear a suitable apron to avoid skin exposure. Wear suitable face protection.

## 3. EXPOSURE ESTIMATION AND REFERENCE TO ITS SOURCE

### 3.1. CS1 Environment Contributing Scenario: Wet Formulation (ERC2)

Protection target	Degree of exposure	Calculation method	Risk characterization ratio (RCR)
sea water	1,025 kg/day	ECETOC TRA environment v2.0	0.81

### 3.2. CS2 Worker Contributing Scenario: Use in Closed Systems (PROC3)

Route of Exposure, Impact on Health, Exposure Indicator	Degree of exposure	Calculation method	Risk characterization ratio (RCR)
by inhalation, local, short-term	8,515 mg/m <sup>3</sup>	ECETOC TRA worker v2.0	0.424

### 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, local, short-term	7,096 mg/m <sup>3</sup>	ECETOC TRA worker v2.0	0.353
by inhalation, systemic, short-term	7,096 mg/m <sup>3</sup>	ECETOC TRA worker v2.0	0.353

### 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, local, short-term	14,192 mg/m <sup>3</sup>	ECETOC TRA worker v2.0	0.706
by inhalation, systemic, short-term	14,192 mg/m <sup>3</sup>	ECETOC TRA worker v2.0	0.706

### 3.5. CS5 Worker Contributing Scenario: Material Transfers (PROC9)

Route of Exposure, Impact on Health, Exposure Indicator	Degree of exposure	Calculation method	Risk characterization ratio (RCR)
by inhalation, local, short-term	14,192 mg/m <sup>3</sup>	ECETOC TRA worker v2.0	0.706
by inhalation, systemic, short-term	14,192 mg/m <sup>3</sup>	ECETOC TRA worker v2.0	0.706

### 3.6. CS6 Worker Contributing Scenario: Mixing Operations (PROC5)

Route of Exposure, Impact on Health, Exposure Indicator	Degree of exposure	Calculation method	Risk characterization ratio (RCR)
by inhalation, local, short-term	14,192 mg/m <sup>3</sup>	ECETOC TRA worker v2.0	0.706

## 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.