



## TrusTec™ PRF Isooctane + TEL

Version 2.1

Revision Date 2023-02-28

According to Regulation (EC) No. 1907/2006, Regulation (EC) No. 2020/878

### SECTION 1: Identification of the substance/mixture and of the company/undertaking

#### 1.1 Product identifier

##### Product information

Product Name : TrusTec™ PRF Isooctane + TEL  
 Material : 1098715, 1098717, 1098712, 1098713, 1098720, 1098714,  
 1098719, 1098716, 1092025, 1091995, 1092012, 1092013,  
 1091997, 1092017, 1092018, 1092019, 1092008, 1095235,  
 1092007, 1094713, 1094712, 1094671, 1094670, 1094669,  
 1094668, 1092023, 1091996, 1091944, 1091945, 1091947,  
 1091948, 1091949, 1091950, 1092009, 1092014, 1091943,  
 1091998, 1092000, 1092001, 1092002, 1092003, 1092004,  
 1091994, 1062407, 1098691, 1097787, 1020579, 1020578,  
 1020576, 1020577, 1105590

##### EC-No.Registration number

Chemical name	CAS-No. EC-No. Index No.	Legal Entity Registration number
2,2,4-Trimethylpentane (Isooctane)	540-84-1 208-759-1 601-009-00-8	Chevron Phillips Chemicals International NV 01-2119457965-22-0002
2,2,4-Trimethylpentane (Isooctane)	540-84-1 208-759-1 601-009-00-8	Chevron Phillips Chemical Company LP 01-2119457965-22-0013

#### 1.2

##### Relevant identified uses of the substance or mixture and uses advised against

Relevant Identified Uses Supported : Manufacture  
 Distribution  
 Formulation  
 Use as a fuel - industrial  
 Use as a fuel – professional  
 Use as a laboratory agent – industrial  
 Use as a laboratory agent – professional  
 Use in coatings – industrial  
 Use in coatings – professional  
 Use as a cleaning agent – industrial  
 Use as a cleaning agent – professional  
 Use as a cleaning agent – consumer  
 Use in Coatings - Consumer

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Use as a fuel – consumer

**1.3****Details of the supplier of the safety data sheet**

**Company** : Chevron Phillips Chemical Company LP  
Specialty Chemicals  
10001 Six Pines Drive  
The Woodlands, TX 77380

**Local** : Chevron Phillips Chemicals International N.V.  
Airport Plaza (Stockholm Building)  
Leonardo Da Vincilaan 19  
1831 Diegem  
Belgium

SDS Requests: (800) 852-5530  
Responsible Party: Product Safety Group  
Email:sds@cpchem.com

**1.4****Emergency telephone:****Health:**

866.442.9628 (North America)

1.832.813.4984 (International)

**Transport:**

CHEMTREC 800.424.9300 or 703.527.3887(int'l)

Asia: CHEMWATCH (+612 9186 1132) China: 0532 8388 9090

Mexico CHEMTREC 01-800-681-9531 (24 hours)

South America SOS-Cotec Inside Brazil: 0800.111.767 Outside Brazil: +55.19.3467.1600

Argentina: +(54)-1159839431

EUROPE: BIG +32.14.584545 (phone) or +32.14583516 (telefax)

Austria: VIZ +43 1 406 43 43 (24 hours/day, 7 days/week)

Belgium: 070 245 245 (24 hours/day, 7 days/week)

Bulgaria: +359 2 9154 233

Croatia: +3851 2348 342 (24 hours/day, 7 days/week)

Cyprus: 1401

Czech Republic: Toxicological Information Center +420 224 919 293, +420 224 915 402

Denmark: Danish Poison Center (Gifflinjen): +45 8212 1212

Estonia: BIG +32.14.584545 (phone) or +32.14583516 (telefax)

Finland: 0800 147 111 09 471 977 (24 hours/day)

France: ORFILA number (INRS): + 33 (0) 1 45 42 59 59 (24 hours/day, 7 days/week)

Germany: BIG +32.14.584545 (phone) or +32.14583516 (telefax)

Greece: (0030) 2107793777 (24 hours/day, 7 days/week)

Hungary: +36-80-201-199 (24 hours/day, 7 days/week)

Iceland: 543 2222 (24 hours/day, 7 days/week)

Ireland: BIG +32.14.584545 (phone) or +32.14583516 (telefax)

Italy: BIG +32.14.584545 (phone) or +32.14583516 (telefax)

Latvia: State Fire and Rescue Service, phone number: 112; Toxicology and Sepsis Clinic

Poisoning and Drug Information Center, Hipokrāta 2, Riga, Latvia, LV-1038, phone number +371 67042473. (24 hours.)

Liechtenstein: BIG +32.14.584545 (phone) or +32.14583516 (telefax)

Lithuania: +370 (85) 2362052

Luxembourg: (+352) 8002 5500 (24 hours/day, 7 days/week)

Malta: +356 2395 2000

The Netherlands: NVIC: +31 (0)88 755 8000

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Norway: 22 59 13 00 (24 hours/day, 7 days/week)  
 Poland: BIG +32.14.584545 (phone) or +32.14583516 (telefax)  
 Portugal: CIAV phone number: +351 800 250 250  
 Romania: +40213183606  
 Slovakia: +421 2 5477 4166  
 Slovenia: Phone number: 112  
 Spain: National Emergency Telephone Number of Spanish Poison Centre: +34 91 562 04 20 (24 hours/day, 7 days/week)  
 Sweden: 112 – ask for Poisons Information

Responsible Department : Product Safety and Toxicology Group  
 E-mail address : SDS@CPChem.com  
 Website : www.CPChem.com

**SECTION 2: Hazards identification****2.1****Classification of the substance or mixture  
REGULATION (EC) No 1272/2008**

Flammable liquids, Category 2	H225: Highly flammable liquid and vapor.
Skin irritation, Category 2	H315: Causes skin irritation.
Carcinogenicity, Category 1B	H350: May cause cancer.
Reproductive toxicity, Category 1A	H360D: May damage the unborn child.
Specific target organ toxicity - single exposure, Category 3, Central nervous system	H336: May cause drowsiness or dizziness.
Specific target organ toxicity - repeated exposure, Category 2	H373: May cause damage to organs through prolonged or repeated exposure.
Aspiration hazard, Category 1	H304: May be fatal if swallowed and enters airways.
Short-term (acute) aquatic hazard, Category 1	H400: Very toxic to aquatic life.
Long-term (chronic) aquatic hazard, Category 1	H410: Very toxic to aquatic life with long lasting effects.

**2.2****Labeling (REGULATION (EC) No 1272/2008)**

Hazard pictograms :



Signal Word : Danger

Hazard Statements :	H225	Highly flammable liquid and vapor.
	H304	May be fatal if swallowed and enters airways.
	H315	Causes skin irritation.
	H336	May cause drowsiness or dizziness.
	H350	May cause cancer.
	H360D	May damage the unborn child.
	H373	May cause damage to organs through

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	H410	prolonged or repeated exposure. Very toxic to aquatic life with long lasting effects.
Precautionary Statements	<b>Prevention:</b>	
	P201	Obtain special instructions before use.
	P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
	P260	Do not breathe dust/ fume/ gas/ mist/ vapors/ spray.
	P273	Avoid release to the environment.
	P280	Wear protective gloves/ protective clothing/ eye protection/ face protection/ hearing protection.
	<b>Response:</b>	
	P301 + P310	IF SWALLOWED: Immediately call a POISON CENTER/ doctor.
	P308 + P313	IF exposed or concerned: Get medical advice/ attention.
	P331	Do NOT induce vomiting.
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.	
P391	Collect spillage.	

Hazardous ingredients which must be listed on the label:

- 540-84-1            2,2,4-Trimethylpentane (Isooctane)
- 78-00-2            Tetraethyl Lead
- 106-93-4           1,2-dibromoethane

**Additional Labeling:**

Restricted to professional users.

**2.3****Other hazards**

Results of PBT and vPvB assessment : This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

Endocrine disrupting properties : The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

**SECTION 3: Composition/information on ingredients****3.1 - 3.2****Substance or Mixture**

Synonyms : 2,2,4-Trimethylpentane / Tetraethyl Lead

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Molecular formula : Mixture

**Hazardous ingredients**

Chemical name	CAS-No. EC-No. Index No.	Classification (REGULATION (EC) No 1272/2008)	Concentration [wt%]	Specific Conc. Limits, M-factors and ATEs
<b>2,2,4-Trimethylpentane (Isooctane)</b>	<b>540-84-1</b> <b>208-759-1</b> 601-009-00-8	Flam. Liq. 2; H225 Skin Irrit. 2; H315 STOT SE 3; H336 Asp. Tox. 1; H304 Aquatic Acute 1; H400 Aquatic Chronic 1; H410	99,4 - 100	
Tetraethyl Lead	78-00-2 201-075-4 082-002-00-1	Repr. 1A; H360Df Acute Tox. 4; H332 Acute Tox. 4; H302 STOT RE 2; H373 Aquatic Acute 1; H400 Aquatic Chronic 1; H410 Repr. 1A; H360Df Acute Tox. 2; H330 Acute Tox. 1; H310 Acute Tox. 2; H300 STOT RE 2; H373 Aquatic Acute 1; H400 Aquatic Chronic 1; H410	0,1 - 1	
1,2-Dibromoethane	106-93-4 203-444-5 602-010-00-6	Acute Tox. 3; H301 Acute Tox. 1; H330 Acute Tox. 3; H311 Skin Irrit. 2; H315 Eye Irrit. 2; H319 Muta. 2; H341 Carc. 1B; H350 Repr. 2; H361 STOT SE 3; H335 Aquatic Chronic 2; H411	0,1 - 0,3	

For the full text of the H-Statements mentioned in this Section, see Section 16.

**SECTION 4: First aid measures****4.1****Description of first-aid measures**

- General advice : Move out of dangerous area. Show this material safety data sheet to the doctor in attendance. Material may produce a serious, potentially fatal pneumonia if swallowed or vomited.
- If inhaled : Consult a physician after significant exposure. If unconscious, place in recovery position and seek medical advice.
- In case of skin contact : If skin irritation persists, call a physician. If on skin, rinse well with water. If on clothes, remove clothes.

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- In case of eye contact : Flush eyes with water as a precaution. Remove contact lenses. Protect unharmed eye. Keep eye wide open while rinsing. If eye irritation persists, consult a specialist.
- If swallowed : Keep respiratory tract clear. Never give anything by mouth to an unconscious person. If symptoms persist, call a physician. Take victim immediately to hospital.

#### 4.2 Most important symptoms and effects, both acute and delayed

##### Notes to physician

- Symptoms : No data available.
- Risks : No data available.

#### 4.3 Indication of any immediate medical attention and special treatment needed

- Treatment : No data available.

### SECTION 5: Firefighting measures

- Flash point : -12,22°C (10,00°F)  
estimated

- Autoignition temperature : 411°C (772°F)

#### 5.1 Extinguishing media

- Suitable extinguishing media : Alcohol-resistant foam. Carbon dioxide (CO<sub>2</sub>). Dry chemical.
- Unsuitable extinguishing media : High volume water jet.

#### 5.2 Special hazards arising from the substance or mixture

- Specific hazards during fire fighting : Do not allow run-off from fire fighting to enter drains or water courses.

#### 5.3 Advice for firefighters

- Special protective equipment for fire-fighters : Wear self-contained breathing apparatus for firefighting if necessary.
- Further information : Collect contaminated fire extinguishing water separately. This must not be discharged into drains. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations. For safety reasons in case of fire, cans should be stored separately in closed containments. Use a water spray to cool fully closed containers.
- Fire and explosion protection : Do not spray on a naked flame or any incandescent material. Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapors). Use only explosion-proof equipment. Keep away from open flames, hot surfaces and sources of ignition.
- Hazardous decomposition : Hydrocarbons. Carbon oxides.

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products

**SECTION 6: Accidental release measures****6.1****Personal precautions, protective equipment and emergency procedures**

Personal precautions : Use personal protective equipment. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas.

**6.2****Environmental precautions**

Environmental precautions : Prevent product from entering drains. Prevent further leakage or spillage if safe to do so. If the product contaminates rivers and lakes or drains inform respective authorities.

**6.3****Methods and materials for containment and cleaning up**

Methods for cleaning up : Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13).

**6.4****Reference to other sections**

For additional details, see the Exposure Scenario in the Annex portion

**SECTION 7: Handling and storage****7.1****Precautions for safe handling  
Handling**

Advice on safe handling : Avoid formation of aerosol. Do not breathe vapors/dust. Avoid exposure - obtain special instructions before use. Avoid contact with skin and eyes. For personal protection see section 8. Smoking, eating and drinking should be prohibited in the application area. Take precautionary measures against static discharges. Provide sufficient air exchange and/or exhaust in work rooms. Open drum carefully as content may be under pressure. Dispose of rinse water in accordance with local and national regulations.

Advice on protection against fire and explosion : Do not spray on a naked flame or any incandescent material. Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapors). Use only explosion-proof equipment. Keep away from open flames, hot surfaces and sources of ignition.

**7.2****Conditions for safe storage, including any incompatibilities****Storage**

Requirements for storage areas and containers : No smoking. Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be

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carefully resealed and kept upright to prevent leakage.  
Observe label precautions. Electrical installations / working materials must comply with the technological safety standards.

**7.3****Specific End Use**

Use : For additional details, see the Exposure Scenario in the Annex portion

**SECTION 8: Exposure controls/personal protection****8.1****Control parameters****Ingredients with workplace control parameters****SK**

Zložky	Podstata	Hodnota	Kontrolné parametre	Poznámka
2,2,4-Trimethylpentane (Isooctane)	SK OEL	NPEL krátkodobý	300 ppm, 1.400 mg/m3	
	SK OEL	NPEL priemerný	200 ppm, 900 mg/m3	
Tetraethyl Lead	SK OEL	NPEL priemerný	0,05 mg/m3	K,
	SK OEL	NPEL krátkodobý	0,2 mg/m3	K,
1,2-Dibromoethane	SK OEL	TSH	0,1 ppm, 0,8 mg/m3	1B, K,

1B Kategória 1B - Pravdepodobný karcinogén

K Znamená, že faktor môže byť ľahko absorbovaný kožou. Niektoré faktory, ktoré ľahko prenikajú kožou, môžu spôsobovať až smrteľné otravy, často bez varovných príznakov (napr. anilín, nitrobenzén, nitroglykol, fenoly a pod.). Pri látkach s významným prienikom cez kožu, či už v podobe kvapalín alebo pár, je osobitne dôležité zabrániť kožnému kontaktu.

**SI**

Sestavine	Osnova	Vrednost	Parametri nadzora	Pripomba
2,2,4-Trimethylpentane (Isooctane)	SI OEL	MV	500 ppm, 2.400 mg/m3	
	SI OEL	KTV	1.000 ppm, 4.800 mg/m3	
Tetraethyl Lead	SI OEL	MV	0,05 mg/m3	RF-2, RD-1A, K,
	SI OEL	KTV	0,1 mg/m3	RF-2, RD-1A, K,

K Lastnosť lažjega prehajanja snovi v organizem skozi kožo

RD-1A Strupeno za razmnoževanje - lahko škoduje nerojenemu otroku - kategorija 1A

RF-2 Strupeno za razmnoževanje - lahko škoduje plodnosti - kategorija 2

**SE**

Beständsdelar	Grundval	Värde	Kontrollparametrar	Anmärkning
2,2,4-Trimethylpentane (Isooctane)	SE AFS	NGV	200 ppm, 900 mg/m3	
	SE AFS	KGV	300 ppm, 1.400 mg/m3	V,
Tetraethyl Lead	SE AFS	NGV	0,05 mg/m3	H, R,
	SE AFS	KGV	0,2 mg/m3	V, H, R,
1,2-Dibromoethane	SE AFS	NGV	0,1 ppm, 0,8 mg/m3	H, C, R,

C Ämnet är cancerframkallande.

H Ämnet kan lätt upptas genom huden.

R Ämnet är reproduktionsstörande.

V Vägledande kortidsgränsvärde ska användas som ett rekommenderat högsta värde som inte bör överskridas

**RO**

Componente	Sursă	Valoare	Parametri de control	Notă
Tetraethyl Lead	RO OEL	TWA	0,01 mg/m3	P,
	RO OEL	STEL	0,03 mg/m3	P,
1,2-Dibromoethane	RO OEL	STEL	0,3 ppm, 2 mg/m3	C1B, P,
	RO OEL	TWA	0,1 ppm, 0,8 mg/m3	C1B, P,

C1B poate provoca apariția cancerului

P Contribuție substanțială la încărcarea totală din organism prin posibilă expunere cutanată.

**PT**

Componentes	Bases	Valor	Parâmetros de controlo	Nota
Tetraethyl Lead	PT OEL	VLE-MP	0,1 mg/m3	P, A4,

A4 Agente não classificável como carcinogénico no Homem.

P Perigo de absorção cutânea

**PL**

Składniki	Podstawa	Wartość	Parametry dotyczące kontroli	Uwaga
Tetraethyl Lead	PL NDS	NDS	0,05 mg/m3	
	PL NDS	NDSch	0,1 mg/m3	
1,2-Dibromoethane	PL NDS	NDS	0,01 mg/m3	

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## NO

Komponenter	Grunnlag	Verdi	Kontrollparametrer	Nota
Tetraethyl Lead	FOR-2011-12-06-1358	GV	0,01 ppm, 0,075 mg/m3	R, H,
1,2-Dibromoethane	FOR-2011-12-06-1358	GV	0,1 ppm, 1 mg/m3	K,

- H Kjemikalier som kan tas opp gjennom huden.  
 K Kjemikalier som skal betraktes som kreftfremkallende.  
 R Kjemikalier som skal betraktes som reproduksjonstoksiske.

## NL

Bestanddelen	Basis	Waarde	Controleparameters	Opmerking
1,2-Dibromoethane	NL WG	TGG-8 uur	0,002 mg/m3	

## MK

Съставки	Основа	Стойност	Параметри на контрол	Бележка
2,2,4-Trimethylpentane (Isooctane)	MK OEL	MV	500 ppm, 2.400 mg/m3	
Tetraethyl Lead	MK OEL	MV	0,05 mg/m3	K,
1,2-Dibromoethane	MK OEL	MV	0,1 ppm, 0,8 mg/m3	R2, K,

- K The properties of easier transport of substances into organism through (via) the skin  
 R2 Carcinogenic R2 - may cause cancer. Numbers 1, 2 and 3 indicate the class of carcinogenicity or mutagenicity according to the EU classification of carcinogenic or mutagenic substances. Carcinogenic or mutagenic substances are in EU classified in separate groups, according to the fulfilling of criteria, set in the EU directive 67/548/EEC.

## LV

Sastāvdaļas	Bāze	Vērtība	Pārvaldības parametri	Piezīme
2,2,4-Trimethylpentane (Isooctane)	LV OEL	AER 8 st	100 mg/m3	
	LV OEL	AER īslaicīgā	300 mg/m3	
Tetraethyl Lead	LV OEL	AER 8 st	0,005 mg/m3	

## LU

Composants	Base	Valeur	Paramètres de contrôle	Note
Tetraethyl Lead	LU OEL	TWA	0,15 mg/m3	
	LU OEL	TWA	0,15 mg/m3	

## LT

Komponentai	Šaltinis	Vertė	Kontrolės parametrai	Pastaba
2,2,4-Trimethylpentane (Isooctane)	LT OEL	IPRD	200 ppm, 900 mg/m3	
	LT OEL	TPRD	300 ppm, 1.400 mg/m3	
Tetraethyl Lead	LT OEL	IPRD	0,05 mg/m3	O,
	LT OEL	TPRD	0,2 mg/m3	O,
1,2-Dibromoethane	LT OEL	IPRD	0,1 ppm, 0,8 mg/m3	O,

- O pateikimas per nepažeistą odą

## IS

Komponenter	Grunnlag	Verdi	Kontrollparametrer	Nota
Tetraethyl Lead	IS OEL	TWA	0,05 mg/m3	H,
1,2-Dibromoethane	IS OEL	TWA	0,1 ppm, 1 mg/m3	H, K,

- H Skin notation  
 K Carcinogenic substances

## IE

Components	Basis	Value	Control parameters	Note
Tetraethyl Lead	IE OEL	OELV - 8 hrs (TWA)	0,1 mg/m3	Sk,
1,2-Dibromoethane	IE OEL	OELV - 8 hrs (TWA)	0,1 ppm, 0,8 mg/m3	Sk, Carc 1B,

- Carc 1B Carc 1B - Substances presumed to have carcinogenic potential for humans  
 Sk Substances which have the capacity to penetrate intact skin when they come in contact with it, and be absorbed into the body

## HU

Komponensek	Bázis	Érték	Ellenőrzési paraméterek	Megjegyzés
2,2,4-Trimethylpentane (Isooctane)	HU OEL	AK-érték	2.350 mg/m3	R, i,
	HU OEL	CK-érték	4.700 mg/m3	R, i,
Tetraethyl Lead	HU OEL	AK-érték	0,05 mg/m3	T, b, i,
	HU OEL	CK-érték	0,2 mg/m3	T, b, i,
1,2-Dibromoethane	HU OEL	AK-érték	0,8 mg/m3	k(1B), T, EU6, b, m,

- b Bőrön át is felszívódik. Az AK-értékek a veszélyes anyagoknak ezt a tulajdonságát, illetve az ebből származó expozíciót csak a levegőben megengedett koncentrációjuk mértékének megfelelően veszik figyelembe  
 EU6 2019/130 EU irányelvben közölt érték  
 i Ingerlő anyag (izgatja a bőrt, nyálkahártyát, szemet vagy mindháromat)  
 k(1B) rákkeltő 1B  
 m Maró hatású anyag (felmarja a bőrt, nyálkahártyát, szemet vagy mindháromat)  
 R Azok az anyagok, amelyek egészségkárosító hatása RÖVID expozíció hatására jelentkezik. Korrigált ÁK = ÁK x 8/a napi óraszám  
 T Azok az anyagok, amelyek egészségkárosító hatása TARTÓS expozíciót követően jelentkezik. Korrigált ÁK = ÁK x 40/a heti

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óraszám

## HR

Sastojci	Temelj	Vrijednost	Nadzorni parametri	Bilješka
Tetraethyl Lead	HR OEL	GVI	0,01 ppm, 0,075 mg/m3	G-1, koža,
1,2-Dibromoethane	HR OEL	GVI	0,5 ppm, 3,9 mg/m3	koža, Karc 1B,

G-1 obvezatna zaštita u trudnoći  
Karc 1B Tvar koja je prema Uredbi (EZ) br. 1272/2008 razvrstana kao karcinogena 1.B kategorije  
koža Razvrstana kao tvar koja nadražuje kožu (H315) ili je takva napomena navedena u direktivama

## GR

Συστατικά	Βάση	Τιμή	Παράμετροι ελέγχου	Σημείωση
Tetraethyl Lead	GR OEL	TWA	0,1 mg/m3	Δ,
1,2-Dibromoethane	GR OEL	TWA	0,1 ppm, 0,8 mg/m3	Δ,

Δ Η ένδειξη 'δέρμα' (Δ), η οποία επισημαίνει ορισμένους χημικούς παράγοντες του πίνακα της παρ. 1 του άρθρου 3, υπονοεί την πιθανή συμβολή στην συνολική έκθεση του εργαζόμενου και της ποσότητας αυτών των χημικών παραγόντων που απορροφάται διαμέσου του δέρματος κατά την άμεση επαφή μαζί τους.

## GB

Components	Basis	Value	Control parameters	Note
1,2-Dibromoethane	GB EH40	TWA	0,5 ppm, 3,9 mg/m3	Sk, Carc,

Carc Capable of causing cancer and/or heritable genetic damage.  
Sk Can be absorbed through the skin. The assigned substances are those for which there are concerns that dermal absorption will lead to systemic toxicity.

## FR

Composants	Base	Valeur	Paramètres de contrôle	Note
2,2,4-Trimethylpentane (Isooctane)	FR VLE	VME	1.000 mg/m3	Valeurs limites indicatives, Vapeur
	FR VLE	VLCT (VLE)	1.500 mg/m3	Valeurs limites indicatives, Vapeur
Tetraethyl Lead	FR VLE	VME	0,1 mg/m3	R1A, Peau, Valeurs limites indicatives,

Peau Risque de pénétration percutanée  
R1A Toxique pour la reproduction de catégorie 1A - Substances que l'on sait être toxiques pour la reproduction chez l'homme  
Valeurs limites indicatives Valeurs limites indicatives

## FI

Aineosat	Peruste	Arvo	Valvontaa koskevat muuttujat	Huomautus
2,2,4-Trimethylpentane (Isooctane)	FI OEL	HTP-arvot 8h	300 ppm, 1.400 mg/m3	
	FI OEL	HTP-arvot 15 min	380 ppm, 1.800 mg/m3	
Tetraethyl Lead	FI OEL	HTP-arvot 8h	0,075 mg/m3	iho,
	FI OEL	HTP-arvot 15 min	0,23 mg/m3	iho,
1,2-Dibromoethane	FI OEL	HTP-arvot 8h	0,1 ppm, 0,78 mg/m3	iho,
	FI OEL CM	TWA	0,1 ppm, 0,8 mg/m3	

iho Ihon läpi imeytyvien aineiden elimistöön joutuvia määriä ja elimistöön joutuneesta aineesta aiheutuvaa vaaraa ei voida näin ollen arvioida pelkästään ilmapitoisuuksien avulla. Tämän vuoksi näiden aineiden HTP-arvojen yhteyteen on huomautussarakkeeseen otettu ihon läpi imeytymisen osoittamiseksi merkintä 'iho'. Monet aineet, varsinkin voimakkaat hapot tai emäkset, voivat aiheuttaa iholle jouduttuaan ihon ärsyyntymistä tai syöpymistä.

## ES

Componentes	Base	Valor	Parámetros de control	Nota
2,2,4-Trimethylpentane (Isooctane)	ES VLA	VLA-ED	300 ppm, 1.420 mg/m3	
Tetraethyl Lead	ES VLA	VLA-ED	0,1 mg/m3	TR1A, vía dérmica,
1,2-Dibromoethane	ES VLA	VLA-ED	0,5 ppm, 3,9 mg/m3	C1B, vía dérmica,

C1B Supuestos carcinógenos para el hombre, en base a la existencia de pruebas en animales.  
TR1A Sustancias de las que se sabe que son tóxicas para la reproducción humana. La clasificación en la categoría 1A se basa fundamentalmente en la existencia de pruebas en humanos.  
vía dérmica Vía dérmica

## EE

Komponendid, osad	Alused	Väärtus	Kontrolliparameetrid	Märkused
2,2,4-Trimethylpentane (Isooctane)	EE OEL	Piirnorm	200 ppm, 900 mg/m3	
	EE OEL	Lühiajalise kokkupuute piirnorm	300 ppm, 1.400 mg/m3	
Tetraethyl Lead	EE OEL	Piirnorm	0,05 mg/m3	A, R,
	EE OEL	Lühiajalise kokkupuute piirnorm	0,2 mg/m3	A, R,
1,2-Dibromoethane	EE OEL	Piirnorm	0,1 ppm, 0,8 mg/m3	A, C,

A Naha kaudu kergesti absorbeeruvad ained  
C Kantserogeensed ained  
R Reproduktiivset funktsiooni kahjustavad ained

## DK

Komponenter	Basis	Værdi	Kontrolparametre	Note
Tetraethyl Lead	DK OEL	GV	0,007 ppm, 0,05 mg/m3	H,

SDS Number:100000014063

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1,2-Dibromoethane	DK OEL	GV	0,1 ppm, 1 mg/m3	H, K,
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H Betyder, at stoffet kan optages gennem huden.

K Betyder, at stoffet er optaget på listen over stoffer, der anses for at være kræftfremkaldende.

## DE

Inhaltsstoffe	Grundlage	Wert	Zu überwachende Parameter	Bemerkung
Tetraethyl Lead	DE TRGS 900	AGW	0,05 mg/m3	DFG, 10, H,
	DE TRGS 900	AGW	0,05 mg/m3	H, Z,

10 Der Arbeitsplatzgrenzwert bezieht sich auf den Elementgehalt des entsprechenden Metalls.

DFG Senatskommission zur Prüfung gesundheitsschädlicher Arbeitsstoffe der DFG (MAK-Kommission)

H Hautresorptiv

Z Ein Risiko der Fruchtschädigung kann auch bei Einhaltung des AGW und des BGW nicht ausgeschlossen werden

## CZ

Složky	Základ	Hodnota	Kontrolní parametry	Poznámka
Tetraethyl Lead	CZ OEL	PEL	0,05 mg/m3	D,
	CZ OEL	NPK-P	0,1 mg/m3	D,
1,2-Dibromoethane	CZ OEL	PEL	1 mg/m3	I, K, D,
	CZ OEL	NPK-P	2 mg/m3	I, K, D,

D Při expozici se významně uplatňuje pronikání faktoru kůží

I dráždí sliznice (oči, dýchací cesty), respektive kůži

K karcinogen kategorie 1A a 1B (s větou H350, H350i)

## CY

Συστατικά	Βάση	Τιμή	Παράμετροι ελέγχου	Σημείωση
Tetraethyl Lead	CY OEL 2	M.E.Σ.	0,1 mg/m3	
1,2-Dibromoethane	CY OEL 2	M.E.Σ.	20 ppm, 145 mg/m3	

## CH

Inhaltsstoffe	Grundlage	Wert	Zu überwachende Parameter	Bemerkung
2,2,4-Trimethylpentane (Isooctane)	CH SUVA	MAK-Wert	300 ppm, 1.400 mg/m3	NIOSH,
	CH SUVA	KZGW	600 ppm, 2.800 mg/m3	NIOSH,
	CH SUVA	MAK-Wert	100 ppm, 470 mg/m3	
	CH SUVA	KZGW	200 ppm, 940 mg/m3	
Tetraethyl Lead	CH SUVA	MAK-Wert	0,05 mg/m3	H, SSb, NIOSH, OSHA, HSE,
	CH SUVA	KZGW	0,1 mg/m3	H, SSb, NIOSH, OSHA, HSE,
1,2-Dibromoethane	CH SUVA	MAK-Wert	0,1 ppm, 0,8 mg/m3	H, Carc.Cat.2, NIOSH, INRS, HSE, BG,

BG BG

Carc.Cat.2 Krebserzeugende Stoffe Kategorie 2

H Vergiftung durch Hautresorption möglich; Bei Stoffen, welche die Haut leicht zu durchdringen vermögen, kann durch die zusätzliche Hautresorption die innere Belastung wesentlich höher werden als bei alleiniger Aufnahme durch die Atemwege.

HSE Health and Safety Executive (Occupational Medicine and Hygiene Laboratory)

INRS Institut National de Recherche et de Sécurité pour la prévention des accidents du travail et des maladies professionnelles

NIOSH National Institute for Occupational Safety and Health

OSHA Occupational Safety and Health Administration

SSb Eine Schädigung der Leibesfrucht kann auch bei Einhaltung des MAK-Wertes nicht ausgeschlossen werden.

## BG

Съставки	Основа	Стойност	Параметри на контрол	Бележка
Tetraethyl Lead	BG OEL	TWA	0,05 mg/m3	
1,2-Dibromoethane	BG OEL	TWA	0,1 ppm, 0,8 mg/m3	

## BE

Bestanddelen	Basis	Waarde	Controleparameters	Opmerking
Tetraethyl Lead	BE OEL	TGG 8 hr	0,1 mg/m3	D,

D Opname van het agens via de huid, de slijmvliezen of de ogen vormt een belangrijk deel van de totale blootstelling. Deze opname kan het gevolg zijn van zowel direct contact als zijn aanwezigheid in de lucht.

## AT

Inhaltsstoffe	Grundlage	Wert	Zu überwachende Parameter	Bemerkung
2,2,4-Trimethylpentane (Isooctane)	AT OEL	MAK-TMW	300 ppm, 1.400 mg/m3	
	AT OEL	MAK-KZW	1.200 ppm, 5.600 mg/m3	
Tetraethyl Lead	AT OEL	MAK-TMW	0,05 mg/m3	H,
	AT OEL	MAK-KZW	0,2 mg/m3	H,
1,2-Dibromoethane	AT OEL	TRK-TMW	0,1 ppm, 0,8 mg/m3	H,
	AT OEL	TRK-KZW	0,4 ppm, 3,2 mg/m3	H,

H Besondere Gefahr der Hautresorption

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**Immediately Dangerous to Life or Health Concentrations (IDLH)**

Substance name	CAS-No.	Control parameters	Update
Tetraethyl Lead	78-00-2		2014-03-05 2014-03-05

**Biological exposure indices****SK**

Názov látky	Č. CAS	Kontrolné parametre	Doba odberu vzorky	Aktualizácia
Tetraethyl Lead	78-00-2	dietyloľovo: 25 µg Pb/l (moč)	Koniec vystavenia alebo pracovnej zmeny	2011-11-23
		dietyloľovo: 0.1209 µmol.l-1 (moč)	Koniec vystavenia alebo pracovnej zmeny	2011-11-23
		dietyloľovo: 16.7 µg/g kreatinínu (moč)	Koniec vystavenia alebo pracovnej zmeny	2011-11-23
		dietyloľovo: 0.00912 µmol/mmol kreatinínu (moč)	Koniec vystavenia alebo pracovnej zmeny	2011-11-23
		celkové oľovo (možno aplikovať na zmes tetraetyloľova s tetrametyloľovom): 50 µg/l (moč)	Koniec vystavenia alebo pracovnej zmeny	2011-11-23
		celkové oľovo (možno aplikovať na zmes tetraetyloľova s tetrametyloľovom): 0.2415 µmol.l-1 (moč)	Koniec vystavenia alebo pracovnej zmeny	2011-11-23
		celkové oľovo (možno aplikovať na zmes tetraetyloľova s tetrametyloľovom): 33.36 µg/g kreatinínu (moč)	Koniec vystavenia alebo pracovnej zmeny	2011-11-23
		celkové oľovo (možno aplikovať na zmes tetraetyloľova s tetrametyloľovom): 0.01821 µmol/mmol kreatinínu (moč)	Koniec vystavenia alebo pracovnej zmeny	2011-11-23

**SI**

Ime snovi	Št. CAS	Parametri nadzora	Čas vzorčenja	Sprememba
Tetraethyl Lead	78-00-2	dietyľsvinec: 25 µg/l (Urin)	Ob koncu delovne izmene	2018-12-04
		Svinec: 50 µg/l (Urin)	Ob koncu delovne izmene	2018-12-04

**RO**

Numele substanței	Nr. CAS	Parametri de control	Timp de prelevare a probei	Adus la zi
Tetraethyl Lead	78-00-2	plumb dietil: 25 µg/l (Urină)	Sfârșit schimb	2012-01-19
		plumb total: 50 µg/l (Urină)	Sfârșit schimb	2012-01-19

**HR**

Naziv tvari	CAS-br.	Nadzorni parametri	Vrijeme uzorkovanja	Ažurirati
Tetraethyl Lead	78-00-2	oľovo: 21.8 µmol/mol kreatinina Računato na prosječnu vrijednost kreatinina od 1,2 g/L urina. Za sve rezultate koji se izražavaju na kreatinin, koncentracije kreatinina < 0,5 g/L i > 3,0 g/L ne mogu se uzeti u obzir. (Urin)	jednokratni uzorak ili mokraća skupljen tijekom 24 sata	2018-10-12

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		olovo: 40 µg/g kreatinina Računato na prosječnu vrijednost kreatinina od 1,2 g/L urina. Za sve rezultate koji se izražavaju na kreatinin, koncentracije kreatinina < 0,5 g/L i > 3,0 g/L ne mogu se uzeti u obzir. (Urin)	jednokratni uzorak ili mokraća skupljen tijekom 24 sata	2018-10-12
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**DE**

Stoffname	CAS-Nr.	Zu überwachende Parameter	Probennahmezeit punkt	Stand
Tetraethyl Lead	78-00-2	Diethylblei: 25 µg/l (Urin)	Expositionsende, bzw. Schichtende	2013-09-19
		Gesamtblei: 50 µg/l Gilt auch für Gemische mit Tetramethylblei (Urin)	Expositionsende, bzw. Schichtende	2013-09-19

**CH**

Stoffname	CAS-Nr.	Zu überwachende Parameter	Probennahmezeit punkt	Stand
Tetraethyl Lead	78-00-2	Gesamtblei: 241.3 nmol/l Nicht spezifischer Parameter; Die mit N gekennzeichneten biologischen Parameter sind nicht für den aufgeführten Arbeitsstoff spezifisch, sondern können auch nach Expositionen gegenüber bestimmten anderen Arbeitsstoffen im biologischen Material gemessen werden. In der Praxis hat sich die Bestimmung dieser Stoffe jedoch bewährt. Bei speziellen Problemen empfiehlt sich zusätzlich die Bestimmung eines spezifischen Parameters. (Urin) Umwelteinflüsse; Die mit X gekennzeichneten biologischen Parameter werden auch in unterschiedlicher Quantität bei beruflich Nichtexponierten gemessen, da sie zusätzlich auf Umwelteinflüsse zurückgeführt werden können. Die Festsetzung des BAT-Wertes berücksichtigt bei diesen Parametern auch die Einflüsse von Umweltfaktoren. () gilt auch für Gemische mit Bleitetramethyl ()	Expositionsende, bzw. Schichtende	2014-01-01

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		Gesamtlei: 50 µg/l Nicht spezifischer Parameter; Die mit N gekennzeichneten biologischen Parameter sind nicht für den aufgeführten Arbeitsstoff spezifisch, sondern können auch nach Expositionen gegenüber bestimmten anderen Arbeitsstoffen im biologischen Material gemessen werden. In der Praxis hat sich die Bestimmung dieser Stoffe jedoch bewährt. Bei speziellen Problemen empfiehlt sich zusätzlich die Bestimmung eines spezifischen Parameters. (Urin) Umwelteinflüsse; Die mit X gekennzeichneten biologischen Parameter werden auch in unterschiedlicher Quantität bei beruflich Nichtexponierten gemessen, da sie zusätzlich auf Umwelteinflüsse zurückgeführt werden können. Die Festsetzung des BAT-Wertes berücksichtigt bei diesen Parametern auch die Einflüsse von Umweltfaktoren. () gilt auch für Gemische mit Bleitetramethyl ()	Expositionsende, bzw. Schichtende	2014-01-01
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**BG**

Наименование на веществото	CAS номер	Параметри на контрол	Време на взимане на пробата	Последна актуализация
Tetraethyl Lead	78-00-2	олово (също за смеси от тетраетилолово и тетраметилолово): 50 µg/l (Урина)	В края на експозицията или в края на работната смяна	2007-08-17

**AT**

Stoffname	CAS-Nr.	Zu überwachende Parameter	Probennahmezeit punkt	Stand
Tetraethyl Lead	78-00-2	Blutblei: 30 µg/ 100 ml (Blut)		2014-02-18
		ALA-U: 10 mg/l Davis; Männer, Frauen > 50 a (Urin)		2014-02-18
		ALA-U: 6 mg/l Davis; Frauen <= 50 a (Urin)		2014-02-18

**8.2****Exposure controls  
Engineering measures**

Adequate ventilation to control airborne concentrations below the exposure guidelines/limits. Consider the potential hazards of this material (see Section 2), applicable exposure limits, job activities, and other substances in the work place when designing engineering controls and selecting personal protective equipment. If engineering controls or work practices are not adequate to prevent exposure to harmful levels of this material, the personal protective equipment listed below is recommended. The user should read and understand all instructions and limitations supplied with the equipment since protection is usually provided for a limited time or under certain circumstances.

**Personal protective equipment**

Respiratory protection : If ventilation or other engineering controls are not adequate to maintain minimal oxygen content of 19.5% by volume under normal atmospheric pressure, a supplied-air NIOSH approved respirator may be appropriate. If exposure to harmful levels of airborne material may occur, a NIOSH approved respirator that provides protection may be appropriate, such as: Air-Purifying Respirator for Organic Vapors. A positive pressure, air-

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supplying respirator may be appropriate if there is potential for uncontrolled release, aerosolization, exposure levels are not known, or other circumstances where air-purifying respirators may not provide adequate protection.

- Hand protection : The suitability for a specific workplace should be discussed with the producers of the protective gloves. Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion, and the contact time. Gloves should be discarded and replaced if there is any indication of degradation or chemical breakthrough.
- Eye protection : Eye wash bottle with pure water. Tightly fitting safety goggles.
- Skin and body protection : Choose body protection in relation to its type, to the concentration and amount of dangerous substances, and to the specific work-place. Wear as appropriate: Flame retardant antistatic protective clothing. Workers should wear antistatic footwear.
- Hygiene measures : When using do not eat or drink. When using do not smoke. Wash hands before breaks and at the end of workday.

For additional details, see the Exposure Scenario in the Annex portion

**SECTION 9: Physical and chemical properties****9.1****Information on basic physical and chemical properties****Appearance**

- Form : liquid
- Physical state : liquid
- Color : Colorless
- Odor : Mild

**Safety data**

- Flash point : -12,22°C (10,00°F)  
estimated
- Lower explosion limit : 1 %(V)
- Upper explosion limit : 7 %(V)
- Oxidizing properties : No
- Autoignition temperature : 411°C (772°F)
- Thermal decomposition : No data available
- Molecular formula : Mixture
- Molecular weight : Not applicable

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pH	: Not applicable
Pour point	: No data available
Boiling point/boiling range	: 99°C (210°F)
Vapor pressure	: 1,70 PSI at 37,8°C (100,0°F)
Relative density	: 0,7 at 15,6 °C (60,1 °F)
Water solubility	: negligible
Partition coefficient: n-octanol/water	: No data available
Viscosity, kinematic	: 0,503 cSt at 20°C (68°F)
Relative vapor density	: 3 (Air = 1.0)
Evaporation rate	: 1
Percent volatile	: > 99 %  0,05 %

**9.2****Other information**

Conductivity : No data available

**SECTION 10: Stability and reactivity****10.1****Reactivity** : Stable under recommended storage conditions.**10.2****Chemical stability** : This material is considered stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.**10.3****Possibility of hazardous reactions****Hazardous reactions** : Hazardous reactions: Hazardous polymerization does not occur.

Hazardous reactions: Vapors may form explosive mixture with air.



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**10.4****Conditions to avoid** : Heat, flames and sparks.**10.5****Materials to avoid** : May react with oxygen and strong oxidizing agents, such as chlorates, nitrates, peroxides, etc.**Thermal decomposition** : No data available**10.6****Hazardous decomposition products** : Hydrocarbons  
Carbon oxides**Other data** : No decomposition if stored and applied as directed.**SECTION 11: Toxicological information****11.1****Information on toxicological effects****TrusTec™ PRF Isooctane + TEL****Acute oral toxicity** : Acute toxicity estimate: 3.586 mg/kg  
Method: Calculation method**TrusTec™ PRF Isooctane + TEL****Acute inhalation toxicity** : Acute toxicity estimate: 19,39 mg/l  
Exposure time: 4 h  
Test atmosphere: vapor  
Method: Calculation method**TrusTec™ PRF Isooctane + TEL****Acute dermal toxicity** : Acute toxicity estimate: > 5.000 mg/kg  
Method: Calculation method**TrusTec™ PRF Isooctane + TEL****Skin irritation** : Skin irritation  
largely based on animal evidence.**TrusTec™ PRF Isooctane + TEL****Eye irritation** : Vapors may cause irritation to the eyes, respiratory system and the skin.**Sensitization**

2,2,4-Trimethylpentane (Isooctane) : Did not cause sensitization on laboratory animals.

1,2-Dibromoethane : Substance is not considered to be potential skin sensitiser.

**Repeated dose toxicity**2,2,4-Trimethylpentane (Isooctane) : Species: Rat, Male and female  
Sex: Male and female  
Application Route: Inhalation  
Dose: 0, 668, 2220, 6646 ppm  
Exposure time: 13 weeks

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Number of exposures: 6 hr/day 5 d/wk  
 NOEL: 8,117 mg/l 2220 ppm  
 Method: OECD Guideline 413  
 Information given is based on data obtained from similar substances.

**Tetraethyl Lead**

Species: Monkey, Male and female  
 Sex: Male and female  
 Application Route: oral gavage  
 Dose: 0.009 mg TEL/kg/bw/day  
 Exposure time: 6 months  
 Number of exposures: Once per day, 7 d/wk  
 NOEL: 0,009 mg/kg

Species: Rat, male  
 Sex: male  
 Application Route: oral gavage  
 Dose: 0, 0.2, 2.0 mg/kg/bw  
 Exposure time: 13 wk  
 Number of exposures: Once per day. 5 d/wk  
 Lowest observable effect level: 0,2 mg/kg  
 Target Organs: Nervous system, Blood

**Genotoxicity in vitro**

2,2,4-Trimethylpentane  
 (Isooctane)

: Test Type: Ames test  
 Method: Mutagenicity (Escherichia coli - reverse mutation assay)  
 Result: negative

Test Type: Mouse lymphoma assay  
 Method: OECD Guideline 476  
 Result: negative

Test Type: Sister Chromatid Exchange Assay  
 Result: negative

Test Type: Unscheduled DNA synthesis assay  
 Result: negative

**Tetraethyl Lead**

Test Type: Ames test  
 Concentration: 0, 1, 3.3, 10, 33.3, 100  
 Method: OECD Test Guideline 471  
 Result: negative

**Genotoxicity in vivo**

2,2,4-Trimethylpentane  
 (Isooctane)

: Test Type: Unscheduled DNA synthesis assay  
 Species: Mouse  
 Dose: 500 mg/kg  
 Result: negative

Test Type: Unscheduled DNA synthesis assay  
 Species: Rat  
 Dose: 500 mg/kg  
 Result: negative

**Tetraethyl Lead**

Test Type: Dominant lethal assay  
 Species: Mouse

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Dose: 6.48, 32.0 mg/kg/d  
 Result: In vivo tests did not show any chromosomal changes.

Test Type: Dominant lethal assay  
 Species: Mouse  
 Dose: 6.48, 32.0 mg/kg/d  
 Result: In vivo tests did not show any chromosomal changes.

**Reproductive toxicity**

2,2,4-Trimethylpentane (Isooctane) : Species: Rat  
 Sex: male and female  
 Application Route: Inhalation  
 Dose: 0, 900, 3000, 9000 ppm  
 Number of exposures: 6 h/d 5 d/wk  
 Method: OECD Test Guideline 416  
 NOAEL Parent: 3000 ppm  
 NOAEL F1: 3000 ppm  
 NOAEL F2: 3000 ppm  
 Information given is based on data obtained from similar substances.

**Developmental Toxicity**

2,2,4-Trimethylpentane (Isooctane) : Species: Rat  
 Application Route: Inhalation  
 Dose: 0, 400, 1200 ppm  
 Number of exposures: 6h/d  
 Test period: GD6-15  
 NOAEL Teratogenicity: 1200 ppm  
 NOAEL Maternal: 1200 ppm  
 Information given is based on data obtained from similar substances.

Species: Rat  
 Application Route: Inhalation  
 Dose: 0, 900, 3000, 9000 ppm  
 Number of exposures: 6h/d  
 Test period: GD6-15  
 Method: OECD Guideline 414  
 NOAEL Teratogenicity: 9000 ppm  
 NOAEL Maternal: 3000 ppm  
 Information given is based on data obtained from similar substances.

Tetraethyl Lead : Species: Rat  
 Application Route: oral gavage  
 Dose: 0, 0.01, 0.1, 1, 10 mg/kg  
 Test period: GD 6-16  
 NOAEL Teratogenicity: 0,1 mg/kg  
 NOAEL Maternal: 0,1 mg/kg

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**Aspiration toxicity** : May be fatal if swallowed and enters airways.

**CMR effects**

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2,2,4-Trimethylpentane (Isooctane)	: Mutagenicity: Tests on bacterial or mammalian cell cultures did not show mutagenic effects. Teratogenicity: Animal testing did not show any effects on fetal development. Reproductive toxicity: Animal testing did not show any effects on fertility.
Tetraethyl Lead	Reproductive toxicity: Positive evidence of adverse effects on sexual function, fertility and/or development from human epidemiological studies.
1,2-Dibromoethane	Carcinogenicity: Possible human carcinogen Mutagenicity: In vitro tests showed mutagenic effects Reproductive toxicity: Some evidence of adverse effects on sexual function and fertility, and/or on development, based on animal experiments.

**11.2****Information on other hazards****TrusTec™ PRF Isooctane + TEL**

<b>Further information</b>	: Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting. Concentrations substantially above the TLV value may cause narcotic effects. Solvents may degrease the skin.
Endocrine disrupting properties	: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

**SECTION 12: Ecological information****12.1****Toxicity****Toxicity to fish**

2,2,4-Trimethylpentane (Isooctane)	: LC50: 0,11 mg/l Exposure time: 96 h Species: Oncorhynchus mykiss (rainbow trout) semi-static test Method: OECD Test Guideline 203 Information given is based on data obtained from similar substances.
Tetraethyl Lead	LC50: 0,2 mg/l Exposure time: 96 h Species: Lepomis macrochirus (Bluegill sunfish)
1,2-Dibromoethane	LC50: 4,30 mg/l Exposure time: 96 h Species: Pimephales promelas (fathead minnow) flow-through test

**Toxicity to daphnia and other aquatic invertebrates**

2,2,4-Trimethylpentane (Isooctane)	: EC50: 0,4 mg/l Exposure time: 48 h
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Species: Daphnia magna (Water flea)  
static test Information given is based on data obtained from similar substances.

1,2-Dibromoethane LC50: 6,5 mg/l  
Exposure time: 48 h  
Species: Daphnia magna (Water flea)  
static test

**Toxicity to algae**

2,2,4-Trimethylpentane (Isooctane) : EL50: 2,943 mg/l  
Exposure time: 72 h  
Method: QSAR modeled data

**Toxicity to fish (Chronic toxicity)**

1,2-Dibromoethane : NOEC: 0,034 mg/l  
Species: Oryzias latipes (Japanese medaka)

**Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)**

2,2,4-Trimethylpentane (Isooctane) : NOEL: 0,17 mg/l  
Exposure time: 21 d  
Species: Daphnia magna (Water flea)  
Method: OECD Test Guideline 211  
Information given is based on data obtained from similar substances.

**12.2****Persistence and degradability**

Biodegradability : Expected to be ultimately biodegradable  
Information given is based on data obtained from similar substances.

**12.3****Bioaccumulative potential**

Elimination information (persistence and degradability)

Bioaccumulation

2,2,4-Trimethylpentane (Isooctane) : Bioconcentration factor (BCF): 231  
Method: QSAR modeled data  
This material is not expected to bioaccumulate.

**12.4****Mobility in soil**

Mobility

2,2,4-Trimethylpentane (Isooctane) : Medium: Air  
Method: Calculation, Mackay Level I Fugacity Model  
After release, disperses into the air.

**12.5****Results of PBT and vPvB assessment**

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Results of PBT assessment : This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

**12.6****Endocrine disrupting properties**

Endocrine disrupting properties : The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

**12.7****Other adverse effects**

Additional ecological information : Very toxic to aquatic life with long lasting effects.

**12.8****Additional Information****Ecotoxicology Assessment**

Short-term (acute) aquatic hazard : Very toxic to aquatic life.

Long-term (chronic) aquatic hazard : Very toxic to aquatic life with long lasting effects.

**SECTION 13: Disposal considerations****13.1****Waste treatment methods**

The information in this SDS pertains only to the product as shipped.

Use material for its intended purpose or recycle if possible. This material, if it must be discarded, may meet the criteria of a hazardous waste as defined by US EPA under RCRA (40 CFR 261) or other State and local regulations. Measurement of certain physical properties and analysis for regulated components may be necessary to make a correct determination. If this material is classified as a hazardous waste, federal law requires disposal at a licensed hazardous waste disposal facility.

Product : The product should not be allowed to enter drains, water courses or the soil. Do not contaminate ponds, waterways or ditches with chemical or used container. Send to a licensed waste management company.

Contaminated packaging : Empty remaining contents. Dispose of as unused product. Do not re-use empty containers. Do not burn, or use a cutting torch on, the empty drum.

For additional details, see the Exposure Scenario in the Annex portion

**SECTION 14: Transport information****14.1 - 14.7****Transport information**

**The shipping descriptions shown here are for bulk shipments only, and may not apply to shipments in non-bulk packages (see regulatory definition).**

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Consult the appropriate domestic or international mode-specific and quantity-specific Dangerous Goods Regulations for additional shipping description requirements (e.g., technical name or names, etc.) Therefore, the information shown here, may not always agree with the bill of lading shipping description for the material. Flashpoints for the material may vary slightly between the SDS and the bill of lading.

**US DOT (UNITED STATES DEPARTMENT OF TRANSPORTATION)**

UN1262, OCTANES, 3, II, MARINE POLLUTANT, (2,2,4-TRIMETHYLPENTANE (ISOOCTANE), TETRAETHYL LEAD), RQ (2,2,4-TRIMETHYLPENTANE (ISOOCTANE), TETRAETHYL LEAD)

**IMO / IMDG (INTERNATIONAL MARITIME DANGEROUS GOODS)**

UN1262, OCTANES, 3, II, (-12,22 °C c.c.), MARINE POLLUTANT, (2,2,4-TRIMETHYLPENTANE (ISOOCTANE), TETRAETHYL LEAD)

**IATA (INTERNATIONAL AIR TRANSPORT ASSOCIATION)**

UN1262, OCTANES, 3, II

**ADR (AGREEMENT ON DANGEROUS GOODS BY ROAD (EUROPE))**

UN1262, OCTANES, 3, II, (D/E), ENVIRONMENTALLY HAZARDOUS, (2,2,4-TRIMETHYLPENTANE (ISOOCTANE), TETRAETHYL LEAD)

**RID (REGULATIONS CONCERNING THE INTERNATIONAL TRANSPORT OF DANGEROUS GOODS (EUROPE))**

33,UN1262,OCTANES, 3, II, ENVIRONMENTALLY HAZARDOUS, (2,2,4-TRIMETHYLPENTANE (ISOOCTANE), TETRAETHYL LEAD)

**ADN (EUROPEAN AGREEMENT CONCERNING THE INTERNATIONAL CARRIAGE OF DANGEROUS GOODS BY INLAND WATERWAYS)**

UN1262, OCTANES, 3, II, ENVIRONMENTALLY HAZARDOUS, (2,2,4-TRIMETHYLPENTANE (ISOOCTANE), TETRAETHYL LEAD)

**Maritime transport in bulk according to IMO instruments**

**SECTION 15: Regulatory information****15.1****Safety, health and environmental regulations/legislation specific for the substance or mixture  
National legislation**

Commission Regulation (EU) 2015/830 of 28 May 2015 amending Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)

**Water hazard class (Germany)** : WGK 3 highly water endangering

**15.2**

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- Major Accident Hazard Legislation**
- : 96/82/EC Update: 2003  
Very toxic  
1  
Quantity 1: 5 t  
Quantity 2: 20 t
  - : 96/82/EC Update: 2003  
Highly flammable  
7b  
Quantity 1: 5.000 t  
Quantity 2: 50.000 t
  - : 96/82/EC Update: 2003  
Dangerous for the environment  
9a  
Quantity 1: 100 t  
Quantity 2: 200 t
  - : ZEU\_SEVES3 Update:  
FLAMMABLE LIQUIDS  
P5c  
Quantity 1: 5.000 t  
Quantity 2: 50.000 t
  - : ZEU\_SEVES3 Update:  
ENVIRONMENTAL HAZARDS  
E1  
Quantity 1: 100 t  
Quantity 2: 200 t

**Notification status**

- Europe REACH : A substance(s) in this product was not registered, notified to be registered, or exempted from registration by CPChem according to K-REACH regulations. Importation or manufacture of this product is still permitted provided the Korean Importer of Record has themselves notified the substance or the exported amount does not exceed the minimum threshold quantity of the non-registered substance(s).
- Switzerland CH INV : On the inventory, or in compliance with the inventory
- United States of America (USA) TSCA : On or in compliance with the active portion of the TSCA inventory
- Canada DSL : All components of this product are on the Canadian DSL
- Australia AIIC : On the inventory, or in compliance with the inventory
- New Zealand NZIoC : Not in compliance with the inventory
- Japan ENCS : Not in compliance with the inventory
- Korea KECI : A substance(s) in this product was not registered, notified to be registered, or exempted from registration by CPChem according to K-REACH regulations. Importation or manufacture of this product is still permitted provided the Korean Importer of Record has themselves notified the substance or the exported amount does not exceed the minimum threshold quantity of the non-registered substance(s).
- Philippines PICCS : On the inventory, or in compliance with the inventory



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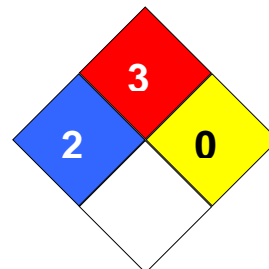
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Taiwan TCSI : On the inventory, or in compliance with the inventory  
 China IECSC : On the inventory, or in compliance with the inventory

**SECTION 16: Other information**

**NFPA Classification** : Health Hazard: 2  
 Fire Hazard: 3  
 Reactivity Hazard: 0

**Further information**

Legacy SDS Number : 38510

Significant changes since the last version are highlighted in the margin. This version replaces all previous versions.

The information in this SDS pertains only to the product as shipped.

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

**Key or legend to abbreviations and acronyms used in the safety data sheet**

ACGIH	American Conference of Government Industrial Hygienists	LD50	Lethal Dose 50%
AiIC	Australian Inventory of Industrial Chemicals	LOAEL	Lowest Observed Adverse Effect Level
DSL	Canada, Domestic Substances List	NFPA	National Fire Protection Agency
NDSL	Canada, Non-Domestic Substances List	NIOSH	National Institute for Occupational Safety & Health
CNS	Central Nervous System	NTP	National Toxicology Program
CAS	Chemical Abstract Service	NZIoC	New Zealand Inventory of Chemicals
EC50	Effective Concentration	NOAEL	No Observable Adverse Effect Level
EC50	Effective Concentration 50%	NOEC	No Observed Effect Concentration
EGEST	EOSCA Generic Exposure Scenario Tool	OSHA	Occupational Safety & Health Administration
EOSCA	European Oilfield Specialty Chemicals Association	PEL	Permissible Exposure Limit
EINECS	European Inventory of Existing Chemical Substances	PICCS	Philippines Inventory of Commercial Chemical Substances
MAK	Germany Maximum Concentration Values	PRNT	Presumed Not Toxic
GHS	Globally Harmonized System	RCRA	Resource Conservation Recovery Act
>=	Greater Than or Equal To	STEL	Short-term Exposure Limit
IC50	Inhibition Concentration 50%	SARA	Superfund Amendments and Reauthorization Act.
IARC	International Agency for Research on Cancer	TLV	Threshold Limit Value

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IECSC	Inventory of Existing Chemical Substances in China	TWA	Time Weighted Average
ENCS	Japan, Inventory of Existing and New Chemical Substances	TSCA	Toxic Substance Control Act
KECI	Korea, Existing Chemical Inventory	UVCB	Unknown or Variable Composition, Complex Reaction Products, and Biological Materials
<=	Less Than or Equal To	WHMIS	Workplace Hazardous Materials Information System
LC50	Lethal Concentration 50%	ATE	Acute toxicity estimate

**Full text of H-Statements referred to under sections 2 and 3.**

H225	Highly flammable liquid and vapor.
H300	Fatal if swallowed.
H301	Toxic if swallowed.
H302	Harmful if swallowed.
H304	May be fatal if swallowed and enters airways.
H310	Fatal in contact with skin.
H311	Toxic in contact with skin.
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H330	Fatal if inhaled.
H332	Harmful if inhaled.
H335	May cause respiratory irritation.
H336	May cause drowsiness or dizziness.
H341	Suspected of causing genetic defects.
H350	May cause cancer.
H360D	May damage the unborn child.
H360Df	May damage the unborn child. Suspected of damaging fertility.
H361	Suspected of damaging fertility or the unborn child.
H373	May cause damage to organs through prolonged or repeated exposure.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.
H411	Toxic to aquatic life with long lasting effects.

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**Annex****1. Short title of Exposure Scenario: Manufacture**

Main User Groups	:	<b>SU 3:</b> Industrial uses: Uses of substances as such or in preparations at industrial sites
Sector of use	:	<b>SU3, SU8, SU9:</b> Industrial Manufacturing (all), Manufacture of bulk, large scale chemicals (including petroleum products), Manufacture of fine chemicals
Process category	:	<b>PROC1:</b> Use in closed process, no likelihood of exposure <b>PROC2:</b> Use in closed, continuous process with occasional controlled exposure <b>PROC3:</b> Use in closed batch process (synthesis or formulation) <b>PROC4:</b> Use in batch and other process (synthesis) where opportunity for exposure arises <b>PROC8a:</b> Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities <b>PROC8b:</b> Transfer of substance or preparation (charging/discharging) from/ to vessels/ large containers at dedicated facilities <b>PROC15:</b> Use as laboratory reagent
Environmental release category	:	<b>ERC1, ERC4:</b> Manufacture of substances, Industrial use of processing aids in processes and products, not becoming part of articles
Further information	:	Manufacture of the substance or use as an intermediate or process chemical or extraction agent. Includes recycling/recovery, material transfers, storage, sampling, associated laboratory activities, maintenance and loading (including marine vessel/barge, road/rail car and bulk container).

**2.1 Contributing scenario controlling environmental exposure for:ERC1, ERC4: Manufacture of substances, Industrial use of processing aids in processes and products, not becoming part of articles**

(Msafe) : 3.000 tonnes/day

**Environment factors not influenced by risk management**

Flow rate	:	18.000 m3/d
Dilution Factor (River)	:	10
Dilution Factor (Coastal Areas)	:	100

**Other given operational conditions affecting environmental exposure**

Continuous use/release	:	
Number of emission days per year	:	300
Emission or Release Factor: Air	:	5 %
Emission or Release Factor: Water	:	0,003 %
Emission or Release Factor: Soil	:	0,01 %

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**Technical conditions and measures / Organizational measures**

Air	: Treat air emission to provide the required removal efficiency of (%): (Effectiveness: 90 %)
Water	: Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of $\geq$ (%): (Effectiveness: 0 %)
Remarks	: Risk from environmental exposure is driven by freshwater sediment.
Water	: If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of $\geq$ (%): (Effectiveness: 0 %)
Remarks	: No wastewater treatment required.
Remarks	: Prevent discharge of undissolved substance to or recover from onsite wastewater.
Remarks	: Common practices vary across sites thus conservative process release estimates used.

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

Flow rate of sewage treatment plant effluent	: 10.000 m <sup>3</sup> /d
Effectiveness (of a measure)	: 96,3 %
Percentage removed from waste water	: 96,3 %
Sludge Treatment	: No data available
Procedures to limit air emissions from Sewage Treatment Plant	: No data available

**Conditions and measures related to external treatment of waste for disposal**

Waste treatment	: During manufacturing no waste of the substance is generated.
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**Conditions and measures related to external recovery of waste**

Recovery Methods	: During manufacturing no waste of the substance is generated.
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**2.2 Contributing scenario controlling worker exposure for: PROC1: Use in closed process, no likelihood of exposure****Product characteristics**

Physical Form (at time of use)	: Liquid substance
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**Amount used**

Remarks	: No limit
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**Frequency and duration of use**

Remarks	: Covers daily exposures up to 8 hours (unless stated differently)
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**Other operational conditions affecting workers exposure**

Remarks	: Assumes use at not more than 20°C above ambient temperature, unless stated differently., Assumes a good basic standard of occupational hygiene is implemented.
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**Technical conditions and measures**

Store substance within a closed system.

**Organizational measures to prevent /limit releases, dispersion and exposure**

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop., No specific measures identified.

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**2.2 Contributing scenario controlling worker exposure for: PROC2: Use in closed, continuous process with occasional controlled exposure****Product characteristics**

Physical Form (at time of use) : Liquid substance

**Amount used**

Remarks : No limit

**Frequency and duration of use**

Remarks : Covers daily exposures up to 8 hours (unless stated differently)

**Other operational conditions affecting workers exposure**

Remarks : Assumes use at not more than 20°C above ambient temperature, unless stated differently., Assumes a good basic standard of occupational hygiene is implemented.

**Technical conditions and measures**

Handle substance within a closed system., Store substance within a closed system.

**Organizational measures to prevent /limit releases, dispersion and exposure**

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop.

**2.2 Contributing scenario controlling worker exposure for: PROC3: Use in closed batch process (synthesis or formulation)****Product characteristics**

Physical Form (at time of use) : Liquid substance

**Amount used**

Remarks : No limit

**Frequency and duration of use**

Remarks : Covers daily exposures up to 8 hours (unless stated differently)

**Other operational conditions affecting workers exposure**

Remarks : Assumes use at not more than 20°C above ambient temperature, unless stated differently., Assumes a good basic standard of occupational hygiene is implemented.

**Technical conditions and measures**

Handle substance within a closed system.

**Organizational measures to prevent /limit releases, dispersion and exposure**

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop.

**2.2 Contributing scenario controlling worker exposure for: PROC4, PROC15: Use in**

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**batch and other process (synthesis) where opportunity for exposure arises, Use as laboratory reagent****Product characteristics**

Physical Form (at time of use) : Liquid substance

**Amount used**

Remarks : No limit

**Frequency and duration of use**

Remarks : Covers daily exposures up to 8 hours (unless stated differently)

**Other operational conditions affecting workers exposure**

Remarks : Assumes use at not more than 20°C above ambient temperature, unless stated differently., Assumes a good basic standard of occupational hygiene is implemented.

**Technical conditions and measures**

Handle substance within a closed system., Store substance within a closed system.

**Organizational measures to prevent /limit releases, dispersion and exposure**

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop.

**2.2 Contributing scenario controlling worker exposure for: PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities****Product characteristics**

Physical Form (at time of use) : Liquid substance

**Amount used**

Remarks : No limit

**Frequency and duration of use**

Remarks : Covers daily exposures up to 8 hours (unless stated differently)

**Other operational conditions affecting workers exposure**

Remarks : Assumes use at not more than 20°C above ambient temperature, unless stated differently., Assumes a good basic standard of occupational hygiene is implemented.

**Technical conditions and measures**

Handle substance within a closed system.

**Organizational measures to prevent /limit releases, dispersion and exposure**

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop., No specific measures identified.

**2.2 Contributing scenario controlling worker exposure for: PROC8a: Transfer of**

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**substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities****Product characteristics**

Physical Form (at time of use) : Liquid substance

**Amount used**

Remarks : No limit

**Frequency and duration of use**

Remarks : Covers daily exposures up to 8 hours (unless stated differently)

**Other operational conditions affecting workers exposure**

Remarks : Assumes use at not more than 20°C above ambient temperature, unless stated differently., Assumes a good basic standard of occupational hygiene is implemented.

**Organizational measures to prevent /limit releases, dispersion and exposure**

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop.

**Conditions and measures related to personal protection, hygiene and health evaluation**

Wear suitable gloves tested to EN374.

**3. Exposure estimation and reference to its source****Environment**

Contributing Scenario	Exposure Assessment Method	Specific conditions	Compartment	Value type	Level of Exposure	Risk characterization ratio (PEC/PNEC):
ERC1, ERC4	Hydrocarbon Block Method with Petrorisk		Air		0,1 mg/m3	
			Fresh water		0,001 mg/L	0,026
			Freshwater sediment		0,043 mg/kg	0,03
			Marine water		0,0001 mg/L	0,0026
			Marine sediment		0,0043 mg/kg	0,003
			Agricultural soil		0,95 µg/kg	0,0021

ERC1: Manufacture of substances

ERC4: Industrial use of processing aids in processes and products, not becoming part of articles

**Workers/Consumers**

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value type	Level of Exposure	Risk characterization ratio (PEC/PNEC):
PROC1, CS15, CS67	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	0,05 mg/m3	0,000
			Worker – dermal, long-term – systemic	0,34 mg/kg/d	0,000
			Worker – long-term – systemic Combined routes		0,000
PROC2, CS15, CS67	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	46,72 mg/m3	0,023

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			Worker – dermal, long-term – systemic	1,37 mg/kg/d	0,002
			Worker – long-term – systemic Combined routes		0,025
PROC3, CS15	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	116,79 mg/m3	0,057
			Worker – dermal, long-term – systemic	0,34 mg/kg/d	0,000
			Worker – long-term – systemic Combined routes		0,058
PROC4, CS16	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	93,43 mg/m3	0,046
			Worker – dermal, long-term – systemic	6,86 mg/kg/d	0,009
			Worker – long-term – systemic Combined routes		0,055
PROC15, CS36	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	46,72 mg/m3	0,023
			Worker – dermal, long-term – systemic	0,34 mg/kg/d	0,000
			Worker – long-term – systemic Combined routes		0,023
PROC8b, CS2, CS14, CS107, CS108	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	233,58 mg/m3	0,115
			Worker – dermal, long-term – systemic	6,86 mg/kg/d	0,009
			Worker – long-term – systemic Combined routes		0,124
PROC8a, CS39	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	233,58 mg/m3	0,115
			Worker – dermal, long-term – systemic	2,742 mg/kg/d	0,004
			Worker – long-term – systemic Combined routes		0,118

PROC1: Use in closed process, no likelihood of exposure

CS15: General exposures (closed systems)

CS67: Storage

PROC2: Use in closed, continuous process with occasional controlled exposure

CS15: General exposures (closed systems)

CS67: Storage

PROC3: Use in closed batch process (synthesis or formulation)

CS15: General exposures (closed systems)

PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises

CS16: General exposures (open systems)

PROC15: Use as laboratory reagent

CS36: Laboratory activities

PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities

CS2: Process sampling

CS14: Bulk transfers

CS107: (closed systems)

CS108: (open systems)

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



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CS39: Equipment cleaning and maintenance

**4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario**

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.

Available hazard data do not enable the derivation of a DNEL for dermal irritant effects.

Risk Management Measures are based on qualitative risk characterisation.

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.

Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.

Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination.

Further details on scaling and control technologies are provided in SpERC factsheet (<http://cefic.org/en/reach-for-industries-libraries.html>).

Scaled local assessments for EU refineries have been performed using site-specific data and are attached in PETRORISK file – “Site-Specific Production” worksheet.

**1. Short title of Exposure Scenario: Distribution**

Main User Groups	: <b>SU 3:</b> Industrial uses: Uses of substances as such or in preparations at industrial sites
Sector of use	: <b>SU3:</b> Industrial Manufacturing (all)
Process category	: <b>PROC1:</b> Use in closed process, no likelihood of exposure <b>PROC2:</b> Use in closed, continuous process with occasional controlled exposure <b>PROC3:</b> Use in closed batch process (synthesis or formulation) <b>PROC4:</b> Use in batch and other process (synthesis) where opportunity for exposure arises <b>PROC8a:</b> Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities <b>PROC8b:</b> Transfer of substance or preparation (charging/discharging) from/ to vessels/ large containers at dedicated facilities <b>PROC9:</b> Transfer of substance or preparation into small containers (dedicated filling line, including weighing) <b>PROC15:</b> Use as laboratory reagent
Environmental release category	: <b>ERC1, ERC2, ERC3, ERC4, ERC5, ERC6a, ERC6b, ERC6c, ERC6d, ERC7:</b> Manufacture of substances, Formulation of preparations, Formulation in materials, Industrial use of processing aids in processes and products, not becoming part of articles, Industrial use resulting in inclusion into or onto a matrix, Industrial use resulting in manufacture of another substance (use of intermediates), Industrial use of reactive processing aids, Industrial use of monomers for manufacture of thermoplastics, Industrial use of process regulators for polymerisation processes in production of resins, rubbers, polymers, Industrial use of substances in closed systems

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Further information : Distribution of Substance: loading (including marine vessel/barge, rail/road car IBC loading), and repacking including drums and small packs of substance, including its distribution and associated laboratory activities.

**2.1 Contributing scenario controlling environmental exposure for:ERC1, ERC2, ERC3, ERC4, ERC5, ERC6a, ERC6b, ERC6c, ERC6d, ERC7: Manufacture of substances, Formulation of preparations, Formulation in materials, Industrial use of processing aids in processes and products, not becoming part of articles, Industrial use resulting in inclusion into or onto a matrix, Industrial use resulting in manufacture of another substance (use of intermediates), Industrial use of reactive processing aids, Industrial use of monomers for manufacture of thermoplastics, Industrial use of process regulators for polymerisation processes in production of resins, rubbers, polymers, Industrial use of substances in closed systems**

Maximum allowable site tonnage : 97.000  
(MSafe) based on release  
following total wastewater  
treatment removal (kg/d):(Msafe)

**Environment factors not influenced by risk management**

Flow rate : 18.000 m<sup>3</sup>/d  
Dilution Factor (River) : 10  
Dilution Factor (Coastal Areas) : 100

**Other given operational conditions affecting environmental exposure**

Continuous use/release  
Number of emission days per year : 20  
Emission or Release Factor: Air : 0,1 %  
Emission or Release Factor: Soil : 0,001 %  
Remarks : Emission or Release Factor: Water : < 0.001 %

**Technical conditions and measures / Organizational measures**

Water : If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of  $\geq$  (%):  
(Effectiveness: 0 %)  
Remarks : Risk from environmental exposure is driven by freshwater.  
Remarks : Common practices vary across sites thus conservative  
process release estimates used.  
Remarks : No wastewater treatment required.  
Air : Treat air emission to provide the required removal efficiency of  
(%): (Effectiveness: 90 %)  
Water : Treat onsite wastewater (prior to receiving water discharge) to  
provide the required removal efficiency of  $\geq$  (%):  
(Effectiveness: 0 %)

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

Type of Sewage Treatment Plant : Municipal sewage treatment plant  
Flow rate of sewage treatment : 2.000 m<sup>3</sup>/d  
plant effluent  
Effectiveness (of a measure) : 96,3 %  
Percentage removed from waste : 96,3 %

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water  
 Sludge Treatment : No data available  
 Procedures to limit air emissions : No data available  
 from Sewage Treatment Plant

**Conditions and measures related to external treatment of waste for disposal**

Remarks : External treatment and disposal of waste should comply with applicable local and/or national regulations.

**Conditions and measures related to external recovery of waste**

Recovery Methods : External recovery and recycling of waste should comply with applicable local and/or national regulations.

**2.2 Contributing scenario controlling worker exposure for: PROC1: Use in closed process, no likelihood of exposure****Product characteristics**

Physical Form (at time of use) : Liquid substance  
 Vapor pressure : 2,8 kPa

**Amount used**

Remarks : No limit

**Frequency and duration of use**

Remarks : Covers daily exposures up to 8 hours (unless stated differently)

**Other operational conditions affecting workers exposure**

Remarks : Assumes use at not more than 20°C above ambient temperature, unless stated differently., Assumes a good basic standard of occupational hygiene is implemented.

**Technical conditions and measures**

Handle substance within a closed system.  
 Transfer via enclosed lines.

**Organizational measures to prevent /limit releases, dispersion and exposure**

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop.

**2.2 Contributing scenario controlling worker exposure for: PROC2: Use in closed, continuous process with occasional controlled exposure****Product characteristics**

Physical Form (at time of use) : Liquid substance  
 Vapor pressure : 2,8 kPa

**Amount used**

Remarks : No limit

**Frequency and duration of use**

Remarks : Covers daily exposures up to 8 hours (unless stated differently)

**Other operational conditions affecting workers exposure**

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Remarks : Assumes use at not more than 20°C above ambient temperature, unless stated differently., Assumes a good basic standard of occupational hygiene is implemented.

**Technical conditions and measures**

Store substance within a closed system., Transfer via enclosed lines.

**Organizational measures to prevent /limit releases, dispersion and exposure**

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop.

**2.2 Contributing scenario controlling worker exposure for: PROC3, PROC9, PROC15: Use in closed batch process (synthesis or formulation), Transfer of substance or preparation into small containers (dedicated filling line, including weighing), Use as laboratory reagent**

**Product characteristics**

Physical Form (at time of use) : Liquid substance  
Vapor pressure : 2,8 kPa

**Amount used**

Remarks : No limit

**Frequency and duration of use**

Remarks : Covers daily exposures up to 8 hours (unless stated differently)

**Other operational conditions affecting workers exposure**

Remarks : Assumes use at not more than 20°C above ambient temperature, unless stated differently., Assumes a good basic standard of occupational hygiene is implemented.

**Organizational measures to prevent /limit releases, dispersion and exposure**

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop., No specific measures identified.

**2.2 Contributing scenario controlling worker exposure for: PROC4, PROC8b: Use in batch and other process (synthesis) where opportunity for exposure arises, Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities**

**Product characteristics**

Physical Form (at time of use) : Liquid substance  
Vapor pressure : 2,8 kPa

**Amount used**

Remarks : No limit

**Frequency and duration of use**

Remarks : Covers daily exposures up to 8 hours (unless stated differently)

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**Other operational conditions affecting workers exposure**

Remarks : Assumes use at not more than 20°C above ambient temperature, unless stated differently., Assumes a good basic standard of occupational hygiene is implemented.

**Organizational measures to prevent /limit releases, dispersion and exposure**

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop.

**Conditions and measures related to personal protection, hygiene and health evaluation**

Wear suitable gloves tested to EN374.

**2.2 Contributing scenario controlling worker exposure for: PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities****Product characteristics**

Physical Form (at time of use) : Liquid substance  
Vapor pressure : 2,8 kPa

**Amount used**

Remarks : No limit

**Frequency and duration of use**

Remarks : Covers daily exposures up to 8 hours (unless stated differently)

**Other operational conditions affecting workers exposure**

Remarks : Assumes use at not more than 20°C above ambient temperature, unless stated differently., Assumes a good basic standard of occupational hygiene is implemented.

**Organizational measures to prevent /limit releases, dispersion and exposure**

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop., Apply vessel entry procedures including use of forced supplied air.

**Conditions and measures related to personal protection, hygiene and health evaluation**

Wear suitable gloves tested to EN374., Wear suitable coveralls to prevent exposure to the skin., Wear rubber boots.

**3. Exposure estimation and reference to its source****Environment**

Contributing Scenario	Exposure Assessment Method	Specific conditions	Compartment	Value type	Level of Exposure	Risk characterization ratio (PEC/PNEC):
ERC1, ERC2, ERC3, ERC4, ERC5, ERC6a, ERC6b, ERC6c, ERC6d, ERC7	Hydrocarbon Block Method with Petrorisk		Air		74 ng/m3	

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		Fresh water	5,1 ng/L	0,00013
		Fresh water sediment	0,000075 mg/kg	0,000054
		Marine water	0,019 ng/L	< 0,000044
		Marine sediment	0,26 ng/kg	< 0,000002
		Agricultural soil	1,2 ng/kg	< 0,000034

ERC1: Manufacture of substances  
 ERC2: Formulation of preparations  
 ERC3: Formulation in materials  
 ERC4: Industrial use of processing aids in processes and products, not becoming part of articles  
 ERC5: Industrial use resulting in inclusion into or onto a matrix  
 ERC6a: Industrial use resulting in manufacture of another substance (use of intermediates)  
 ERC6b: Industrial use of reactive processing aids  
 ERC6c: Industrial use of monomers for manufacture of thermoplastics  
 ERC6d: Industrial use of process regulators for polymerisation processes in production of resins, rubbers, polymers  
 ERC7: Industrial use of substances in closed systems

**Workers/Consumers**

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value type	Level of Exposure	Risk characterization ratio (PEC/PNEC):
PROC1, CS15, CS67	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	0,05 mg/m3	0,000
			Worker – dermal, long-term – systemic	0,34 mg/kg/d	0,000
			Worker – long-term – systemic Combined routes		0,000
PROC2, CS15, CS67	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	46,72 mg/m3	0,023
			Worker – dermal, long-term – systemic	1,37 mg/kg/d	0,002
			Worker – long-term – systemic Combined routes		0,025
PROC3, CS15, CS2	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	116,79 mg/m3	0,057
			Worker – dermal, long-term – systemic	0,34 mg/kg/d	0,000
			Worker – long-term – systemic Combined routes		0,058
PROC9, CS6	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	233,58 mg/kg/d	0,115
			Worker – dermal, long-term – systemic	6,86 mg/kg/d	0,009
			Worker – long-term – systemic Combined routes		0,124
PROC15, CS36	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	46,72 mg/kg/d	0,023
			Worker – dermal, long-term – systemic	0,34 mg/kg/d	0,000
			Worker – long-term – systemic Combined routes		0,023
PROC4, CS16	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	93,43 mg/m3	0,046
			Worker – dermal, long-term – systemic	1,372 mg/kg/d	0,002
			Worker – long-term – systemic Combined routes		0,048
PROC8b, CS14, CS107, CS108	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	233,58 mg/m3	0,115
			Worker – dermal, long-term – systemic	1,372 mg/kg/d	0,002

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			term – systemic		
			Worker – long-term – systemic Combined routes		0,117
PROC8a, CS39	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	233,58 mg/m3	0,115
			Worker – dermal, long-term – systemic	2,742 mg/kg/d	0,004
			Worker – long-term – systemic Combined routes		0,118

PROC1: Use in closed process, no likelihood of exposure

CS15: General exposures (closed systems)

CS67: Storage

PROC2: Use in closed, continuous process with occasional controlled exposure

CS15: General exposures (closed systems)

CS67: Storage

PROC3: Use in closed batch process (synthesis or formulation)

CS15: General exposures (closed systems)

CS2: Process sampling

PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)

CS6: Drum and small package filling

PROC15: Use as laboratory reagent

CS36: Laboratory activities

PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises

CS16: General exposures (open systems)

PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities

CS14: Bulk transfers

CS107: (closed systems)

CS108: (open systems)

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

CS39: Equipment cleaning and maintenance

#### 4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.

Available hazard data do not enable the derivation of a DNEL for dermal irritant effects.

Risk Management Measures are based on qualitative risk characterisation.

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.

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Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.  
 Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination.  
 Further details on scaling and control technologies are provided in SpERC factsheet (<http://cefic.org/en/reach-for-industries-libraries.html>).

**1. Short title of Exposure Scenario: Formulation**

Main User Groups	:	<b>SU 3:</b> Industrial uses: Uses of substances as such or in preparations at industrial sites
Sector of use	:	<b>SU3, SU 10:</b> Industrial Manufacturing (all), Formulation [mixing] of preparations and/ or re-packaging (excluding alloys)
Process category	:	<p><b>PROC1:</b> Use in closed process, no likelihood of exposure</p> <p><b>PROC2:</b> Use in closed, continuous process with occasional controlled exposure</p> <p><b>PROC3:</b> Use in closed batch process (synthesis or formulation)</p> <p><b>PROC4:</b> Use in batch and other process (synthesis) where opportunity for exposure arises</p> <p><b>PROC5:</b> Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact)</p> <p><b>PROC9:</b> Transfer of substance or preparation into small containers (dedicated filling line, including weighing)</p> <p><b>PROC8a:</b> Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities</p> <p><b>PROC8b:</b> Transfer of substance or preparation (charging/discharging) from/ to vessels/ large containers at dedicated facilities</p> <p><b>PROC14:</b> Production of preparations or articles by tableting, compression, extrusion, pelletization</p> <p><b>PROC15:</b> Use as laboratory reagent</p>
Environmental release category	:	<b>ERC2:</b> Formulation of preparations
Further information	:	Formulation, packing and re-packing of the substance and its mixtures in batch or continuous operations, including storage, materials, transfers, mixing, large and small scale packing, maintenance and associated laboratory activities.

**2.1 Contributing scenario controlling environmental exposure for:ERC2: Formulation of preparations**

Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal (tonnes/day):  
 (Msafe) : 900 tonnes/day

**Environment factors not influenced by risk management**



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Flow rate : 18.000 m3/d  
 Dilution Factor (River) : 10  
 Dilution Factor (Coastal Areas) : 100

**Other given operational conditions affecting environmental exposure**

Continuous use/release  
 Number of emission days per year : 300  
 Emission or Release Factor: Air : 2,5 %  
 Emission or Release Factor: Water : 0,002 %  
 Emission or Release Factor: Soil : 0,01 %

**Technical conditions and measures / Organizational measures**

Air : Treat air emission to provide the required removal efficiency of (%): (Effectiveness: 0 %)  
 Water : Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of  $\geq$  (%): (Effectiveness: 61,8 %)  
 Remarks : Risk from environmental exposure is driven by freshwater sediment.  
 Water : If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of  $\geq$  (%): (Effectiveness: 0 %)  
 Remarks : If discharging to domestic sewage treatment plant, no onsite wastewater treatment required.  
 Remarks : Prevent discharge of undissolved substance to or recover from wastewater.  
 Remarks : Do not apply industrial sludge to natural soils.  
 Remarks : Sludge should be incinerated, contained or reclaimed.  
 Remarks : Common practices vary across sites thus conservative process release estimates used.

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

Flow rate of sewage treatment plant effluent : 2.000 m3/d  
 Effectiveness (of a measure) : 96,3 %  
 Percentage removed from waste water : 96,3 %  
 Sludge Treatment : No data available  
 Procedures to limit air emissions from Sewage Treatment Plant : No data available

**Conditions and measures related to external treatment of waste for disposal**

Waste treatment : External treatment and disposal of waste should comply with applicable local and/or national regulations.

**Conditions and measures related to external recovery of waste**

Recovery Methods : External recovery and recycling of waste should comply with applicable local and/or national regulations.

**2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2: Use in closed process, no likelihood of exposure, Use in closed, continuous process with occasional controlled exposure****Product characteristics**

Physical Form (at time of use) : Liquid substance

**Amount used**

Remarks : No limit

**Frequency and duration of use**

SDS Number:100000014063

41/143

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Remarks : Covers daily exposures up to 8 hours (unless stated differently)

**Other operational conditions affecting workers exposure**

Remarks : Assumes use at not more than 20°C above ambient temperature, unless stated differently., Assumes a good basic standard of occupational hygiene is implemented.

**Technical conditions and measures**

Handle substance within a closed system., Store substance within a closed system., Transfer via enclosed lines.

**Organizational measures to prevent /limit releases, dispersion and exposure**

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop.

**2.2 Contributing scenario controlling worker exposure for: PROC3: Use in closed batch process (synthesis or formulation)****Product characteristics**

Physical Form (at time of use) : Liquid substance

**Amount used**

Remarks : No limit

**Frequency and duration of use**

Remarks : Covers daily exposures up to 8 hours (unless stated differently)

**Other operational conditions affecting workers exposure**

Remarks : Assumes use at not more than 20°C above ambient temperature, unless stated differently., Assumes a good basic standard of occupational hygiene is implemented.

**Technical conditions and measures**

Avoid dip sampling., Formulate in enclosed or ventilated mixing vessels., Provide enhanced general ventilation by mechanical means.

**Organizational measures to prevent /limit releases, dispersion and exposure**

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop.

**2.2 Contributing scenario controlling worker exposure for: PROC4, PROC15: Use in batch and other process (synthesis) where opportunity for exposure arises, Use as laboratory reagent****Product characteristics**

Physical Form (at time of use) : Liquid substance  
Vapor pressure : 2,8 kPa

**Amount used**

Remarks : No limit

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**Frequency and duration of use**

Remarks : Covers daily exposures up to 8 hours (unless stated differently)

**Other operational conditions affecting workers exposure**

Remarks : Assumes use at not more than 20°C above ambient temperature, unless stated differently., Assumes a good basic standard of occupational hygiene is implemented.

**Organizational measures to prevent /limit releases, dispersion and exposure**

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop., No specific measures identified.

**2.2 Contributing scenario controlling worker exposure for: PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact)****Product characteristics**

Physical Form (at time of use) : Liquid substance  
Vapor pressure : 2,8 kPa

**Amount used**

Remarks : No limit

**Frequency and duration of use**

Remarks : Covers daily exposures up to 8 hours (unless stated differently)

**Other operational conditions affecting workers exposure**

Remarks : Assumes use at not more than 20°C above ambient temperature, unless stated differently., Assumes a good basic standard of occupational hygiene is implemented.

**Organizational measures to prevent /limit releases, dispersion and exposure**

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop.

**Conditions and measures related to personal protection, hygiene and health evaluation**

Wear suitable gloves tested to EN374.

**2.2 Contributing scenario controlling worker exposure for: PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities****Product characteristics**

Physical Form (at time of use) : Liquid substance  
Vapor pressure : 2,8 kPa

**Amount used**

Remarks : No limit

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**Frequency and duration of use**

Remarks : Covers daily exposures up to 8 hours (unless stated differently)

**Other operational conditions affecting workers exposure**

Remarks : Assumes use at not more than 20°C above ambient temperature, unless stated differently., Assumes a good basic standard of occupational hygiene is implemented.

**Technical conditions and measures**

Provide extraction ventilation at points where emissions occur., Use drum pumps or carefully pour from container.

**Organizational measures to prevent /limit releases, dispersion and exposure**

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop.

**Conditions and measures related to personal protection, hygiene and health evaluation**

Wear suitable gloves tested to EN374.

**2.2 Contributing scenario controlling worker exposure for: PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities****Product characteristics**

Physical Form (at time of use) : Liquid substance  
Vapor pressure : 2,8 kPa

**Amount used**

Remarks : No limit

**Frequency and duration of use**

Remarks : Covers daily exposures up to 8 hours (unless stated differently)

**Other operational conditions affecting workers exposure**

Remarks : Assumes use at not more than 20°C above ambient temperature, unless stated differently., Assumes a good basic standard of occupational hygiene is implemented.

**Technical conditions and measures**

Provide extraction ventilation at points where emissions occur., Use drum pumps or carefully pour from container.

**Organizational measures to prevent /limit releases, dispersion and exposure**

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop.

**Conditions and measures related to personal protection, hygiene and health evaluation**

Wear suitable gloves tested to EN374.

**2.2 Contributing scenario controlling worker exposure for: PROC9, PROC14: Transfer of substance or preparation into small containers (dedicated filling line, including**

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**weighing), Production of preparations or articles by tableting, compression, extrusion, pelletization****Product characteristics**

Physical Form (at time of use) : Liquid substance  
 Vapor pressure : 2,8 kPa

**Amount used**

Remarks : No limit

**Frequency and duration of use**

Remarks : Covers daily exposures up to 8 hours (unless stated differently)

**Other operational conditions affecting workers exposure**

Remarks : Assumes use at not more than 20°C above ambient temperature, unless stated differently., Assumes a good basic standard of occupational hygiene is implemented.

**Organizational measures to prevent /limit releases, dispersion and exposure**

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop., No specific measures identified.

**3. Exposure estimation and reference to its source****Environment**

Contributing Scenario	Exposure Assessment Method	Specific conditions	Compartment	Value type	Level of Exposure	Risk characterization ratio (PEC/PNEC):
ERC2	Hydrocarbon Block Method with Petrorisk		Air		0,5 mg/m3	
			Fresh water		0,0032 mg/L	0,086
			Freshwater sediment		0,14 mg/kg	0,097
			Marine water		0,32 µg/L	0,0085
			Marine sediment		0,014 mg/kg	0,0097
			Agricultural soil		0,0046 mg/kg	0,01

ERC2: Formulation of preparations

**Workers/Consumers**

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value type	Level of Exposure	Risk characterization ratio (PEC/PNEC):
PROC1, CS15, CS67	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	0,05 mg/m3	0,000
			Worker – dermal, long-term – systemic	0,34 mg/kg/d	0,000
			Worker – long-term – systemic Combined routes		0,000
PROC2, CS67, CS15	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	46,72 mg/m3	0,023
			Worker – dermal, long-term – systemic	1,37 mg/kg/d	0,002
			Worker – long-term – systemic Combined		0,025

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		routes		
PROC3, CS2, CS15	ECETOC TRA Modified	Worker – inhalation, long-term – systemic	116,79 mg/m3	0,057
		Worker – dermal, long- term – systemic	0,34 mg/kg/d	0,000
		Worker – long-term – systemic Combined routes		0,058
PROC3, CS136	ECETOC TRA Modified	Worker – inhalation, long-term – systemic	140,15 mg/m3	0,069
		Worker – dermal, long- term – systemic	0,34 mg/kg/d	0,000
		Worker – long-term – systemic Combined routes		0,069
PROC4, CS16	ECETOC TRA Modified	Worker – inhalation, long-term – systemic	93,43 mg/m3	0,046
		Worker – dermal, long- term – systemic	6,86 mg/kg/d	0,009
		Worker – long-term – systemic Combined routes		0,055
PROC15, CS36	ECETOC TRA Modified	Worker – inhalation, long-term – systemic	46,72 mg/m3	0,023
		Worker – dermal, long- term – systemic	0,34 mg/kg/d	0,000
		Worker – long-term – systemic Combined routes		0,023
PROC5, CS30	ECETOC TRA Modified	Worker – inhalation, long-term – systemic	233,58 mg/m3	0,115
		Worker – dermal, long- term – systemic	2,742 mg/kg/d	0,004
		Worker – long-term – systemic Combined routes		0,118
PROC8a, CS34, CS22	ECETOC TRA Modified	Worker – inhalation, long-term – systemic	23,36 mg/m3	0,011
		Worker – dermal, long- term – systemic	0,1371 mg/kg/d	0,000
		Worker – long-term – systemic Combined routes		0,012
PROC8a, CS39	ECETOC TRA Modified	Worker – inhalation, long-term – systemic	233,58 mg/m3	0,115
		Worker – dermal, long- term – systemic	2,742 mg/kg/d	0,004
		Worker – long-term – systemic Combined routes		0,118
PROC8b, CS14	ECETOC TRA Modified	Worker – inhalation, long-term – systemic	233,58 mg/m3	0,115
		Worker – dermal, long- term – systemic	1,372 mg/kg/d	0,002
		Worker – long-term – systemic Combined routes		0,117
PROC8b, CS8	ECETOC TRA Modified	Worker – inhalation, long-term – systemic	7,01 mg/m3	0,003
		Worker – dermal, long- term – systemic	0,686 mg/kg/d	0,001
		Worker – long-term – systemic Combined routes		0,004
PROC9, CS6	ECETOC TRA Modified	Worker – inhalation, long-term – systemic	233,58 mg/m3	0,115
		Worker – dermal, long- term – systemic	6,86 mg/kg/d	0,009
		Worker – long-term – systemic Combined routes		0,124
PROC14, CS100	ECETOC TRA	Worker – inhalation,	233,58 mg/m3	0,115

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	Modified		long-term – systemic		
			Worker – dermal, long-term – systemic	3,43 mg/kg/d	0,004
			Worker – long-term – systemic Combined routes		0,119

PROC1: Use in closed process, no likelihood of exposure

CS15: General exposures (closed systems)

CS67: Storage

PROC2: Use in closed, continuous process with occasional controlled exposure

CS67: Storage

CS15: General exposures (closed systems)

PROC3: Use in closed batch process (synthesis or formulation)

CS2: Process sampling

CS15: General exposures (closed systems)

PROC3: Use in closed batch process (synthesis or formulation)

CS136: Batch processes at elevated temperatures

PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises

CS16: General exposures (open systems)

PROC15: Use as laboratory reagent

CS36: Laboratory activities

PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact)

CS30: Mixing operations (open systems)

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

CS34: Manual

CS22: Transfer from/pouring from containers

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

CS39: Equipment cleaning and maintenance

PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities

CS14: Bulk transfers

PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities

CS8: Drum/batch transfers

PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)

CS6: Drum and small package filling

PROC14: Production of preparations or articles by tableting, compression, extrusion, pelletization

CS100: Production or preparation or articles by tableting, compression, extrusion or pelletization

#### 4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

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Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.  
Available hazard data do not enable the derivation of a DNEL for dermal irritant effects.  
Risk Management Measures are based on qualitative risk characterisation.  
Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.

Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.  
Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination.  
Further details on scaling and control technologies are provided in SpERC factsheet (<http://cefic.org/en/reach-for-industries-libraries.html>).

**1. Short title of Exposure Scenario: Use as a fuel - industrial**

Main User Groups	:	<b>SU 3:</b> Industrial uses: Uses of substances as such or in preparations at industrial sites
Sector of use	:	<b>SU3:</b> Industrial Manufacturing (all)
Process category	:	<b>PROC1:</b> Use in closed process, no likelihood of exposure <b>PROC2:</b> Use in closed, continuous process with occasional controlled exposure <b>PROC3:</b> Use in closed batch process (synthesis or formulation) <b>PROC8a:</b> Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities <b>PROC8b:</b> Transfer of substance or preparation (charging/discharging) from/ to vessels/ large containers at dedicated facilities <b>PROC16:</b> Using material as fuel sources, limited exposure to unburned product to be expected
Environmental release category	:	<b>ERC7, ERC8b:</b> Industrial use of substances in closed systems, Wide dispersive indoor use of reactive substances in open systems
Further information	:	Covers the use as a fuel (or fuel additive) and includes activities associated with its transfer, use, equipment maintenance and handling of waste.

**2.1 Contributing scenario controlling environmental exposure for:ERC7, ERC8b: Industrial use of substances in closed systems, Wide dispersive indoor use of reactive substances in open systems**

(Msafe) : 1.800 tonnes/day

**Environment factors not influenced by risk management**

Flow rate : 18.000 m<sup>3</sup>/d  
Dilution Factor (River) : 10  
Dilution Factor (Coastal Areas) : 100

**Other given operational conditions affecting environmental exposure**

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Number of emission days per year : 300  
 Emission or Release Factor: Air : 5 %  
 Emission or Release Factor: Water : 0,001 %  
 Emission or Release Factor: Soil : 0 %

**Technical conditions and measures / Organizational measures**

Air : Treat air emission to provide a typical removal efficiency of (%) (Effectiveness: 95 %)  
 Water : Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of ≥ (%): (Effectiveness: 23,4 %)  
 Remarks : Risk from environmental exposure is driven by freshwater sediment.  
 Water : If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of ≥ (%): (Effectiveness: 0 %)  
 Remarks : Do not apply industrial sludge to natural soils.  
 Remarks : Sludge should be incinerated, contained or reclaimed.  
 Remarks : Common practices vary across sites thus conservative process release estimates used.  
 Remarks : If discharging to domestic sewage treatment plant, no onsite wastewater treatment required.

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

Flow rate of sewage treatment plant effluent : 2.000 m<sup>3</sup>/d  
 Effectiveness (of a measure) : 96,3 %  
 Percentage removed from waste water : 96,3 %  
 Sludge Treatment : No data available  
 Procedures to limit air emissions from Sewage Treatment Plant : No data available

**Conditions and measures related to external treatment of waste for disposal**

Remarks : Combustion emissions limited by required exhaust emission controls.  
 Combustion emissions considered in regional exposure assessment.

**Conditions and measures related to external recovery of waste**

Recovery Methods : This substance is consumed during use and no waste of the substance is generated.

**2.2 Contributing scenario controlling worker exposure for: PROC1: Use in closed process, no likelihood of exposure****Product characteristics**

Physical Form (at time of use) : Liquid substance  
 Vapor pressure : 2,8 kPa

**Amount used**

Remarks : No limit

**Frequency and duration of use**

Remarks : Covers daily exposures up to 8 hours (unless stated differently)

**Other operational conditions affecting workers exposure**

Remarks : Assumes a good basic standard of occupational hygiene is

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implemented., Assumes use at not more than 20°C above ambient temperature, unless stated differently.

**Technical conditions and measures**

Handle substance within a closed system., Store substance within a closed system.

**Organizational measures to prevent /limit releases, dispersion and exposure**

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop.

**2.2 Contributing scenario controlling worker exposure for: PROC2: Use in closed, continuous process with occasional controlled exposure****Product characteristics**

Physical Form (at time of use) : Liquid substance  
Vapor pressure : 2,8 kPa

**Amount used**

Remarks : No limit

**Frequency and duration of use**

Remarks : Covers daily exposures up to 8 hours (unless stated differently)

**Other operational conditions affecting workers exposure**

Remarks : Assumes a good basic standard of occupational hygiene is implemented., Assumes use at not more than 20°C above ambient temperature, unless stated differently.

**Technical conditions and measures**

Handle substance within a closed system., Transfer via enclosed lines., Store substance within a closed system.

**Organizational measures to prevent /limit releases, dispersion and exposure**

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop.

**2.2 Contributing scenario controlling worker exposure for: PROC3: Use in closed batch process (synthesis or formulation)****Product characteristics**

Physical Form (at time of use) : Liquid substance  
Vapor pressure : 2,8 kPa

**Amount used**

Remarks : No limit

**Frequency and duration of use**

Remarks : Covers daily exposures up to 8 hours (unless stated differently)

**Other operational conditions affecting workers exposure**

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Remarks : Assumes a good basic standard of occupational hygiene is implemented., Assumes use at not more than 20°C above ambient temperature, unless stated differently.

**Technical conditions and measures**

Handle substance within a closed system.

**Organizational measures to prevent /limit releases, dispersion and exposure**

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop., No specific measures identified.

**2.2 Contributing scenario controlling worker exposure for: PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities****Product characteristics**

Physical Form (at time of use) : Liquid substance  
Vapor pressure : 2,8 kPa

**Amount used**

Remarks : No limit

**Frequency and duration of use**

Remarks : Covers daily exposures up to 8 hours (unless stated differently)

**Other operational conditions affecting workers exposure**

Remarks : Assumes a good basic standard of occupational hygiene is implemented., Assumes use at not more than 20°C above ambient temperature, unless stated differently.

**Technical conditions and measures**

Drain down and flush system prior to equipment opening or maintenance.

**Organizational measures to prevent /limit releases, dispersion and exposure**

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop., Apply vessel entry procedures including use of forced supplied air.

**Conditions and measures related to personal protection, hygiene and health evaluation**

Wear suitable coveralls to prevent exposure to the skin., Wear suitable gloves tested to EN374.

**2.2 Contributing scenario controlling worker exposure for: PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities****Product characteristics**

Physical Form (at time of use) : Liquid substance  
Vapor pressure : 2,8 kPa

**Amount used**

Remarks : No limit

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**Frequency and duration of use**

Remarks : Covers daily exposures up to 8 hours (unless stated differently)

**Other operational conditions affecting workers exposure**

Remarks : Assumes a good basic standard of occupational hygiene is implemented., Assumes use at not more than 20°C above ambient temperature, unless stated differently.

**Technical conditions and measures**

Handle substance within a closed system.

**Organizational measures to prevent /limit releases, dispersion and exposure**

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop.

**Conditions and measures related to personal protection, hygiene and health evaluation**

Wear suitable gloves tested to EN374.

**2.2 Contributing scenario controlling worker exposure for: PROC16: Using material as fuel sources, limited exposure to unburned product to be expected****Product characteristics**

Physical Form (at time of use) : Liquid substance  
Vapor pressure : 2,8 kPa

**Amount used**

Remarks : No limit

**Frequency and duration of use**

Remarks : Covers daily exposures up to 8 hours (unless stated differently)

**Other operational conditions affecting workers exposure**

Remarks : Assumes a good basic standard of occupational hygiene is implemented., Assumes use at not more than 20°C above ambient temperature, unless stated differently.

**Technical conditions and measures**

Handle substance within a closed system.

**Organizational measures to prevent /limit releases, dispersion and exposure**

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop.

**3. Exposure estimation and reference to its source****Environment**

Contributing Scenario	Exposure Assessment	Specific conditions	Compartment	Value type	Level of Exposure	Risk characterization
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	Method				ratio (PEC/PNEC):
ERC7, ERC8b	Hydrocarbon Block Method with Petrorisk		Air		0,05 mg/m3
			Freshwater		0,0016 mg/L
			Freshwater sediment		0,07 mg/kg
			Marine water		0,16 µg/L
			Marine sediment		0,007 mg/kg
			Agricultural soil		0,46 µg/kg

ERC7: Industrial use of substances in closed systems

ERC8b: Wide dispersive indoor use of reactive substances in open systems

**Workers/Consumers**

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value type	Level of Exposure	Risk characterization ratio (PEC/PNEC):
PROC1, CS15, CS37, CS67	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	0,05 mg/m3	0,000
			Worker – dermal, long-term – systemic	0,34 mg/kg/d	0,000
			Worker – long-term – systemic Combined routes		0,000
PROC2, CS15, CS37, CS67	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	46,72 mg/m3	0,023
			Worker – dermal, long-term – systemic	1,37 mg/kg/d	0,002
			Worker – long-term – systemic Combined routes		0,025
PROC3, CS15, CS37, CS107	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	116,79 mg/m3	0,057
			Worker – dermal, long-term – systemic	0,34 mg/kg/d	0,000
			Worker – long-term – systemic Combined routes		0,058
PROC8a, CS39	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	233,58 mg/m3	0,115
			Worker – dermal, long-term – systemic	2,742 mg/kg/d	0,004
			Worker – long-term – systemic Combined routes		0,118
PROC8a, CS103	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	23,36 mg/m3	0,011
			Worker – dermal, long-term – systemic	2,742 mg/kg/d	0,004
			Worker – long-term – systemic Combined routes		0,015
PROC8b, CS8, CS14	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	233,58 mg/m3	0,115
			Worker – dermal, long-term – systemic	1,372 mg/kg/d	0,002
			Worker – long-term – systemic Combined routes		0,117
PROC16, CS15, CS107	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	23,36 mg/m3	0,011
			Worker – dermal, long-term – systemic	0,34 mg/kg/d	0,000
			Worker – long-term – systemic Combined routes		0,012

PROC1: Use in closed process, no likelihood of exposure

CS15: General exposures (closed systems)

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CS37: Use in contained batch processes

CS67: Storage

PROC2: Use in closed, continuous process with occasional controlled exposure

CS15: General exposures (closed systems)

CS37: Use in contained batch processes

CS67: Storage

PROC3: Use in closed batch process (synthesis or formulation)

CS15: General exposures (closed systems)

CS37: Use in contained batch processes

CS107: (closed systems)

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

CS39: Equipment cleaning and maintenance

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

CS103: Vessel and container cleaning

PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities

CS8: Drum/batch transfers

CS14: Bulk transfers

PROC16: Using material as fuel sources, limited exposure to unburned product to be expected

CS15: General exposures (closed systems)

CS107: (closed systems)

**4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario**

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.

Available hazard data do not enable the derivation of a DNEL for dermal irritant effects.

Risk Management Measures are based on qualitative risk characterisation.

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.

Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.

Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination.

Further details on scaling and control technologies are provided in SpERC factsheet (<http://cefic.org/en/reach-for-industries-libraries.html>).

**1. Short title of Exposure Scenario: Use as a fuel – professional**

Main User Groups	: <b>SU 22:</b> Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Sector of use	: <b>SU 22:</b> Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Process category	: <b>PROC1:</b> Use in closed process, no likelihood of exposure <b>PROC2:</b> Use in closed, continuous process with occasional

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	controlled exposure <b>PROC3:</b> Use in closed batch process (synthesis or formulation) <b>PROC8a:</b> Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities <b>PROC8b:</b> Transfer of substance or preparation (charging/discharging) from/ to vessels/ large containers at dedicated facilities <b>PROC16:</b> Using material as fuel sources, limited exposure to unburned product to be expected
Environmental release category	: <b>ERC8b, ERC8e, ERC9a, ERC9b:</b> Wide dispersive indoor use of reactive substances in open systems, Wide dispersive outdoor use of reactive substances in open systems, Wide dispersive indoor use of substances in closed systems, Wide dispersive outdoor use of substances in closed systems
Further information	: Covers the use as a fuel (or fuel additive) and includes activities associated with its transfer, use, equipment maintenance and handling of waste.

**2.1 Contributing scenario controlling environmental exposure for:ERC8b, ERC8e, ERC9a, ERC9b: Wide dispersive indoor use of reactive substances in open systems, Wide dispersive outdoor use of reactive substances in open systems, Wide dispersive indoor use of substances in closed systems, Wide dispersive outdoor use of substances in closed systems**

(Msafe) : 240 tonnes/day

**Environment factors not influenced by risk management**

Flow rate : 18.000 m3/d  
Dilution Factor (River) : 10  
Dilution Factor (Coastal Areas) : 100

**Other given operational conditions affecting environmental exposure**

Number of emission days per year : 365  
Emission or Release Factor: Air : 0,1 %  
Emission or Release Factor: Water : 0,001 %  
Emission or Release Factor: Soil : 0,001 %

**Technical conditions and measures / Organizational measures**

Water : Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of  $\geq$  (%):  
(Effectiveness: 0 %)

Remarks : Risk from environmental exposure is driven by freshwater.

Water : If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of  $\geq$  (%):  
(Effectiveness: 0 %)

Remarks : Common practices vary across sites thus conservative process release estimates used.

Remarks : No wastewater treatment required.

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

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Flow rate of sewage treatment plant effluent : 2.000 m3/d  
 Effectiveness (of a measure) : 96,3 %  
 Percentage removed from waste water : 96,3 %  
 Sludge Treatment : No data available  
 Procedures to limit air emissions from Sewage Treatment Plant : No data available

**Conditions and measures related to external treatment of waste for disposal**

Remarks : Combustion emissions limited by required exhaust emission controls.  
 Combustion emissions considered in regional exposure assessment.

**Conditions and measures related to external recovery of waste**

Recovery Methods : This substance is consumed during use and no waste of the substance is generated.

**2.2 Contributing scenario controlling worker exposure for: PROC1: Use in closed process, no likelihood of exposure****Product characteristics**

Physical Form (at time of use) : Liquid substance  
 Vapor pressure : 2,8 kPa

**Amount used**

Remarks : No limit

**Frequency and duration of use**

Remarks : Covers daily exposures up to 8 hours (unless stated differently)

**Other operational conditions affecting workers exposure**

Remarks : Assumes a good basic standard of occupational hygiene is implemented., Assumes use at not more than 20°C above ambient temperature, unless stated differently.

**Technical conditions and measures**

Handle substance within a closed system., Store substance within a closed system.

**Organizational measures to prevent /limit releases, dispersion and exposure**

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop.

**2.2 Contributing scenario controlling worker exposure for: PROC2: Use in closed, continuous process with occasional controlled exposure****Product characteristics**

Physical Form (at time of use) : Liquid substance  
 Vapor pressure : 2,8 kPa

**Amount used**

Remarks : No limit

**Frequency and duration of use**



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Remarks : Covers daily exposures up to 8 hours (unless stated differently)

**Other operational conditions affecting workers exposure**

Remarks : Assumes a good basic standard of occupational hygiene is implemented., Assumes use at not more than 20°C above ambient temperature, unless stated differently.

**Technical conditions and measures**

Handle substance within a closed system.

**Organizational measures to prevent /limit releases, dispersion and exposure**

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop.

**2.2 Contributing scenario controlling worker exposure for: PROC3, PROC16: Use in closed batch process (synthesis or formulation), Using material as fuel sources, limited exposure to unburned product to be expected****Product characteristics**

Physical Form (at time of use) : Liquid substance  
Vapor pressure : 2,8 kPa

**Amount used**

Remarks : No limit

**Frequency and duration of use**

Remarks : Covers daily exposures up to 8 hours (unless stated differently)

**Other operational conditions affecting workers exposure**

Remarks : Assumes a good basic standard of occupational hygiene is implemented., Assumes use at not more than 20°C above ambient temperature, unless stated differently.

**Technical conditions and measures**

Handle substance within a closed system.

**Organizational measures to prevent /limit releases, dispersion and exposure**

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop.

**2.2 Contributing scenario controlling worker exposure for: PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities****Product characteristics**

Physical Form (at time of use) : Liquid substance  
Vapor pressure : 2,8 kPa

**Amount used**

Remarks : No limit

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**Frequency and duration of use**

Remarks : Covers daily exposures up to 8 hours (unless stated differently)

**Other operational conditions affecting workers exposure**

Remarks : Assumes a good basic standard of occupational hygiene is implemented., Assumes use at not more than 20°C above ambient temperature, unless stated differently.

**Technical conditions and measures**

Drain down system prior to equipment opening or maintenance.

**Organizational measures to prevent /limit releases, dispersion and exposure**

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop., Apply vessel entry procedures including use of forced supplied air.

**Conditions and measures related to personal protection, hygiene and health evaluation**

Wear suitable gloves tested to EN374., Wear suitable coveralls to prevent exposure to the skin.

**2.2 Contributing scenario controlling worker exposure for: PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities****Product characteristics**

Physical Form (at time of use) : Liquid substance  
Vapor pressure : 2,8 kPa

**Amount used**

Remarks : No limit

**Frequency and duration of use**

Remarks : Covers daily exposures up to 8 hours (unless stated differently)

**Other operational conditions affecting workers exposure**

Remarks : Assumes a good basic standard of occupational hygiene is implemented., Assumes use at not more than 20°C above ambient temperature, unless stated differently.

**Technical conditions and measures**

Handle substance within a closed system., Use drum pumps or carefully pour from container., Ensure operation is undertaken outdoors., Clear transfer lines prior to de-coupling.

**Organizational measures to prevent /limit releases, dispersion and exposure**

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop.

**Conditions and measures related to personal protection, hygiene and health evaluation**

Wear suitable gloves tested to EN374.

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**3. Exposure estimation and reference to its source****Environment**

Contributing Scenario	Exposure Assessment Method	Specific conditions	Compartment	Value type	Level of Exposure	Risk characterization ratio (PEC/PNEC):
ERC8b, ERC8e, ERC9a, ERC9b	Hydrocarbon Block Method with Petrorisk		Air		0,074 µg/m <sup>3</sup>	
			Freshwater		0,0058 µg/L	0,00015
			Freshwater sediment		0,0001 mg/kg	0,000073
			Marine water		0,066 ng/L	< 0,000017
			Marine sediment		0,0028 µg/kg	0,000002
			Agricultural soil		0,012 µg/kg	0,000021

ERC8b: Wide dispersive indoor use of reactive substances in open systems

ERC8e: Wide dispersive outdoor use of reactive substances in open systems

ERC9a: Wide dispersive indoor use of substances in closed systems

ERC9b: Wide dispersive outdoor use of substances in closed systems

**Workers/Consumers**

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value type	Level of Exposure	Risk characterization ratio (PEC/PNEC):
PROC1, CS15, CS67	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	0,05 mg/m <sup>3</sup>	0,000
			Worker – dermal, long-term – systemic	0,34 mg/kg/d	0,000
			Worker – long-term – systemic Combined routes		0,000
PROC2, CS15	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	93,43 mg/m <sup>3</sup>	0,046
			Worker – dermal, long-term – systemic	1,37 mg/kg/d	0,002
			Worker – long-term – systemic Combined routes		0,048
PROC3, CS15, CS107	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	116,79 mg/m <sup>3</sup>	0,057
			Worker – dermal, long-term – systemic	0,34 mg/kg/d	0,000
			Worker – long-term – systemic Combined routes		0,058
PROC16, CS15, CS107	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	46,72 mg/m <sup>3</sup>	0,023
			Worker – dermal, long-term – systemic	0,34 mg/kg/d	0,000
			Worker – long-term – systemic Combined routes		0,023
PROC8a, CS39, CS103	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	93,43 mg/m <sup>3</sup>	0,046
			Worker – dermal, long-term – systemic	2,742 mg/kg/d	0,004
			Worker – long-term – systemic Combined routes		0,049
PROC8b, CS1, CS8	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	46,72 mg/m <sup>3</sup>	0,023
			Worker – dermal, long-term – systemic	1,372 mg/kg/d	0,002
			Worker – long-term – systemic Combined routes		0,025

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PROC8b, CS14	ECETOC TRA Modified	Worker – inhalation, long-term – systemic	163,51 mg/m3	0,080
		Worker – dermal, long-term – systemic	1,372 mg/kg/d	0,002
		Worker – long-term – systemic Combined routes		0,082

PROC1: Use in closed process, no likelihood of exposure

CS15: General exposures (closed systems)

CS67: Storage

PROC2: Use in closed, continuous process with occasional controlled exposure

CS15: General exposures (closed systems)

PROC3: Use in closed batch process (synthesis or formulation)

CS15: General exposures (closed systems)

CS107: (closed systems)

PROC16: Using material as fuel sources, limited exposure to unburned product to be expected

CS15: General exposures (closed systems)

CS107: (closed systems)

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

CS39: Equipment cleaning and maintenance

CS103: Vessel and container cleaning

PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities

CS1: General exposures

CS8: Drum/batch transfers

PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities

CS14: Bulk transfers

#### 4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.

Available hazard data do not enable the derivation of a DNEL for dermal irritant effects.

Risk Management Measures are based on qualitative risk characterisation.

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.

Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.

Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination.

Further details on scaling and control technologies are provided in SpERC factsheet (<http://cefic.org/en/reach-for-industries-libraries.html>).

#### 1. Short title of Exposure Scenario: **Use as a laboratory agent – industrial**

Main User Groups : **SU 3:** Industrial uses: Uses of substances as such or in

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Sector of use	: preparations at industrial sites
Process category	: <b>SU3:</b> Industrial Manufacturing (all) : <b>PROC1:</b> Use in closed process, no likelihood of exposure : <b>PROC10:</b> Roller application or brushing : <b>PROC15:</b> Use as laboratory reagent
Environmental release category	: <b>ERC2, ERC4:</b> Formulation of preparations, Industrial use of processing aids in processes and products, not becoming part of articles
Further information	: Use of the substance within laboratory settings, including material transfers and equipment cleaning.

### 2.1 Contributing scenario controlling environmental exposure for:ERC2, ERC4: Formulation of preparations, Industrial use of processing aids in processes and products, not becoming part of articles

Maximum allowable site tonnage : 900  
(MSafe) based on release  
following total wastewater  
treatment removal (kg/d):(Msafe)

#### Environment factors not influenced by risk management

Flow rate : 18.000 m<sup>3</sup>/d  
Dilution Factor (River) : 10  
Dilution Factor (Coastal Areas) : 100

#### Other given operational conditions affecting environmental exposure

Continuous use/release  
Number of emission days per year : 20  
Emission or Release Factor: Air : 2,5 %  
Emission or Release Factor: Water : 2,0 %  
Emission or Release Factor: Soil : 0,01 %

#### Technical conditions and measures / Organizational measures

Air : Treat air emission to provide the required removal efficiency of (%) (Effectiveness: 0 %)

Water : Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of ≥ (%) (Effectiveness: 66,5 %)

Remarks : Risk from environmental exposure is driven by freshwater sediment.

Water : If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of ≥ (%) (Effectiveness: 0 %)

Remarks : If discharging to domestic sewage treatment plant, no onsite wastewater treatment required.

Remarks : Do not apply industrial sludge to natural soils.

Remarks : Sludge should be incinerated, contained or reclaimed.

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

Type of Sewage Treatment Plant : Municipal sewage treatment plant  
Flow rate of sewage treatment plant effluent : 2.000 m<sup>3</sup>/d  
Effectiveness (of a measure) : 96,3 %

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Percentage removed from waste water : 96,3 %  
 Sludge Treatment : No data available  
 Procedures to limit air emissions from Sewage Treatment Plant : No data available

**Conditions and measures related to external treatment of waste for disposal**

Waste treatment : External treatment and disposal of waste should comply with applicable local and/or national regulations.

**Conditions and measures related to external recovery of waste**

Recovery Methods : External recovery and recycling of waste should comply with applicable local and/or national regulations.

**2.2 Contributing scenario controlling worker exposure for: PROC10: Roller application or brushing****Product characteristics**

Physical Form (at time of use) : Liquid substance  
 Vapor pressure : 2,8 kPa

**Amount used**

Remarks : No limit

**Frequency and duration of use**

Remarks : Covers daily exposures up to 8 hours (unless stated differently)

**Other operational conditions affecting workers exposure**

Remarks : Assumes use at not more than 20°C above ambient temperature, unless stated differently., Assumes a good basic standard of occupational hygiene is implemented.

**Organizational measures to prevent /limit releases, dispersion and exposure**

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop.

**Conditions and measures related to personal protection, hygiene and health evaluation**

Wear suitable gloves tested to EN374.

**2.2 Contributing scenario controlling worker exposure for: PROC15: Use as laboratory reagent****Product characteristics**

Physical Form (at time of use) : Liquid substance  
 Vapor pressure : 2,8 kPa

**Amount used**

Remarks : No limit

**Frequency and duration of use**

Remarks : Covers daily exposures up to 8 hours (unless stated differently)

**Other operational conditions affecting workers exposure**

Remarks : Assumes use at not more than 20°C above ambient

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temperature, unless stated differently., Assumes a good basic standard of occupational hygiene is implemented.

**Organizational measures to prevent /limit releases, dispersion and exposure**

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop., No specific measures identified.

**3. Exposure estimation and reference to its source****Environment**

Contributing Scenario	Exposure Assessment Method	Specific conditions	Compartment	Value type	Level of Exposure	Risk characterization ratio (PEC/PNEC):
ERC2, ERC4	Hydrocarbon Block Method with Petrorisk		Air		0,13 µg/m <sup>3</sup>	
			Freshwater		0,0037 mg/L	0,098
			Freshwater sediment		0,16 mg/kg	0,11
			Marine water		0,37 µg/L	0,0098
			Marine sediment		0,016 mg/kg	0,011
			Agricultural soil		0,0019 µg/kg	< 0,000002

ERC2: Formulation of preparations

ERC4: Industrial use of processing aids in processes and products, not becoming part of articles

**Workers/Consumers**

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value type	Level of Exposure	Risk characterization ratio (PEC/PNEC):
PROC10, CS47	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	233,58 mg/m <sup>3</sup>	0,115
			Worker – dermal, long-term – systemic	5,486 mg/kg/d	0,007
			Worker – long-term – systemic Combined routes		0,122
PROC15, CS36	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	46,72 mg/m <sup>3</sup>	0,023
			Worker – dermal, long-term – systemic	0,34 mg/kg/d	0,000
			Worker – long-term – systemic Combined routes		0,023

PROC10: Roller application or brushing

CS47: Cleaning

PROC15: Use as laboratory reagent

CS36: Laboratory activities

**4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario**

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Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.  
 Available hazard data do not enable the derivation of a DNEL for dermal irritant effects.  
 Risk Management Measures are based on qualitative risk characterisation.  
 Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.

Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.  
 Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination.  
 Further details on scaling and control technologies are provided in SpERC factsheet (<http://cefic.org/en/reach-for-industries-libraries.html>).

**1. Short title of Exposure Scenario: Use as a laboratory agent – professional**

Main User Groups	:	<b>SU 22:</b> Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Sector of use	:	<b>SU 22:</b> Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Process category	:	<b>PROC10:</b> Roller application or brushing <b>PROC15:</b> Use as laboratory reagent
Environmental release category	:	<b>ERC8a:</b> Wide dispersive indoor use of processing aids in open systems
Further information	:	Use of the substance within laboratory settings, including material transfers and equipment cleaning.

**2.1 Contributing scenario controlling environmental exposure for:ERC8a: Wide dispersive indoor use of processing aids in open systems**

Maximum allowable site tonnage : 14  
 (MSafe) based on release  
 following total wastewater  
 treatment removal (kg/d):(Msafe)

**Environment factors not influenced by risk management**

Flow rate : 18.000 m<sup>3</sup>/d  
 Dilution Factor (River) : 10  
 Dilution Factor (Coastal Areas) : 100

**Other given operational conditions affecting environmental exposure**

Continuous use/release  
 Number of emission days per year : 365  
 Emission or Release Factor: Air : 50 %  
 Emission or Release Factor: Water : 50 %  
 Emission or Release Factor: Soil : 0 %

**Technical conditions and measures / Organizational measures**

Air : Treat air emission to provide the required removal efficiency of (%) (Effectiveness: 0 %)  
 Water : Treat onsite wastewater (prior to receiving water discharge) to



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Remarks : provide the required removal efficiency of  $\geq$  (%):  
(Effectiveness: 0 %)

Water : Risk from environmental exposure is driven by freshwater.  
: If discharging to domestic sewage treatment plant, provide the  
required onsite wastewater removal efficiency of  $\geq$  (%):  
(Effectiveness: 0 %)

Remarks : No wastewater treatment required.

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

Type of Sewage Treatment Plant : Municipal sewage treatment plant

Flow rate of sewage treatment plant effluent : 2.000 m3/d

Effectiveness (of a measure) : 96,3 %

Percentage removed from waste water : 96,3 %

**Conditions and measures related to external treatment of waste for disposal**

Waste treatment : External treatment and disposal of waste should comply with applicable local and/or national regulations.

**Conditions and measures related to external recovery of waste**

Recovery Methods : External recovery and recycling of waste should comply with applicable local and/or national regulations.

**2.2 Contributing scenario controlling worker exposure for: PROC10: Roller application or brushing****Product characteristics**

Physical Form (at time of use) : Liquid substance

Vapor pressure : 2,8 kPa

**Amount used**

Remarks : No limit

**Frequency and duration of use**

Remarks : Covers daily exposures up to 8 hours (unless stated differently)

**Other operational conditions affecting workers exposure**

Remarks : Assumes use at not more than 20°C above ambient temperature, unless stated differently., Assumes a good basic standard of occupational hygiene is implemented.

**Technical conditions and measures**

Handle in a fume cupboard or under extract ventilation.

**Organizational measures to prevent /limit releases, dispersion and exposure**

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop.

**2.2 Contributing scenario controlling worker exposure for: PROC15: Use as laboratory reagent****Product characteristics**

Physical Form (at time of use) : Liquid substance

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**Amount used**

Remarks : No limit

**Frequency and duration of use**

Remarks : Covers daily exposures up to 8 hours (unless stated differently)

**Other operational conditions affecting workers exposure**

Remarks : Assumes use at not more than 20°C above ambient temperature, unless stated differently., Assumes a good basic standard of occupational hygiene is implemented.

**Technical conditions and measures**

Handle in a fume cupboard or under extract ventilation.

**Organizational measures to prevent /limit releases, dispersion and exposure**

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop.

**3. Exposure estimation and reference to its source****Environment**

Contributing Scenario	Exposure Assessment Method	Specific conditions	Compartment	Value type	Level of Exposure	Risk characterization ratio (PEC/PNEC):
ERC8a	Hydrocarbon Block Method with Petrorisk		Air		0,074 µg/m <sup>3</sup>	
			Freshwater		0,0077 µg/L	0,0002
			Freshwater sediment		0,00011 mg/kg	0,000076
			Marine water		0,00025 µg/L	< 0,000007
			Marine sediment		0,000011 mg/kg	< 0,000008
			Agricultural soil		0,047 µg/kg	0,00008

ERC8a: Wide dispersive indoor use of processing aids in open systems

**Workers/Consumers**

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value type	Level of Exposure	Risk characterization ratio (PEC/PNEC):
PROC10, CS47	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	93,43 mg/m <sup>3</sup>	0,046
			Worker – dermal, long-term – systemic	1,3715 mg/kg/d	0,002
			Worker – long-term – systemic Combined routes		0,048
PROC15, CS36	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	46,72 mg/m <sup>3</sup>	0,023
			Worker – dermal, long-term – systemic	0,34 mg/kg/d	0,000
			Worker – long-term – systemic Combined routes		0,023

PROC10: Roller application or brushing  
CS47: Cleaning

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PROC15: Use as laboratory reagent  
 CS36: Laboratory activities

**4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario**

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.  
 Available hazard data do not enable the derivation of a DNEL for dermal irritant effects.  
 Risk Management Measures are based on qualitative risk characterisation.  
 Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.

Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.  
 Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination.  
 Further details on scaling and control technologies are provided in SpERC factsheet (<http://cefic.org/en/reach-for-industries-libraries.html>).

**1. Short title of Exposure Scenario: Use in coatings – industrial**

Main User Groups	:	<b>SU 3:</b> Industrial uses: Uses of substances as such or in preparations at industrial sites
Sector of use	:	<b>SU3:</b> Industrial Manufacturing (all)
Process category	:	<b>PROC1:</b> Use in closed process, no likelihood of exposure <b>PROC2:</b> Use in closed, continuous process with occasional controlled exposure <b>PROC3:</b> Use in closed batch process (synthesis or formulation) <b>PROC4:</b> Use in batch and other process (synthesis) where opportunity for exposure arises <b>PROC5:</b> Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact) <b>PROC7:</b> Industrial spraying <b>PROC8a:</b> Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities <b>PROC8b:</b> Transfer of substance or preparation (charging/discharging) from/ to vessels/ large containers at dedicated facilities <b>PROC9:</b> Transfer of substance or preparation into small containers (dedicated filling line, including weighing) <b>PROC10:</b> Roller application or brushing <b>PROC13:</b> Treatment of articles by dipping and pouring <b>PROC14:</b> Production of preparations or articles by tableting, compression, extrusion, pelletization <b>PROC15:</b> Use as laboratory reagent
Environmental release category	:	<b>ERC4:</b> Industrial use of processing aids in processes and products, not becoming part of articles
Further information	:	

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Covers the use in coatings (paints, inks, adhesives, etc) including exposures during use (including materials receipt, storage, preparation and transfer from bulk and semi-bulk, application by spray, roller, spreader, dip, flow, fluidised bed on production lines and film formation) and equipment cleaning, maintenance and associated laboratory activities.

**2.1 Contributing scenario controlling environmental exposure for:ERC4: Industrial use of processing aids in processes and products, not becoming part of articles**

Maximum allowable site tonnage : 260.000  
(MSafe) based on release  
following total wastewater  
treatment removal (kg/d):(MSafe)

**Environment factors not influenced by risk management**

Flow rate : 18.000 m3/d  
Dilution Factor (River) : 10  
Dilution Factor (Coastal Areas) : 100

**Other given operational conditions affecting environmental exposure**

Continuous use/release  
Number of emission days per year : 20  
Emission or Release Factor: Air : 98 %  
Emission or Release Factor: Water : 0,007 %  
Emission or Release Factor: Soil : 0 %

**Technical conditions and measures / Organizational measures**

Air : Treat air emission to provide the required removal efficiency of (%): (Effectiveness: 90 %)  
Water : Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of  $\geq$  (%): (Effectiveness: 4,3 %)  
Water : If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of  $\geq$  (%): (Effectiveness: 0 %)  
Remarks : Common practices vary across sites thus conservative process release estimates used.  
Remarks : Prevent discharge of undissolved substance to or recover from onsite wastewater.  
Remarks : Risk from environmental exposure is driven by freshwater sediment.  
Remarks : If discharging to domestic sewage treatment plant, no onsite wastewater treatment required.  
Remarks : Do not apply industrial sludge to natural soils.  
Remarks : Sludge should be incinerated, contained or reclaimed.

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

Type of Sewage Treatment Plant : Municipal sewage treatment plant  
Flow rate of sewage treatment plant effluent : 2.000 m3/d  
Effectiveness (of a measure) : 96,3 %  
Percentage removed from waste water : 96,3 %  
Sludge Treatment : No data available  
Procedures to limit air emissions : No data available

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from Sewage Treatment Plant

**Conditions and measures related to external treatment of waste for disposal**

Remarks : External treatment and disposal of waste should comply with applicable local and/or national regulations.

**Conditions and measures related to external recovery of waste**

Recovery Methods : External recovery and recycling of waste should comply with applicable local and/or national regulations.

**2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3: Use in closed process, no likelihood of exposure, Use in closed, continuous process with occasional controlled exposure, Use in closed batch process (synthesis or formulation)****Product characteristics**

Physical Form (at time of use) : Liquid substance  
Vapor pressure : 2,8 kPa

**Amount used**

Remarks : No limit

**Frequency and duration of use**

Remarks : Covers daily exposures up to 8 hours (unless stated differently)

**Other operational conditions affecting workers exposure**

Remarks : Assumes a good basic standard of occupational hygiene is implemented., Assumes use at not more than 20°C above ambient temperature, unless stated differently.

**Technical conditions and measures**

Handle substance within a closed system.

**Organizational measures to prevent /limit releases, dispersion and exposure**

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop.

**2.2 Contributing scenario controlling worker exposure for: PROC4, PROC9, PROC15: Use in batch and other process (synthesis) where opportunity for exposure arises, Transfer of substance or preparation into small containers (dedicated filling line, including weighing), Use as laboratory reagent****Product characteristics**

Physical Form (at time of use) : Liquid substance  
Vapor pressure : 2,8 kPa

**Amount used**

Remarks : No limit

**Frequency and duration of use**

Remarks : Covers daily exposures up to 8 hours (unless stated differently)

**Other operational conditions affecting workers exposure**

Remarks : Assumes use at not more than 20°C above ambient temperature, unless stated differently., Assumes a good basic

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standard of occupational hygiene is implemented.

**Organizational measures to prevent /limit releases, dispersion and exposure**

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop., No specific measures identified.

**2.2 Contributing scenario controlling worker exposure for: PROC5, PROC10, PROC14: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact), Roller application or brushing, Production of preparations or articles by tableting, compression, extrusion, pelletization**

**Product characteristics**

Physical Form (at time of use) : Liquid substance  
Vapor pressure : 2,8 kPa

**Amount used**

Remarks : No limit

**Frequency and duration of use**

Remarks : Covers daily exposures up to 8 hours (unless stated differently)

**Other operational conditions affecting workers exposure**

Remarks : Assumes use at not more than 20°C above ambient temperature, unless stated differently., Assumes a good basic standard of occupational hygiene is implemented.

**Organizational measures to prevent /limit releases, dispersion and exposure**

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop.

**Conditions and measures related to personal protection, hygiene and health evaluation**

Wear suitable gloves tested to EN374.

**2.2 Contributing scenario controlling worker exposure for: PROC7: Industrial spraying**

**Product characteristics**

Physical Form (at time of use) : Liquid substance  
Vapor pressure : 2,8 kPa

**Amount used**

Remarks : No limit

**Frequency and duration of use**

Remarks : Covers daily exposures up to 8 hours (unless stated differently)

**Other operational conditions affecting workers exposure**

Remarks : Assumes use at not more than 20°C above ambient temperature, unless stated differently., Assumes a good basic standard of occupational hygiene is implemented.

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**Technical conditions and measures**

Carry out in a vented booth provided with laminar airflow., Provide enhanced general ventilation by mechanical means.

**Organizational measures to prevent /limit releases, dispersion and exposure**

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop.

**Conditions and measures related to personal protection, hygiene and health evaluation**

Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.

**2.2 Contributing scenario controlling worker exposure for: PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities****Product characteristics**

Physical Form (at time of use) : Liquid substance  
Vapor pressure : 2,8 kPa

**Amount used**

Remarks : No limit

**Frequency and duration of use**

Remarks : Covers daily exposures up to 8 hours (unless stated differently)

**Other operational conditions affecting workers exposure**

Remarks : Assumes use at not more than 20°C above ambient temperature, unless stated differently., Assumes a good basic standard of occupational hygiene is implemented.

**Technical conditions and measures**

Clear transfer lines prior to de-coupling.

**Organizational measures to prevent /limit releases, dispersion and exposure**

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop.

**Conditions and measures related to personal protection, hygiene and health evaluation**

Wear suitable gloves tested to EN374.

**2.2 Contributing scenario controlling worker exposure for: PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities****Product characteristics**

Physical Form (at time of use) : Liquid substance  
Vapor pressure : 2,8 kPa

**Amount used**

Remarks : No limit

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**Frequency and duration of use**

Remarks : Covers daily exposures up to 8 hours (unless stated differently)

**Other operational conditions affecting workers exposure**

Remarks : Assumes use at not more than 20°C above ambient temperature, unless stated differently., Assumes a good basic standard of occupational hygiene is implemented.

**Technical conditions and measures**

Clear transfer lines prior to de-coupling.

**Organizational measures to prevent /limit releases, dispersion and exposure**

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop.

**2.2 Contributing scenario controlling worker exposure for: PROC13: Treatment of articles by dipping and pouring****Product characteristics**

Physical Form (at time of use) : Liquid substance  
Vapor pressure : 2,8 kPa

**Amount used**

Remarks : No limit

**Frequency and duration of use**

Remarks : Covers daily exposures up to 8 hours (unless stated differently)

**Other operational conditions affecting workers exposure**

Remarks : Assumes use at not more than 20°C above ambient temperature, unless stated differently., Assumes a good basic standard of occupational hygiene is implemented.

**Organizational measures to prevent /limit releases, dispersion and exposure**

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop., Avoid manual contact with wet work pieces.

**Conditions and measures related to personal protection, hygiene and health evaluation**

Wear suitable gloves tested to EN374.

**3. Exposure estimation and reference to its source****Environment**

Contributing Scenario	Exposure Assessment Method	Specific conditions	Compartment	Value type	Level of Exposure	Risk characterization ratio (PEC/PNEC):
ERC4	Hydrocarbon Block Method with Petrorisk		Air		0,015 mg/m3	

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		Fresh water	0,0013 mg/L	0,034
		Fresh water sediment	0,056 mg/kg	0,039
		Marine water	0,13 µg/L	0,0034
		Marine sediment	0,0056 mg/kg	0,0039
		Agricultural soil	0,14 µg/kg	0,0003

ERC4: Industrial use of processing aids in processes and products, not becoming part of articles

**Workers/Consumers**

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value type	Level of Exposure	Risk characterization ratio (PEC/PNEC):
PROC1, CS15	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	0,05 mg/m3	0,000
			Worker – dermal, long-term – systemic	0,34 mg/kg/d	0,000
			Worker – long-term – systemic Combined routes		
PROC2, CS15, CS56, CS38	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	46,72 mg/m3	0,023
			Worker – dermal, long-term – systemic	1,37 mg/kg/d	0,002
			Worker – long-term – systemic Combined routes		0,025
PROC2, CS94	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	233,58 mg/m3	0,115
			Worker – dermal, long-term – systemic	1,37 mg/kg/d	0,002
			Worker – long-term – systemic Combined routes		0,117
PROC3, CS29, CS15	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	116,79 mg/m3	0,057
			Worker – dermal, long-term – systemic	0,34 mg/kg/d	0,000
			Worker – long-term – systemic Combined routes		0,058
PROC4, CS95	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	93,43 mg/m3	0,046
			Worker – dermal, long-term – systemic	6,86 mg/kg/d	0,009
			Worker – long-term – systemic Combined routes		0,055
PROC9, CS3, CS8, CS22	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	233,58 mg/m3	0,115
			Worker – dermal, long-term – systemic	6,86 mg/kg/d	0,009
			Worker – long-term – systemic Combined routes		0,124
PROC15, CS36	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	46,72 mg/m3	0,023
			Worker – dermal, long-term – systemic	0,34 mg/kg/d	0,000
			Worker – long-term – systemic Combined routes		0,023
PROC5, CS96, CS30	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	233,58 mg/m3	0,115
			Worker – dermal, long-term – systemic	2,742 mg/kg/d	0,004
			Worker – long-term – systemic Combined routes		0,118
PROC10, CS98	ECETOC TRA		Worker – inhalation,	233,58 mg/m3	0,115

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	Modified		long-term – systemic		
			Worker – dermal, long-term – systemic	5,486 mg/kg/d	0,007
			Worker – long-term – systemic Combined routes		0,122
PROC14, CS100	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	233,58 mg/m3	0,115
			Worker – dermal, long-term – systemic	0,686 mg/kg/d	0,001
			Worker – long-term – systemic Combined routes		0,116
PROC7, CS97	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	58,39 mg/m3	0,029
			Worker – dermal, long-term – systemic	2,143 mg/kg/d	0,003
			Worker – long-term – systemic Combined routes		0,031
PROC7, CS34, CS10	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	350,37 mg/m3	0,172
			Worker – dermal, long-term – systemic	4,286 mg/kg/d	0,006
			Worker – long-term – systemic Combined routes		0,178
PROC8a, CS3	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	233,58 mg/m3	0,115
			Worker – dermal, long-term – systemic	2,742 mg/kg/d	0,004
			Worker – long-term – systemic Combined routes		0,118
PROC8b, CS3	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	233,58 mg/m3	0,115
			Worker – dermal, long-term – systemic	6,86 mg/kg/d	0,009
			Worker – long-term – systemic Combined routes		0,124
PROC13, CS4	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	233,58 mg/m3	0,115
			Worker – dermal, long-term – systemic	2,742 mg/kg/d	0,004
			Worker – long-term – systemic Combined routes		0,118

PROC1: Use in closed process, no likelihood of exposure  
 CS15: General exposures (closed systems)

PROC2: Use in closed, continuous process with occasional controlled exposure  
 CS15: General exposures (closed systems)  
 CS56: with sample collection  
 CS38: Use in contained systems

PROC2: Use in closed, continuous process with occasional controlled exposure  
 CS94: Film formation - force drying (50 - 100°C). Stoving (>100°C). UV/EB radiation curing

PROC3: Use in closed batch process (synthesis or formulation)  
 CS29: Mixing operations (closed systems)  
 CS15: General exposures (closed systems)

PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises  
 CS95: Film formation - air drying

PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)

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CS3: Material transfers  
 CS8: Drum/batch transfers  
 CS22: Transfer from/pouring from containers

PROC15: Use as laboratory reagent  
 CS36: Laboratory activities

PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact)  
 CS96: Preparation of material for application  
 CS30: Mixing operations (open systems)

PROC10: Roller application or brushing  
 CS98: Roller, spreader, flow application

PROC14: Production of preparations or articles by tableting, compression, extrusion, pelletization  
 CS100: Production or preparation or articles by tableting, compression, extrusion or pelletization

PROC7: Industrial spraying  
 CS97: Spraying (automatic/robotic)

PROC7: Industrial spraying  
 CS34: Manual  
 CS10: Spraying

PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities  
 CS3: Material transfers

PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities  
 CS3: Material transfers

PROC13: Treatment of articles by dipping and pouring  
 CS4: Dipping, immersion and pouring

**4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario**

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.

Available hazard data do not enable the derivation of a DNEL for dermal irritant effects.

Risk Management Measures are based on qualitative risk characterisation.

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.

Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.

Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination.

Further details on scaling and control technologies are provided in SpERC factsheet (<http://cefic.org/en/reach-for-industries-libraries.html>).

**1. Short title of Exposure Scenario: Use in coatings – professional**

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Main User Groups	:	<b>SU 22:</b> Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Sector of use	:	<b>SU 22:</b> Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Process category	:	<p><b>PROC1:</b> Use in closed process, no likelihood of exposure</p> <p><b>PROC2:</b> Use in closed, continuous process with occasional controlled exposure</p> <p><b>PROC3:</b> Use in closed batch process (synthesis or formulation)</p> <p><b>PROC4:</b> Use in batch and other process (synthesis) where opportunity for exposure arises</p> <p><b>PROC5:</b> Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact)</p> <p><b>PROC8a:</b> Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities</p> <p><b>PROC8b:</b> Transfer of substance or preparation (charging/discharging) from/ to vessels/ large containers at dedicated facilities</p> <p><b>PROC10:</b> Roller application or brushing</p> <p><b>PROC11:</b> Non industrial spraying</p> <p><b>PROC13:</b> Treatment of articles by dipping and pouring</p> <p><b>PROC15:</b> Use as laboratory reagent</p> <p><b>PROC19:</b> Hand-mixing with intimate contact and only PPE available</p>
Environmental release category	:	<b>ERC8a, ERC8d:</b> Wide dispersive indoor use of processing aids in open systems, Wide dispersive outdoor use of processing aids in open systems
Further information	:	Covers the use in coatings (paints, inks, adhesives, etc) including exposures during use (including materials receipt, storage, preparation and transfer from bulk and semi-bulk, application by spray, roller, spreader, dip, flow, fluidised bed on production lines and film formation) and equipment cleaning, maintenance and associated laboratory activities.

**2.1 Contributing scenario controlling environmental exposure for:ERC8a, ERC8d: Wide dispersive indoor use of processing aids in open systems, Wide dispersive outdoor use of processing aids in open systems**

(Msafe) : 1.000

**Environment factors not influenced by risk management**

Flow rate : 18.000 m<sup>3</sup>/d  
Dilution Factor (River) : 10  
Dilution Factor (Coastal Areas) : 100

**Other given operational conditions affecting environmental exposure**

Continuous use/release  
Number of emission days per year : 365  
Emission or Release Factor: Air : 98 %  
Emission or Release Factor: Water : 1 %  
Emission or Release Factor: Soil : 1 %

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**Technical conditions and measures / Organizational measures**

Water	:	Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of $\geq$ (%): (Effectiveness: 0 %)
Water	:	If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of $\geq$ (%): (Effectiveness: 0 %)
Remarks	:	No wastewater treatment required.
Remarks	:	Common practices vary across sites thus conservative process release estimates used.
Remarks	:	Risk from environmental exposure is driven by freshwater.
Air	:	Treat air emission to provide a typical removal efficiency of (%):
Remarks	:	Not applicable

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

Type of Sewage Treatment Plant	:	Municipal sewage treatment plant
Flow rate of sewage treatment plant effluent	:	2.000 m3/d
Effectiveness (of a measure)	:	96,3 %
Percentage removed from waste water	:	96,3 %
Sludge Treatment	:	No data available
Procedures to limit air emissions from Sewage Treatment Plant	:	No data available

**Conditions and measures related to external treatment of waste for disposal**

Remarks	:	External treatment and disposal of waste should comply with applicable local and/or national regulations.
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**Conditions and measures related to external recovery of waste**

Recovery Methods	:	External recovery and recycling of waste should comply with applicable local and/or national regulations.
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**2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2: Use in closed process, no likelihood of exposure, Use in closed, continuous process with occasional controlled exposure****Product characteristics**

Physical Form (at time of use)	:	Liquid substance
Vapor pressure	:	2,8 kPa

**Amount used**

Remarks	:	No limit
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**Frequency and duration of use**

Remarks	:	Covers daily exposures up to 8 hours (unless stated differently)
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**Other operational conditions affecting workers exposure**

Remarks	:	Assumes use at not more than 20°C above ambient temperature, unless stated differently., Assumes a good basic standard of occupational hygiene is implemented.
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**Technical conditions and measures**

Handle substance within a closed system.

**Organizational measures to prevent /limit releases, dispersion and exposure**

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves

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(tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop.

**2.2 Contributing scenario controlling worker exposure for: PROC3, PROC8b, PROC15: Use in closed batch process (synthesis or formulation), Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities, Use as laboratory reagent**

**Product characteristics**

Physical Form (at time of use) : Liquid substance  
Vapor pressure : 2,8 kPa

**Amount used**

Remarks : No limit

**Frequency and duration of use**

Remarks : Covers daily exposures up to 8 hours (unless stated differently)

**Other operational conditions affecting workers exposure**

Remarks : Assumes use at not more than 20°C above ambient temperature, unless stated differently., Assumes a good basic standard of occupational hygiene is implemented.

**Organizational measures to prevent /limit releases, dispersion and exposure**

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop., No specific measures identified.

**2.2 Contributing scenario controlling worker exposure for: PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises**

**Product characteristics**

Physical Form (at time of use) : Liquid substance  
Vapor pressure : 2,8 kPa

**Amount used**

Remarks : No limit

**Frequency and duration of use**

Remarks : Covers daily exposures up to 8 hours (unless stated differently)

**Other operational conditions affecting workers exposure**

Remarks : Assumes use at not more than 20°C above ambient temperature, unless stated differently., Assumes a good basic standard of occupational hygiene is implemented.

**Technical conditions and measures**

Ensure operation is undertaken outdoors.

**Organizational measures to prevent /limit releases, dispersion and exposure**

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they

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occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop., No specific measures identified.

**Conditions and measures related to personal protection, hygiene and health evaluation**

Wear suitable gloves tested to EN374.

**2.2 Contributing scenario controlling worker exposure for: PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact)****Product characteristics**

Physical Form (at time of use) : Liquid substance  
Vapor pressure : 2,8 kPa

**Amount used**

Remarks : No limit

**Frequency and duration of use**

Remarks : Covers daily exposures up to 8 hours (unless stated differently)

**Other operational conditions affecting workers exposure**

Remarks : Assumes use at not more than 20°C above ambient temperature, unless stated differently., Assumes a good basic standard of occupational hygiene is implemented.

**Technical conditions and measures**

Provide enhanced general ventilation by mechanical means., Ensure operation is undertaken outdoors.

**Organizational measures to prevent /limit releases, dispersion and exposure**

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop.

**Conditions and measures related to personal protection, hygiene and health evaluation**

Wear suitable gloves tested to EN374.

**2.2 Contributing scenario controlling worker exposure for: PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities****Product characteristics**

Physical Form (at time of use) : Liquid substance  
Vapor pressure : 2,8 kPa

**Amount used**

Remarks : No limit

**Frequency and duration of use**

Remarks : Covers daily exposures up to 8 hours (unless stated differently)

**Other operational conditions affecting workers exposure**

Remarks : Assumes use at not more than 20°C above ambient temperature, unless stated differently., Assumes a good basic

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standard of occupational hygiene is implemented.

**Technical conditions and measures**

Provide enhanced general ventilation by mechanical means.

**Organizational measures to prevent /limit releases, dispersion and exposure**

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop.

**Conditions and measures related to personal protection, hygiene and health evaluation**

Wear suitable gloves tested to EN374.

**2.2 Contributing scenario controlling worker exposure for: PROC10: Roller application or brushing****Product characteristics**

Physical Form (at time of use) : Liquid substance  
Vapor pressure : 2,8 kPa

**Amount used**

Remarks : No limit

**Frequency and duration of use**

Remarks : Covers daily exposures up to 8 hours (unless stated differently)

**Other operational conditions affecting workers exposure**

Remarks : Assumes use at not more than 20°C above ambient temperature, unless stated differently., Assumes a good basic standard of occupational hygiene is implemented.

**Technical conditions and measures**

Provide enhanced general ventilation by mechanical means., Ensure operation is undertaken outdoors.

**Organizational measures to prevent /limit releases, dispersion and exposure**

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop.

**Conditions and measures related to personal protection, hygiene and health evaluation**

Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.

**2.2 Contributing scenario controlling worker exposure for: PROC11: Non industrial spraying****Product characteristics**

Physical Form (at time of use) : Liquid substance  
Vapor pressure : 2,8 kPa

**Amount used**

Remarks : No limit

**Frequency and duration of use**



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Remarks : Covers daily exposures up to 8 hours (unless stated differently)

**Other operational conditions affecting workers exposure**

Remarks : Assumes use at not more than 20°C above ambient temperature, unless stated differently., Assumes a good basic standard of occupational hygiene is implemented.

**Technical conditions and measures**

Carry out in a vented booth or extracted enclosure., Ensure operation is undertaken outdoors.

**Organizational measures to prevent /limit releases, dispersion and exposure**

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop., Avoid carrying out operation for more than 1 hour., Limit the substance content in the product to 25%

**Conditions and measures related to personal protection, hygiene and health evaluation**

Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training., Wear chemically resistant gloves (tested to EN374) in combination with specific activity training., Wear a respirator conforming to EN140 with Type A filter or better.

**2.2 Contributing scenario controlling worker exposure for: PROC13: Treatment of articles by dipping and pouring****Product characteristics**

Physical Form (at time of use) : Liquid substance  
Vapor pressure : 2,8 kPa

**Amount used**

Remarks : No limit

**Frequency and duration of use**

Remarks : Covers daily exposures up to 8 hours (unless stated differently)

**Other operational conditions affecting workers exposure**

Remarks : Assumes use at not more than 20°C above ambient temperature, unless stated differently., Assumes a good basic standard of occupational hygiene is implemented.

**Technical conditions and measures**

Provide extraction ventilation at points where emissions occur., Ensure operation is undertaken outdoors.

**Organizational measures to prevent /limit releases, dispersion and exposure**

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop., Avoid manual contact with wet work pieces.

**Conditions and measures related to personal protection, hygiene and health evaluation**

Wear suitable gloves tested to EN374.

**2.2 Contributing scenario controlling worker exposure for: PROC19: Hand-mixing with**

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**intimate contact and only PPE available****Product characteristics**

Physical Form (at time of use) : Liquid substance  
 Vapor pressure : 2,8 kPa

**Amount used**

Remarks : No limit

**Frequency and duration of use**

Remarks : Covers daily exposures up to 8 hours (unless stated differently)

**Other operational conditions affecting workers exposure**

Remarks : Assumes use at not more than 20°C above ambient temperature, unless stated differently., Assumes a good basic standard of occupational hygiene is implemented.

**Technical conditions and measures**

Ensure operation is undertaken outdoors., Ensure doors and windows are opened

**Organizational measures to prevent /limit releases, dispersion and exposure**

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop., Avoid carrying out operation for more than 4 hours.

**Conditions and measures related to personal protection, hygiene and health evaluation**

Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls., Wear a respirator conforming to EN140 with Type A filter or better.

**3. Exposure estimation and reference to its source****Environment**

Contributing Scenario	Exposure Assessment Method	Specific conditions	Compartment	Value type	Level of Exposure	Risk characterization ratio (PEC/PNEC):
ERC8a, ERC8d	Hydrocarbon Block Method with Petrorisk		Air		0,000074 mg/m3	
			Fresh water		10 ng/L	0,00027
			Freshwater sediment		220 ng/kg	0,00015
			Marine water		0,51 ng/L	0,000013
			Marine sediment		22 ng/kg	0,000015
			Agricultural soil		93 ng/kg	0,00016

ERC8a: Wide dispersive indoor use of processing aids in open systems

ERC8d: Wide dispersive outdoor use of processing aids in open systems

**Workers/Consumers**

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value type	Level of Exposure	Risk characterization ratio (PEC/PNEC):
PROC1, CS15	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	0,05 mg/m3	0,000
			Worker – dermal, long-	0,34 mg/kg/d	0,000

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			term – systemic		
			Worker – long-term – systemic Combined routes		0,000
PROC2, CS15, CS38, CS45	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	93,43 mg/m3	0,046
			Worker – long-term – systemic Combined routes	1,37 mg/kg/d	0,002
			Worker – inhalation, long-term – systemic		0,048
PROC3, CS96	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	116,79 mg/m3	0,057
			Worker – dermal, long-term – systemic	0,34 mg/kg/d	0,000
			Worker – long-term – systemic Combined routes		0,058
PROC8b, CS3, CS8	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	233,58 mg/m3	0,115
			Worker – dermal, long-term – systemic	6,86 mg/kg/d	0,009
			Worker – long-term – systemic Combined routes		0,124
PROC15, CS36	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	46,72 mg/m3	0,023
			Worker – dermal, long-term – systemic	0,34 mg/kg/d	0,000
			Worker – long-term – systemic Combined routes		0,023
PROC4, CS95	ECETOC TRA Modified	Outdoor	Worker – inhalation, long-term – systemic	163,51 mg/m3	0,080
			Worker – dermal, long-term – systemic	1,372 mg/kg/d	0,002
			Worker – long-term – systemic Combined routes		0,082
PROC4, CS95	ECETOC TRA Modified	Indoor	Worker – inhalation, long-term – systemic	233,58 mg/m3	0,115
			Worker – dermal, long-term – systemic	6,86 mg/kg/d	0,009
			Worker – long-term – systemic Combined routes		0,124
PROC5, CS96	ECETOC TRA Modified	Indoor	Worker – inhalation, long-term – systemic	140,15 mg/m3	0,069
			Worker – dermal, long-term – systemic	2,742 mg/kg/d	0,004
			Worker – long-term – systemic Combined routes		0,072
PROC5, CS96	ECETOC TRA Modified	Outdoor	Worker – inhalation, long-term – systemic	327,01 mg/m3	0,161
			Worker – dermal, long-term – systemic	2,742 mg/kg/d	0,004
			Worker – long-term – systemic Combined routes		0,164
PROC8a, CS3, CS8	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	140,15 mg/m3	0,069
			Worker – dermal, long-term – systemic	2,742 mg/kg/d	0,004
			Worker – long-term – systemic Combined routes		0,072
PROC10, CS98	ECETOC TRA Modified	Indoor	Worker – inhalation, long-term – systemic	140,15 mg/m3	0,069
			Worker – dermal, long-term – systemic	2,743 mg/kg/d	0,004
			Worker – long-term – systemic		0,072

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			systemic Combined routes		
PROC10, CS98	ECETOC TRA Modified	Outdoor	Worker – inhalation, long-term – systemic	327,01 mg/m3	0,161
			Worker – dermal, long-term – systemic	2,743 mg/kg/d	0,004
			Worker – long-term – systemic Combined routes		0,164
PROC11, CS10, CS34	ECETOC TRA Modified	Indoor	Worker – inhalation, long-term – systemic	280,29 mg/m3	0,138
			Worker – dermal, long-term – systemic	1,2859 mg/kg/d	0,002
			Worker – long-term – systemic Combined routes		0,139
PROC11, CS10, CS34	ECETOC TRA Modified	Outdoor	Worker – inhalation, long-term – systemic	196,21 mg/m3	0,096
			Worker – dermal, long-term – systemic	6,4284 mg/kg/d	0,008
			Worker – long-term – systemic Combined routes		0,105
PROC11, CS10, CS34	ECETOC TRA Modified	Outdoor	Worker – inhalation, long-term – systemic	163,51 mg/m3	0,080
			Worker – dermal, long-term – systemic	5,357 mg/kg/d	0,007
			Worker – inhalation, long-term – systemic		0,087
PROC13, CS4	ECETOC TRA Modified	Indoor	Worker – inhalation, long-term – systemic	93,43 mg/m3	0,046
			Worker – dermal, long-term – systemic	0,6855 mg/kg/d	0,001
			Worker – long-term – systemic Combined routes		0,047
PROC13, CS4	ECETOC TRA Modified	Outdoor	Worker – inhalation, long-term – systemic	327,01 mg/m3	0,161
			Worker – dermal, long-term – systemic	2,742 mg/kg/d	0,004
			Worker – long-term – systemic Combined routes		0,164
PROC19, CS72	ECETOC TRA Modified	Indoor	Worker – inhalation, long-term – systemic	140,15 mg/m3	0,069
			Worker – dermal, long-term – systemic	2,8286 mg/kg/d	0,004
			Worker – long-term – systemic Combined routes		0,073
PROC19, CS72	ECETOC TRA Modified	Outdoor	Worker – inhalation, long-term – systemic	196,21 mg/m3	0,096
			Worker – dermal, long-term – systemic	2,8286 mg/kg/d	0,004
			Worker – long-term – systemic Combined routes		0,100
PROC19, CS72	ECETOC TRA Modified	Outdoor	Worker – inhalation, long-term – systemic	32,70 mg/m3	0,016
			Worker – dermal, long-term – systemic	2,8286 mg/kg/d	0,004
			Worker – long-term – systemic Combined routes		0,020

PROC1: Use in closed process, no likelihood of exposure

CS15: General exposures (closed systems)

PROC2: Use in closed, continuous process with occasional controlled exposure

CS15: General exposures (closed systems)

CS38: Use in contained systems

CS45: Filling/ preparation of equipment from drums or containers.

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PROC3: Use in closed batch process (synthesis or formulation)  
CS96: Preparation of material for application

PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities  
CS3: Material transfers  
CS8: Drum/batch transfers

PROC15: Use as laboratory reagent  
CS36: Laboratory activities

PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises  
CS95: Film formation - air drying

PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises  
CS95: Film formation - air drying

PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact)  
CS96: Preparation of material for application

PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact)  
CS96: Preparation of material for application

PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities  
CS3: Material transfers  
CS8: Drum/batch transfers

PROC10: Roller application or brushing  
CS98: Roller, spreader, flow application

PROC10: Roller application or brushing  
CS98: Roller, spreader, flow application

PROC11: Non industrial spraying  
CS10: Spraying  
CS34: Manual

PROC11: Non industrial spraying  
CS10: Spraying  
CS34: Manual

PROC11: Non industrial spraying  
CS10: Spraying  
CS34: Manual

PROC13: Treatment of articles by dipping and pouring  
CS4: Dipping, immersion and pouring

PROC13: Treatment of articles by dipping and pouring  
CS4: Dipping, immersion and pouring

PROC19: Hand-mixing with intimate contact and only PPE available  
CS72: Hand application - finger-paints, pastels, adhesives

PROC19: Hand-mixing with intimate contact and only PPE available  
CS72: Hand application - finger-paints, pastels, adhesives

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PROC19: Hand-mixing with intimate contact and only PPE available  
 CS72: Hand application - finger-paints, pastels, adhesives

**4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario**

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.  
 Available hazard data do not enable the derivation of a DNEL for dermal irritant effects.  
 Risk Management Measures are based on qualitative risk characterisation.  
 Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.

Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.  
 Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination.  
 Further details on scaling and control technologies are provided in SpERC factsheet (<http://cefic.org/en/reach-for-industries-libraries.html>).

**1. Short title of Exposure Scenario: Use as a cleaning agent – industrial**

Main User Groups	:	<b>SU 3:</b> Industrial uses: Uses of substances as such or in preparations at industrial sites
Sector of use	:	<b>SU3:</b> Industrial Manufacturing (all)
Process category	:	<b>PROC1:</b> Use in closed process, no likelihood of exposure <b>PROC2:</b> Use in closed, continuous process with occasional controlled exposure <b>PROC3:</b> Use in closed batch process (synthesis or formulation) <b>PROC4:</b> Use in batch and other process (synthesis) where opportunity for exposure arises <b>PROC7:</b> Industrial spraying <b>PROC8a:</b> Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities <b>PROC8b:</b> Transfer of substance or preparation (charging/discharging) from/ to vessels/ large containers at dedicated facilities <b>PROC10:</b> Roller application or brushing <b>PROC13:</b> Treatment of articles by dipping and pouring
Environmental release category	:	<b>ERC4:</b> Industrial use of processing aids in processes and products, not becoming part of articles
Further information	:	Covers the use as a component of cleaning products including transfer from storage, pouring/unloading from drums or containers. Exposures during mixing/diluting in the preparatory phase and cleaning activities (including spraying, brushing, dipping, wiping, automated and by hand), related equipment cleaning and maintenance.

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**2.1 Contributing scenario controlling environmental exposure for:ERC4: Industrial use of processing aids in processes and products, not becoming part of articles**

Maximum allowable site tonnage : 6.800 tonnes/day  
(MSafe) based on release  
following total wastewater  
treatment removal (tonnes/day):  
(Msafe)

**Environment factors not influenced by risk management**

Flow rate : 18.000 m3/d  
Dilution Factor (River) : 10  
Dilution Factor (Coastal Areas) : 100

**Other given operational conditions affecting environmental exposure**

Continuous use/release  
Number of emission days per year : 20  
Emission or Release Factor: Air : 100 %  
Emission or Release Factor: Soil : 0 %  
Remarks : Emission or Release Factor: Water : < 0.001 %

**Technical conditions and measures / Organizational measures**

Air : Treat air emission to provide a typical removal efficiency of (%) (Effectiveness: 70 %)  
Water : Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of ≥ (%): (Effectiveness: 0 %)  
Water : If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of ≥ (%): (Effectiveness: 0 %)  
Remarks : Common practices vary across sites thus conservative process release estimates used.  
Remarks : Prevent discharge of undissolved substance to or recover from onsite wastewater.  
Remarks : Risk from environmental exposure is driven by freshwater.  
Remarks : No wastewater treatment required.

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

Type of Sewage Treatment Plant : Municipal sewage treatment plant  
Flow rate of sewage treatment plant effluent : 2.000 m3/d  
Effectiveness (of a measure) : 96,3 %  
Percentage removed from waste water : 96,3 %

**Conditions and measures related to external treatment of waste for disposal**

Remarks : External treatment and disposal of waste should comply with applicable local and/or national regulations.

**Conditions and measures related to external recovery of waste**

Recovery Methods : External recovery and recycling of waste should comply with applicable local and/or national regulations.

**2.2 Contributing scenario controlling worker exposure for: PROC2, PROC3: Use in closed, continuous process with occasional controlled exposure, Use in closed batch process (synthesis or formulation)**

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**Product characteristics**

Physical Form (at time of use) : Liquid substance  
 Vapor pressure : 2,8 kPa

**Amount used**

Remarks : No limit

**Frequency and duration of use**

Remarks : Covers daily exposures up to 8 hours (unless stated differently)

**Other operational conditions affecting workers exposure**

Remarks : Assumes use at not more than 20°C above ambient temperature, unless stated differently., Assumes a good basic standard of occupational hygiene is implemented.

**Organizational measures to prevent /limit releases, dispersion and exposure**

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop., No specific measures identified.

**2.2 Contributing scenario controlling worker exposure for: PROC4, PROC13: Use in batch and other process (synthesis) where opportunity for exposure arises, Treatment of articles by dipping and pouring****Product characteristics**

Physical Form (at time of use) : Liquid substance  
 Vapor pressure : 2,8 kPa

**Amount used**

Remarks : No limit

**Frequency and duration of use**

Remarks : Covers daily exposures up to 8 hours (unless stated differently)

**Other operational conditions affecting workers exposure**

Remarks : Assumes a good basic standard of occupational hygiene is implemented., Assumes use at not more than 20°C above ambient temperature, unless stated differently.

**Technical conditions and measures**

Provide extraction ventilation at points where emissions occur.

**Organizational measures to prevent /limit releases, dispersion and exposure**

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop.

**2.2 Contributing scenario controlling worker exposure for: PROC7: Industrial spraying****Product characteristics**

Physical Form (at time of use) : Liquid substance  
 Vapor pressure : 2,8 kPa



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**Amount used**

Remarks : No limit

**Frequency and duration of use**

Remarks : Covers daily exposures up to 8 hours (unless stated differently)

**Other operational conditions affecting workers exposure**

Remarks : Assumes a good basic standard of occupational hygiene is implemented., Assumes use at not more than 20°C above ambient temperature, unless stated differently.

**Technical conditions and measures**

Provide enhanced general ventilation by mechanical means.

**Organizational measures to prevent /limit releases, dispersion and exposure**

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop., Avoid carrying out operation for more than 4 hours.

**Conditions and measures related to personal protection, hygiene and health evaluation**

Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training., Wear a respirator conforming to EN140 with Type A filter or better.

**2.2 Contributing scenario controlling worker exposure for: PROC8a, PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities, Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities**
**Product characteristics**

Physical Form (at time of use) : Liquid substance  
 Vapor pressure : 2,8 kPa

**Amount used**

Remarks : No limit

**Frequency and duration of use**

Remarks : Covers daily exposures up to 8 hours (unless stated differently)

**Other operational conditions affecting workers exposure**

Remarks : Assumes a good basic standard of occupational hygiene is implemented., Assumes use at not more than 20°C above ambient temperature, unless stated differently.

**Organizational measures to prevent /limit releases, dispersion and exposure**

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop.

**Conditions and measures related to personal protection, hygiene and health evaluation**

Wear suitable gloves tested to EN374.

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**2.2 Contributing scenario controlling worker exposure for: PROC10: Roller application or brushing****Product characteristics**

Physical Form (at time of use) : Liquid substance  
 Vapor pressure : 2,8 kPa

**Amount used**

Remarks : No limit

**Frequency and duration of use**

Remarks : Covers daily exposures up to 8 hours (unless stated differently)

**Other operational conditions affecting workers exposure**

Remarks : Assumes a good basic standard of occupational hygiene is implemented., Assumes use at not more than 20°C above ambient temperature, unless stated differently.

**Organizational measures to prevent /limit releases, dispersion and exposure**

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop.

**Conditions and measures related to personal protection, hygiene and health evaluation**

Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.

**3. Exposure estimation and reference to its source****Environment**

Contributing Scenario	Exposure Assessment Method	Specific conditions	Compartment	Value type	Level of Exposure	Risk characterization ratio (PEC/PNEC):
ERC4	Hydrocarbon Block Method with Petrorisk		Air		4,6 µg/m3	
			Fresh water		5,7 ng/L	0,00015
			Freshwater sediment		99 ng/kg	0,00007
			Marine water		0,000056 µg/L	< 0,000015
			Marine sediment		2,4 ng/kg	< 0,000017
			Agricultural soil		42 ng/kg	< 0,000091

ERC4: Industrial use of processing aids in processes and products, not becoming part of articles

**Workers/Consumers**

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value type	Level of Exposure	Risk characterization ratio (PEC/PNEC):
PROC2, CS93, CS38	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	46,72 mg/m3	0,023
			Worker – dermal, long-term – systemic	1,37 mg/kg/d	0,002
			Worker – long-term – systemic Combined routes		0,025
PROC3, CS8, CS93, CS101	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	116,79 mg/m3	0,057

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			Worker – dermal, long-term – systemic	0,34 mg/kg/d	0,000
			Worker – long-term – systemic Combined routes		0,058
PROC4, CS37	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	9,34 mg/m3	0,005
			Worker – dermal, long-term – systemic	0,686 mg/kg/d	0,001
			Worker – long-term – systemic Combined routes		0,005
PROC13, CS41	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	23,86 mg/m3	0,011
			Worker – dermal, long-term – systemic	0,6855 mg/kg/d	0,001
			Worker – long-term – systemic Combined routes		0,0012
PROC7, CS44	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	210,22 mg/m3	0,103
			Worker – dermal, long-term – systemic	4,286 mg/kg/d	0,006
			Worker – long-term – systemic Combined routes		0,109
PROC7, CS44	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	35,04 mg/m3	0,017
			Worker – dermal, long-term – systemic	4,286 mg/kg/d	0,006
			Worker – long-term – systemic Combined routes		0,023
PROC8b, CS14	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	233,58 mg/m3	0,115
			Worker – dermal, long-term – systemic	2,742 mg/kg/d	0,004
			Worker – long-term – systemic Combined routes		0,118
PROC8b, CS45	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	233,58 mg/m3	0,115
			Worker – dermal, long-term – systemic	1,372 mg/kg/d	0,002
			Worker – long-term – systemic Combined routes		0,117
PROC10, CS34, CS42, CS48, CS47	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	233,58 mg/m3	0,115
			Worker – dermal, long-term – systemic	2,743 mg/kg/d	0,004
			Worker – long-term – systemic Combined routes		0,118

PROC2: Use in closed, continuous process with occasional controlled exposure

CS93: Automated process with (semi) closed systems.

CS38: Use in contained systems

PROC3: Use in closed batch process (synthesis or formulation)

CS8: Drum/batch transfers

CS93: Automated process with (semi) closed systems.

CS101: Application of cleaning products in closed systems

PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises

CS37: Use in contained batch processes

PROC13: Treatment of articles by dipping and pouring

CS41: Degreasing small objects in cleaning station

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PROC7: Industrial spraying  
CS44: Cleaning with high pressure washers

PROC7: Industrial spraying  
CS44: Cleaning with high pressure washers

PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities  
CS14: Bulk transfers

PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities  
CS45: Filling/ preparation of equipment from drums or containers.

PROC10: Roller application or brushing  
CS34: Manual  
CS42: Cleaning with low-pressure washers  
CS48: Surfaces  
CS47: Cleaning

**4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario**

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.  
Available hazard data do not enable the derivation of a DNEL for dermal irritant effects.  
Risk Management Measures are based on qualitative risk characterisation.  
Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.

Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.  
Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination.  
Further details on scaling and control technologies are provided in SpERC factsheet (<http://cefic.org/en/reach-for-industries-libraries.html>).

**1. Short title of Exposure Scenario: Use as a cleaning agent – professional**

Main User Groups	: <b>SU 22:</b> Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Sector of use	: <b>SU 22:</b> Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Process category	: <b>PROC1:</b> Use in closed process, no likelihood of exposure <b>PROC2:</b> Use in closed, continuous process with occasional controlled exposure <b>PROC3:</b> Use in closed batch process (synthesis or formulation) <b>PROC4:</b> Use in batch and other process (synthesis) where opportunity for exposure arises <b>PROC8a:</b> Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities <b>PROC8b:</b> Transfer of substance or preparation (charging/

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	discharging) from/ to vessels/ large containers at dedicated facilities <b>PROC10:</b> Roller application or brushing <b>PROC11:</b> Non industrial spraying <b>PROC13:</b> Treatment of articles by dipping and pouring
Environmental release category	: <b>ERC8a, ERC8d:</b> Wide dispersive indoor use of processing aids in open systems, Wide dispersive outdoor use of processing aids in open systems
Further information	: Covers the use as a component of cleaning products including pouring/unloading from drums or containers; and exposures during mixing/diluting in the preparatory phase and cleaning activities (including spraying, brushing, dipping, wiping automated and by hand).

**2.1 Contributing scenario controlling environmental exposure for:ERC8a, ERC8d: Wide dispersive indoor use of processing aids in open systems, Wide dispersive outdoor use of processing aids in open systems**

Maximum allowable site tonnage : 210  
(MSafe) based on release  
following total wastewater  
treatment removal (kg/d):(Msafe)

**Environment factors not influenced by risk management**

Flow rate : 18.000 m3/d  
Dilution Factor (River) : 10  
Dilution Factor (Coastal Areas) : 100

**Other given operational conditions affecting environmental exposure**

Continuous use/release  
Number of emission days per year : 365  
Emission or Release Factor: Air : 2 %  
Emission or Release Factor: Soil : 0 %  
Remarks : Emission or Release Factor: Water : < 0.001 %

**Technical conditions and measures / Organizational measures**

Air : Treat air emission to provide a typical removal efficiency of (%):  
Remarks : Not applicable  
Water : Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of  $\geq$  (%):  
(Effectiveness: 0 %)  
Water : If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of  $\geq$  (%):  
(Effectiveness: 0 %)  
Remarks : Common practices vary across sites thus conservative process release estimates used.

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

Type of Sewage Treatment Plant : Municipal sewage treatment plant  
Flow rate of sewage treatment plant effluent : 2.000 m3/d  
Effectiveness (of a measure) : 96,3 %

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Percentage removed from waste water : 96,3 %  
 Sludge Treatment : No data available  
 Procedures to limit air emissions from Sewage Treatment Plant : No data available

**Conditions and measures related to external treatment of waste for disposal**

Remarks : External treatment and disposal of waste should comply with applicable local and/or national regulations.

**Conditions and measures related to external recovery of waste**

Recovery Methods : External recovery and recycling of waste should comply with applicable local and/or national regulations.

**2.2 Contributing scenario controlling worker exposure for: PROC2, PROC3: Use in closed, continuous process with occasional controlled exposure, Use in closed batch process (synthesis or formulation)****Product characteristics**

Physical Form (at time of use) : Liquid substance  
 Vapor pressure : 2,8 kPa

**Amount used**

Remarks : No limit

**Frequency and duration of use**

Remarks : Covers daily exposures up to 8 hours (unless stated differently)

**Other operational conditions affecting workers exposure**

Remarks : Assumes use at not more than 20°C above ambient temperature, unless stated differently., Assumes a good basic standard of occupational hygiene is implemented.

**Organizational measures to prevent /limit releases, dispersion and exposure**

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop., No specific measures identified.

**2.2 Contributing scenario controlling worker exposure for: PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises****Product characteristics**

Physical Form (at time of use) : Liquid substance  
 Vapor pressure : 2,8 kPa

**Amount used**

Remarks : No limit

**Frequency and duration of use**

Remarks : Covers daily exposures up to 8 hours (unless stated differently)

**Other operational conditions affecting workers exposure**

Remarks : Assumes use at not more than 20°C above ambient temperature, unless stated differently., Assumes a good basic standard of occupational hygiene is implemented.

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**Technical conditions and measures**

Provide enhanced general ventilation by mechanical means., Ensure operation is undertaken outdoors.

**Organizational measures to prevent /limit releases, dispersion and exposure**

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop.

**Conditions and measures related to personal protection, hygiene and health evaluation**

Wear suitable gloves tested to EN374.

**2.2 Contributing scenario controlling worker exposure for: PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities****Product characteristics**

Physical Form (at time of use) : Liquid substance  
Vapor pressure : 2,8 kPa

**Amount used**

Remarks : No limit

**Frequency and duration of use**

Remarks : Covers daily exposures up to 8 hours (unless stated differently)

**Other operational conditions affecting workers exposure**

Remarks : Assumes use at not more than 20°C above ambient temperature, unless stated differently., Assumes a good basic standard of occupational hygiene is implemented.

**Technical conditions and measures**

Ensure operation is undertaken outdoors.

**Organizational measures to prevent /limit releases, dispersion and exposure**

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop.

**Conditions and measures related to personal protection, hygiene and health evaluation**

Wear suitable gloves tested to EN374.

**2.2 Contributing scenario controlling worker exposure for: PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities****Product characteristics**

Physical Form (at time of use) : Liquid substance  
Vapor pressure : 2,8 kPa

**Amount used**

Remarks : No limit

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**Frequency and duration of use**

Remarks : Covers daily exposures up to 8 hours (unless stated differently)

**Other operational conditions affecting workers exposure**

Remarks : Assumes use at not more than 20°C above ambient temperature, unless stated differently., Assumes a good basic standard of occupational hygiene is implemented.

**Organizational measures to prevent /limit releases, dispersion and exposure**

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop.

**Conditions and measures related to personal protection, hygiene and health evaluation**

Wear suitable gloves tested to EN374.

**2.2 Contributing scenario controlling worker exposure for: PROC10: Roller application or brushing****Product characteristics**

Physical Form (at time of use) : Liquid substance  
Vapor pressure : 2,8 kPa

**Amount used**

Remarks : No limit

**Frequency and duration of use**

Remarks : Covers daily exposures up to 8 hours (unless stated differently)

**Other operational conditions affecting workers exposure**

Remarks : Assumes use at not more than 20°C above ambient temperature, unless stated differently., Assumes a good basic standard of occupational hygiene is implemented.

**Technical conditions and measures**

Ensure doors and windows are opened, Provide enhanced general ventilation by mechanical means., Provide extraction ventilation at points where emissions occur.

**Organizational measures to prevent /limit releases, dispersion and exposure**

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop., Limit the substance content in the product to 25%

**Conditions and measures related to personal protection, hygiene and health evaluation**

Wear suitable gloves tested to EN374., Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.

**2.2 Contributing scenario controlling worker exposure for: PROC11: Non industrial spraying****Product characteristics**

SDS Number:100000014063

96/143



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Physical Form (at time of use) : Liquid substance  
 Vapor pressure : 2,8 kPa

**Amount used**

Remarks : No limit

**Frequency and duration of use**

Remarks : Covers daily exposures up to 8 hours (unless stated differently)

**Other operational conditions affecting workers exposure**

Remarks : Assumes use at not more than 20°C above ambient temperature, unless stated differently., Assumes a good basic standard of occupational hygiene is implemented.

**Technical conditions and measures**

Provide enhanced general ventilation by mechanical means., Ensure operation is undertaken outdoors.

**Organizational measures to prevent /limit releases, dispersion and exposure**

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop., Limit the substance content in the product to 1%, Limit the substance content in the product to 5%

**Conditions and measures related to personal protection, hygiene and health evaluation**

Wear suitable gloves tested to EN374.

**2.2 Contributing scenario controlling worker exposure for: PROC13: Treatment of articles by dipping and pouring****Product characteristics**

Physical Form (at time of use) : Liquid substance  
 Vapor pressure : 2,8 kPa

**Amount used**

Remarks : No limit

**Frequency and duration of use**

Remarks : Covers daily exposures up to 8 hours (unless stated differently)

**Other operational conditions affecting workers exposure**

Remarks : Assumes use at not more than 20°C above ambient temperature, unless stated differently., Assumes a good basic standard of occupational hygiene is implemented.

**Technical conditions and measures**

Provide enhanced general ventilation by mechanical means.

**Organizational measures to prevent /limit releases, dispersion and exposure**

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop.

**Conditions and measures related to personal protection, hygiene and health evaluation**

Wear suitable gloves tested to EN374.

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**3. Exposure estimation and reference to its source****Environment**

Contributing Scenario	Exposure Assessment Method	Specific conditions	Compartment	Value type	Level of Exposure	Risk characterization ratio (PEC/PNEC):
ERC8a, ERC8d	Hydrocarbon Block Method with Petrorisk		Air		74 ng/m3	
			Fresh water		5,1 ng/L	0,00013
			Fresh water sediment		75 ng/kg	0,000053
			Marine water		0,017 ng/L	< 0,000033
			Marine sediment		0,16 ng/kg	< 0,000012
			Agricultural soil		1,2 ng/kg	< 0,000034

ERC8a: Wide dispersive indoor use of processing aids in open systems

ERC8d: Wide dispersive outdoor use of processing aids in open systems

**Workers/Consumers**

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value type	Level of Exposure	Risk characterization ratio (PEC/PNEC):
PROC2, CS93, CS38	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	93,43 mg/m3	0,046
			Worker – dermal, long-term – systemic	1,37 mg/kg/d	0,002
			Worker – long-term – systemic Combined routes		0,048
PROC3, CS8, CS38, CS93	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	116,79 mg/m3	0,057
			Worker – dermal, long-term – systemic	0,34 mg/kg/d	0,000
			Worker – long-term – systemic Combined routes		0,058
PROC4, CS76	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	70,07 mg/m3	0,034
			Worker – dermal, long-term – systemic	1,372 mg/kg/d	0,002
			Worker – long-term – systemic Combined routes		0,036
PROC4, CS101	ECETOC TRA Modified	Outdoor	Worker – inhalation, long-term – systemic	163,51 mg/m3	0,080
			Worker – dermal, long-term – systemic	1,372 mg/kg/d	0,002
			Worker – long-term – systemic Combined routes		0,082
PROC4, CS74	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	233,58 mg/m3	0,115
			Worker – dermal, long-term – systemic	6,86 mg/kg/d	0,009
			Worker – long-term – systemic Combined routes		0,124
PROC8a, CS45	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	327,01 mg/m3	0,161
			Worker – dermal, long-term – systemic	2,742 mg/kg/d	0,004
			Worker – long-term – systemic Combined		0,164

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			routes		
PROC8b, CS45	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	233,58 mg/m3	0,115
			Worker – dermal, long-term – systemic	1,372 mg/kg/d	0,002
			Worker – long-term – systemic Combined routes		0,117
PROC10, CS42, CS51, CS60	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	140,15 mg/m3	0,069
			Worker – dermal, long-term – systemic	5,486 mg/kg/d	0,007
			Worker – long-term – systemic Combined routes		0,076
PROC10, CS10, CS34, CS47, CS48	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	140,15 mg/m3	0,069
			Worker – dermal, long-term – systemic	2,743 mg/kg/d	0,004
			Worker – long-term – systemic Combined routes		0,072
PROC10, CS27, CS51	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	56,06 mg/m3	0,028
			Worker – dermal, long-term – systemic	0,8229 mg/kg/d	0,001
			Worker – long-term – systemic Combined routes		0,142
PROC10, CS27, CS51	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	280,29 mg/m3	0,138
			Worker – dermal, long-term – systemic	3,2916 mg/kg/d	0,004
			Worker – inhalation, long-term – systemic		0,142
PROC11, CS44, CS10	ECETOC TRA Modified	Indoor	Worker – inhalation, long-term – systemic	140,15 mg/m3	0,069
			Worker – dermal, long-term – systemic	4,2856 mg/kg/d	0,006
			Worker – long-term – systemic Combined routes		0,074
PROC11, CS44, CS10	ECETOC TRA Modified	Outdoor	Worker – inhalation, long-term – systemic	163,51 mg/m3	0,080
			Worker – dermal, long-term – systemic	2,1428 mg/kg/d	0,003
			Worker – long-term – systemic Combined routes		0,083
PROC11, CS10, CS44	ECETOC TRA Modified	Outdoor	Worker – inhalation, long-term – systemic	327,01 mg/m3	0,161
			Worker – dermal, long-term – systemic	4,2856 mg/kg/d	0,006
			Worker – long-term – systemic Combined routes		0,166
PROC13, CS4, CS34, CS47, CS48	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	140,15 mg/m3	0,069
			Worker – dermal, long-term – systemic	2,742 mg/kg/d	0,004
			Worker – long-term – systemic Combined routes		0,072

PROC2: Use in closed, continuous process with occasional controlled exposure

CS93: Automated process with (semi) closed systems.

CS38: Use in contained systems

PROC3: Use in closed batch process (synthesis or formulation)

CS8: Drum/batch transfers

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CS38: Use in contained systems

CS93: Automated process with (semi) closed systems.

PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises

CS76: Semi Automated process. (e.g.: Semi automatic application of floor care and maintenance products)

PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises

CS101: Application of cleaning products in closed systems

PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises

CS74: Cleaning of medical devices

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

CS45: Filling/ preparation of equipment from drums or containers.

PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities

CS45: Filling/ preparation of equipment from drums or containers.

PROC10: Roller application or brushing

CS42: Cleaning with low-pressure washers

CS51: Rolling, Brushing

CS60: no spraying

PROC10: Roller application or brushing

CS10: Spraying

CS34: Manual

CS47: Cleaning

CS48: Surfaces

PROC10: Roller application or brushing

CS27: Ad hoc manual application via trigger sprays, dipping, etc.

CS51: Rolling, Brushing

PROC10: Roller application or brushing

CS27: Ad hoc manual application via trigger sprays, dipping, etc.

CS51: Rolling, Brushing

PROC11: Non industrial spraying

CS44: Cleaning with high pressure washers

CS10: Spraying

PROC11: Non industrial spraying

CS44: Cleaning with high pressure washers

CS10: Spraying

PROC11: Non industrial spraying

CS10: Spraying

CS44: Cleaning with high pressure washers

PROC13: Treatment of articles by dipping and pouring

CS4: Dipping, immersion and pouring

CS34: Manual

CS47: Cleaning

CS48: Surfaces

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**4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario**

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.  
Available hazard data do not enable the derivation of a DNEL for dermal irritant effects.  
Risk Management Measures are based on qualitative risk characterisation.  
Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.

Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.

Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination.

Further details on scaling and control technologies are provided in SpERC factsheet (<http://cefic.org/en/reach-for-industries-libraries.html>).

**1. Short title of Exposure Scenario: Use as a cleaning agent – consumer**

Main User Groups	:	<b>SU 21:</b> Consumer uses: Private households (= general public = consumers)
Sector of use	:	<b>SU 21:</b> Consumer uses: Private households (= general public = consumers)
Product category	:	<b>PC3:</b> Air care products <b>PC4:</b> Anti-Freeze and de-icing products <b>PC8:</b> Biocidal products (e.g. Disinfectants, pest control) <b>PC9a:</b> Coatings and paints, thinners, paint removers <b>PC9b:</b> Fillers, putties, plasters, modelling clay <b>PC9c:</b> Finger paints <b>PC24:</b> Lubricants, greases, release products <b>PC35:</b> Washing and cleaning products (including solvent based products) <b>PC38:</b> Welding and soldering products (with flux coatings or flux cores.), flux products
Environmental release category	:	<b>ERC8a, ERC8d:</b> Wide dispersive indoor use of processing aids in open systems, Wide dispersive outdoor use of processing aids in open systems
Further information	:	Covers general exposures to consumers arising from the use of household products sold as washing and cleaning products, aerosols, coatings, de-icers, lubricants and air care products.

**2.1 Contributing scenario controlling environmental exposure for:ERC8a, ERC8d: Wide dispersive indoor use of processing aids in open systems, Wide dispersive outdoor use of processing aids in open systems****Product characteristics**

Maximum allowable site tonnage : 160  
(MSafe) based on release

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following total wastewater  
treatment removal (kg/d): (Msafe)

**Environment factors not influenced by risk management**

Flow rate : 18.000 m3/d  
Dilution Factor (River) : 10  
Dilution Factor (Coastal Areas) : 100

**Other given operational conditions affecting environmental exposure**

Continuous use/release  
Number of emission days per year : 365  
Emission or Release Factor: Air : 95 %  
Emission or Release Factor: Water : 2,5 %  
Emission or Release Factor: Soil : 2,5 %

**Technical conditions and measures / Organizational measures**

Remarks : Not applicable

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

Type of Sewage Treatment Plant : Municipal sewage treatment plant  
Flow rate of sewage treatment : 2.000 m3/d  
plant effluent  
Percentage removed from waste : 96,3 %  
water  
Sludge Treatment : No data available  
Procedures to limit air emissions : No data available  
from Sewage Treatment Plant

**Conditions and measures related to external treatment of waste for disposal**

Waste treatment : External treatment and disposal of waste should comply with applicable local and/or national regulations.

**Conditions and measures related to external recovery of waste**

Recovery Methods : External recovery and recycling of waste should comply with applicable local and/or national regulations.

**2.2 Contributing scenario controlling consumer exposure for: PC3, PC4, PC8, PC9, PC24, PC35, PC38: Air care products, Anti-Freeze and de-icing products, Biocidal products (e.g. Disinfectants, pest control), Coatings and Paints, Fillers, Putties, Thinners, Lubricants, greases, release products, Washing and cleaning products (including solvent based products), Welding and soldering products (with flux coatings or flux cores.), flux products**

**Product characteristics**

Physical Form (at time of use) : Liquid substance

**Amount used**

: 13800 g

**Frequency and duration of use**

Exposure duration : 8 h  
Frequency of use : 4 times/day

**Human factors not influenced by risk management**

Exposed skin area : Skin  
: 857,5 cm2

**Other given operational conditions affecting consumers exposure**

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Room size : 20 M3  
 Remarks : Unless otherwise stated assumes use at ambient temperatures, Assumes use with typical ventilation.

**Conditions and measures related to protection of consumer (e.g. behavioral advice, personal protection and hygiene)**

Remarks : No specific Risk Management Measures identified beyond those Operational Conditions stated.

**2.2 Contributing scenario controlling consumer exposure for: PC3: Air care products****Product characteristics**

Concentration of the Substance in Mixture/Article :  
 Remarks : Air care, instant action (aerosol sprays)

Concentration of the Substance in Mixture/Article :  
 Remarks : Air care, continuous action (solid and liquid)

**Amount used**

Remarks : 0,1 g  
 : Air care, instant action (aerosol sprays)  
 Remarks : 0,48 g  
 : Air care, continuous action (solid and liquid)

**Frequency and duration of use**

Exposure duration : 0,25 h  
 Frequency of use : 4 times/day  
 Remarks : Air care, instant action (aerosol sprays)  
 Exposure duration : 8 h  
 Frequency of use : 1 times/day  
 Remarks : Air care, continuous action (solid and liquid)

**Human factors not influenced by risk management**

Exposed skin area : Skin  
 : 35,70 cm2  
 Remarks : Air care, continuous action (solid and liquid)

**Other given operational conditions affecting consumers exposure**

Outdoor / Indoor : Indoor activities  
 Room size : 20 M3  
 Ventilation rate per hour : 0,6  
 Remarks : Air care, instant action (aerosol sprays)

Outdoor / Indoor : Indoor activities  
 Room size : 20 M3  
 Ventilation rate per hour : 0,6  
 Remarks : Air care, instant action (aerosol sprays)

Use frequency : 365 days/year  
 Remarks : Air care, instant action (aerosol sprays)  
 Use frequency : 365 days/year  
 Remarks : Air care, continuous action (solid and liquid)

**Conditions and measures related to protection of consumer (e.g. behavioral advice, personal protection and hygiene)**

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Remarks : No specific Risk Management Measures identified beyond those Operational Conditions stated.

**2.2 Contributing scenario controlling consumer exposure for: PC4: Anti-Freeze and de-icing products****Product characteristics**

Concentration of the Substance in Mixture/Article :  
 Remarks : Washing car window

Concentration of the Substance in Mixture/Article :  
 Remarks : Pouring into radiator

Concentration of the Substance in Mixture/Article :  
 Remarks : Lock de- icer

**Amount used**

Remarks : 0,5 g  
 : Washing car window

Remarks : 2000 g  
 : Pouring into radiator

Remarks : 4 g  
 : Lock de- icer

**Frequency and duration of use**

Exposure duration : 0,02 h  
 Frequency of use : 1 times/day  
 Remarks : Washing car window

Exposure duration : 0,17 h  
 Frequency of use : 1 times/day  
 Remarks : Pouring into radiator

Exposure duration : 0,25 h  
 Frequency of use : 1 times/day  
 Remarks : Lock de- icer

**Human factors not influenced by risk management**

Exposed skin area : Skin  
 : 428,00 cm2  
 Remarks : Pouring into radiator

Exposed skin area : Skin  
 : 214,40 cm2  
 Remarks : Lock de- icer

**Other given operational conditions affecting consumers exposure**

Outdoor / Indoor : Garage  
 Room size : 34 M3  
 Ventilation rate per hour : 1,5  
 Remarks : Washing car window

Outdoor / Indoor : Garage  
 Room size : 34 M3  
 Ventilation rate per hour : 1,5  
 Remarks : Pouring into radiator

Outdoor / Indoor : Garage  
 Room size : 34 M3



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Ventilation rate per hour : 1,5  
 Remarks : Lock de- icer

Use frequency : 365 days/year  
 Remarks : Washing car window

Use frequency : 365 days/year  
 Remarks : Pouring into radiator

Use frequency : 365 days/year  
 Remarks : Lock de- icer

**Conditions and measures related to protection of consumer (e.g. behavioral advice, personal protection and hygiene)**

Remarks : No specific Risk Management Measures identified beyond those Operational Conditions stated.

**2.2 Contributing scenario controlling consumer exposure for: PC8: Biocidal products (e.g. Disinfectants, pest control)****Product characteristics**

Concentration of the Substance in Mixture/Article :  
 Remarks : Laundry and dish washing products

Concentration of the Substance in Mixture/Article :  
 Remarks : Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners)

Concentration of the Substance in Mixture/Article :  
 Remarks : Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners)

**Amount used**

Remarks : 15 g  
 : Laundry and dish washing products

Remarks : 27 g  
 : Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners)

Remarks : 35 g  
 : Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners)

**Frequency and duration of use**

Exposure duration : 0,50 h  
 Frequency of use : 1 times/day  
 Remarks : Laundry and dish washing products

Exposure duration : 0,33 h  
 Frequency of use : 1 times/day  
 Remarks : Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners)

Exposure duration : 0,17 h  
 Frequency of use : 1 times/day  
 Remarks : Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners)

**Human factors not influenced by risk management**

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Exposed skin area	:	Skin
	:	857,50 cm2
Remarks	:	Laundry and dish washing products
Exposed skin area	:	Skin
	:	857,50 cm2
Remarks	:	Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners)
Exposed skin area	:	Skin
	:	428,00 cm2
Remarks	:	Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners)

**Other given operational conditions affecting consumers exposure**

Outdoor / Indoor	:	Indoor activities
Room size	:	20 M3
Ventilation rate per hour	:	0,6
Remarks	:	Laundry and dish washing products
Outdoor / Indoor	:	Indoor activities
Room size	:	20 M3
Ventilation rate per hour	:	0,6
Remarks	:	Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners)
Outdoor / Indoor	:	Indoor activities
Room size	:	20 M3
Ventilation rate per hour	:	0,6
Remarks	:	Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners)
Use frequency	:	365 days/year
Remarks	:	Laundry and dish washing products
Use frequency	:	128 days/year
Remarks	:	Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners)
Use frequency	:	128 days/year
Remarks	:	Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners)

**Conditions and measures related to protection of consumer (e.g. behavioral advice, personal protection and hygiene)**

Remarks	:	No specific Risk Management Measures identified beyond those Operational Conditions stated.
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**2.2 Contributing scenario controlling consumer exposure for: PC9a: Coatings and paints, thinners, paint removers****Product characteristics**

Concentration of the Substance in Mixture/Article	:	
Remarks	:	Waterborne latex wall paint
Concentration of the Substance in Mixture/Article	:	
Remarks	:	Solvent rich, high solid, water borne paint
Concentration of the Substance in Mixture/Article	:	
Remarks	:	Aerosol spray can

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Concentration of the Substance in Mixture/Article :  
 Remarks : Removers (paint-, glue-, wall paper-, sealant-remover)

**Amount used**

Remarks : 2760 g  
 : Waterborne latex wall paint  
 Remarks : 744 g  
 : Solvent rich, high solid, water borne paint  
 Remarks : 215 g  
 : Aerosol spray can  
 Remarks : 491 g  
 : Removers (paint-, glue-, wall paper-, sealant-remover)

**Frequency and duration of use**

Exposure duration : 2,20 h  
 Frequency of use : 1 times/day  
 Remarks : Waterborne latex wall paint  
 Exposure duration : 2,20 h  
 Frequency of use : 1 times/day  
 Remarks : Solvent rich, high solid, water borne paint  
 Exposure duration : 0,33 h  
 Frequency of use : 1 times/day  
 Remarks : Aerosol spray can  
 Exposure duration : 2,00 h  
 Frequency of use : 1 times/day  
 Remarks : Removers (paint-, glue-, wall paper-, sealant-remover)

**Human factors not influenced by risk management**

Exposed skin area : Skin  
 : 428,75 cm2  
 Remarks : Waterborne latex wall paint  
 Exposed skin area : Skin  
 : 428,75 cm2  
 Remarks : Solvent rich, high solid, water borne paint  
 Exposed skin area : Skin  
 : 857,50 cm2  
 Remarks : Removers (paint-, glue-, wall paper-, sealant-remover)

**Other given operational conditions affecting consumers exposure**

Outdoor / Indoor : Indoor activities  
 Room size : 20 M3  
 Ventilation rate per hour : 0,6  
 Remarks : Waterborne latex wall paint  
 Outdoor / Indoor : Indoor activities  
 Room size : 20 M3  
 Ventilation rate per hour : 0,6  
 Remarks : Solvent rich, high solid, water borne paint  
 Outdoor / Indoor : Garage  
 Room size : 34 M3  
 Ventilation rate per hour : 1,5  
 Remarks : Aerosol spray can  
 Outdoor / Indoor : Indoor activities  
 Room size : 20 M3  
 Ventilation rate per hour : 0,6  
 Remarks : Removers (paint-, glue-, wall paper-, sealant-remover)  
 Use frequency : 4 days/year  
 Remarks : Waterborne latex wall paint

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Use frequency	:	6 days/year
Remarks	:	Solvent rich, high solid, water borne paint
Use frequency	:	2 days/year
Remarks	:	Aerosol spray can
Use frequency	:	3 days/year
Remarks	:	Removers (paint-, glue-, wall paper-, sealant-remover)

**Conditions and measures related to protection of consumer (e.g. behavioral advice, personal protection and hygiene)**

Remarks	:	No specific Risk Management Measures identified beyond those Operational Conditions stated.
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**2.2 Contributing scenario controlling consumer exposure for: PC9b, PC9c: Fillers, putties, plasters, modelling clay, Finger paints****Product characteristics**

Concentration of the Substance in Mixture/Article	:	
Remarks	:	Fillers and putty
Concentration of the Substance in Mixture/Article	:	
Remarks	:	Plasters and floor equalizers
Concentration of the Substance in Mixture/Article	:	
Remarks	:	Modeling Clay
Concentration of the Substance in Mixture/Article	:	
Remarks	:	Finger paints

**Amount used**

Remarks	:	85 g
Remarks	:	Fillers and putty
Remarks	:	13800 g
Remarks	:	Plasters and floor equalizers
Remarks	:	1 g
Remarks	:	Modeling Clay
Remarks	:	1,35 g
Remarks	:	Finger paints

**Frequency and duration of use**

Exposure duration	:	4,00 h
Frequency of use	:	1 times/day
Remarks	:	Fillers and putty
Exposure duration	:	2,00 h
Frequency of use	:	1 times/day
Remarks	:	Plasters and floor equalizers

**Human factors not influenced by risk management**

Exposed skin area	:	Skin
Remarks	:	35,73 cm <sup>2</sup>
Exposed skin area	:	Skin
Remarks	:	857,50 cm <sup>2</sup>
Remarks	:	Plasters and floor equalizers

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Exposed skin area : Skin  
 : 254,40 cm2  
 Remarks : Modeling Clay  
 Exposed skin area : Skin  
 : 254,40 cm2  
 Remarks : Finger paints

**Other given operational conditions affecting consumers exposure**

Outdoor / Indoor : Indoor activities  
 Room size : 20 M3  
 Ventilation rate per hour : 0,6  
 Remarks : Fillers and putty  
 Outdoor / Indoor : Indoor activities  
 Room size : 20 M3  
 Ventilation rate per hour : 0,6  
 Remarks : Plasters and floor equalizers

Use frequency : 12 days/year  
 Remarks : Fillers and putty  
 Use frequency : 12 days/year  
 Remarks : Plasters and floor equalizers  
 Use frequency : 365 days/year  
 Remarks : Modeling Clay  
 Use frequency : 365 days/year  
 Remarks : Finger paints

**Conditions and measures related to protection of consumer (e.g. behavioral advice, personal protection and hygiene)**

Remarks : No specific Risk Management Measures identified beyond those Operational Conditions stated.

**2.2 Contributing scenario controlling consumer exposure for: PC24: Lubricants, greases, release products****Product characteristics**

Concentration of the Substance in :  
 Mixture/Article  
 Remarks : Liquid  
 Concentration of the Substance in :  
 Mixture/Article  
 Remarks : Paste  
 Concentration of the Substance in :  
 Mixture/Article  
 Remarks : Sprays

**Amount used**

Remarks : 2200 g  
 : Liquid  
 : 34 g  
 Remarks : Paste  
 : 73 g  
 Remarks : Sprays

**Frequency and duration of use**

Exposure duration : 0,17 h

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Frequency of use : 1 times/day  
 Remarks : Liquid  
 Frequency of use : 1 times/day  
 Remarks : Paste  
 Exposure duration : 0,17 h  
 Frequency of use : 1 times/day  
 Remarks : Sprays

**Human factors not influenced by risk management**

Exposed skin area : Skin  
 : 468 cm2  
 Remarks : Liquid  
 Exposed skin area : Skin  
 : 468 cm2  
 Remarks : Paste  
 Exposed skin area : Skin  
 : 428,75 cm2  
 Remarks : Sprays

**Other given operational conditions affecting consumers exposure**

Outdoor / Indoor : Indoor activities  
 Room size : 34 M3  
 Ventilation rate per hour : 0,6  
 Remarks : Liquid  
 Outdoor / Indoor : Indoor activities  
 Room size : 20 M3  
 Ventilation rate per hour : 0,6  
 Remarks : Sprays  
 Use frequency : 4 days/year  
 Remarks : Liquid  
 Use frequency : 10 days/year  
 Remarks : Paste  
 Use frequency : 6 days/year  
 Remarks : Sprays

**Conditions and measures related to protection of consumer (e.g. behavioral advice, personal protection and hygiene)**

Remarks : No specific Risk Management Measures identified beyond those Operational Conditions stated.

**2.2 Contributing scenario controlling consumer exposure for: PC35, PC38: Washing and cleaning products (including solvent based products), Welding and soldering products (with flux coatings or flux cores.), flux products****Product characteristics**

Concentration of the Substance in :  
 Mixture/Article  
 Remarks Laundry and dish washing products  
 Concentration of the Substance in :  
 Mixture/Article  
 Remarks Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners)  
 Concentration of the Substance in :  
 Mixture/Article  
 Remarks Cleaners, trigger sprays (all purpose cleaners, sanitary

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products, glass cleaners)

Concentration of the Substance in Mixture/Article :  
 Remarks : Welding and soldering products (with flux coatings or flux cores.), flux products

**Amount used**

Remarks : 15 g  
 : Laundry and dish washing products

Remarks : 27 g  
 : Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners)

Remarks : 35 g  
 : Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners)

Remarks : 12 g  
 : Welding and soldering products (with flux coatings or flux cores.), flux products

**Frequency and duration of use**

Exposure duration : 0,50 h  
 Frequency of use : 1 times/day  
 Remarks : Laundry and dish washing products

Exposure duration : 0,33 h  
 Frequency of use : 1 times/day  
 Remarks : Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners)

Exposure duration : 0,17 h  
 Frequency of use : 1 times/day  
 Remarks : Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners)

Exposure duration : 1 h  
 Frequency of use : 1 times/day  
 Remarks : Welding and soldering products (with flux coatings or flux cores.), flux products

**Human factors not influenced by risk management**

Exposed skin area : Skin  
 : 857,50 cm2  
 Remarks : Laundry and dish washing products

Exposed skin area : Skin  
 : 857,50 cm2  
 Remarks : Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners)

Exposed skin area : Skin  
 : 428,00 cm2  
 Remarks : Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners)

**Other given operational conditions affecting consumers exposure**

Outdoor / Indoor : Indoor activities  
 Room size : 20 M3  
 Ventilation rate per hour : 0,6  
 Remarks : Laundry and dish washing products

Outdoor / Indoor : Indoor activities  
 Room size : 20 M3  
 Ventilation rate per hour : 0,6  
 Remarks : Cleaners, liquids (all purpose cleaners, sanitary products, floor

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Outdoor / Indoor	:	cleaners, glass cleaners, carpet cleaners, metal cleaners)
Room size	:	Indoor activities
Ventilation rate per hour	:	20 M3
Remarks	:	0,6
Outdoor / Indoor	:	Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners)
Room size	:	Indoor activities
Ventilation rate per hour	:	20 M3
Remarks	:	0,6
Use frequency	:	365 days/year
Remarks	:	Laundry and dish washing products
Use frequency	:	128 days/year
Remarks	:	Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners)
Use frequency	:	128 days/year
Remarks	:	Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners)
Use frequency	:	365 days/year
Remarks	:	Washing and cleaning products (including solvent based products)

**Conditions and measures related to protection of consumer (e.g. behavioral advice, personal protection and hygiene)**

Remarks : No specific Risk Management Measures identified beyond those Operational Conditions stated.

**3. Exposure estimation and reference to its source****Environment**

Contributing Scenario	Exposure Assessment Method	Specific conditions	Compartment	Value type	Level of Exposure	Risk characterization ratio (PEC/PNEC):
ERC8a, ERC8d	Hydrocarbon Block Method with Petrorisk		Air		0,000074 mg/m3	
			Freshwater		0,0000064 mg/L	0,00017
			Freshwater sediment		0,00013 mg/kg	0,000091
			Marine water		0,0000001 mg/L	0,000003
			Marine sediment		0,0000055 mg/kg	0,000004
			Agricultural soil		0,000023 mg/kg	0,00004

ERC8a: Wide dispersive indoor use of processing aids in open systems

ERC8d: Wide dispersive outdoor use of processing aids in open systems

**Workers/Consumers**

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value type	Level of Exposure	Risk characterization ratio (PEC/PNEC):
PC3, PC3_1	ECETOC TRA Modified		Consumer – dermal, long-term – systemic	0,00 mg/kg/d	0,00
			Consumer – oral, long-	0,00 mg/kg/d	0,00



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			term – systemic		
			Consumer – inhalation, long-term – systemic	0,10 mg/m3	0,00
			Consumer – long-term – systemic Combined routes		0,00
PC3, PC3_2	ECETOC TRA Modified		Consumer – dermal, long-term – systemic	0,00 mg/kg/d	0,00
			Consumer – oral, long-term – systemic	0,00 mg/kg/d	0,00
			Consumer – inhalation, long-term – systemic	0,02 mg/m3	0,00
			Consumer – long-term – systemic Combined routes		0,00
PC4, PC4_1	ECETOC TRA Modified		Consumer – dermal, long-term – systemic	0,00 mg/kg/d	0,00
			Consumer – oral, long-term – systemic	0,00 mg/kg/d	0,00
			Consumer – inhalation, long-term – systemic	0,00 mg/m3	0,00
			Consumer – long-term – systemic Combined routes		0,00
PC4, PC4_2	ECETOC TRA Modified		Consumer – dermal, long-term – systemic	7,13 mg/kg/d	0,01
			Consumer – oral, long-term – systemic	0,00 mg/kg/d	0,00
			Consumer – inhalation, long-term – systemic	0,18 mg/m3	0,00
			Consumer – long-term – systemic Combined routes		0,01
PC4, PC4_3	ECETOC TRA Modified		Consumer – dermal, long-term – systemic	17,87 mg/kg/d	0,03
			Consumer – oral, long-term – systemic	0,00 mg/kg/d	0,00
			Consumer – inhalation, long-term – systemic	0,51 mg/m3	0,00
			Consumer – long-term – systemic Combined routes		0,03
PC8, PC8_1	ECETOC TRA Modified		Consumer – dermal, long-term – systemic	0,07 mg/kg/d	0,00
			Consumer – oral, long-term – systemic	0,00 mg/kg/d	0,00
			Consumer – inhalation, long-term – systemic	0,07 mg/m3	0,00
			Consumer – long-term – systemic Combined routes		0,00
PC8, PC8_2	ECETOC TRA Modified		Consumer – dermal, long-term – systemic	7,15 mg/kg/d	0,01
			Consumer – oral, long-term – systemic	0,00 mg/kg/d	0,00
			Consumer – inhalation, long-term – systemic	0,08 mg/m3	0,00
			Consumer – long-term – systemic Combined routes		0,01
PC8, PC8_3	ECETOC TRA Modified		Consumer – dermal, long-term – systemic	10,70 mg/kg/d	0,02
			Consumer – oral, long-term – systemic	0,00 mg/kg/d	0,00
			Consumer – inhalation, long-term –	1,77 mg/m3	0,00

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			systemic		
			Consumer – long-term – systemic Combined routes		0,02
PC9a, PC9a_1	ECETOC TRA Modified		Consumer – dermal, long-term – systemic	1,07 mg/kg/d	0,00
			Consumer – oral, long-term – systemic	0,00 mg/kg/d	0,00
			Consumer – inhalation, long-term – systemic	10,53 mg/m3	0,02
			Consumer – long-term – systemic Combined routes		0,02
PC9a, PC9a_2	ECETOC TRA Modified		Consumer – dermal, long-term – systemic	19,65 mg/kg/d	0,03
			Consumer – oral, long-term – systemic	0,00 mg/kg/d	0,00
			Consumer – inhalation, long-term – systemic	52,06 mg/m3	0,09
			Consumer – long-term – systemic Combined routes		0,11
PC9a, PC9a_3	ECETOC TRA Modified		Consumer – dermal, long-term – systemic	0,00 mg/kg/d	0,00
			Consumer – oral, long-term – systemic	0,00 mg/kg/d	0,00
			Consumer – inhalation, long-term – systemic	34,29 mg/m3	0,06
			Consumer – long-term – systemic Combined routes		0,06
PC9a, PC9a_4	ECETOC TRA Modified		Consumer – dermal, long-term – systemic	71,46 mg/kg/d	0,10
			Consumer – oral, long-term – systemic	0,00 mg/kg/d	0,00
			Consumer – inhalation, long-term – systemic	59,57 mg/m3	0,10
			Consumer – long-term – systemic Combined routes		0,20
PC9b, PC9b_1	ECETOC TRA Modified		Consumer – dermal, long-term – systemic	0,12 mg/kg/d	0,00
			Consumer – oral, long-term – systemic	0,00 mg/kg/d	0,00
			Consumer – inhalation, long-term – systemic	0,54 mg/m3	0,00
			Consumer – long-term – systemic Combined routes		0,00
PC9b, PC9b_2	ECETOC TRA Modified		Consumer – dermal, long-term – systemic	2,86 mg/kg/d	0,00
			Consumer – oral, long-term – systemic	0,00 mg/kg/d	0,00
			Consumer – inhalation, long-term – systemic	66,97 mg/m3	0,11
			Consumer – long-term – systemic Combined routes		0,11
PC9b, PC9b_3	ECETOC TRA Modified		Consumer – dermal, long-term – systemic	2,54 mg/kg/d	0,00
			Consumer – oral, long-term – systemic	1,00 mg/kg/d	0,00
			Consumer – long-term – systemic Combined routes		0,01
PC9c	ECETOC TRA Modified		Consumer – dermal, long-term – systemic	127,20 mg/kg/d	0,18

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			Consumer – oral, long-term – systemic	67,50 mg/kg/d	0,10
			Consumer – long-term – systemic Combined routes		0,28
PC24, PC24_1	ECETOC TRA Modified		Consumer – dermal, long-term – systemic	78,00 mg/kg/d	0,11
			Consumer – oral, long-term – systemic	0,00 mg/kg/d	0,00
			Consumer – inhalation, long-term – systemic	0,40 mg/m3	0,00
			Consumer – long-term – systemic Combined routes		0,11
PC24, PC24_2	ECETOC TRA Modified		Consumer – dermal, long-term – systemic	15,60 mg/kg/d	0,02
			Consumer – oral, long-term – systemic	0,00 mg/kg/d	0,00
			Consumer – long-term – systemic Combined routes		0,02
PC24, PC24_3	ECETOC TRA Modified		Consumer – dermal, long-term – systemic	35,73 mg/kg/d	0,05
			Consumer – oral, long-term – systemic	0,00 mg/kg/d	0,00
			Consumer – inhalation, long-term – systemic	12,29 mg/m3	0,02
			Consumer – long-term – systemic Combined routes		0,07
PC35, PC35_1	ECETOC TRA Modified		Consumer – dermal, long-term – systemic	0,07 mg/kg/d	0,00
			Consumer – oral, long-term – systemic	0,00 mg/kg/d	0,00
			Consumer – inhalation, long-term – systemic	0,07 mg/m3	0,00
			Consumer – long-term – systemic Combined routes		0,00
PC35, PC35_2	ECETOC TRA Modified		Consumer – dermal, long-term – systemic	7,15 mg/kg/d	0,01
			Consumer – oral, long-term – systemic	0,00 mg/kg/d	0,00
			Consumer – inhalation, long-term – systemic	0,08 mg/m3	0,00
			Consumer – long-term – systemic Combined routes		0,01
PC35, PC35_3	ECETOC TRA Modified		Consumer – dermal, long-term – systemic	10,70 mg/kg/d	0,02
			Consumer – oral, long-term – systemic	0,00 mg/kg/d	0,00
			Consumer – inhalation, long-term – systemic	1,77 mg/m3	0,00
			Consumer – long-term – systemic Combined routes		0,02
PC38	ECETOC TRA Modified		Consumer – dermal, long-term – systemic	0,00 mg/kg/d	0,00
			Consumer – oral, long-term – systemic	0,00 mg/kg/d	0,00
			Consumer – inhalation, long-term – systemic	0,38 mg/m3	0,00
			Consumer – long-term – systemic Combined routes		0,00

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PC3: Air care products  
PC3\_1: Air care, instant action (aerosol sprays)

PC3: Air care products  
PC3\_2: Air care, continuous action (solid and liquid)

PC4: Anti-Freeze and de-icing products  
PC4\_1: Washing car window

PC4: Anti-Freeze and de-icing products  
PC4\_2: Pouring into radiator

PC4: Anti-Freeze and de-icing products  
PC4\_3: Lock de- icer

PC8: Biocidal products (e.g. Disinfectants, pest control)  
PC8\_1: Laundry and dish washing products

PC8: Biocidal products (e.g. Disinfectants, pest control)  
PC8\_2: Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners)

PC8: Biocidal products (e.g. Disinfectants, pest control)  
PC8\_3: Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners)

PC9a: Coatings and paints, thinners, paint removers  
PC9a\_1: Waterborne latex wall paint

PC9a: Coatings and paints, thinners, paint removers  
PC9a\_2: Solvent rich, high solid, water borne paint

PC9a: Coatings and paints, thinners, paint removers  
PC9a\_3: Aerosol spray can

PC9a: Coatings and paints, thinners, paint removers  
PC9a\_4: Removers (paint-, glue-, wall paper-, sealant-remover)

PC9b: Fillers, putties, plasters, modelling clay  
PC9b\_1: Fillers and putty

PC9b: Fillers, putties, plasters, modelling clay  
PC9b\_2: Plasters and floor equalizers

PC9b: Fillers, putties, plasters, modelling clay  
PC9b\_3: Modeling Clay

PC9c: Finger paints

PC24: Lubricants, greases, release products  
PC24\_1: Liquid

PC24: Lubricants, greases, release products  
PC24\_2: Paste

PC24: Lubricants, greases, release products  
PC24\_3: Sprays

PC35: Washing and cleaning products (including solvent based products)  
PC35\_1: Laundry and dish washing products

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PC35: Washing and cleaning products (including solvent based products)  
 PC35\_2: Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners)

PC35: Washing and cleaning products (including solvent based products)  
 PC35\_3: Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners)

PC38: Welding and soldering products (with flux coatings or flux cores.), flux products

**4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario**

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.  
 Available hazard data do not enable the derivation of a DNEL for dermal irritant effects.  
 Risk Management Measures are based on qualitative risk characterisation.  
 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.

Further details on scaling and control technologies are provided in SpERC factsheet (<http://cefic.org/en/reach-for-industries-libraries.html>).

**1. Short title of Exposure Scenario: Use in Coatings - Consumer**

Main User Groups	: <b>SU 21:</b> Consumer uses: Private households (= general public = consumers)
Sector of use	: <b>SU 21:</b> Consumer uses: Private households (= general public = consumers)
Product category	: <b>PC1:</b> Adhesives, sealants <b>PC4:</b> Anti-Freeze and de-icing products <b>PC8:</b> Biocidal products (e.g. Disinfectants, pest control) <b>PC9a:</b> Coatings and paints, thinners, paint removers <b>PC9b:</b> Fillers, putties, plasters, modelling clay <b>PC9c:</b> Finger paints <b>PC15:</b> Non-metal-surface treatment products <b>PC18:</b> Ink and toners <b>PC23:</b> Leather tanning, dye, finishing, impregnation and care products <b>PC24:</b> Lubricants, greases, release products <b>PC31:</b> Polishes and wax blends <b>PC34:</b> Textile dyes, finishing and impregnating products; including bleaches and other processing aids
Environmental release category	: <b>ERC8a, ERC8d:</b> Wide dispersive indoor use of processing aids in open systems, Wide dispersive outdoor use of processing aids in open systems
Further information	: Covers the use in coatings (paints, inks, adhesives, etc) including exposures during use (including product transfer and preparation, application by brush, spray by hand or similar methods) and equipment cleaning.

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**2.1 Contributing scenario controlling environmental exposure for:ERC8a, ERC8d: Wide dispersive indoor use of processing aids in open systems, Wide dispersive outdoor use of processing aids in open systems****Product characteristics**

Maximum allowable site tonnage : 1.000  
(MSafe) based on release  
following total wastewater  
treatment removal (kg/d): (Msafe)

**Environment factors not influenced by risk management**

Flow rate : 18.000 m3/d  
Dilution Factor (River) : 10  
Dilution Factor (Coastal Areas) : 100

**Other given operational conditions affecting environmental exposure**

Continuous use/release  
Number of emission days per year : 365  
Emission or Release Factor: Air : 99 %  
Emission or Release Factor: Water : 1 %  
Emission or Release Factor: Soil : 6 %

**Technical conditions and measures / Organizational measures**

Remarks : Not applicable

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

Type of Sewage Treatment Plant : Municipal sewage treatment plant  
Flow rate of sewage treatment : 2.000 m3/d  
plant effluent  
Percentage removed from waste : 96,3 %  
water  
Sludge Treatment : No data available  
Procedures to limit air emissions : No data available  
from Sewage Treatment Plant

**Conditions and measures related to external treatment of waste for disposal**

Waste treatment : External treatment and disposal of waste should comply with applicable local and/or national regulations.

**Conditions and measures related to external recovery of waste**

Recovery Methods : External recovery and recycling of waste should comply with applicable local and/or national regulations.

**2.2 Contributing scenario controlling consumer exposure for: PC1, PC4, PC8, PC9a, PC9b, PC15, PC9c, PC18, PC23, PC24, PC31, PC34: Adhesives, sealants, Anti-Freeze and de-icing products, Biocidal products (e.g. Disinfectants, pest control), Coatings and paints, thinners, paint removers, Fillers, putties, plasters, modelling clay, Non-metal-surface treatment products, Finger paints, Ink and toners, Leather tanning, dye, finishing, impregnation and care products, Lubricants, greases, release products, Polishes and wax blends, Textile dyes, finishing and impregnating products; including bleaches and other processing aids****Product characteristics**

Physical Form (at time of use) : Liquid substance

**Amount used**

SDS Number:100000014063

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: 13800 g

**Frequency and duration of use**

Exposure duration : 6 h  
 Frequency of use : 1 times/day

**Human factors not influenced by risk management**

Exposed skin area : Skin  
 : 857,5 cm<sup>2</sup>

**Other given operational conditions affecting consumers exposure**

Room size : 20 M<sup>3</sup>  
 Remarks : Unless otherwise stated assumes use at ambient temperatures, Assumes use with typical ventilation.

**Conditions and measures related to protection of consumer (e.g. behavioral advice, personal protection and hygiene)**

Remarks : No specific Risk Management Measures identified beyond those Operational Conditions stated.

**2.2 Contributing scenario controlling consumer exposure for: PC1: Adhesives, sealants****Product characteristics**

Concentration of the Substance in Mixture/Article :  
 Remarks : Glues, hobby use

Concentration of the Substance in Mixture/Article :  
 Remarks : Glues DIY -use (carpet glue, tile glue, wood parquet glue)

Concentration of the Substance in Mixture/Article :  
 Remarks : Glue from spray

Concentration of the Substance in Mixture/Article :  
 Remarks : Sealants

**Amount used**

Remarks : 9 g  
 : Glues, hobby use  
 : 6390 g

Remarks : Glues DIY -use (carpet glue, tile glue, wood parquet glue)  
 : 85,05 g

Remarks : Glue from spray  
 : 75 g

Remarks : Sealants

**Frequency and duration of use**

Exposure duration : 4,00 h  
 Frequency of use : 1 times/day  
 Remarks : Glues, hobby use

Exposure duration : 6,00 h  
 Frequency of use : 1 times/day  
 Remarks : Glues DIY -use (carpet glue, tile glue, wood parquet glue)

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Exposure duration : 4,00 h  
 Frequency of use : 1 times/day  
 Remarks : Glue from spray  
 Exposure duration : 1,00 h  
 Frequency of use : 1 times/day  
 Remarks : Sealants

**Human factors not influenced by risk management**

Exposed skin area : Skin  
 : 35,73 cm2  
 Remarks : Glues, hobby use  
 Exposed skin area : Skin  
 : 110,00 cm2  
 Remarks : Glues DIY -use (carpet glue, tile glue, wood parquet glue)  
 Exposed skin area : Skin  
 : 35,73 cm2  
 Remarks : Glue from spray  
 Exposed skin area : Skin  
 : 35,73 cm2  
 Remarks : Sealants

**Other given operational conditions affecting consumers exposure**

Outdoor / Indoor : Indoor activities  
 Room size : 20 M3  
 Ventilation rate per hour : 0,6  
 Remarks : Glues, hobby use  
 Outdoor / Indoor : Indoor activities  
 Room size : 20 M3  
 Ventilation rate per hour : 0,6  
 Remarks : Glues DIY -use (carpet glue, tile glue, wood parquet glue)  
 Outdoor / Indoor : Indoor activities  
 Room size : 20 M3  
 Ventilation rate per hour : 0,6  
 Remarks : Glue from spray  
 Outdoor / Indoor : Indoor activities  
 Room size : 20 M3  
 Ventilation rate per hour : 0,6  
 Remarks : Sealants  
 Use frequency : 365 days/year  
 Remarks : Glues, hobby use  
 Use frequency : 1 days/year  
 Remarks : Glues DIY -use (carpet glue, tile glue, wood parquet glue)  
 Use frequency : 6 days/year  
 Remarks : Glue from spray  
 Use frequency : 365 days/year  
 Remarks : Sealants

**Conditions and measures related to protection of consumer (e.g. behavioral advice, personal protection and hygiene)**

Remarks : No specific Risk Management Measures identified beyond those Operational Conditions stated.

**2.2 Contributing scenario controlling consumer exposure for: PC4: Anti-Freeze and de-icing products****Product characteristics**

Concentration of the Substance in :



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Mixture/Article  
Remarks : Washing car window

Concentration of the Substance in :  
Mixture/Article  
Remarks : Pouring into radiator

Concentration of the Substance in :  
Mixture/Article  
Remarks : Lock de- icer

**Amount used**

Remarks : 0,5 g  
: Washing car window  
Remarks : 2000 g  
: Pouring into radiator  
Remarks : 4 g  
: Lock de- icer

**Frequency and duration of use**

Exposure duration : 0,02 h  
Frequency of use : 1 times/day  
Remarks : Washing car window  
Exposure duration : 0,17 h  
Frequency of use : 1 times/day  
Remarks : Pouring into radiator  
Exposure duration : 0,25 h  
Frequency of use : 1 times/day  
Remarks : Lock de- icer

**Human factors not influenced by risk management**

Exposed skin area : Skin  
: 428,00 cm2  
Remarks : Pouring into radiator  
Exposed skin area : Skin  
: 214,40 cm2  
Remarks : Lock de- icer

**Other given operational conditions affecting consumers exposure**

Outdoor / Indoor : Garage  
Room size : 34 M3  
Ventilation rate per hour : 1,5  
Remarks : Washing car window  
Outdoor / Indoor : Garage  
Room size : 34 M3  
Ventilation rate per hour : 1,5  
Remarks : Pouring into radiator  
Outdoor / Indoor : Garage  
Room size : 34 M3  
Ventilation rate per hour : 1,5  
Remarks : Lock de- icer  
  
Use frequency : 365 days/year  
Remarks : Washing car window  
Use frequency : 365 days/year  
Remarks : Pouring into radiator  
Use frequency : 365 days/year  
Remarks : Lock de- icer

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**Conditions and measures related to protection of consumer (e.g. behavioral advice, personal protection and hygiene)**

Remarks : No specific Risk Management Measures identified beyond those Operational Conditions stated.

**2.2 Contributing scenario controlling consumer exposure for: PC8: Biocidal products (e.g. Disinfectants, pest control)****Product characteristics**

Concentration of the Substance in Mixture/Article :

Remarks : Laundry and dish washing products

Concentration of the Substance in Mixture/Article :

Remarks : Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners)

Concentration of the Substance in Mixture/Article :

Remarks : Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners)

**Amount used**

Remarks : 15 g  
: Laundry and dish washing products

Remarks : 27 g  
: Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners)

Remarks : 35 g  
: Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners)

**Frequency and duration of use**

Exposure duration : 0,50 h  
Frequency of use : 1 times/day  
Remarks : Laundry and dish washing products

Exposure duration : 0,33 h  
Frequency of use : 1 times/day  
Remarks : Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners)

Exposure duration : 0,17 h  
Frequency of use : 1 times/day  
Remarks : Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners)

**Human factors not influenced by risk management**

Exposed skin area : Skin  
: 857,50 cm<sup>2</sup>  
Remarks : Laundry and dish washing products

Exposed skin area : Skin  
: 857,50 cm<sup>2</sup>  
Remarks : Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners)

Exposed skin area : Skin  
: 428,00 cm<sup>2</sup>  
Remarks : Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners)

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products, glass cleaners)

**Other given operational conditions affecting consumers exposure**

Outdoor / Indoor	:	Indoor activities
Room size	:	20 M3
Ventilation rate per hour	:	0,6
Remarks	:	Laundry and dish washing products
Outdoor / Indoor	:	Indoor activities
Room size	:	20 M3
Ventilation rate per hour	:	0,6
Remarks	:	Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners)
Outdoor / Indoor	:	Indoor activities
Room size	:	20 M3
Ventilation rate per hour	:	0,6
Remarks	:	Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners)
Use frequency	:	365 days/year
Remarks	:	Laundry and dish washing products
Use frequency	:	128 days/year
Remarks	:	Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners)
Use frequency	:	128 days/year
Remarks	:	Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners)

**Conditions and measures related to protection of consumer (e.g. behavioral advice, personal protection and hygiene)**

Remarks	:	No specific Risk Management Measures identified beyond those Operational Conditions stated.
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**2.2 Contributing scenario controlling consumer exposure for: PC9a: Coatings and paints, thinners, paint removers****Product characteristics**

Concentration of the Substance in Mixture/Article	:	
Remarks	:	Waterborne latex wall paint
Concentration of the Substance in Mixture/Article	:	
Remarks	:	Solvent rich, high solid, water borne paint
Concentration of the Substance in Mixture/Article	:	
Remarks	:	Aerosol spray can
Concentration of the Substance in Mixture/Article	:	
Remarks	:	Removers (paint-, glue-, wall paper-, sealant-remover)

**Amount used**

Remarks	:	2760 g
Remarks	:	Waterborne latex wall paint
Remarks	:	744 g
Remarks	:	Solvent rich, high solid, water borne paint

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Remarks : 215 g  
 : Aerosol spray can  
 : 491 g  
 Remarks : Removers (paint-, glue-, wall paper-, sealant-remover)

**Frequency and duration of use**

Exposure duration : 2,20 h  
 Frequency of use : 1 times/day  
 Remarks : Waterborne latex wall paint  
 Exposure duration : 2,20 h  
 Frequency of use : 1 times/day  
 Remarks : Solvent rich, high solid, water borne paint  
 Exposure duration : 0,33 h  
 Frequency of use : 1 times/day  
 Remarks : Aerosol spray can  
 Exposure duration : 2,00 h  
 Frequency of use : 1 times/day  
 Remarks : Removers (paint-, glue-, wall paper-, sealant-remover)

**Human factors not influenced by risk management**

Exposed skin area : Skin  
 : 428,75 cm2  
 Remarks : Waterborne latex wall paint  
 Exposed skin area : Skin  
 : 428,75 cm2  
 Remarks : Solvent rich, high solid, water borne paint  
 Exposed skin area : Skin  
 : 857,50 cm2  
 Remarks : Aerosol spray can

**Other given operational conditions affecting consumers exposure**

Outdoor / Indoor : Indoor activities  
 Room size : 20 M3  
 Ventilation rate per hour : 0,6  
 Remarks : Waterborne latex wall paint  
 Outdoor / Indoor : Indoor activities  
 Room size : 20 M3  
 Ventilation rate per hour : 0,6  
 Remarks : Solvent rich, high solid, water borne paint  
 Outdoor / Indoor : Garage  
 Room size : 34 M3  
 Ventilation rate per hour : 1,5  
 Remarks : Aerosol spray can  
 Outdoor / Indoor : Indoor activities  
 Room size : 20 M3  
 Ventilation rate per hour : 0,6  
 Remarks : Removers (paint-, glue-, wall paper-, sealant-remover)  
 Use frequency : 4 days/year  
 Remarks : Waterborne latex wall paint  
 Use frequency : 6 days/year  
 Remarks : Solvent rich, high solid, water borne paint  
 Use frequency : 2 days/year  
 Remarks : Aerosol spray can  
 Use frequency : 3 days/year  
 Remarks : Removers (paint-, glue-, wall paper-, sealant-remover)

**Conditions and measures related to protection of consumer (e.g. behavioral advice, personal protection and hygiene)**

Remarks : No specific Risk Management Measures identified beyond

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those Operational Conditions stated.

**2.2 Contributing scenario controlling consumer exposure for: PC9b, PC9c: Fillers, putties, plasters, modelling clay, Finger paints****Product characteristics**

Concentration of the Substance in Mixture/Article	:	
Remarks	:	Fillers and putty
Concentration of the Substance in Mixture/Article	:	
Remarks	:	Plasters and floor equalizers
Concentration of the Substance in Mixture/Article	:	
Remarks	:	Modeling Clay
Concentration of the Substance in Mixture/Article	:	
Remarks	:	Finger paints

**Amount used**

Remarks	:	85 g
Remarks	:	Fillers and putty
Remarks	:	13800 g
Remarks	:	Plasters and floor equalizers
Remarks	:	1 g
Remarks	:	Modeling Clay
Remarks	:	1,35 g
Remarks	:	Finger paints

**Frequency and duration of use**

Exposure duration	:	4,00 h
Frequency of use	:	1 times/day
Remarks	:	Fillers and putty
Exposure duration	:	2,00 h
Frequency of use	:	1 times/day
Remarks	:	Plasters and floor equalizers
Frequency of use	:	1 times/day
Remarks	:	Modeling Clay
Frequency of use	:	1 times/day
Remarks	:	Finger paints

**Human factors not influenced by risk management**

Exposed skin area	:	Skin
Remarks	:	35,73 cm2
Exposed skin area	:	Skin
Remarks	:	857,50 cm2
Exposed skin area	:	Skin
Remarks	:	Plasters and floor equalizers
Exposed skin area	:	Skin
Remarks	:	254,40 cm2
Exposed skin area	:	Skin
Remarks	:	Modeling Clay
Exposed skin area	:	Skin
Remarks	:	254,40 cm2
Exposed skin area	:	Skin
Remarks	:	Finger paints

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**Other given operational conditions affecting consumers exposure**

Outdoor / Indoor	:	Indoor activities
Room size	:	20 M3
Ventilation rate per hour	:	0,6
Remarks	:	Fillers and putty
Outdoor / Indoor	:	Indoor activities
Room size	:	20 M3
Ventilation rate per hour	:	0,6
Remarks	:	Plasters and floor equalizers
Use frequency	:	12 days/year
Remarks	:	Fillers and putty
Use frequency	:	12 days/year
Remarks	:	Plasters and floor equalizers
Use frequency	:	365 days/year
Remarks	:	Modeling Clay
Use frequency	:	365 days/year
Remarks	:	Finger paints

**Conditions and measures related to protection of consumer (e.g. behavioral advice, personal protection and hygiene)**

Remarks	:	No specific Risk Management Measures identified beyond those Operational Conditions stated.
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**2.2 Contributing scenario controlling consumer exposure for: PC15: Non-metal-surface treatment products****Product characteristics**

Concentration of the Substance in Mixture/Article	:	
Remarks	:	Waterborne latex wall paint
Concentration of the Substance in Mixture/Article	:	
Remarks	:	Solvent rich, high solid, water borne paint
Concentration of the Substance in Mixture/Article	:	
Remarks	:	Aerosol spray can
Concentration of the Substance in Mixture/Article	:	
Remarks	:	Removers (paint-, glue-, wall paper-, sealant-remover)

**Amount used**

Remarks	:	2760 g
Remarks	:	Waterborne latex wall paint
Remarks	:	744 g
Remarks	:	Solvent rich, high solid, water borne paint
Remarks	:	215 g
Remarks	:	Aerosol spray can
Remarks	:	491 g
Remarks	:	Removers (paint-, glue-, wall paper-, sealant-remover)

**Frequency and duration of use**

Exposure duration	:	2,20 h
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Frequency of use : 1 times/day  
 Remarks : Waterborne latex wall paint  
 Exposure duration : 2,20 h  
 Frequency of use : 1 times/day  
 Remarks : Solvent rich, high solid, water borne paint  
 Exposure duration : 0,33 h  
 Frequency of use : 1 times/day  
 Remarks : Aerosol spray can  
 Exposure duration : 2,00 h  
 Frequency of use : 1 times/day  
 Remarks : Removers (paint-, glue-, wall paper-, sealant-remover)

**Human factors not influenced by risk management**

Exposed skin area : Skin  
 : 428,75 cm2  
 Remarks : Waterborne latex wall paint  
 Exposed skin area : Skin  
 : 428,75 cm2  
 Remarks : Solvent rich, high solid, water borne paint  
 Exposed skin area : Skin  
 : 857,50 cm2  
 Remarks : Removers (paint-, glue-, wall paper-, sealant-remover)

**Other given operational conditions affecting consumers exposure**

Outdoor / Indoor : Indoor activities  
 Room size : 20 M3  
 Ventilation rate per hour : 0,6  
 Remarks : Waterborne latex wall paint  
 Outdoor / Indoor : Indoor activities  
 Room size : 20 M3  
 Ventilation rate per hour : 0,6  
 Remarks : Solvent rich, high solid, water borne paint  
 Outdoor / Indoor : Garage  
 Room size : 34 M3  
 Ventilation rate per hour : 1,5  
 Remarks : Aerosol spray can  
 Outdoor / Indoor : Indoor activities  
 Room size : 20 M3  
 Ventilation rate per hour : 0,6  
 Remarks : Removers (paint-, glue-, wall paper-, sealant-remover)

Use frequency : 4 days/year  
 Remarks : Waterborne latex wall paint  
 Use frequency : 6 days/year  
 Remarks : Solvent rich, high solid, water borne paint  
 Use frequency : 2 days/year  
 Remarks : Aerosol spray can  
 Use frequency : 3 days/year  
 Remarks : Removers (paint-, glue-, wall paper-, sealant-remover)

**Conditions and measures related to protection of consumer (e.g. behavioral advice, personal protection and hygiene)**

Remarks : No specific Risk Management Measures identified beyond those Operational Conditions stated.

**2.2 Contributing scenario controlling consumer exposure for: PC18, PC23: Ink and toners, Leather tanning, dye, finishing, impregnation and care products**

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**Product characteristics**

Concentration of the Substance in Mixture/Article :  
 Remarks : Ink and toners

Concentration of the Substance in Mixture/Article :  
 Remarks : Polishes, wax / cream (floor, furniture, shoes)

Concentration of the Substance in Mixture/Article :  
 Remarks : Polishes, spray (furniture, shoes)

**Amount used**

Remarks : 40 g  
 : Ink and toners

Remarks : 56 g  
 : Polishes, wax / cream (floor, furniture, shoes)

Remarks : 56 g  
 : Polishes, spray (furniture, shoes)

**Frequency and duration of use**

Exposure duration : 2,20 h  
 Frequency of use : 1 times/day  
 Remarks : Ink and toners

Exposure duration : 1,23 h  
 Frequency of use : 1 times/day  
 Remarks : Polishes, wax / cream (floor, furniture, shoes)

Exposure duration : 0,33 h  
 Frequency of use : 1 times/day  
 Remarks : Polishes, spray (furniture, shoes)

**Human factors not influenced by risk management**

Exposed skin area : Skin  
 : 71,40 cm2  
 Remarks : Ink and toners

Exposed skin area : Skin  
 : 430,00 cm2  
 Remarks : Polishes, wax / cream (floor, furniture, shoes)

Exposed skin area : Skin  
 : 430,00 cm2  
 Remarks : Polishes, spray (furniture, shoes)

**Other given operational conditions affecting consumers exposure**

Outdoor / Indoor : Indoor activities  
 Room size : 20 M3  
 Ventilation rate per hour : 0,6  
 Remarks : Ink and toners

Outdoor / Indoor : Indoor activities  
 Room size : 20 M3  
 Ventilation rate per hour : 0,6  
 Remarks : Polishes, wax / cream (floor, furniture, shoes)

Outdoor / Indoor : Indoor activities  
 Room size : 20 M3  
 Ventilation rate per hour : 0,6  
 Remarks : Polishes, spray (furniture, shoes)

Use frequency : 365 days/year  
 Remarks : Ink and toners



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Use frequency : 29 days/year  
 Remarks : Polishes, wax / cream (floor, furniture, shoes)  
 Use frequency : 8 days/year  
 Remarks : Polishes, spray (furniture, shoes)

**Conditions and measures related to protection of consumer (e.g. behavioral advice, personal protection and hygiene)**

Remarks : No specific Risk Management Measures identified beyond those Operational Conditions stated.

**2.2 Contributing scenario controlling consumer exposure for: PC24: Lubricants, greases, release products****Product characteristics**

Concentration of the Substance in Mixture/Article :  
 Remarks : Liquid  
 Concentration of the Substance in Mixture/Article :  
 Remarks : Paste  
 Concentration of the Substance in Mixture/Article :  
 Remarks : Sprays

**Amount used**

Remarks : 2200 g  
 : Liquid  
 : 34 g  
 Remarks : Paste  
 : 73 g  
 Remarks : Sprays

**Frequency and duration of use**

Exposure duration : 0,17 h  
 Frequency of use : 1 times/day  
 Remarks : Liquid  
 Frequency of use : 1 times/day  
 Remarks : Paste  
 Exposure duration : 0,17 h  
 Frequency of use : 1 times/day  
 Remarks : Sprays

**Human factors not influenced by risk management**

Exposed skin area : Skin  
 : 468,00 cm2  
 Remarks : Liquid  
 Exposed skin area : Skin  
 : 468,00 cm2  
 Remarks : Paste  
 Exposed skin area : Skin  
 : 428,75 cm2  
 Remarks : Sprays

**Other given operational conditions affecting consumers exposure**

Outdoor / Indoor : Garage

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Room size	:	34 M3
Ventilation rate per hour	:	1,5
Remarks	:	Liquid
Outdoor / Indoor	:	Indoor activities
Room size	:	20 M3
Ventilation rate per hour	:	0,6
Remarks	:	Sprays
Use frequency	:	4 days/year
Remarks	:	Liquid
Use frequency	:	10 days/year
Remarks	:	Paste
Use frequency	:	6 days/year
Remarks	:	Sprays

**Conditions and measures related to protection of consumer (e.g. behavioral advice, personal protection and hygiene)**

Remarks	:	No specific Risk Management Measures identified beyond those Operational Conditions stated.
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**2.2 Contributing scenario controlling consumer exposure for: PC31, PC34: Polishes and wax blends, Textile dyes, finishing and impregnating products; including bleaches and other processing aids****Product characteristics**

Concentration of the Substance in Mixture/Article	:	
Remarks	:	Polishes, wax / cream (floor, furniture, shoes)
Concentration of the Substance in Mixture/Article	:	
Remarks	:	Polishes, spray (furniture, shoes)
Concentration of the Substance in Mixture/Article	:	
Remarks	:	Textile dyes, finishing and impregnating products; including bleaches and other processing aids

**Amount used**

Remarks	:	142 g
Remarks	:	Polishes, wax / cream (floor, furniture, shoes)
Remarks	:	35 g
Remarks	:	Polishes, spray (furniture, shoes)
Remarks	:	115 g
Remarks	:	Textile dyes, finishing and impregnating products; including bleaches and other processing aids

**Frequency and duration of use**

Exposure duration	:	1,23 h
Frequency of use	:	1 times/day
Remarks	:	Polishes, wax / cream (floor, furniture, shoes)
Exposure duration	:	0,33 h
Frequency of use	:	1 times/day
Remarks	:	Polishes, spray (furniture, shoes)
Exposure duration	:	1,00 h
Frequency of use	:	1 times/day
Remarks	:	Textile dyes, finishing and impregnating products; including

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bleaches and other processing aids

**Human factors not influenced by risk management**

Exposed skin area : Skin  
: 430,00 cm<sup>2</sup>

Remarks : Polishes, wax / cream (floor, furniture, shoes)

Exposed skin area : Skin  
: 430,00 cm<sup>2</sup>

Remarks : Polishes, spray (furniture, shoes)

Exposed skin area : Skin  
: 857,50 cm<sup>2</sup>

Remarks : Textile dyes, finishing and impregnating products; including bleaches and other processing aids

**Other given operational conditions affecting consumers exposure**

Outdoor / Indoor : Indoor activities

Room size : 20 M<sup>3</sup>

Ventilation rate per hour : 0,6

Remarks : Polishes, wax / cream (floor, furniture, shoes)

Outdoor / Indoor : Indoor activities

Room size : 20 M<sup>3</sup>

Ventilation rate per hour : 0,6

Remarks : Polishes, spray (furniture, shoes)

Outdoor / Indoor : Indoor activities

Room size : 20 M<sup>3</sup>

Ventilation rate per hour : 0,6

Remarks : Textile dyes, finishing and impregnating products; including bleaches and other processing aids

Use frequency : 29 days/year

Remarks : Polishes, wax / cream (floor, furniture, shoes)

Use frequency : 8 days/year

Remarks : Polishes, spray (furniture, shoes)

Use frequency : 365 days/year

Remarks : Textile dyes, finishing and impregnating products; including bleaches and other processing aids

**Conditions and measures related to protection of consumer (e.g. behavioral advice, personal protection and hygiene)**

Remarks : No specific Risk Management Measures identified beyond those Operational Conditions stated.

**3. Exposure estimation and reference to its source****Environment**

Contributing Scenario	Exposure Assessment Method	Specific conditions	Compartment	Value type	Level of Exposure	Risk characterization ratio (PEC/PNEC):
ERC8a, ERC8d	Hydrocarbon Block Method with Petrorisk		Air		0,000074 mg/m <sup>3</sup>	
			Freshwater		0,00001 mg/L	0,00027
			Freshwater sediment		0,00022 mg/kg	0,00015
			Marine water		0,0000005 mg/L	0,000013
			Marine sediment		0,000022 mg/kg	0,000015
			Agricultural soil		0,000093	0,00016

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					mg/kg	
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ERC8a: Wide dispersive indoor use of processing aids in open systems  
 ERC8d: Wide dispersive outdoor use of processing aids in open systems

**Workers/Consumers**

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value type	Level of Exposure	Risk characterization ratio (PEC/PNEC):
PC1, PC1_1	ECETOC TRA Modified		Consumer – dermal, long-term – systemic	1,79 mg/kg/d	0,00
			Consumer – oral, long-term – systemic	0,00 mg/kg/d	0,00
			Consumer – inhalation, long-term – systemic	0,85 mg/m3	0,00
			Consumer – long-term – systemic Combined routes		0,00
PC1, PC1_2	ECETOC TRA Modified		Consumer – dermal, long-term – systemic	0,01 mg/kg/d	0,00
			Consumer – oral, long-term – systemic	0,00 mg/kg/d	0,00
			Consumer – inhalation, long-term – systemic	1,75 mg/m3	0,00
			Consumer – long-term – systemic Combined routes		0,00
PC1, PC1_3	ECETOC TRA Modified		Consumer – dermal, long-term – systemic	1,79 mg/kg/d	0,00
			Consumer – inhalation, long-term – systemic	80,56 mg/m3	0,13
			Consumer – long-term – systemic Combined routes		0,14
			Consumer – oral, long-term – systemic	0,00 mg/kg/d	0,00
PC1, PC1_4	ECETOC TRA Modified		Consumer – dermal, long-term – systemic	1,79 mg/kg/d	0,00
			Consumer – oral, long-term – systemic	0,00 mg/kg/d	0,00
			Consumer – inhalation, long-term – systemic	3,52 mg/m3	0,01
			Consumer – long-term – systemic Combined routes		0,01
PC4, PC4_1	ECETOC TRA Modified		Consumer – dermal, long-term – systemic	0,00 mg/kg/d	0,00
			Consumer – oral, long-term – systemic	0,00 mg/kg/d	0,00
			Consumer – inhalation, long-term – systemic	0,00 mg/m3	0,00
			Consumer – long-term – systemic Combined routes		0,00
PC4, PC4_2	ECETOC TRA Modified		Consumer – dermal, long-term – systemic	7,13 mg/kg/d	0,01
			Consumer – oral, long-term – systemic	0,00 mg/kg/d	0,00
			Consumer – inhalation, long-term – systemic	0,18 mg/m3	0,00
			Consumer – long-term – systemic Combined routes		0,01
PC4, PC4_3	ECETOC TRA		Consumer – dermal,	17,87 mg/kg/d	0,03

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	Modified		long-term – systemic		
			Consumer – oral, long-term – systemic	0,00 mg/kg/d	0,00
			Consumer – inhalation, long-term – systemic	0,51 mg/m3	0,00
			Consumer – long-term – systemic Combined routes		0,03
PC8, PC8_1	ECETOC TRA Modified		Consumer – dermal, long-term – systemic	0,07 mg/kg/d	0,00
			Consumer – oral, long-term – systemic	0,00 mg/kg/d	0,00
			Consumer – inhalation, long-term – systemic	0,07 mg/m3	0,00
			Consumer – long-term – systemic Combined routes		0,00
PC8, PC8_2	ECETOC TRA Modified		Consumer – dermal, long-term – systemic	7,15 mg/kg/d	0,01
			Consumer – oral, long-term – systemic	0,00 mg/kg/d	0,00
			Consumer – inhalation, long-term – systemic	0,08 mg/m3	0,00
			Consumer – long-term – systemic Combined routes		0,01
PC8, PC8_3	ECETOC TRA Modified		Consumer – dermal, long-term – systemic	10,70 mg/kg/d	0,02
			Consumer – oral, long-term – systemic	0,00 mg/kg/d	0,00
			Consumer – inhalation, long-term – systemic	1,77 mg/m3	0,00
			Consumer – long-term – systemic Combined routes		0,02
PC9a, PC9a_1	ECETOC TRA Modified		Consumer – dermal, long-term – systemic	1,07 mg/kg/d	0,00
			Consumer – oral, long-term – systemic	0,00 mg/kg/d	0,00
			Consumer – inhalation, long-term – systemic	10,53 mg/m3	0,02
			Consumer – long-term – systemic Combined routes		0,02
PC9a, PC9a_2	ECETOC TRA Modified		Consumer – dermal, long-term – systemic	19,65 mg/kg/d	0,03
			Consumer – oral, long-term – systemic	0,00 mg/kg/d	0,00
			Consumer – inhalation, long-term – systemic	52,06 mg/m3	0,09
			Consumer – long-term – systemic Combined routes		0,11
PC9a, PC9a_3	ECETOC TRA Modified		Consumer – dermal, long-term – systemic	0,00 mg/kg/d	0,00
			Consumer – oral, long-term – systemic	0,00 mg/kg/d	0,00
			Consumer – inhalation, long-term – systemic	34,29 mg/m3	0,06
			Consumer – long-term – systemic Combined routes		0,06
PC9a, PC9a_4	ECETOC TRA Modified		Consumer – dermal, long-term – systemic	71,46 mg/kg/d	0,10
			Consumer – oral, long-term – systemic	0,00 mg/kg/d	0,00

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			Consumer – inhalation, long-term – systemic	59,57 mg/m3	0,10
			Consumer – long-term – systemic Combined routes		0,20
PC9b, PC9b_1	ECETOC TRA Modified		Consumer – dermal, long-term – systemic	0,12 mg/kg/d	0,00
			Consumer – oral, long-term – systemic	0,00 mg/kg/d	0,00
			Consumer – inhalation, long-term – systemic	0,54 mg/m3	0,00
			Consumer – long-term – systemic Combined routes		0,00
PC9b, PC9b_2	ECETOC TRA Modified		Consumer – dermal, long-term – systemic	2,86 mg/kg/d	0,00
			Consumer – oral, long-term – systemic	0,00 mg/kg/d	0,00
			Consumer – inhalation, long-term – systemic	66,97 mg/m3	0,11
			Consumer – long-term – systemic Combined routes		0,11
PC9b, PC9b_3	ECETOC TRA Modified		Consumer – dermal, long-term – systemic	2,54 mg/kg/d	0,00
			Consumer – oral, long-term – systemic	1,00 mg/kg/d	0,00
			Consumer – long-term – systemic Combined routes		0,01
PC9c	ECETOC TRA Modified		Consumer – dermal, long-term – systemic	127,20 mg/kg/d	0,18
			Consumer – oral, long-term – systemic	67,50 mg/kg/d	0,10
			Consumer – long-term – systemic Combined routes		0,28
PC15, PC15_1	ECETOC TRA Modified		Consumer – dermal, long-term – systemic	1,07 mg/kg/d	0,00
			Consumer – oral, long-term – systemic	0,00 mg/kg/d	0,00
			Consumer – inhalation, long-term – systemic	10,53 mg/m3	0,02
			Consumer – long-term – systemic Combined routes		0,02
PC15, PC15_2	ECETOC TRA Modified		Consumer – dermal, long-term – systemic	19,65 mg/kg/d	0,03
			Consumer – oral, long-term – systemic	0,00 mg/kg/d	0,00
			Consumer – inhalation, long-term – systemic	52,06 mg/m3	0,09
			Consumer – long-term – systemic Combined routes		0,11
PC15, PC15_3	ECETOC TRA Modified		Consumer – dermal, long-term – systemic	0,00 mg/kg/d	0,00
			Consumer – oral, long-term – systemic	0,00 mg/kg/d	0,00
			Consumer – inhalation, long-term – systemic	34,29 mg/m3	0,06
			Consumer – long-term – systemic Combined routes		0,06
PC15, PC15_4	ECETOC TRA Modified		Consumer – dermal, long-term – systemic	71,46 mg/kg/d	0,10
			Consumer – oral, long-term – systemic	0,00 mg/kg/d	0,00

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			term – systemic		
			Consumer – inhalation, long-term – systemic	59,57 mg/m3	0,10
			Consumer – long-term – systemic Combined routes		0,20
PC18	ECETOC TRA Modified		Consumer – dermal, long-term – systemic	1,19 mg/kg/d	0,00
			Consumer – oral, long-term – systemic	0,00 mg/kg/d	0,00
			Consumer – inhalation, long-term – systemic	1,02 mg/m3	0,00
			Consumer – long-term – systemic Combined routes		0,00
PC23, PC23_1	ECETOC TRA Modified		Consumer – dermal, long-term – systemic	35,83 mg/kg/d	0,05
			Consumer – oral, long-term – systemic	0,00 mg/kg/d	0,00
			Consumer – inhalation, long-term – systemic	5,07 mg/m3	0,01
			Consumer – long-term – systemic Combined routes		0,06
PC23, PC23_2	ECETOC TRA Modified		Consumer – dermal, long-term – systemic	35,83 mg/kg/d	0,05
			Consumer – oral, long-term – systemic	0,00 mg/kg/d	0,00
			Consumer – inhalation, long-term – systemic	17,46 mg/m3	0,03
			Consumer – long-term – systemic Combined routes		0,08
PC24, PC24_1	ECETOC TRA Modified		Consumer – dermal, long-term – systemic	78,00 mg/kg/d	0,11
			Consumer – oral, long-term – systemic	0,00 mg/kg/d	0,00
			Consumer – inhalation, long-term – systemic	0,40 mg/m3	0,00
			Consumer – long-term – systemic Combined routes		0,11
PC24, PC24_2	ECETOC TRA Modified		Consumer – dermal, long-term – systemic	15,60 mg/kg/d	0,02
			Consumer – oral, long-term – systemic	0,00 mg/kg/d	0,00
			Consumer – long-term – systemic Combined routes		0,02
PC24, PC24_3	ECETOC TRA Modified		Consumer – dermal, long-term – systemic	35,73 mg/kg/d	0,05
			Consumer – oral, long-term – systemic	0,00 mg/kg/d	0,00
			Consumer – inhalation, long-term – systemic	12,29 mg/m3	0,02
			Consumer – long-term – systemic Combined routes		0,07
PC31, PC31_1	ECETOC TRA Modified		Consumer – dermal, long-term – systemic	35,83 mg/kg/d	0,05
			Consumer – oral, long-term – systemic	0,00 mg/kg/d	0,00
			Consumer – inhalation, long-term – systemic	12,87 mg/m3	0,02
			Consumer – long-term – systemic Combined routes		0,07

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			routes		
PC31, PC31_2	ECETOC TRA Modified		Consumer – dermal, long-term – systemic	35,83 mg/kg/d	0,05
			Consumer – oral, long-term – systemic	0,00 mg/kg/d	0,00
			Consumer – inhalation, long-term – systemic	10,92 mg/m3	0,02
			Consumer – long-term – systemic Combined routes		0,07
PC34	ECETOC TRA Modified		Consumer – dermal, long-term – systemic	0,14 mg/kg/d	0,00
			Consumer – oral, long-term – systemic	0,00 mg/kg/d	0,00
			Consumer – inhalation, long-term – systemic	1,80 mg/m3	0,00
			Consumer – long-term – systemic Combined routes		0,00

PC1: Adhesives, sealants  
PC1\_1: Glues, hobby use

PC1: Adhesives, sealants  
PC1\_2: Glues DIY -use (carpet glue, tile glue, wood parquet glue)

PC1: Adhesives, sealants  
PC1\_3: Glue from spray

PC1: Adhesives, sealants  
PC1\_4: Sealants

PC4: Anti-Freeze and de-icing products  
PC4\_1: Washing car window

PC4: Anti-Freeze and de-icing products  
PC4\_2: Pouring into radiator

PC4: Anti-Freeze and de-icing products  
PC4\_3: Lock de- icer

PC8: Biocidal products (e.g. Disinfectants, pest control)  
PC8\_1: Laundry and dish washing products

PC8: Biocidal products (e.g. Disinfectants, pest control)  
PC8\_2: Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners)

PC8: Biocidal products (e.g. Disinfectants, pest control)  
PC8\_3: Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners)

PC9a: Coatings and paints, thinners, paint removers  
PC9a\_1: Waterborne latex wall paint

PC9a: Coatings and paints, thinners, paint removers  
PC9a\_2: Solvent rich, high solid, water borne paint

PC9a: Coatings and paints, thinners, paint removers  
PC9a\_3: Aerosol spray can

PC9a: Coatings and paints, thinners, paint removers  
PC9a\_4: Removers (paint-, glue-, wall paper-, sealant-remover)



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PC9b: Fillers, putties, plasters, modelling clay  
PC9b\_1: Fillers and putty

PC9b: Fillers, putties, plasters, modelling clay  
PC9b\_2: Plasters and floor equalizers

PC9b: Fillers, putties, plasters, modelling clay  
PC9b\_3: Modeling Clay

PC9c: Finger paints

PC15: Non-metal-surface treatment products  
PC15\_1: Waterborne latex wall paint

PC15: Non-metal-surface treatment products  
PC15\_2: Solvent rich, high solid, water borne paint

PC15: Non-metal-surface treatment products  
PC15\_3: Aerosol spray can

PC15: Non-metal-surface treatment products  
PC15\_4: Removers (paint-, glue-, wall paper-, sealant-remover)

PC18: Ink and toners

PC23: Leather tanning, dye, finishing, impregnation and care products  
PC23\_1: Polishes, wax / cream (floor, furniture, shoes)

PC23: Leather tanning, dye, finishing, impregnation and care products  
PC23\_2: Polishes, spray (furniture, shoes)

PC24: Lubricants, greases, release products  
PC24\_1: Liquid

PC24: Lubricants, greases, release products  
PC24\_2: Paste

PC24: Lubricants, greases, release products  
PC24\_3: Sprays

PC31: Polishes and wax blends  
PC31\_1: Polishes, wax / cream (floor, furniture, shoes)

PC31: Polishes and wax blends  
PC31\_2: Polishes, spray (furniture, shoes)

PC34: Textile dyes, finishing and impregnating products; including bleaches and other processing aids

**4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario**

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Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.  
 Available hazard data do not enable the derivation of a DNEL for dermal irritant effects.  
 Risk Management Measures are based on qualitative risk characterisation.  
 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.

Further details on scaling and control technologies are provided in SpERC factsheet (<http://cefic.org/en/reach-for-industries-libraries.html>).

**1. Short title of Exposure Scenario: Use as a fuel – consumer**

Main User Groups	:	<b>SU 21:</b> Consumer uses: Private households (= general public = consumers)
Sector of use	:	<b>SU 21:</b> Consumer uses: Private households (= general public = consumers)
Product category	:	<b>PC13:</b> Fuels
Environmental release category	:	<b>ERC8b, ERC8e, ERC9a, ERC9b:</b> Wide dispersive indoor use of reactive substances in open systems, Wide dispersive outdoor use of reactive substances in open systems, Wide dispersive indoor use of substances in closed systems, Wide dispersive outdoor use of substances in closed systems
Further information	:	Covers consumer uses in liquid fuels.

**2.1 Contributing scenario controlling environmental exposure for:ERC8b, ERC8e, ERC9a, ERC9b: Wide dispersive indoor use of reactive substances in open systems, Wide dispersive outdoor use of reactive substances in open systems, Wide dispersive indoor use of substances in closed systems, Wide dispersive outdoor use of substances in closed systems**

**Product characteristics**

Maximum allowable site tonnage : 240.000  
 (MSafe) based on release following total wastewater treatment removal (kg/d): (Msafe)

**Environment factors not influenced by risk management**

Flow rate : 18.000 m3/d  
 Dilution Factor (River) : 10  
 Dilution Factor (Coastal Areas) : 100

**Other given operational conditions affecting environmental exposure**

Continuous use/release  
 Number of emission days per year : 365  
 Emission or Release Factor: Air : 0,1 %  
 Emission or Release Factor: Water : 0,001 %  
 Emission or Release Factor: Soil : 0,001 %

**Technical conditions and measures / Organizational measures**

Remarks : Not applicable

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

Type of Sewage Treatment Plant : Municipal sewage treatment plant  
 Flow rate of sewage treatment plant effluent : 2.000 m3/d  
 Percentage removed from waste water : 96,3 %  
 Sludge Treatment : No data available  
 Procedures to limit air emissions from Sewage Treatment Plant : No data available

**Conditions and measures related to external treatment of waste for disposal**

Remarks : Combustion emissions limited by required exhaust emission controls.  
 Combustion emissions considered in regional exposure assessment.

**Conditions and measures related to external recovery of waste**

Recovery Methods : This substance is consumed during use and no waste of the substance is generated.

**2.2 Contributing scenario controlling consumer exposure for: PC13: Fuels- Liquid****Product characteristics**

Physical Form (at time of use) : Liquid substance

**Amount used**

: 37500 g

**Frequency and duration of use**

Exposure duration : 2 h  
 Frequency of use : > 1 times/day

**Human factors not influenced by risk management**

Exposed skin area : Skin  
 : 420 cm2

**Other given operational conditions affecting consumers exposure**

Room size : 20 M3  
 Remarks : Unless otherwise stated assumes use at ambient temperatures, Assumes use with typical ventilation.

**Conditions and measures related to protection of consumer (e.g. behavioral advice, personal protection and hygiene)**

Remarks : No specific Risk Management Measures identified beyond those Operational Conditions stated.

**2.1 Contributing scenario controlling environmental exposure for:ERC8b, ERC8e, ERC9a, ERC9b: Wide dispersive indoor use of reactive substances in open systems, Wide dispersive outdoor use of reactive substances in open systems, Wide dispersive indoor use of substances in closed systems, Wide dispersive outdoor use of substances in closed systems****Product characteristics**

Concentration of the Substance in Mixture/Article :  
 Remarks Automotive Refuelling

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Concentration of the Substance in Mixture/Article	:	
Remarks		Scooter Refuelling
Concentration of the Substance in Mixture/Article	:	
Remarks		Garden Equipment- Use
Concentration of the Substance in Mixture/Article	:	
Remarks		Garden Equipment- Refueling
Concentration of the Substance in Mixture/Article	:	
Remarks		Lamp Oil

**2.2 Contributing scenario controlling consumer exposure for: PC13: Fuels- Liquid****Product characteristics**

Concentration of the Substance in Mixture/Article	:	
Remarks		Automotive Refuelling
Concentration of the Substance in Mixture/Article	:	
Remarks		Scooter Refuelling
Concentration of the Substance in Mixture/Article	:	
Remarks		Garden Equipment- Use
Concentration of the Substance in Mixture/Article	:	
Remarks		Garden Equipment- Refueling
Concentration of the Substance in Mixture/Article	:	
Remarks		Lamp Oil

**Amount used**

Remarks	:	37500 g
Remarks	:	Automotive Refuelling
Remarks	:	3750 g
Remarks	:	Scooter Refuelling
Remarks	:	750 g
Remarks	:	Garden Equipment- Use
Remarks	:	750 g
Remarks	:	Garden Equipment- Refueling
Remarks	:	100 g

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Remarks : Lamp Oil

**Frequency and duration of use**

Exposure duration : 0,05 h  
 Frequency of use : 1 times/day  
 Remarks : Automotive Refuelling  
 Exposure duration : 0,03 h  
 Frequency of use : 1 times/day  
 Remarks : Scooter Refuelling  
 Exposure duration : 2,00 h  
 Frequency of use : 1 times/day  
 Remarks : Garden Equipment- Use  
 Exposure duration : 0,03 h  
 Frequency of use : 1 times/day  
 Remarks : Garden Equipment- Refueling  
 Exposure duration : 0,01 h  
 Frequency of use : 1 times/day  
 Remarks : Lamp Oil

**Human factors not influenced by risk management**

Exposed skin area : Skin  
 : 210,00 cm2  
 Remarks : Automotive Refuelling  
 Exposed skin area : Skin  
 : 210,00 cm2  
 Remarks : Scooter Refuelling  
 Exposed skin area : Skin  
 : 420,00 cm2  
 Remarks : Garden Equipment- Refueling  
 Exposed skin area : Skin  
 : 210,00 cm2  
 Remarks : Lamp Oil

**Other given operational conditions affecting consumers exposure**

Outdoor / Indoor : Outdoor Activities  
 Room size : 100 M3  
 Ventilation rate per hour : 0,6  
 Remarks : Automotive Refuelling  
 Outdoor / Indoor : Outdoor Activities  
 Room size : 100 M3  
 Ventilation rate per hour : 0,6  
 Remarks : Scooter Refuelling  
 Outdoor / Indoor : Outdoor Activities  
 Room size : 100 M3  
 Ventilation rate per hour : 0,6  
 Remarks : Garden Equipment- Use  
 Outdoor / Indoor : Garage  
 Room size : 34 M3  
 Ventilation rate per hour : 1,5  
 Remarks : Garden Equipment- Refueling  
 Outdoor / Indoor : Indoor activities  
 Room size : 20 M3  
 Ventilation rate per hour : 0,6  
 Remarks : Lamp Oil

Use frequency : 52 days/year  
 Remarks : Automotive Refuelling  
 Use frequency : 52 days/year  
 Remarks : Scooter Refuelling  
 Use frequency : 26 days/year

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Remarks : Garden Equipment- Use  
 Use frequency : 26 days/year  
 Remarks : Garden Equipment- Refueling  
 Use frequency : 52 days/year  
 Remarks : Lamp Oil

**Conditions and measures related to protection of consumer (e.g. behavioral advice, personal protection and hygiene)**

Remarks : No specific Risk Management Measures identified beyond those Operational Conditions stated.

**3. Exposure estimation and reference to its source****Environment**

Contributing Scenario	Exposure Assessment Method	Specific conditions	Compartment	Value type	Level of Exposure	Risk characterization ratio (PEC/PNEC):
ERC8b, ERC8e, ERC9a, ERC9b	Hydrocarbon Block Method with Petrorisk		Air		0,000074 mg/m <sup>3</sup>	
			Freshwater		0,0000058 mg/L	0,00015
			Freshwater sediment		0,0001 mg/kg	0,000073
			Marine water		0,000066 µg/L	0,000002
			Marine sediment		0,0000028 mg/kg	0,000002
			Agricultural soil		0,000012 mg/kg	0,000021

ERC8b: Wide dispersive indoor use of reactive substances in open systems  
 ERC8e: Wide dispersive outdoor use of reactive substances in open systems  
 ERC9a: Wide dispersive indoor use of substances in closed systems  
 ERC9b: Wide dispersive outdoor use of substances in closed systems

**Workers/Consumers**

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value type	Level of Exposure	Risk characterization ratio (PEC/PNEC):
PC13, PC13_1	ECETOC TRA Modified		Consumer – dermal, long-term – systemic	35,00 mg/kg/d	0,05
			Consumer – oral, long-term – systemic	0,00 mg/kg/d	0,00
			Consumer – inhalation, long-term – systemic	0,15 mg/m <sup>3</sup>	0,00
			Consumer – long-term – systemic Combined routes		0,05
PC13, PC13_2	ECETOC TRA Modified		Consumer – dermal, long-term – systemic	35,00 mg/kg/d	0,05
			Consumer – oral, long-term – systemic	0,00 mg/kg/d	0,00
			Consumer – inhalation, long-term – systemic	0,10 mg/m <sup>3</sup>	0,00
			Consumer – long-term – systemic Combined routes		0,05
PC13, PC13_3	ECETOC TRA Modified		Consumer – dermal, long-term – systemic	0,00 mg/kg/d	0,00
			Consumer – oral, long-term – systemic	0,00 mg/kg/d	0,00

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			Consumer – inhalation, long-term – systemic	0,73 mg/m3	0,00
			Consumer – long-term – systemic Combined routes		0,00
PC13, PC13_4	ECETOC TRA Modified		Consumer – dermal, long-term – systemic	70,00 mg/kg/d	0,10
			Consumer – oral, long-term – systemic	0,00 mg/kg/d	0,00
			Consumer – inhalation, long-term – systemic	0,08 mg/m3	0,00
			Consumer – long-term – systemic Combined routes		0,10
PC13, PC13_5	ECETOC TRA Modified		Consumer – dermal, long-term – systemic	35,00 mg/kg/d	0,05
			Consumer – oral, long-term – systemic	0,00 mg/kg/d	0,00
			Consumer – inhalation, long-term – systemic	0,01 mg/m3	0,00
			Consumer – long-term – systemic Combined routes		0,05

PC13: Fuels- Liquid  
PC13\_1: Automotive Refuelling

PC13: Fuels- Liquid  
PC13\_2: Scooter Refuelling

PC13: Fuels- Liquid  
PC13\_3: Garden Equipment- Use

PC13: Fuels  
PC13\_4: Garden Equipment- Refueling

PC13: Fuels  
PC13\_5: Lamp Oil

#### 4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.

Available hazard data do not enable the derivation of a DNEL for dermal irritant effects.

Risk Management Measures are based on qualitative risk characterisation.

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.

Further details on scaling and control technologies are provided in SpERC factsheet (<http://cefic.org/en/reach-for-industries-libraries.html>).