Isooctane (Pure Grade)

Version 2.3 Revision Date 2016-05-16

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

Product information

Product Name : Isooctane (Pure Grade)
Material : 1119534, 1074222, 1029592, 1029591, 1029593, 1031448, 1029590

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

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

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
Technical Information: (832) 813-4862
Responsible Party: Product Safety Group
Email:sds@cpchem.com

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: +800 CHEMCALL (+800 2436 2255) China:+86-21-22157316
EUROPE: BIG +32.14.584545 (phone) or +32.14583516 (telefax)
South America SOS-Cotec Inside Brazil: 0800.111.767 Outside Brazil: +55.19.3467.1600

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

SECTION 2: Hazards identification

Classification of the substance or mixture
REGULATION (EC) No 1272/2008

Flammable liquids, Category 2	H225: Highly flammable liquid and vapor.
Specific target organ systemic toxicity - single exposure, Category 3	H336: May cause drowsiness or dizziness.
Skin irritation, Category 2	H315: Causes skin irritation.
Specific target organ systemic toxicity - single exposure, Category 3 , Respiratory system	H335: May cause respiratory irritation.
, Central nervous system	H336: May cause drowsiness or dizziness.
Aspiration hazard, Category 1	H304: May be fatal if swallowed and enters airways.
Acute aquatic toxicity, Category 1	H400: Very toxic to aquatic life.
Chronic aquatic toxicity, Category 1	H410: Very toxic to aquatic life with long lasting effects.

Label elements

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.

	H335	May cause respiratory irritation.
	H336	May cause drowsiness or dizziness.
	H410	Very toxic to aquatic life with long lasting effects.

Precautionary Statements : **Prevention:**

P210	Keep away from heat/sparks/open flames/hot surfaces. No smoking.
P233	Keep container tightly closed.
P261	Avoid breathing dust/fume/gas/mist/vapors/spray.
Response:	
P301 + P310	IF SWALLOWED: Immediately call a POISON CENTER/doctor.
P331	Do NOT induce vomiting.
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.

Hazardous ingredients which must be listed on the label:
- 540-84-1 2,2,4-Trimethylpentane (Isooctane)

SECTION 3: Composition/information on ingredients

Synonyms : 2,2,4-Trimethylpentane
ASTM Isooctane Knock Test Reference Fuel
Isooctane (ASTM Grade)
Isooctane
Primary Reference Fuel

Molecular formula : C8H18

Mixtures

Hazardous ingredients

Chemical name	CAS-No. EC-No. Index No.	Classification (REGULATION (EC) No 1272/2008)	Concentration [wt%]
2,2,4-Trimethylpentane (Isooctane)	540-84-1 208-759-1 601-009-00-8	Flam. Liq. 2; H225 Skin Irrit. 2; H315 STOT SE 3; H336 Asp. Tox. 1; H304 Aquatic Acute 1; H400 Aquatic Chronic 1; H410 STOT SE 3; H336	99 - 100

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

SECTION 4: 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.
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.

SECTION 5: Firefighting measures

Flash point	:	-12,22 °C (10,00 °F) estimated
Autoignition temperature	:	411 °C (772 °F)
Suitable extinguishing media	:	Alcohol-resistant foam. Carbon dioxide (CO2). Dry chemical.
Unsuitable extinguishing media	:	High volume water jet.
Specific hazards during fire fighting	:	Do not allow run-off from fire fighting to enter drains or water courses.
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 an open flame or any other 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 products	:	Hydrocarbons. Carbon oxides.

SECTION 6: Accidental release measures

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.

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.

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).

SECTION 7: Handling and storage

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 an open flame or any other 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.

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

SECTION 8: Exposure controls/personal protection

Ingredients with workplace control parameters

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	

DNEL : End Use: Workers
Routes of exposure: Skin contact
Potential health effects: Chronic effects, Systemic effects
Value: 773 mg/kg

DNEL : End Use: Workers
Routes of exposure: Inhalation

Potential health effects: Chronic effects, Systemic effects
Value: 2035 mg/m3

Engineering measures

Adequate ventilation to control airborned 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	:	Wear a supplied-air NIOSH approved respirator unless ventilation or other engineering controls are adequate to maintain minimal oxygen content of 19.5% by volume under normal atmospheric pressure. Wear a NIOSH approved respirator that provides protection when working with this material if exposure to harmful levels of airborne material may occur, such as:. Air-Purifying Respirator for Organic Vapors. Use a positive pressure, air-supplying respirator if there is potential for uncontrolled release, 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 according to the amount and concentration of the dangerous substance at the work place. Wear as appropriate:. Flame-resistant clothing. Footwear protecting against chemicals.
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

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)
Molecular formula	:	C8H18
Molecular weight	:	114,26 g/mol
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	:	0,69 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	:	1 (Air = 1.0)
Evaporation rate	:	1
Percent volatile	:	> 99 %

SECTION 10: Stability and reactivity

Chemical stability	:	This material is considered stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.

Possibility of hazardous reactions

Conditions to avoid	:	Heat, sparks, fire, and oxidizing agents.

Materials to avoid	:	May react with oxygen and strong oxidizing agents, such as chlorates, nitrates, peroxides, etc.
Hazardous decomposition products	:	Hydrocarbons Carbon oxides
Other data	:	No decomposition if stored and applied as directed.

SECTION 11: Toxicological information

Acute oral toxicity

2,2,4-Trimethylpentane (Isooctane)	:	LD50: > 5.000 mg/kg Species: Rat Sex: male and female Method: OECD Test Guideline 401 Symptoms: Salivation

Acute inhalation toxicity

2,2,4-Trimethylpentane (Isooctane)	:	LC50: > 33.52milligram per literExposure time: 4 h Species: Rat Sex: male and female Test atmosphere: vapor Method: OECD Test Guideline 403

Acute dermal toxicity

2,2,4-Trimethylpentane (Isooctane)	:	LD50: >2000 milligram per kilogram Species: Rabbit Sex: male and female Method: OECD Test Guideline 402

Isooctane (Pure Grade)
Skin irritation : Irritating to skin.

May cause skin irritation in susceptible persons.

Isooctane (Pure Grade)
Eye irritation : No eye irritation

Vapors may cause irritation to the eyes, respiratory system and the skin.

Sensitization

2,2,4-Trimethylpentane (Isooctane)	:	Does not cause skin sensitization.

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 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.

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.

Isooctane (Pure Grade)
Aspiration toxicity : May be fatal if swallowed and enters airways.
Substances known to cause human aspiration toxicity hazards or to be regarded as if they cause human aspiration toxicity hazard.

CMR effects

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.

Isooctane (Pure Grade)
Further information : 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.

SECTION 12: Ecological information

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.

Toxicity to daphnia and other aquatic invertebrates

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

Toxicity to algae

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

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)

2,2,4-Trimethylpentane (Isooctane) : NOEC: 0,17 mg/l
Exposure time: 21 d
Species: Daphnia magna (Water flea)

Biodegradability

2,2,4-Trimethylpentane (Isooctane) : Result: Not readily biodegradable.
Method: OECD Test Guideline 301
Expected to be inherently biodegradable.
Information given is based on data obtained from similar substances.

Ecotoxicology Assessment

Acute aquatic toxicity
2,2,4-Trimethylpentane (Isooctane) : Very toxic to aquatic life.

Chronic aquatic toxicity
2,2,4-Trimethylpentane : Very toxic to aquatic life with long lasting effects.

(Isooctane)

Results of PBT assessment

2,2,4-Trimethylpentane (Isooctane)	:	Non-classified PBT substance, Non-classified vPvB substance
Additional ecological information	:	An environmental hazard cannot be excluded in the event of unprofessional handling or disposal., Very toxic to aquatic life with long lasting effects.

SECTION 13: Disposal considerations

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

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

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, (2,2,4-TRIMETHYLPENTANE (ISOOCTANE)), 3, II, MARINE POLLUTANT, (2,2,4-TRIMETHYLPENTANE (ISOOCTANE)), RQ (2,2,4-TRIMETHYLPENTANE (ISOOCTANE))

IMO / IMDG (INTERNATIONAL MARITIME DANGEROUS GOODS)

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

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))

RID (REGULATIONS CONCERNING THE INTERNATIONAL TRANSPORT OF DANGEROUS GOODS (EUROPE))
UN1262, OCTANES, 3, II, ENVIRONMENTALLY HAZARDOUS, (2,2,4-TRIMETHYLPENTANE (ISOOCTANE))

ADN (EUROPEAN AGREEMENT CONCERNING THE INTERNATIONAL CARRIAGE OF DANGEROUS GOODS BY INLAND WATERWAYS)
UN1262, OCTANES, 3, II, ENVIRONMENTALLY HAZARDOUS, (2,2,4-TRIMETHYLPENTANE (ISOOCTANE))

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

SECTION 15: Regulatory information

National legislation

Chemical Safety Assessment

Ingredients	:	2,2,4-trimethylpentane	A Chemical Safety Assessment has been carried out for this substance.	208-759-1

Major Accident Hazard Legislation : 96/82/EC Update: 2003
Dangerous for the environment
9a
Quantity 1: 100 t
Quantity 2: 200 t

: 96/82/EC Update: 2003
Highly flammable
7b
Quantity 1: 5.000 t
Quantity 2: 50.000 t

Water contaminating class (Germany) : WGK 3 highly water endangering
List with water hazardous substances (Class 1 till 3) in VwVwS

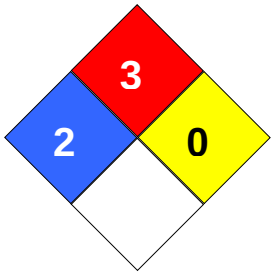
Notification status

Europe REACH	:	On the inventory, or in compliance with the inventory
United States of America TSCA	:	On the inventory, or in compliance with the inventory
Canada DSL	:	On the inventory, or in compliance with the inventory
Australia AICS	:	On the inventory, or in compliance with the inventory
New Zealand NZIoC	:	On the inventory, or in compliance with the inventory
Japan ENCS	:	On the inventory, or in compliance with the inventory
Korea KECI	:	On the inventory, or in compliance with the inventory

Philippines PICCS	:	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 : 26760

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%
AICS	Australia, Inventory of Chemical Substances	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
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%		

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

H225	Highly flammable liquid and vapor.
H304	May be fatal if swallowed and enters airways.
H315	Causes skin irritation.
H335	May cause respiratory irritation.
H336	May cause drowsiness or dizziness.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.

Annex

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

Main User Groups	:	**SU 3:** Industrial uses: Uses of substances as such or in preparations at industrial sites
Sector of use	:	**SU3, SU8, SU9:** Industrial Manufacturing (all), Manufacture of bulk, large scale chemicals (including petroleum products), Manufacture of fine chemicals
Process category	:	**PROC1:** Use in closed process, no likelihood of exposure **PROC2:** Use in closed, continuous process with occasional controlled exposure **PROC3:** Use in closed batch process (synthesis or formulation) **PROC4:** Use in batch and other process (synthesis) where opportunity for exposure arises **PROC8a:** Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities **PROC8b:** Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities **PROC15:** Use as laboratory reagent
Environmental release category	:	**ERC1, ERC4:** 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 %

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 ≥ (%): (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 ≥ (%): (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 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	:	During manufacturing no waste of the substance is generated.

Conditions and measures related to external recovery of waste

Recovery Methods	:	During manufacturing 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

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

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.

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

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: 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

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: 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.

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
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
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	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
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, 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

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

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
CS2: Process sampling
CS14: Bulk transfers
CS107: (closed systems)

CS108: (open 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).

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	:	**SU 3:** Industrial uses: Uses of substances as such or in preparations at industrial sites
Sector of use	:	**SU3:** Industrial Manufacturing (all)
Process category	:	**PROC1:** Use in closed process, no likelihood of exposure **PROC2:** Use in closed, continuous process with occasional controlled exposure **PROC3:** Use in closed batch process (synthesis or formulation) **PROC4:** Use in batch and other process (synthesis) where opportunity for exposure arises **PROC8a:** Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities **PROC8b:** Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities **PROC9:** Transfer of substance or preparation into small containers (dedicated filling line, including weighing) **PROC15:** Use as laboratory reagent
Environmental release category	:	**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

Further information	:	Bulk loading (including marine vessel/barge, rail/road car and IBC loading) and repacking (including drums and small packs) of substance, including its sampling, storage, unloading, maintenance and associated laboratory activities. Excludes emissions during transport.

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

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	:	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 ≥ (%): (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 ≥ (%): (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 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.

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

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)

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
ERC1, ERC2, ERC3, ERC4, ERC5, ERC6a, ERC6b, ERC6c,	Hydrocarbon Block Method with Petrorisk		Air		74 ng/m3	

ERC6d, ERC7						
			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
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
			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.

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	:	**SU 3:** Industrial uses: Uses of substances as such or in preparations at industrial sites
Sector of use	:	**SU 10:** Formulation [mixing] of preparations and/ or re-packaging (excluding alloys)
Process category	:	**PROC1:** Use in closed process, no likelihood of exposure **PROC2:** Use in closed, continuous process with occasional controlled exposure **PROC3:** Use in closed batch process (synthesis or formulation) **PROC4:** Use in batch and other process (synthesis) where opportunity for exposure arises **PROC5:** Mixing or blending in batch processes for formulation of mixtures and articles (multistage and/or significant contact) Industrial setting; **PROC8a:** Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities **PROC8b:** Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities **PROC9:** Transfer of substance or preparation into small containers (dedicated filling line, including weighing) **PROC14:** Production of mixtures or articles by tabletting, compression, extrusion, pelletization; Industrial setting; **PROC15:** Use as laboratory reagent
Environmental release category	:	**ERC2:** 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, tabletting, compression, pelletisation, extrusion, large and small scale packing, sampling, 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

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 ≥ (%): (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 ≥ (%): (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

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

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 mixtures and articles (multistage and/or significant contact) Industrial setting;

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

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

weighing), Production of mixtures or articles by tabletting, compression, extrusion, pelletization; Industrial setting;

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
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
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

			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

	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 mixtures and articles (multistage and/or significant contact) Industrial setting;
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 mixtures or articles by tabletting, compression, extrusion, pelletization; Industrial setting;
CS100: Production or preparation or articles by tabletting, compression, extrusion or pelletization

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 - industrial**

Main User Groups	:	**SU 3:** Industrial uses: Uses of substances as such or in preparations at industrial sites
Sector of use	:	**SU3:** Industrial Manufacturing (all)
Process category	:	**PROC1:** Use in closed process, no likelihood of exposure **PROC2:** Use in closed, continuous process with occasional controlled exposure **PROC3:** Use in closed batch process (synthesis or formulation) **PROC8a:** Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities **PROC8b:** Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities **PROC16:** Using material as fuel sources, limited exposure to unburned product to be expected
Environmental release category	:	**ERC7, ERC8b:** 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 m3/d
Dilution Factor (River)	:	10
Dilution Factor (Coastal Areas)	:	100

Other given operational conditions affecting environmental exposure

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 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

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

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

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	Exposure Assessment	Specific	Compartment	Value type	Level of	Risk characterization

Scenario	Method	conditions			Exposure	ratio
ERC7, ERC8b	Hydrocarbon Block Method with Petrorisk		Air		0,05 mg/m3	
			Freshwater		0,0016 mg/L	0,043
			Freshwater sediment		0,07 mg/kg	0,048
			Marine water		0,16 µg/L	0,0043
			Marine sediment		0,007 mg/kg	0,0048
			Agricultural soil		0,46 µg/kg	0,001

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
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)

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

		controlled exposure **PROC3:** Use in closed batch process (synthesis or formulation) **PROC8a:** Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities **PROC8b:** Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities **PROC16:** Using material as fuel sources, limited exposure to unburned product to be expected
Environmental release category	:	**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
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 ≥ (%): (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 ≥ (%): (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

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

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

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.

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
ERC8b, ERC8e, ERC9a, ERC9b	Hydrocarbon Block Method with Petrorisk		Air		0,074 µg/m3	
			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
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	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, CS15, 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
PROC16, CS15, CS107	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
PROC8a, CS39, CS103	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	93,43 mg/m3	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/m3	0,023
			Worker – dermal, long-term – systemic	1,372 mg/kg/d	0,002
			Worker – long-term – systemic Combined routes		0,025

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 fuel – consumer**

Main User Groups : **SU 21:** Consumer uses: Private households (= general public

		= consumers)
Sector of use	:	**SU 21:** Consumer uses: Private households (= general public = consumers)
Product category	:	**PC13:** Fuels
Environmental release category	:	**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
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 (MSafe) based on release following total wastewater treatment removal (kg/d): (Msafe)	:	240.000

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

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
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

	:	37500 g
Remarks	:	Automotive Refuelling
	:	3750 g
Remarks	:	Scooter Refuelling
	:	750 g
Remarks	:	Garden Equipment- Use
	:	750 g
Remarks	:	Garden Equipment- Refueling
	:	100 g
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
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
ERC8b, ERC8e, ERC9a, ERC9b	Hydrocarbon Block Method with Petrorisk		Air		0,000074 mg/m3	
			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
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/m3	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/m3	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
			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).

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

Main User Groups	:	**SU 3:** Industrial uses: Uses of substances as such or in preparations at industrial sites
Sector of use	:	**SU3:** Industrial Manufacturing (all)
Process category	:	**PROC1:** Use in closed process, no likelihood of exposure **PROC2:** Use in closed, continuous process with occasional controlled exposure **PROC3:** Use in closed batch process (synthesis or formulation) **PROC4:** Use in batch and other process (synthesis) where opportunity for exposure arises **PROC5:** Mixing or blending in batch processes for formulation of mixtures and articles (multistage and/or significant contact) Industrial setting; **PROC7:** Industrial spraying **PROC8a:** Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities **PROC8b:** Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities

		PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing) **PROC10:** Roller application or brushing **PROC13:** Treatment of articles by dipping and pouring **PROC14:** Production of mixtures or articles by tabletting, compression, extrusion, pelletization; Industrial setting; **PROC15:** Use as laboratory reagent
Environmental release category	:	**ERC4:** Industrial use of processing aids in processes and products, not becoming part of articles
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:ERC4: Industrial use of processing aids in processes and products, not becoming part of articles

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

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 ≥ (%): (Effectiveness: 4,3 %)
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 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 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: 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 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 mixtures and articles (multistage and/or significant contact) Industrial setting;, Roller application or brushing, Production of mixtures or articles by tabletting, compression, extrusion, pelletization; Industrial setting;

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.

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

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
ERC4	Hydrocarbon Block Method with Petrorisk		Air		0,015 mg/m3	
			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
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		0,124

			routes		
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 Modified		Worker – inhalation, long-term – systemic	233,58 mg/m3	0,115
			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)
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 mixtures and articles (multistage and/or significant contact) Industrial setting;
CS96: Preparation of material for application
CS30: Mixing operations (open systems)

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

PROC14: Production of mixtures or articles by tabletting, compression, extrusion, pelletization; Industrial setting;
CS100: Production or preparation or articles by tabletting, 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**

Main User Groups	:	**SU 22:** Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Sector of use	:	**SU 22:** Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Process category	:	**PROC1:** Use in closed process, no likelihood of exposure **PROC2:** Use in closed, continuous process with occasional controlled exposure **PROC3:** Use in closed batch process (synthesis or formulation) **PROC4:** Use in batch and other process (synthesis) where opportunity for exposure arises **PROC5:** Mixing or blending in batch processes for formulation of mixtures and articles (multistage and/or significant contact) Industrial setting; **PROC8a:** Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities **PROC8b:** Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities **PROC10:** Roller application or brushing **PROC11:** Non industrial spraying **PROC13:** Treatment of articles by dipping and pouring **PROC15:** Use as laboratory reagent **PROC19:** Hand-mixing with intimate contact and only PPE available
Environmental release category	:	**ERC8a, ERC8d:** 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 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	:	98 %
Emission or Release Factor: Water	:	1 %
Emission or Release Factor: Soil	:	1 %

Technical conditions and measures / Organizational measures

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	:	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.

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

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.

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, 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 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 mixtures and articles (multistage and/or significant contact) Industrial setting;

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 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

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 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	Specific conditions	Compartment	Value type	Level of Exposure	Risk characterization

	Method					ratio
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
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		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 Combined routes		0,072
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 –		0,073

			systemic Combined routes		
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.

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 mixtures and articles (multistage and/or significant contact) Industrial setting;
CS96: Preparation of material for application

PROC5: Mixing or blending in batch processes for formulation of mixtures and articles (multistage and/or significant contact) Industrial setting;
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

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 in Coatings - Consumer**

Main User Groups	:	**SU 21:** Consumer uses: Private households (= general public = consumers)
Sector of use	:	**SU 21:** Consumer uses: Private households (= general public = consumers)
Product category	:	**PC1:** Adhesives, sealants **PC4:** Anti-Freeze and de-icing products **PC8:** Biocidal products (e.g. Disinfectants, pest control) **PC9a:** Coatings and paints, thinners, paint removers **PC9b:** Fillers, putties, plasters, modelling clay **PC9c:** Finger paints **PC15:** Non-metal-surface treatment products **PC18:** Ink and toners

PC23: Leather tanning, dye, finishing, impregnation and care products
PC24: Lubricants, greases, release products
PC31: Polishes and wax blends
PC34: Textile dyes, finishing and impregnating products; including bleaches and other processing aids

Environmental release category : **ERC8a, ERC8d:** 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.

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 (MSafe) based on release following total wastewater treatment removal (kg/d): (Msafe)	:	1.000

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 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

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

	:	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 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.

2.2 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

	:	9 g
Remarks	:	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)
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 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

	:	0,5 g
Remarks	:	Washing car window
	:	2000 g
Remarks	:	Pouring into radiator
	:	4 g
Remarks	:	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

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

	:	15 g
Remarks	:	Laundry and dish washing products
	:	27 g
Remarks	:	Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners)
	:	35 g
Remarks	:	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 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.

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

	:	2760 g
Remarks	:	Waterborne latex wall paint
	:	744 g
Remarks	:	Solvent rich, high solid, water borne paint
	:	215 g
Remarks	:	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 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

	:	85 g
Remarks	:	Fillers and putty
	:	13800 g
Remarks	:	Plasters and floor equalizers
	:	1 g
Remarks	:	Modeling Clay
	:	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
	:	35,73 cm2
Remarks	:	Fillers and putty
Exposed skin area	:	Skin
	:	857,50 cm2
Remarks	:	Plasters and floor equalizers
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: 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

	:	2760 g
Remarks	:	Waterborne latex wall paint
	:	744 g
Remarks	:	Solvent rich, high solid, water borne paint
	:	215 g
Remarks	:	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	:	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

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

	:	40 g
Remarks	:	Ink and toners
	:	56 g
Remarks	:	Polishes, wax / cream (floor, furniture, shoes)
	:	56 g
Remarks	:	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
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

	:	2200 g
Remarks	:	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
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.

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

	:	142 g
Remarks	:	Polishes, wax / cream (floor, furniture, shoes)
	:	35 g
Remarks	:	Polishes, spray (furniture, shoes)
	:	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 bleaches and other processing aids

Human factors not influenced by risk management

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)
Exposed skin area	:	Skin
	:	857,50 cm2
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 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)
Outdoor / Indoor	:	Indoor activities
Room size	:	20 M3
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
ERC8a, ERC8d	Hydrocarbon Block Method with Petrorisk		Air		0,000074 mg/m3	
			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 mg/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
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
			Consumer – oral, long-term – systemic	0,00 mg/kg/d	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
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		0,01

			routes		
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 – 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
			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		Consumer – dermal,	19,65 mg/kg/d	0,03

	Modified		long-term – systemic		
			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
			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
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)

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

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 cleaning agent – industrial**

Main User Groups	:	**SU 3:** Industrial uses: Uses of substances as such or in preparations at industrial sites
Sector of use	:	**SU3:** Industrial Manufacturing (all)
Process category	:	**PROC1:** Use in closed process, no likelihood of exposure **PROC2:** Use in closed, continuous process with occasional controlled exposure **PROC3:** Use in closed batch process (synthesis or formulation) **PROC4:** Use in batch and other process (synthesis) where opportunity for exposure arises **PROC7:** Industrial spraying **PROC8a:** Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities **PROC8b:** Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities **PROC10:** Roller application or brushing **PROC13:** Treatment of articles by dipping and pouring
Environmental release category	:	**ERC4:** 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.

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 (MSafe) based on release following total wastewater treatment removal (tonnes/day): (Msafe)	:	6.800 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	:	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)

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

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.

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
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
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

			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

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	:	**SU 22:** Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Sector of use	:	**SU 22:** Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Process category	:	**PROC1:** Use in closed process, no likelihood of exposure **PROC2:** Use in closed, continuous process with occasional controlled exposure **PROC3:** Use in closed batch process (synthesis or formulation) **PROC4:** Use in batch and other process (synthesis) where opportunity for exposure arises **PROC8a:** Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities **PROC8b:** Transfer of substance or preparation (charging/

		discharging) from/ to vessels/ large containers at dedicated facilities **PROC10:** Roller application or brushing **PROC11:** Non industrial spraying **PROC13:** Treatment of articles by dipping and pouring
Environmental release category	:	**ERC8a, ERC8d:** 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 (MSafe) based on release following total wastewater treatment removal (kg/d):(Msafe)	:	210

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 ≥ (%): (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.

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.

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.

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

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

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.

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
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
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

			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

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

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	:	**SU 21:** Consumer uses: Private households (= general public = consumers)
Sector of use	:	**SU 21:** Consumer uses: Private households (= general public = consumers)
Product category	:	**PC3:** Air care products **PC4:** Anti-Freeze and de-icing products **PC8:** Biocidal products (e.g. Disinfectants, pest control) **PC9a:** Coatings and paints, thinners, paint removers **PC9b:** Fillers, putties, plasters, modelling clay **PC9c:** Finger paints **PC24:** Lubricants, greases, release products **PC35:** Washing and cleaning products (including solvent based products) **PC38:** Welding and soldering products (with flux coatings or flux cores.), flux products
Environmental release category	:	**ERC8a, ERC8d:** 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 (MSafe) based on release	:	160

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 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

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

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

	:	0,1 g
Remarks	:	Air care, instant action (aerosol sprays)
	:	0,48 g
Remarks	:	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)

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

	:	0,5 g
Remarks	:	Washing car window
	:	2000 g
Remarks	:	Pouring into radiator
	:	4 g
Remarks	:	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

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

	:	15 g
Remarks	:	Laundry and dish washing products
	:	27 g
Remarks	:	Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners)
	:	35 g
Remarks	:	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 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.

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

	:	2760 g
Remarks	:	Waterborne latex wall paint
	:	744 g
Remarks	:	Solvent rich, high solid, water borne paint
	:	215 g
Remarks	:	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	:	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: 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

	:	85 g
Remarks	:	Fillers and putty
	:	13800 g
Remarks	:	Plasters and floor equalizers
	:	1 g
Remarks	:	Modeling Clay
	:	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
	:	35,73 cm2
Remarks	:	Fillers and putty
Exposed skin area	:	Skin
	:	857,50 cm2
Remarks	:	Plasters and floor equalizers

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

	:	2200 g
Remarks	:	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 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

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

: 15 g
Remarks : Laundry and dish washing products
: 27 g
Remarks : Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners)
: 35 g
Remarks : Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners)
: 12 g
Remarks : 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

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)
Outdoor / Indoor : Indoor activities
Room size : 20 M3
Ventilation rate per hour : 0,6
Remarks : Welding and soldering products (with flux coatings or flux cores.), flux products

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
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
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

			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

			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

			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

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

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 as a laboratory agent – industrial**

Main User Groups	:	**SU 3:** Industrial uses: Uses of substances as such or in preparations at industrial sites
Sector of use	:	**SU3:** Industrial Manufacturing (all)
Process category	:	**PROC1:** Use in closed process, no likelihood of exposure **PROC10:** Roller application or brushing **PROC15:** Use as laboratory reagent
Environmental release category	:	**ERC2, ERC4:** 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 (MSafe) based on release following total wastewater treatment removal (kg/d):(Msafe)	:	900

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	:	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 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: 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 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
ERC2, ERC4	Hydrocarbon Block Method with Petrorisk		Air		0,13 µg/m3	
			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
PROC10, CS47	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	233,58 mg/m3	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/m3	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

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	:	**SU 22:** Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Sector of use	:	**SU 22:** Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Process category	:	**PROC10:** Roller application or brushing **PROC15:** Use as laboratory reagent
Environmental release category	:	**ERC8a:** 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 (MSafe) based on release following total wastewater treatment removal (kg/d):(Msafe)	:	14

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	:	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 provide the required removal efficiency of ≥ (%): (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 ≥ (%): (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

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
ERC8a	Hydrocarbon Block Method with Petrorisk		Air		0,074 µg/m3	
			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
PROC10, CS47	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	93,43 mg/m3	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/m3	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

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.
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