Safety Data Sheet

according to Regulation (EC) 1907/2006 (REACH)

Revision date: 2020-02-12

Supercedes: 2020-01-29

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

1.1. Product identifier:

Product trade name:	Kalama* K-FLEX* DP
Company product number:	FLEXDP
REACH registration number:	01-2119529241-49-0002
Substance name:	Dipropylene glycol dibenzoate
Substance identification number:	EC 248-258-5
Other means of identification:	Oxydipropyl dibenzoate

1.2. Relevant identified uses of the substance or mixture and uses advised against:

Uses:	Plasticizer. See Annex for covered uses.
Uses advised against:	None identified

1.3. Details of the supplier of the safety data sheet:

Manufacturer/Supplier:	Emerald Kalama Chemical B.V. Havennr. 4322 - Montrealweg 15 3197 KH Rotterdam-Botlek - THE NETHERLANDS Telephone: +31 88 888 0512/-0509 kflex.emea@emeraldmaterials.com
For further information about this SDS:	Email: product.compliance@emeraldmaterials.com

1.4. Emergency telephone number:

ChemTel (24 hours): 1-800-255-3924 (USA); +1-813-248-0585 (outside USA); 1-300-954-583 (Australia); 000-800-100-4086 (India).

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture:

Product classification according to Regulation (EC) 1272/2008 (CLP) as amended:

Hazardous to the aquatic environment, Chronic, category 3, H412

2.2. Label elements:

Product labeling according to Regulation (EC) 1272/2008 (CLP) as amended:

Hazard pictogram(s): Not Applicable

Signal word: Not Applicable

Hazard statements:

H412 Harmful to aquatic life with long lasting effects.

Precautionary statements:

P273 Avoid release to the environment.

Supplemental information: No Additional Information

Precautionary statements are listed according to the United Nations Globally Harmonized System of Classification and Labelling of Chemicals (GHS) - Annex III and ECHA Guidance on Labelling and Packaging. Regulations in individual countries/regions may determine which statements are required on the product label. See product label for specifics.

2.3. Other hazards:

PBT/vPvB criteria:	This product does not meet the PBT and vPvB classification criteria.
Other hazards:	No Additional Information

See Section 11 for toxicological information.

SECTION 3: Composition/information on ingredients

3.1. Substance:

CAS-No.	Chemical Name	Weight%	Classification	H Statements
0027138-31-4	Dipropylene glycol dibenzoate	75-<85	Aquatic Chronic 3	H412

CAS-No.	Chemical Name	Weight%	REACH Registration No.	EC/List Number
0027138-31-4	Dipropylene glycol dibenzoate	75-<85	01-2119529241-49-0002	248-258-5

See Section 16 for full text of H (Hazard) statements (EC 1272/2008).

Amounts specified are typical and do not represent a specification. Remaining components are proprietary, non-hazardous, and/or present at amounts below reportable limits.

SECTION 4: First aid measures

4.1. Description of first aid measures:

General: If irritation or other symptoms occur or persist from any route of exposure, remove the affected individual from the area: see a physician/get medical attention.

Eye contact: Any material that contacts the eye should be washed out immediately with water. Get medical attention if symptoms occur.

Skin contact: Wash the affected area thoroughly with plenty of soap and water. Get medical attention if symptoms occur.

Inhalation: If affected, remove to fresh air. Get medical attention if symptoms occur.

Ingestion: Do not induce vomiting. Never give anything by mouth to an unconscious person. Rinse out the mouth with water. Get medical attention immediately.

Protection of first aid responders: Wear proper personal protective clothing and equipment.

4.2. Most important symptoms and effects, both acute and delayed:

Irritation. Pre-existing skin problems may be aggravated by prolonged or repeated contact. See section 11 for additional information.

4.3. Indication of any immediate medical attention and special treatment needed:

Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media:

Suitable: Use water spray, ABC dry chemical, foam or carbon dioxide. Water or foam may cause frothing. Use water to keep fire-exposed containers cool. Water spray may be used to flush spills away from exposures.

Unsuitable: None known.

5.2. Special hazards arising from the substance or mixture:

Unusual fire/explosion hazards: Product is not considered a fire hazard, but will burn if ignited. Closed container may rupture (due to build up in pressure) when exposed to extreme heat.

Hazardous combustion products: Irritating or toxic substances will be emitted upon burning, combustion or decomposition. See section 10 (10.6 Hazardous decomposition products) for additional information.

5.3. Advice for firefighters:

Wear self-contained breathing apparatus (SCBA) equipped with a full facepiece and operated in a pressure-demand mode (or other positive pressure mode) and approved protective clothing. Personnel without suitable respiratory protection must leave the area to prevent significant exposure to hazardous gases from combustion, burning or decomposition. In an enclosed or poorly ventilated area, wear SCBA during cleanup immediately after a fire as well as during the attack phase of firefighting operations.

See section 9 for additional information.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures:

See Section 8 for recommendations on the use of personal protective equipment. If spilled in an enclosed area, ventilate. Eliminate ignition sources.

6.2. Environmental precautions:

Do not flush liquid into public sewer, water systems or surface waters.

6.3. Methods and material for containment and cleaning up:

Contain by diking with sand, earth or other non-combustible material. Wear proper personal protective clothing and equipment. Absorb spill with an inert material. Place into labeled, closed container; store in safe location to await disposal. Change contaminated clothing and launder before reuse.

6.4. References to other sections:

See Section 8 for recommendations on the use of personal protection and Section 13 for waste disposal.

SECTION 7: Handling and storage

7.1. Precautions for safe handling:

As with any chemical product, use good laboratory/workplace procedures. Do not cut, puncture, or weld on or near the container. Wash thoroughly after handling this product. Always wash up before eating, smoking or using the facilities. Use under well-ventilated conditions. Avoid eye contact. Avoid repeated or prolonged skin contact. Avoid inhalation of aerosol, mist, spray, fume or vapor. Avoid drinking, tasting, swallowing or ingesting this product. Wash contaminated clothing before reuse. Provide eyewash fountains and safety showers in the work area.

7.2. Conditions for safe storage, including any incompatibilities:

Store cool and dry, under well-ventilated conditions. Keep away from heat, sparks and open flames. Store this material away from incompatible substances (see section 10). Do not store in open, unlabeled or mislabeled containers. Keep container closed when not in use. Do not reuse empty container without commercial cleaning or reconditioning. Empty container contains residual product which may exhibit hazards of product. Plasticizer products will soften plastic materials and as a result they should not be transported in piping systems constructed from these materials.

7.3. Specific end use(s):

Further information concerning special risk management measures: see annex of this safety data sheet (exposure scenarios).

SECTION 8: Exposure controls / personal protection

8.1. Control parameters:

Occupational exposure limits (OEL):

Chemical Name	EU OELV	EU IOELV	ACGIH - TWA/Ceiling	ACGIH - STEL
Dipropylene glycol dibenzoate	N/E	N/E	N/E	N/E

Chemical Name	UK WEL	Ireland OEL
Dipropylene glycol dibenzoate	N/E	N/E

N/E=Not established (no exposure limits established for the listed substances for listed country/region/organization).

Derived No Effect Levels (DNELs):

Dipropylene glycol dibenzoate

Population	Route	Acute (local)	Acute (systemic)	Long Term (local)	Long Term (systemic)
Workers	Inhalation	N/E	35,08 mg/m3	N/E	8,8 mg/m3
Workers	Dermal	N/E	170 mg/kg bw/day	N/E	10 mg/kg bw/day
General population	Inhalation	N/E	8,7 mg/m3	N/E	8,69 mg/m3
General population	Dermal	N/E	80 mg/kg bw/day	N/E	0,22 mg/kg bw/day
General population	Oral	N/E	80 mg/kg bw/day	N/E	5 mg/kg bw/day

Predicted No Effect Concentration (PNECs):

Dipropylene glycol dibenzoate

Compartment	PNEC

Compartment	PNEC
Freshwater	3,7 ug/L
Freshwater sediment	1,49 mg/kg dw; 0,323 mg/kg ww
Marine water	0,37 ug/L
Marine water sediment	0,149 mg/kg dw; 0,0323 mg/kg ww
Intermittent releases	37 ug/L
Soil	1 mg/kg ww
STP	10 mg/L
Oral	333 mg/kg food

N/E=Not established; N/A=Not applicable (not required); bw=body weight; dw=dry weight; ww=wet weight.

8.2. Exposure controls:

Appropriate engineering controls: Always provide effective general and, when necessary, local exhaust ventilation to draw spray, aerosol, fume, mist and vapor away from workers to prevent routine inhalation. Ventilation must be adequate to maintain the ambient workplace atmosphere below the exposure limit(s) outlined in the SDS.

Individual protection measures, such as personal protective equipment:

Eye/face protection: Wear eye protection.

Hand protection: Avoid skin contact when mixing or handling the material by wearing impervious and chemical resistant gloves. In case of prolonged immersion or frequently repeated contact, gloves with breakthrough times greater than 240 minutes (protection class 5 or greater) are recommended. For brief contact or splash applications, gloves with breakthrough times of 10 minutes or greater are recommended (protection class 1 or greater). The protective gloves to be used must comply with the specifications of the EC directive 89/686/EEC and the resultant standard EN 374. Suitability and durability of a glove is dependent on usage (e.g. frequency and duration of contact, other chemicals which may be handled, chemical resistance of glove material and dexterity). Always seek advice of the glove supplier as to the most suitable glove material.

Skin and body protection: Use good laboratory/workplace procedures including personal protective clothing: labcoat, safety glasses and protective gloves.

Respiratory protection: Respiratory protection is not needed with proper ventilation. In case of insufficient ventilation, wear suitable respiratory equipment.

Further information: Eyewash fountains and safety showers are recommended in the work area.

Environmental exposure controls: See Sections 6 and 12.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties:

Form:	Liquid	**pH:**	Not Available
Appearance:	Clear, Colorless to light yellow	**Relative density:**	1.11
Odour:	Slight aromatic	**Partition coefficient (n-octanol/water):**	3.9
Odour threshold:	Not Available	**% Volatile by weight:**	3.2%
Solubility in water:	Negligible	**VOC:**	3.2% ASTM D2369
Evaporation rate:	<1	**Boiling point °C:**	>350 °C @ 760 mm Hg (extrapolated)
Vapour pressure:	0.00000257 mm Hg @ 25°C (extrapolated)	**Boiling point °F:**	>662 °F @ 760 mm Hg (extrapolated)
Vapour density:	11.8 (Air=1)	**Flash point:**	204 °C (399 °F) ASTM D-92
Viscosity:	89 cSt @ 25°C; 35 cSt @ 40 °C	**Autoignition temperature:**	Not Available
Melting point/Freezing point:	<-20 °C (<-4 °F)	**Flammability (solid, gas):**	Not Applicable (liquid)
Oxidising properties:	Not oxidizing	**Flammability or explosive limits:**	LFL/LEL: Not Available
Explosive properties:	Not explosive		UFL/UEL: Not Available
Decomposition temperature:	Not Available	**Surface tension:**	42.8 dynes/cm @ 25°C (ASTM D1331)

9.2. Other information:

Amounts specified are typical and do not represent a specification.

SECTION 10: Stability and reactivity

10.1. Reactivity:

None known.

10.2. Chemical stability:

This product is stable.

10.3. Possibility of hazardous reactions:

Hazardous polymerization will not occur.

10.4. Conditions to avoid:

Excessive heat and ignition sources.

10.5. Incompatible materials:

Avoid strong acids, bases, and oxidizing agents. Avoid contact with phenols.

10.6. Hazardous decomposition products:

Carbon dioxide, carbon monoxide and hydrocarbons.

SECTION 11: Toxicological information

11.1. Information on toxicological effects:

Information on likely routes of exposure:

General: Caution must be exercised through the prudent use of protective equipment and handling procedures to minimize exposure.

Eyes: May cause eye irritation.

Skin: May cause skin irritation.

Inhalation: High airborne concentrations of vapors resulting from heating, misting or spraying may cause irritation of the respiratory tract and mucous membranes.

Ingestion: May be harmful if swallowed. Ingestion may cause irritation.

Acute toxicity information: Not classified (based on available data, the classification criteria are not met).

Chemical Name	Inhalation LC50	Species	Oral LD50	Species	Dermal LD50	Species
Dipropylene glycol dibenzoate	>200 mg/L (aerosol, 4 hours)	Rat/ adult	3914 mg/kg	Rat/ adult	>2000 mg/kg	Rat/ adult

Skin corrosion/irritation: Not classified (based on available data, the classification criteria are not met).

Chemical Name	Skin irritation	Species
Dipropylene glycol dibenzoate	Slight irritant	Rabbit/ adult

Serious eye damage/irritation: Not classified (based on available data, the classification criteria are not met).

Chemical Name	Eye irritation	Species
Dipropylene glycol dibenzoate	Slight irritant	Rabbit/ adult

Respiratory or skin sensitization: Not classified (based on available data, the classification criteria are not met).

Chemical Name	Skin sensitisation	Species
Dipropylene glycol dibenzoate	Non-sensitizer	Guinea Pig/ adult

Carcinogenicity: Not classified (based on available data, the classification criteria are not met).

Germ cell mutagenicity: Not classified (based on available data, the classification criteria are not met). DIPROPYLENE GLYCOL DIBENZOATE: In vitro testing showed no mutagenic activity.

Reproductive toxicity: Not classified (based on available data, the classification criteria are not met). DIPROPYLENE GLYCOL DIBENZOATE: Reproductive toxicity, 2-generation oral study in rats: NOAEL (no-observed adverse-effect-level) 500 mg/kg bw/day. Developmental toxicity, oral, rats: NOAEL of 500 mg/kg bw/day; Prenatal Developmental toxicity, oral, rabbit (OECD 414): NOAEL of 250 mg/kg bw/day (maternal toxicity, embryo/fetal developmental toxicity).

Specific target organ toxicity (STOT) - single exposure: Not classified (based on available data, the classification criteria are not met).

Specific target organ toxicity (STOT) - repeated exposure: Not classified (based on available data, the classification criteria are not met). DIPROPYLENE GLYCOL DIBENZOATE: A 13-week dietary study in rats observed decreased body weights, and liver, spleen and caecum effects at a dose of 2500 mg/kg/day which showed completed recovery within 4 weeks after exposure. NOAEL (No-Observed-Adverse-Effect-Level), oral, rat - 1000 mg/kg bw/day.

Aspiration hazard: Not classified (based on available data, the classification criteria are not met).

Other toxicity information: No additional information available.

SECTION 12: Ecological information

12.1. Toxicity:

Chemical Name	Species	Acute	Acute	Chronic
Dipropylene glycol dibenzoate	Fish	LC50 3.7 mg/L (96 hours)	LC50 >3 mg/L(96 hours)	N/E
Dipropylene glycol dibenzoate	Invertebrates	EL50 19.3 mg/L (48 hours)	N/E	N/E
Dipropylene glycol dibenzoate	Algae	EL50 4.9 mg/L (72 hours)	EL50 3.6 mg/L(96 hours)	NOELR 1 mg/L/0.46 mg/L(72 hours/96 hours)

12.2. Persistence and degradability:

Expected to readily biodegrade, based on similar material(s).

Chemical Name	Biodegradation
Dipropylene glycol dibenzoate	Readily biodegradable (OECD 301B)

12.3. Bioaccumulative potential:

Not expected to bioaccumulate.

Chemical Name	Bioconcentration Factor (BCF)	Log Kow
Dipropylene glycol dibenzoate	<200 L/kg	3.9 (20°C)

12.4. Mobility in soil:

KOC=3981 (20°C).

Chemical Name	Mobility in soil (Koc/Kow)
Dipropylene glycol dibenzoate	3981 @ 20°C

12.5. Results of PBT and vPvB assessment:

This product does not meet the PBT and vPvB classification criteria.

12.6. Other adverse effects:

No additional information available.

SECTION 13: Disposal considerations

13.1. Waste treatment methods:

Dispose of unused contents (incineration) in accordance with national and local regulations. Dispose of container in accordance with national and local regulations. Ensure the use of properly authorized waste management companies, where appropriate.

See Section 8 for recommendations on the use of personal protective equipment.

SECTION 14: Transport information

The information below is provided to assist in documentation. It may supplement the information on the package. The package in your possession may carry a different version of the label depending on the date of manufacture. Depending on inner packaging quantities and packaging instructions, it may be subject to specific regulatory exceptions.

14.1. UN number: N/A

14.2. UN proper shipping name:

Not regulated - See Bill of Lading for Details

14.3. Transport hazard class(es):

U.S. DOT hazard class: N/A
Canada TDG hazard class: N/A
Europe ADR/RID hazard class: N/A
IMDG Code (ocean) hazard class: N/A
ICAO/IATA (air) hazard class: N/A

A "N/A" listing for the hazard class indicates the product is not regulated for transport by that regulation.

14.4. Packing group: N/A

14.5. Environmental hazards:

Marine pollutant: Not Applicable

Hazardous substance (USA): Not Applicable

14.6. Special precautions for user:

Not Applicable

14.7. Transport in bulk according to Annex II of Marpol and the IBC Code:

Not Applicable

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

Europe REACh (EC) 1907/2006: Applicable components are registered, exempt or otherwise compliant. REACh is only relevant to substances either manufactured or imported into the EU. Emerald Performance Materials has met its obligations under the REACh regulation. REACh information regarding this product is provided for informational purposes only. Each Legal Entity may have differing REACh obligations, depending on their place in the supply chain. For material manufactured outside of the EU, the importer of record must understand and meet their specific obligations under the regulation.

EU Authorizations and/or restrictions on use: Not Applicable

Other EU information: No Additional Information

National regulations: No Additional Information

Chemical inventories:

Regulation	Status
Australian Inventory of Chemical Substances (AICS):	Y
Canadian Domestic Substances List (DSL):	Y
Canadian Non-Domestic Substances List (NDSL):	N
China Inventory of Existing Chemical Substances (IECSC):	Y
European EC Inventory (EINECS, ELINCS, NLP):	Y
Japan Existing and New Chemical Substances (ENCS):	N
Japan Industrial Safety and Health Law (ISHL):	N
Korean Existing and Evaluated Chemical Substances (KECL):	Y
New Zealand Inventory of Chemicals (NZIoC):	Y
Philippines Inventory of Chemicals and Chemical Substances (PICCS):	Y
Taiwan Inventory of Existing Chemicals:	Y
U.S. Toxic Substances Control Act (TSCA) (Active):	Y

A "Y" listing indicates all intentionally added components are either listed or are otherwise compliant with the regulation. A "N" listing indicates that for one or more components: 1) there is no listing on the public inventory (or is not on the ACTIVE inventory for U.S. TSCA); 2) no information is available; or 3) the component has not been reviewed. A "Y" for New Zealand may mean that a qualified group standard may exist for the components in this product.

15.2. Chemical safety assessment:

A chemical safety assessment has been carried out for the substance or mixture.

SECTION 16: Other information

Hazard (H) Statements in the Composition section (Section 3):

H412 Harmful to aquatic life with long lasting effects.

Reason for revision: Changes in Section(s): 3, 9

Evaulation method for classification of mixtures: Not Applicable (substance)

Legend:
* : Trademark owned by Emerald Performance Materials, LLC.
ACGIH: American Conference of Governmental Industrial Hygienists
EU OELV: European Union Occupational Exposure Limit Value
EU IOELV: European Union Indicative Occupational Exposure Limit Value
N/A: Not Applicable
N/E: None Established
STEL: Short Term Exposure Limit
TWA: Time Weighted Average (exposure for 8-hour workday)

Users Responsibility/Disclaimer of Liability:
The information set forth herein is based on our current knowledge, and is intended to describe the product solely with respect to health, safety and the environment. As such, it must not be interpreted as a guarantee of any specific property of the product. As a result, the customer shall be solely responsible for deciding whether said information is suitable and beneficial.

Safety Data Sheet Preparer:
Product Compliance Department
Emerald Performance Materials, LLC
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United States

Annex

Exposure Scenarios

Substance information:

Name of substance: Dipropylene glycol dibenzoate.
EC# 248-258-5 / CAS# 27138-31-4
REACH Registration number: 01-2119529241-49-0002

List of exposure scenarios:

ES1: Manufacture and use as process/solvent carrier.
ES2: Formulation.
ES3: Industrial use of adhesives and sealants.
ES4: Professional and consumer use of adhesives and sealants.
ES5: Industrial use of coatings and inks.
ES6: Professional use of coatings and inks.
ES7: Consumer use of coatings and inks.
ES8: Industrial use of lubricant additives.
ES9: Professional use of lubricant additives.
ES10: Industrial use as a plasticizer.
ES11: Professional and consumer use as a plasticizer.
ES12: Professional and consumer use as a carrier for agrochemicals.
ES13: Professional laboratory use.
ES14: Consumer use of cosmetics and personal care products.
ES15: Distribution and storage.

General remarks:

Dipropylene glycol dibenzoate (DPGDB) is mainly used as a chemical intermediate for industrial use. The most likely route of human exposure (workers) to DPGDB is through inhalation or dermal contact. Worker exposure can occur in industrial facilities where the substance is used as chemical intermediate. Since this type of activities is mainly undertaken in closed systems, exposure in general is fairly low. Dipropylene glycol dibenzoate is a readily biodegrable, non-hydrophobic liquid.

Exposure scenario (1): Manufacture and use as process/solvent carrier

1. Exposure scenario (1)

Short title of the exposure scenario:
Manufacture and use as process/solvent carrier

List of use descriptors:
Sector of use category (SU): SU3, SU8, SU9, SU10
Process category (PROC): PROC1, PROC2, PROC3, PROC4, PROC5, PROC6, PROC8a, PROC8b, PROC9, PROC14, PROC15

Environmental release category (ERC): ERC1 (ESVOC SpERC 1.1.v1)

List of names of contributing worker scenarios and corresponding PROCs:

PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions.
PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions.
PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition.
PROC4 Chemical production where opportunity for exposure arises.
PROC5 Mixing or blending in batch processes. Covers mixing or blending of solid or liquid materials in the context of manufacturing or formulating sectors, as well as upon end use.
PROC6 Calendering operations. Processing of large surfaces at elevated temperature e.g. calendering of textile, rubber or paper.
PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities. Transfer includes loading, filling, dumping, bagging and weighing.
PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities. Transfer includes loading, filling, dumping, bagging.
PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing). Filling lines specifically designed to both capture vapour and aerosol emissions and minimise spillage.
PROC14 Tabletting, compression, extrusion, pelletisation, granulation. This covers processing of mixtures and/or substances into a defined shape for further use.
PROC15 Use as laboratory reagent. Use of substances at small scale laboratory (< 1 l or 1 kg present at workplace).

Name of contributing environmental scenario and corresponding ERCs:

ERC1 Manufacture of the substance.

Further explanations:

Manufacture of the substance or use as an intermediate or process chemical or extraction agent. Includes recycling/ recovery, material transfers, storage, maintenance and loading (including marine vessel/barge, road/rail car and bulk container).

For further information on standardized use descriptors see the European Chemical Agency (ECHA) Guidance on information requirements and chemical safety assessment, Chapter R.12: Use descriptor system (http://guidance.echa.europa.eu/docs/guidance_document/information_requirements_r12_en.pdf). For further information on CEFIC (The European Chemical Industry Council) Specific Environmental Release Categories (SpERCs), see http://www.cefic.org/Industry-support/Implementing-reach/Libraries/.

2. Conditions of use affecting exposure

2.1 Control of workers exposure

General:	This substance is not classified for human health end-points therefore a human health risk assessment was not conducted.

2.2 Control of environmental exposure

Product characteristics:	Concentration of substance: Up to 100%. Physical state: liquid. Vapour pressure: 0.00016 Pa at 25 °C
Amounts used:	Maximum daily use at a site: 23167 kg/day. Maximum annual use at a site: 6950 tons/year. Fraction of EU tonnage used in region: 1. Fraction of regional tonnage used locally: 1.
Frequency and duration of use:	Emission days: 300 days/year. Continuous use/release.
Environmental factors not influenced by risk management:	Flow rate of receiving surface water: >=18,000 m3/day (default). Local freshwater dilution factor: 10 (default). Local marine water dilution factor: 100 (default).
Other given operational conditions affecting environmental exposure:	Industry category: 15/0: Others. Use category: 55: Others. Release fraction to air from process: 0.00005 (ESVOC SpERC 1.1.v1). Release fraction to wastewater from process: 0.00003 (ESVOC SpERC 1.1.v1). Release fraction to soil from process: 0.0001 (ESVOC SpERC 1.1.v1).
Conditions and measures related to municipal sewage treatment plant:	Municipal Sewage Treatment Plant (STP): Yes (freshwater). Size of municipal sewage system/treatment plant: >=2000 m3/day (standard town). Estimated substance removal from wastewater via domestic sewage treatment: 88.4% (EUSES).
Conditions and measures related to external treatment of waste for disposal:	External treatment and disposal of waste should comply with applicable local and/or national regulations.
Conditions and measures related to external recovery of waste:	External recovery and recycling of waste should comply with applicable local and/or national regulations.
Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply:	Spills are cleaned immediately. All risk management measures utilised must also comply with all relevant local regulations.

3. Exposure estimation and reference to its source

Environment

Information for contributing scenario (2): ERC1 (ESVOC SpERC 1.1.v1)

Assessment method: EUSES.

Exposure estimation:

Compartment	PEC	RCR	Notes
Freshwater	0.00364 mg/L	0.983	
Freshwater sediment	0.318 mg/kg ww	0.983	
Marine water	0.000369 mg/L	0.996	
Marine water sediment	0.0322 mg/kg ww	0.996	
Soil	0.237 mg/kg ww	0.237	
STP	0.0346 mg/L	0.00346	

RCR=Risk characterization ratio (PEC/PNEC or Exposure estimate/DNEL); PEC=Predicted environmental concentration.

4. Guidance to the Downstream User to evaluate whether he works inside the boundaries set by the ES

Environment: Continuous use/release. Maximum daily use at a site: 23167 kg/day. Discharge to either on-site or municipal sewage treatment plant (STP). Estimated substance removal from wastewater via domestic sewage treatment: 88.4% (EUSES). The downstream user can check the compliance of his site by comparing site specific data with defaults used in the exposure assessment. The site specific quotient should be inferior or equal to the SpERC quotient. Further details on scaling and control technologies are provided in the SpERC factsheet (http://www.cefic.org/Industry-support/Implementing-reach/Libraries/).

(MSpERC * (1 - Eer-SpERC * Frelease-SpERC)/DFSpERC)/DFSpERC >= (Msite * (1 - Eer-site) * Frelease-site)/DFsite

- MSpERC = substance use rate in SpERC
- Eer-SpERC = efficacy of risk management measure in SpERC
- Frelease-SpERC = initial release fraction in SpERC
- DF-SpERC = dilution factor of STP (sewage treatment plant) effluent in river
- Msite = substance use rate at site
- Eer-site = efficacy of risk management measure at site
- DFsite = dilution factor of site STP (sewage treatment plant) effluent in river

Exposure scenario (2): Formulation

1. Exposure scenario (2)

Short title of the exposure scenario:

Formulation

List of use descriptors:

Sector of use category (SU): SU10

Process category (PROC): PROC1, PROC2, PROC3, PROC4, PROC5, PROC6, PROC8a, PROC8b, PROC9, PROC14, PROC15

Environmental release category (ERC): ERC2, ERC3 (ESVOC SpERC 2.2.v1)

List of names of contributing worker scenarios and corresponding PROCs:

PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions.

PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions.

PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition.

PROC4 Chemical production where opportunity for exposure arises.

PROC5 Mixing or blending in batch processes. Covers mixing or blending of solid or liquid materials in the context of manufacturing or formulating sectors, as well as upon end use.

PROC6 Calendering operations. Processing of large surfaces at elevated temperature e.g. calendering of textile, rubber or paper.

PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities. Transfer includes loading, filling, dumping, bagging and weighing.

PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities. Transfer includes loading, filling, dumping, bagging.

PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing). Filling lines specifically designed to both capture vapour and aerosol emissions and minimise spillage.

PROC14 Tabletting, compression, extrusion, pelletisation, granulation. This covers processing of mixtures and/or substances into a defined shape for further use.

PROC15 Use as laboratory reagent. Use of substances at small scale laboratory (< 1 l or 1 kg present at workplace).

Name of contributing environmental scenario and corresponding ERCs:

ERC2 Formulation into mixture.
ERC3 Formulation into solid matrix.

Further explanations:

Formulation, packing and re-packing of the substance and its mixtures in batch or continuous operations, including storage, materials transfers, mixing, large and small scale packing and maintenance.

For further information on standardized use descriptors see the European Chemical Agency (ECHA) Guidance on information requirements and chemical safety assessment, Chapter R.12: Use descriptor system (http://guidance.echa.europa.eu/docs/guidance_document/information_requirements_r12_en.pdf). For further information on CEFIC (The European Chemical Industry Council) Specific Environmental Release Categories (SpERCs), see http://www.cefic.org/Industry-support/Implementing-reach/Libraries/.

2. Conditions of use affecting exposure

2.1 Control of workers exposure

General:	This substance is not classified for human health end-points therefore a human health risk assessment was not conducted.

2.2 Control of environmental exposure

Product characteristics:	Concentration of substance: Up to 100%. Physical state: liquid. Vapour pressure: 0.00016 Pa at 25 °C
Amounts used:	Maximum daily use at a site: 34767 kg/day. Maximum annual use at a site: 10430 tonnes/year. Fraction of EU tonnage used in region: 1. Fraction of regional tonnage used locally: 1.
Frequency and duration of use:	Emission days: 300 days/year. Continuous use/release.
Environmental factors not influenced by risk management:	Flow rate of receiving surface water: >=18,000 m3/day (default). Local freshwater dilution factor: 10 (default). Local marine water dilution factor: 100 (default).
Other given operational conditions affecting environmental exposure:	Industry category: 15/0: Others. Use category: 55: Others. Release fraction to air from process: 0.0025 (ESVOC SpERC 2.2.v1). Release fraction to wastewater from process: 0.00002 (ESVOC SpERC 2.2.v1). Release fraction to soil from process: 0.0001 (ESVOC SpERC 2.2.v1).
Conditions and measures related to municipal sewage treatment plant:	Municipal Sewage Treatment Plant (STP): Yes (freshwater). Size of municipal sewage system/treatment plant: >=2000 m3/day (standard town). Estimated substance removal from wastewater via domestic sewage treatment: 88.4% (EUSES).
Conditions and measures related to external treatment of waste for disposal:	External treatment and disposal of waste should comply with applicable local and/or national regulations.
Conditions and measures related to external recovery of waste:	External recovery and recycling of waste should comply with applicable local and/or national regulations.
Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply:	Spills are cleaned immediately. All risk management measures utilised must also comply with all relevant local regulations.

3. Exposure estimation and reference to its source

Environment

Information for contributing scenario (2): ERC2, ERC3 (ESVOC SpERC 2.2.v1)

Assessment method: EUSES.

Exposure estimation:

Compartment	PEC	RCR	Notes
Freshwater	0.00364 mg/L	0.983	
Freshwater sediment	0.318 mg/kg ww	0.983	
Marine water	0.000369 mg/L	0.996	
Marine water sediment	0.0322 mg/kg ww	0.996	
Soil	0.294 mg/kg ww	0.294	
STP	0.0346 mg/L	0.00346	

RCR=Risk characterization ratio (PEC/PNEC or Exposure estimate/DNEL); PEC=Predicted environmental concentration.

4. Guidance to the Downstream User to evaluate whether he works inside the boundaries set by the ES

Environment:	Continuous use/release. Maximum daily use at a site: 34767 kg/day. Discharge to either on-site or municipal sewage treatment plant (STP). Estimated substance removal from wastewater via domestic sewage treatment: 88.4% (EUSES). The downstream user can check the compliance of his site by comparing site specific data with defaults used in the exposure assessment. The site specific quotient should be inferior or equal to the SpERC quotient. Further details on scaling and control technologies are provided in the SpERC factsheet (http://www.cefic.org/Industry-support/Implementing-reach/Libraries/). (MSpERC * (1 - Eer-SpERC * Frelease-SpERC)/DFSpERC)/DFSpERC >= (Msite * (1 - Eer-site) * Frelease-site)/DFsite - MSpERC = substance use rate in SpERC - Eer-SpERC = efficacy of risk management measure in SpERC - Frelease-SpERC = initial release fraction in SpERC - DF-SpERC = dilution factor of STP (sewage treatment plant) effluent in river - Msite = substance use rate at site - Eer-site = efficacy of risk management measure at site - DFsite = dilution factor of site STP (sewage treatment plant) effluent in river

Exposure scenario (3): Industrial use of adhesives and sealants

1. Exposure scenario (3)

Short title of the exposure scenario:

Industrial use of adhesives and sealants

List of use descriptors:

Sector of use category (SU): SU3
Process category (PROC): PROC1, PROC2, PROC3, PROC4, PROC5, PROC7, PROC8b, PROC9, PROC10, PROC13, PROC14
Environmental release category (ERC): ERC5 (FEICA SpERC 5.2a.v1)

List of names of contributing worker scenarios and corresponding PROCs:

PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions.
PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions.
PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition.
PROC4 Chemical production where opportunity for exposure arises.
PROC5 Mixing or blending in batch processes. Covers mixing or blending of solid or liquid materials in the context of manufacturing or formulating sectors, as well as upon end use.
PROC7 Industrial spraying. Air dispersive techniques i.e. dispersion into air (= atomization) by e.g. pressurized air, hydraulic pressure or centrifugation, applicable for liquids and powders.
PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities. Transfer includes loading, filling, dumping, bagging.
PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing). Filling lines specifically designed to both capture vapour and aerosol emissions and minimise spillage.
PROC10 Roller application or brushing. This includes application of paints, coatings, removers, adhesives or cleaning agents to surfaces with potential exposure arising from splashes.
PROC13 Treatment of articles by dipping and pouring.
PROC14 Tabletting, compression, extrusion, pelletisation, granulation. This covers processing of mixtures and/or substances into a defined shape for further use.

Name of contributing environmental scenario and corresponding ERCs:

ERC5 Use at industrial site leading to inclusion into/onto article.

Further explanations:

Covers the industrial use in adhesives (sealants, etc) including exposures during use (including materials receipt, storage, preparation and transfer from bulk and semi-bulk, application by spray, roller, spreader, dip) and equipment cleaning and maintenance.

For further information on standardized use descriptors see the European Chemical Agency (ECHA) Guidance on information requirements and chemical safety assessment, Chapter R.12: Use descriptor system (http://guidance.echa.europa.eu/docs/guidance_document/information_requirements_r12_en.pdf). For further information on CEFIC (The European Chemical Industry Council) Specific Environmental Release Categories (SpERCs), see http://www.cefic.org/Industry-support/Implementing-reach/Libraries/.

2. Conditions of use affecting exposure

2.1 Control of workers exposure

General:	This substance is not classified for human health end-points therefore a human health risk assessment was not conducted.

2.2 Control of environmental exposure

Product characteristics:	Concentration of substance: Up to 100%. Physical state: liquid. Vapour pressure: 0.00016 Pa at 25 °C

Amounts used:	Maximum daily use at a site: 51295 kg/day. Maximum annual use at a site: 11285 tons/year. Fraction of EU tonnage used in region: 1. Fraction of regional tonnage used locally: 1.
Frequency and duration of use:	Emission days: 220 days/year. Continuous use/release.
Environmental factors not influenced by risk management:	Flow rate of receiving surface water: >=18,000 m3/day (default). Local freshwater dilution factor: 10 (default). Local marine water dilution factor: 100 (default).
Other given operational conditions affecting environmental exposure:	Industry category: 15/0: Others. Use category: 55: Others. Release fraction to air from process: 0.2 (FEICA SpERC 5.2a.v1). Release fraction to wastewater from process: 0 (FEICA SpERC 5.2a.v1). Release fraction to soil from process: 0 (FEICA SpERC 5.2a.v1).
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil:	Treat air emission to provide a typical removal efficiency of 80%.
Conditions and measures related to municipal sewage treatment plant:	Municipal Sewage Treatment Plant (STP): Yes (freshwater). Size of municipal sewage system/treatment plant: >=2000 m3/day (standard town). Estimated substance removal from wastewater via domestic sewage treatment: 88.4% (EUSES).
Conditions and measures related to external treatment of waste for disposal:	External treatment and disposal of waste should comply with applicable local and/or national regulations.
Conditions and measures related to external recovery of waste:	External recovery and recycling of waste should comply with applicable local and/or national regulations.
Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply:	Spills are cleaned immediately. All risk management measures utilised must also comply with all relevant local regulations.

3. Exposure estimation and reference to its source

Environment

Information for contributing scenario (2): ERC5 (FEICA SpERC 5.2a.v1)

Assessment method: EUSES.

Exposure estimation:

Compartment	PEC	RCR	Notes
Freshwater	0.000202 mg/L	0.0546	
Freshwater sediment	0.0176 mg/kg ww	0.0546	
Marine water	0.000025 mg/L	0.0676	
Marine water sediment	0.00218 mg/kg ww	0.0676	
Soil	0.998 mg/kg ww	0.998	
STP	0 mg/L	0	

RCR=Risk characterization ratio (PEC/PNEC or Exposure estimate/DNEL); PEC=Predicted environmental concentration.

4. Guidance to the Downstream User to evaluate whether he works inside the boundaries set by the ES

Environment: Continuous use/release. Maximum daily use at a site: 51295 kg/day. Discharge to either on-site or municipal sewage treatment plant (STP). Estimated substance removal from wastewater via domestic sewage treatment: 88.4% (EUSES). Treat air emission to provide a typical removal efficiency of 80%. The downstream user can check the compliance of his site by comparing site specific data with defaults used in the exposure assessment. The site specific quotient should be inferior or equal to the SpERC quotient. Further details on scaling and control technologies are provided in the SpERC factsheet (http://www.cefic.org/Industry-support/Implementing-reach/Libraries/).

(MSpERC * (1 - Eer-SpERC * Frelease-SpERC)/DFSpERC)/DFSpERC >= (Msite * (1 - Eer-site) * Frelease-site)/ DFsite

- MSpERC = substance use rate in SpERC
- Eer-SpERC = efficacy of risk management measure in SpERC
- Frelease-SpERC = initial release fraction in SpERC
- DF-SpERC = dilution factor of STP (sewage treatment plant) effluent in river
- Msite = substance use rate at site
- Eer-site = efficacy of risk management measure at site
- DFsite = dilution factor of site STP (sewage treatment plant) effluent in river

Exposure scenario (4): Professional and consumer use of adhesives and sealants

1. Exposure scenario (4)

Short title of the exposure scenario:

Professional and consumer use of adhesives and sealants

List of use descriptors:

Sector of use category (SU): SU21, SU22
Product category (PC): PC1
Process category (PROC): PROC2, PROC3, PROC5, PROC8a, PROC9, PROC10, PROC11, PROC13
Environmental release category (ERC): ERC8c, ERC8f, ERC10a, ERC11a (FEICA SpERC 8c.1b.v1)
Article category (AC): AC8

List of names of contributing worker scenarios and corresponding PROCs:

PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions.
PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition.
PROC5 Mixing or blending in batch processes. Covers mixing or blending of solid or liquid materials in the context of manufacturing or formulating sectors, as well as upon end use.
PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities. Transfer includes loading, filling, dumping, bagging and weighing.
PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing). Filling lines specifically designed to both capture vapour and aerosol emissions and minimise spillage.
PROC10 Roller application or brushing. This includes application of paints, coatings, removers, adhesives or cleaning agents to surfaces with potential exposure arising from splashes.
PROC11 Non industrial spraying. Air dispersive techniques i.e. dispersion into air (= atomization) by e.g. pressurized air, hydraulic pressure or centrifugation, applicable for liquids and powders.
PROC13 Treatment of articles by dipping and pouring.

Name of contributing environmental scenario and corresponding ERCs:

ERC8c Widespread use leading to inclusion into/onto article (indoor).
ERC8f Widespread use leading to inclusion into/onto article (outdoor).
ERC10a Widespread use of articles with low release (outdoor).
ERC11a Widespread use of articles with low release (indoor).

Further explanations:

Covers the professional and private use in adhesives (sealants, etc) including exposures during use (including materials receipt, storage, preparation and transfer from bulk and semi-bulk, application by spray, roller, spreader, dip) and equipment cleaning and maintenance.

For further information on standardized use descriptors see the European Chemical Agency (ECHA) Guidance on information requirements and chemical safety assessment, Chapter R.12: Use descriptor system (http://guidance.echa.europa.eu/docs/guidance_document/information_requirements_r12_en.pdf). For further information on CEFIC (The European Chemical Industry Council) Specific Environmental Release Categories (SpERCs), see http://www.cefic.org/Industry-support/Implementing-reach/Libraries/.

2. Conditions of use affecting exposure

2.1 Control of workers exposure

General: This substance is not classified for human health end-points therefore a human health risk assessment was not conducted.

2.2 Control of environmental exposure

Product characteristics:	Concentration of substance: Up to 100%. Physical state: liquid. Vapour pressure: 0.00016 Pa at 25 °C
Amounts used:	Amounts used in the EU: 3050 tonnes/year. Fraction of EU tonnage used in region: 0.1. Fraction of regional tonnage used locally: 0.002.
Frequency and duration of use:	Emission days: <=365 days/year. Wide dispersive use.
Environmental factors not influenced by risk management:	Flow rate of receiving surface water: >=18,000 m3/day (default). Local freshwater dilution factor: 10 (default). Local marine water dilution factor: 100 (default).
Other given operational conditions affecting environmental exposure:	Industry category: 15/0: Others. Use category: 55: Others. Release fraction to air from process: 0 (FEICA SpERC 8c.1b.v1). Release fraction to wastewater from process: 0.009 (FEICA SpERC 8c.1b.v1). Release fraction to soil from process: 0 (FEICA SpERC 8c.1b.v1).
Conditions and measures related to municipal sewage treatment plant:	Municipal Sewage Treatment Plant (STP): Yes (freshwater). Size of municipal sewage system/treatment plant: >=2000 m3/day (standard town). Estimated substance removal from wastewater via domestic sewage treatment: 88.4% (EUSES).
Conditions and measures related to external treatment of waste for disposal:	External treatment and disposal of waste should comply with applicable local and/or national regulations.
Conditions and measures related to external recovery of waste:	External recovery and recycling of waste should comply with applicable local and/or national regulations.
Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply:	Spills are cleaned immediately. All risk management measures utilised must also comply with all relevant local regulations.

3. Exposure estimation and reference to its source

Environment

Information for contributing scenario (2): ERC8c, ERC8f, ERC10a, ERC11a (FEICA SpERC 8c.1b.v1)

Assessment method: EUSES.

Exposure estimation:

Compartment	PEC	RCR	Notes
Freshwater	0.000276 mg/L	0.0747	
Freshwater sediment	0.0241 mg/kg ww	0.0747	
Marine water	0.0000324 mg/L	0.0877	
Marine water sediment	0.00283 mg/kg ww	0.0877	
Soil	0.0117 mg/kg ww	0.0117	
STP	0.000748 mg/L	0	

RCR=Risk characterization ratio (PEC/PNEC or Exposure estimate/DNEL); PEC=Predicted environmental concentration.

4. Guidance to the Downstream User to evaluate whether he works inside the boundaries set by the ES

Environment: Wide dispersive use. Discharge to either on-site or municipal sewage treatment plant (STP). Estimated substance removal from wastewater via domestic sewage treatment: 88.4% (EUSES).

Exposure scenario (5): Industrial use of coatings and inks

1. Exposure scenario (5)

Short title of the exposure scenario:

Industrial use of coatings and inks

List of use descriptors:

Sector of use category (SU): SU3

Process category (PROC): PROC1, PROC2, PROC3, PROC4, PROC5, PROC7, PROC8a, PROC8b, PROC10, PROC13

Environmental release category (ERC): ERC5 (ESVOC SpERC 4.3a.v1)

List of names of contributing worker scenarios and corresponding PROCs:

PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions.

PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions.

PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition.

PROC4 Chemical production where opportunity for exposure arises.
PROC5 Mixing or blending in batch processes. Covers mixing or blending of solid or liquid materials in the context of manufacturing or formulating sectors, as well as upon end use.
PROC7 Industrial spraying. Air dispersive techniques i.e. dispersion into air (= atomization) by e.g. pressurized air, hydraulic pressure or centrifugation, applicable for liquids and powders.
PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities. Transfer includes loading, filling, dumping, bagging and weighing.
PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities. Transfer includes loading, filling, dumping, bagging.
PROC10 Roller application or brushing. This includes application of paints, coatings, removers, adhesives or cleaning agents to surfaces with potential exposure arising from splashes.
PROC13 Treatment of articles by dipping and pouring.

Name of contributing environmental scenario and corresponding ERCs:

ERC5 Use at industrial site leading to inclusion into/onto article.

Further explanations:

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 and maintenance.

For further information on standardized use descriptors see the European Chemical Agency (ECHA) Guidance on information requirements and chemical safety assessment, Chapter R.12: Use descriptor system (http://guidance.echa.europa.eu/docs/guidance_document/information_requirements_r12_en.pdf). For further information on CEFIC (The European Chemical Industry Council) Specific Environmental Release Categories (SpERCs), see http://www.cefic.org/Industry-support/Implementing-reach/Libraries/.

2. Conditions of use affecting exposure

2.1 Control of workers exposure

General:	This substance is not classified for human health end-points therefore a human health risk assessment was not conducted.

2.2 Control of environmental exposure

Product characteristics:	Concentration of substance: Up to 100%. Physical state: liquid. Vapour pressure: 0.00016 Pa at 25 °C
Amounts used:	Maximum daily use at a site: 9883 kg/day. Maximum annual use at a site: 2965 tonnes/year. Fraction of EU tonnage used in region: 1. Fraction of regional tonnage used locally: 1.
Frequency and duration of use:	Emission days: 300 days/year. Continuous use/release.
Environmental factors not influenced by risk management:	Flow rate of receiving surface water: >=18,000 m3/day (default). Local freshwater dilution factor: 10 (default). Local marine water dilution factor: 100 (default).
Other given operational conditions affecting environmental exposure:	Industry category: 15/0: Others. Use category: 55: Others. Release fraction to air from process: 0.98 (ESVOC SpERC 4.3a.v1). Release fraction to wastewater from process: 0.00007 (ESVOC SpERC 4.3a.v1). Release fraction to soil from process: 0 (ESVOC SpERC 4.3a.v1).
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil:	Treat air emission to provide a typical removal efficiency of 90%.
Conditions and measures related to municipal sewage treatment plant:	Municipal Sewage Treatment Plant (STP): Yes (freshwater). Size of municipal sewage system/treatment plant: >=2000 m3/day (standard town). Estimated substance removal from wastewater via domestic sewage treatment: 88.4% (EUSES).
Conditions and measures related to external treatment of waste for disposal:	External treatment and disposal of waste should comply with applicable local and/or national regulations.
Conditions and measures related to external recovery of waste:	External recovery and recycling of waste should comply with applicable local and/or national regulations.
Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply:	Spills are cleaned immediately. All risk management measures utilised must also comply with all relevant local regulations.

3. Exposure estimation and reference to its source

Environment

Information for contributing scenario (2): ERC5 (ESVOC SpERC 4.3a.v1)

Assessment method: EUSES.

Exposure estimation:

Compartment	PEC	RCR	Notes
Freshwater	0.00362 mg/L	0.979	
Freshwater sediment	0.316 mg/kg ww	0.979	
Marine water	0.000367 mg/L	0.992	
Marine water sediment	0.0321 mg/kg ww	0.992	
Soil	0.874 mg/kg ww	0.874	
STP	0.0344 mg/L	0.00344	

RCR=Risk characterization ratio (PEC/PNEC or Exposure estimate/DNEL); PEC=Predicted environmental concentration.

4. Guidance to the Downstream User to evaluate whether he works inside the boundaries set by the ES

Environment: Continuous use/release. Maximum daily use at a site: 9883 kg/day. Discharge to either on-site or municipal sewage treatment plant (STP). Estimated substance removal from wastewater via domestic sewage treatment: 88.4% (EUSES). Treat air emission to provide a typical removal efficiency of 90%. The downstream user can check the compliance of his site by comparing site specific data with defaults used in the exposure assessment. The site specific quotient should be inferior or equal to the SpERC quotient. Further details on scaling and control technologies are provided in the SpERC factsheet (http://www.cefic.org/Industry-support/Implementing-reach/Libraries/).

(MSpERC * (1 - Eer-SpERC * Frelease-SpERC)/DFSpERC)/DFSpERC >= (Msite * (1 - Eer-site) * Frelease-site)/ DFsite

- MSpERC = substance use rate in SpERC
- Eer-SpERC = efficacy of risk management measure in SpERC
- Frelease-SpERC = initial release fraction in SpERC
- DF-SpERC = dilution factor of STP (sewage treatment plant) effluent in river
- Msite = substance use rate at site
- Eer-site = efficacy of risk management measure at site
- DFsite = dilution factor of site STP (sewage treatment plant) effluent in river

Exposure scenario (6): Professional use of coatings and inks

1. Exposure scenario (6)

Short title of the exposure scenario:

Professional use of coatings and inks

List of use descriptors:

Sector of use category (SU): SU22
Process category (PROC): PROC2, PROC3, PROC4, PROC5, PROC8a, PROC10, PROC11, PROC13, PROC19
Environmental release category (ERC): ERC8c, ERC8f (ESVOC SpERC 8.3b.v1)

List of names of contributing worker scenarios and corresponding PROCs:

PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions.
PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition.
PROC4 Chemical production where opportunity for exposure arises.
PROC5 Mixing or blending in batch processes. Covers mixing or blending of solid or liquid materials in the context of manufacturing or formulating sectors, as well as upon end use.
PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities. Transfer includes loading, filling, dumping, bagging and weighing.
PROC10 Roller application or brushing. This includes application of paints, coatings, removers, adhesives or cleaning agents to surfaces with potential exposure arising from splashes.
PROC11 Non industrial spraying. Air dispersive techniques i.e. dispersion into air (= atomization) by e.g. pressurized air, hydraulic pressure or centrifugation, applicable for liquids and powders.
PROC13 Treatment of articles by dipping and pouring.
PROC19 Manual activities involving hand contact. Addresses tasks, where exposure of hands and forearms can be expected; no dedicated tools or specific exposure controls other than PPE can be put in place.

Name of contributing environmental scenario and corresponding ERCs:

ERC8c Widespread use leading to inclusion into/onto article (indoor).
ERC8f Widespread use leading to inclusion into/onto article (outdoor).

Further explanations:

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, brush, spreader by hand or similar methods, and equipment cleaning and

maintenance.

For further information on standardized use descriptors see the European Chemical Agency (ECHA) Guidance on information requirements and chemical safety assessment, Chapter R.12: Use descriptor system (http://guidance.echa.europa.eu/docs/guidance_document/information_requirements_r12_en.pdf). For further information on CEFIC (The European Chemical Industry Council) Specific Environmental Release Categories (SpERCs), see http://www.cefic.org/Industry-support/Implementing-reach/Libraries/.

2. Conditions of use affecting exposure

2.1 Control of workers exposure

General:	This substance is not classified for human health end-points therefore a human health risk assessment was not conducted.

2.2 Control of environmental exposure

Product characteristics:	Concentration of substance: Up to 100%. Physical state: liquid. Vapour pressure: 0.00016 Pa at 25 °C
Amounts used:	Amounts used in the EU: 425 tonnes/year. Fraction of EU tonnage used in region: 0.1. Fraction of regional tonnage used locally: 0.0005.
Frequency and duration of use:	Emission days: <=365 days/year. Wide dispersive use.
Environmental factors not influenced by risk management:	Flow rate of receiving surface water: >=18,000 m3/day (default). Local freshwater dilution factor: 10 (default). Local marine water dilution factor: 100 (default).
Other given operational conditions affecting environmental exposure:	Industry category: 15/0: Others. Use category: 55: Others. Release fraction to air from process: 0.98 (ESVOC SpERC 8.3b.v1). Release fraction to wastewater from process: 0.01 (ESVOC SpERC 8.3b.v1). Release fraction to soil from process: 0.01 (ESVOC SpERC 8.3b.v1).
Conditions and measures related to municipal sewage treatment plant:	Municipal Sewage Treatment Plant (STP): Yes (freshwater). Size of municipal sewage system/treatment plant: >=2000 m3/day (standard town). Estimated substance removal from wastewater via domestic sewage treatment: 88.4% (EUSES).
Conditions and measures related to external treatment of waste for disposal:	External treatment and disposal of waste should comply with applicable local and/or national regulations.
Conditions and measures related to external recovery of waste:	External recovery and recycling of waste should comply with applicable local and/or national regulations.
Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply:	Spills are cleaned immediately. All risk management measures utilised must also comply with all relevant local regulations.

3. Exposure estimation and reference to its source

Environment

Information for contributing scenario (2): ERC8c, ERC8f (ESVOC SpERC 8.3b.v1)

Assessment method: EUSES.

Exposure estimation:

Compartment	PEC	RCR	Notes
Freshwater	0.000205 mg/L	0.0554	
Freshwater sediment	0.0179 mg/kg ww	0.0554	
Marine water	0.0000253 mg/L	0.0684	
Marine water sediment	0.00221 mg/kg ww	0.0684	
Soil	0.00688 mg/kg ww	0.00688	
STP	0.0000289 mg/L	0	

RCR=Risk characterization ratio (PEC/PNEC or Exposure estimate/DNEL); PEC=Predicted environmental concentration.

4. Guidance to the Downstream User to evaluate whether he works inside the boundaries set by the ES

Environment:	Wide dispersive use. Discharge to either on-site or municipal sewage treatment plant (STP). Estimated substance removal from wastewater via domestic sewage treatment: 88.4% (EUSES).

Exposure scenario (7): Consumer use of coatings and inks

1. Exposure scenario (7)

Short title of the exposure scenario:

Consumer use of coatings and inks

List of use descriptors:

Sector of use category (SU): SU21
Product category (PC): PC9a, PC18
Environmental release category (ERC): ERC8c, ERC8f, ERC10a, ERC11a (ESVOC SpERC 8.3c.v1)
Article category (AC): AC8

Name of contributing environmental scenario and corresponding ERCs:

ERC8c Widespread use leading to inclusion into/onto article (indoor).
ERC8f Widespread use leading to inclusion into/onto article (outdoor).
ERC10a Widespread use of articles with low release (outdoor).
ERC11a Widespread use of articles with low release (indoor).

Further explanations:

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.

For further information on standardized use descriptors see the European Chemical Agency (ECHA) Guidance on information requirements and chemical safety assessment, Chapter R.12: Use descriptor system (http://guidance.echa.europa.eu/docs/guidance_document/information_requirements_r12_en.pdf). For further information on CEFIC (The European Chemical Industry Council) Specific Environmental Release Categories (SpERCs), see http://www.cefic.org/Industry-support/Implementing-reach/Libraries/.

2. Conditions of use affecting exposure

2.1 Control of workers exposure

General:	This substance is not classified for human health end-points therefore a human health risk assessment was not conducted.

2.2 Control of environmental exposure

Product characteristics:	Concentration of substance: Up to 100%. Physical state: liquid. Vapour pressure: 0.00016 Pa at 25 °C
Amounts used:	Amounts used in the EU: 425 tonnes/year. Fraction of EU tonnage used in region: 0.1. Fraction of regional tonnage used locally: 0.0005.
Frequency and duration of use:	Emission days: <=365 days/year. Wide dispersive use.
Environmental factors not influenced by risk management:	Flow rate of receiving surface water: >=18,000 m3/day (default). Local freshwater dilution factor: 10 (default). Local marine water dilution factor: 100 (default).
Other given operational conditions affecting environmental exposure:	Industry category: 15/0: Others. Use category: 55: Others. Release fraction to air from process: 0.985 (ESVOC SpERC 8.3c.v1). Release fraction to wastewater from process: 0.01 (ESVOC SpERC 8.3c.v1). Release fraction to soil from process: 0.005 (ESVOC SpERC 8.3c.v1).
Conditions and measures related to municipal sewage treatment plant:	Municipal Sewage Treatment Plant (STP): Yes (freshwater). Size of municipal sewage system/treatment plant: >=2000 m3/day (standard town). Estimated substance removal from wastewater via domestic sewage treatment: 88.4% (EUSES).
Conditions and measures related to external treatment of waste for disposal:	External treatment and disposal of waste should comply with applicable local and/or national regulations.
Conditions and measures related to external recovery of waste:	External recovery and recycling of waste should comply with applicable local and/or national regulations.
Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply:	Spills are cleaned immediately. All risk management measures utilised must also comply with all relevant local regulations.

3. Exposure estimation and reference to its source

Environment

Information for contributing scenario (2): ERC8c, ERC8f, ERC10a, ERC11a (ESVOC SpERC 8.3c.v1)

Assessment method: EUSES.

Exposure estimation:

Compartment	PEC	RCR	Notes
Freshwater	0.000205 mg/L	0.0554	
Freshwater sediment	0.0179 mg/kg ww	0.0554	
Marine water	0.0000253 mg/L	0.0684	
Marine water sediment	0.00221 mg/kg ww	0.0684	
Soil	0.00688 mg/kg ww	0.00688	

Compartment	PEC	RCR	Notes
STP	0.0000289 mg/L	0	

RCR=Risk characterization ratio (PEC/PNEC or Exposure estimate/DNEL); PEC=Predicted environmental concentration.

4. Guidance to the Downstream User to evaluate whether he works inside the boundaries set by the ES

Environment: Wide dispersive use. Discharge to either on-site or municipal sewage treatment plant (STP). Estimated substance removal from wastewater via domestic sewage treatment: 88.4% (EUSES).

Exposure scenario (8): Industrial use of lubricant additives

1. Exposure scenario (8)

Short title of the exposure scenario:

Industrial use of lubricant additives

List of use descriptors:

Sector of use category (SU): SU3, SU17
Process category (PROC): PROC5, PROC7, PROC8a, PROC8b, PROC9, PROC13, PROC17, PROC20
Environmental release category (ERC): ERC4 (ESVOC SpERC 4.6a.v1)

List of names of contributing worker scenarios and corresponding PROCs:

PROC5 Mixing or blending in batch processes. Covers mixing or blending of solid or liquid materials in the context of manufacturing or formulating sectors, as well as upon end use.
PROC7 Industrial spraying. Air dispersive techniques i.e. dispersion into air (= atomization) by e.g. pressurized air, hydraulic pressure or centrifugation, applicable for liquids and powders.
PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities. Transfer includes loading, filling, dumping, bagging and weighing.
PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities. Transfer includes loading, filling, dumping, bagging.
PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing). Filling lines specifically designed to both capture vapour and aerosol emissions and minimise spillage.
PROC13 Treatment of articles by dipping and pouring.
PROC17 Lubrication at high energy conditions in metal working operations. Covers metal working processes where the lubricants are exposed to high temperature and friction e.g. metal rolling/forming processes, drilling and grinding, etc.
PROC20 Use of functional fluids in small devices. Motor and engine oils, brake fluids. Includes the filling and emptying of systems containing functional fluids (including transfers via the closed system) e.g. heat and pressure transfer fluids; takes place on routine basis.

Name of contributing environmental scenario and corresponding ERCs:

ERC4 Use of non-reactive processing aid at industrial site (no inclusion into or onto article).

Further explanations:

Covers the use of formulated lubricants in closed and open systems including transfer operations, operation of machinery/engines and similar articles, reworking on reject articles, equipment maintenance and disposal of wastes.

For further information on standardized use descriptors see the European Chemical Agency (ECHA) Guidance on information requirements and chemical safety assessment, Chapter R.12: Use descriptor system (http://guidance.echa.europa.eu/docs/guidance_document/information_requirements_r12_en.pdf). For further information on CEFIC (The European Chemical Industry Council) Specific Environmental Release Categories (SpERCs), see http://www.cefic.org/Industry-support/Implementing-reach/Libraries/.

2. Conditions of use affecting exposure

2.1 Control of workers exposure

General:	This substance is not classified for human health end-points therefore a human health risk assessment was not conducted.

2.2 Control of environmental exposure

Product characteristics:	Concentration of substance: Up to 100%. Physical state: liquid. Vapour pressure: 0.00016 Pa at 25 °C
Amounts used:	Maximum daily use at a site: 231500 kg/day. Maximum annual use at a site: 4630 tonnes/year. Fraction of EU tonnage used in region: 1. Fraction of regional tonnage used locally: 1.
Frequency and duration of use:	Emission days: 20 days/year. Continuous use/release.
Environmental factors not influenced by risk management:	Flow rate of receiving surface water: >=18000 m3/day (default). Local freshwater dilution factor: 10 (default). Local marine water dilution factor: 100 (default).
Other given operational conditions affecting environmental exposure:	Industry category: 15/0: Others. Use category: 55: Others. Release fraction to air from process: 0.00003 (ESVOC SpERC 4.6a.v1). Release fraction to wastewater from process: 0.000003 (ESVOC SpERC 4.6a.v1). Release fraction to soil from process: 0.001 (ESVOC SpERC 4.6a.v1).

Conditions and measures related to municipal sewage treatment plant:	Municipal Sewage Treatment Plant (STP): Yes (freshwater). Size of municipal sewage system/treatment plant: >=2000 m3/day (standard town). Estimated substance removal from wastewater via domestic sewage treatment: 88.4% (EUSES).
Conditions and measures related to external treatment of waste for disposal:	External treatment and disposal of waste should comply with applicable local and/or national regulations.
Conditions and measures related to external recovery of waste:	External recovery and recycling of waste should comply with applicable local and/or national regulations.
Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply:	Spills are cleaned immediately. All risk management measures utilised must also comply with all relevant local regulations.

3. Exposure estimation and reference to its source

Environment

Information for contributing scenario (2): ERC4 (ESVOC SpERC 4.6a.v1)

Assessment method: EUSES.

Exposure estimation:

Compartment	PEC	RCR	Notes
Freshwater	0.00364 mg/L	0.983	
Freshwater sediment	0.318 mg/kg ww	0.983	
Marine water	0.000368 mg/L	0.996	
Marine water sediment	0.0322 mg/kg ww	0.996	
Soil	0.238 mg/kg ww	0.238	
STP	0.0346 mg/L	0.00346	

RCR=Risk characterization ratio (PEC/PNEC or Exposure estimate/DNEL); PEC=Predicted environmental concentration.

4. Guidance to the Downstream User to evaluate whether he works inside the boundaries set by the ES

Environment: Continuous use/release. Maximum daily use at a site: 231500 kg/day. Discharge to either on-site or municipal sewage treatment plant (STP). Estimated substance removal from wastewater via domestic sewage treatment: 88.4% (EUSES). The downstream user can check the compliance of his site by comparing site specific data with defaults used in the exposure assessment. The site specific quotient should be inferior or equal to the SpERC quotient. Further details on scaling and control technologies are provided in the SpERC factsheet (http://www.cefic.org/Industry-support/Implementing-reach/Libraries/).

(MSpERC * (1 - Eer-SpERC * Frelease-SpERC)/DFSpERC)/DFSpERC >= (Msite * (1 - Eer-site) * Frelease-site)/DFsite

- MSpERC = substance use rate in SpERC
- Eer-SpERC = efficacy of risk management measure in SpERC
- Frelease-SpERC = initial release fraction in SpERC
- DF-SpERC = dilution factor of STP (sewage treatment plant) effluent in river
- Msite = substance use rate at site
- Eer-site = efficacy of risk management measure at site
- DFsite = dilution factor of site STP (sewage treatment plant) effluent in river

Exposure scenario (9): Professional use of lubricant additives

1. Exposure scenario (9)

Short title of the exposure scenario:

Professional use of lubricant additives

List of use descriptors:

Sector of use category (SU): SU22
Product category (PC): PC24
Process category (PROC): PROC5, PROC8a, PROC8b, PROC9, PROC10, PROC11, PROC13, PROC17, PROC20
Environmental release category (ERC): ERC8a, ERC8d, ERC9b (ESVOC SpERC 9.6b.v1)

List of names of contributing worker scenarios and corresponding PROCs:

PROC5 Mixing or blending in batch processes. Covers mixing or blending of solid or liquid materials in the context of manufacturing or formulating sectors, as well as upon end use.
PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities. Transfer includes loading, filling, dumping, bagging and weighing.
PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities. Transfer includes loading, filling, dumping, bagging.

PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing). Filling lines specifically designed to both capture vapour and aerosol emissions and minimise spillage.
PROC10 Roller application or brushing. This includes application of paints, coatings, removers, adhesives or cleaning agents to surfaces with potential exposure arising from splashes.
PROC11 Non industrial spraying. Air dispersive techniques i.e. dispersion into air (= atomization) by e.g. pressurized air, hydraulic pressure or centrifugation, applicable for liquids and powders.
PROC13 Treatment of articles by dipping and pouring.
PROC17 Lubrication at high energy conditions in metal working operations. Covers metal working processes where the lubricants are exposed to high temperature and friction e.g. metal rolling/forming processes, drilling and grinding, etc.
PROC20 Use of functional fluids in small devices. Motor and engine oils, brake fluids. Includes the filling and emptying of systems containing functional fluids (including transfers via the closed system) e.g. heat and pressure transfer fluids; takes place on routine basis.

Name of contributing environmental scenario and corresponding ERCs:

ERC8a Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor).
ERC8d Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor).
ERC9b Widespread use of functional fluid (outdoor).

Further explanations:

Covers the use of formulated lubricants in closed and open systems including transfer operations, operation of engines and similar articles, reworking on reject articles, equipment maintenance and disposal of waste oil.

For further information on standardized use descriptors see the European Chemical Agency (ECHA) Guidance on information requirements and chemical safety assessment, Chapter R.12: Use descriptor system (http://guidance.echa.europa.eu/docs/guidance_document/information_requirements_r12_en.pdf). For further information on CEFIC (The European Chemical Industry Council) Specific Environmental Release Categories (SpERCs), see http://www.cefic.org/Industry-support/Implementing-reach/Libraries/.

2. Conditions of use affecting exposure

2.1 Control of workers exposure

General:	This substance is not classified for human health end-points therefore a human health risk assessment was not conducted.

2.2 Control of environmental exposure

Product characteristics:	Concentration of substance: Up to 100%. Physical state: liquid. Vapour pressure: 0.00016 Pa at 25 °C
Amounts used:	Amounts used in the EU: 430 tonnes/year. Fraction of EU tonnage used in region: 0.1. Fraction of regional tonnage used locally: 0.0005.
Frequency and duration of use:	Emission days: <=365 days/year. Wide dispersive use.
Environmental factors not influenced by risk management:	Flow rate of receiving surface water: >=18000 m3/day (default). Local freshwater dilution factor: 10 (default). Local marine water dilution factor: 100 (default).
Other given operational conditions affecting environmental exposure:	Industry category: 15/0: Others. Use category: 55: Others. Release fraction to air from process: 0.01 (ESVOC SpERC 9.6b.v1). Release fraction to wastewater from process: 0.01 (ESVOC SpERC 9.6b.v1). Release fraction to soil from process: 0.01 (ESVOC SpERC 9.6b.v1).
Conditions and measures related to municipal sewage treatment plant:	Municipal Sewage Treatment Plant (STP): Yes (freshwater). Size of municipal sewage system/treatment plant: >=2000 m3/day (standard town). Estimated substance removal from wastewater via domestic sewage treatment: 88.4% (EUSES).
Conditions and measures related to external treatment of waste for disposal:	External treatment and disposal of waste should comply with applicable local and/or national regulations.
Conditions and measures related to external recovery of waste:	External recovery and recycling of waste should comply with applicable local and/or national regulations.
Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply:	Spills are cleaned immediately. All risk management measures utilised must also comply with all relevant local regulations.

3. Exposure estimation and reference to its source

Environment

Information for contributing scenario (2): ERC8a, ERC8d, ERC9b (ESVOC SpERC 9.6b.v1)

Assessment method: EUSES.

Exposure estimation:

Compartment	PEC	RCR	Notes

Compartment	PEC	RCR	Notes
Freshwater	0.000205 mg/L	0.0554	
Freshwater sediment	0.0179 mg/kg ww	0.0554	
Marine water	0.0000253 mg/L	0.0684	
Marine water sediment	0.00221 mg/kg ww	0.0684	
Soil	0.00688 mg/kg ww	0.00688	
STP	0.0000295 mg/L	0	

RCR=Risk characterization ratio (PEC/PNEC or Exposure estimate/DNEL); PEC=Predicted environmental concentration.

4. Guidance to the Downstream User to evaluate whether he works inside the boundaries set by the ES

Environment: Wide dispersive use. Discharge to either on-site or municipal sewage treatment plant (STP). Estimated substance removal from wastewater via domestic sewage treatment: 88.4% (EUSES).

Exposure scenario (10): Industrial use as a plasticizer

1. Exposure scenario (10)

Short title of the exposure scenario:

Industrial use as a plasticizer

List of use descriptors:

Sector of use category (SU): SU3
Process category (PROC): PROC3, PROC4, PROC5, PROC6, PROC8a, PROC8b, PROC9, PROC12, PROC13, PROC14
Environmental release category (ERC): ERC5 (ESVOC SpERC 4.21.v1)

List of names of contributing worker scenarios and corresponding PROCs:

PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition.
PROC4 Chemical production where opportunity for exposure arises.
PROC5 Mixing or blending in batch processes. Covers mixing or blending of solid or liquid materials in the context of manufacturing or formulating sectors, as well as upon end use.
PROC6 Calendering operations. Processing of large surfaces at elevated temperature e.g. calendering of textile, rubber or paper.
PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities. Transfer includes loading, filling, dumping, bagging and weighing.
PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities. Transfer includes loading, filling, dumping, bagging.
PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing). Filling lines specifically designed to both capture vapour and aerosol emissions and minimise spillage.
PROC12 Use of blowing agents in manufacture of foam.
PROC13 Treatment of articles by dipping and pouring.
PROC14 Tabletting, compression, extrusion, pelletisation, granulation. This covers processing of mixtures and/or substances into a defined shape for further use.

Name of contributing environmental scenario and corresponding ERCs:

ERC5 Use at industrial site leading to inclusion into/onto article.

Further explanations:

Processing of formulated polymers including material transfers, additives handling (e.g. pigments, stabilisers, fillers, plasticisers, etc.), moulding, curing, and forming activities, material re-works, storage and associated maintenance.

For further information on standardized use descriptors see the European Chemical Agency (ECHA) Guidance on information requirements and chemical safety assessment, Chapter R.12: Use descriptor system (http://guidance.echa.europa.eu/docs/guidance_document/information_requirements_r12_en.pdf). For further information on CEFIC (The European Chemical Industry Council) Specific Environmental Release Categories (SpERCs), see http://www.cefic.org/Industry-support/Implementing-reach/Libraries/.

2. Conditions of use affecting exposure

2.1 Control of workers exposure

General:	This substance is not classified for human health end-points therefore a human health risk assessment was not conducted.

2.2 Control of environmental exposure

Product characteristics:	Concentration of substance: Up to 100%. Physical state: liquid. Vapour pressure: 0.00016 Pa at 25 °C
Amounts used:	Maximum daily use at a site: 14917 kg/day. Maximum annual use at a site: 4475 tonnes/year. Fraction of EU tonnage used in region: 1. Fraction of regional tonnage used locally: 1.
Frequency and duration of use:	Emission days: 300 days/year. Continuous use/release.

Environmental factors not influenced by risk management:	Flow rate of receiving surface water: >=18000 m3/day (default). Local freshwater dilution factor: 10 (default). Local marine water dilution factor: 100 (default).
Other given operational conditions affecting environmental exposure:	Industry category: 15/0: Others. Use category: 55: Others. Release fraction to air from process: 0.002 (ESVOC SRC 4.21.v1). Release fraction to wastewater from process: 0.00003 (ESVOC SpERC 4.21.v1). Release fraction to soil from process: 0.0001 (ESVOC SpERC 4.21.v1).
Conditions and measures related to municipal sewage treatment plant:	Municipal Sewage Treatment Plant (STP): Yes (freshwater). Size of municipal sewage system/treatment plant: >=2000 m3/day (standard town). Estimated substance removal from wastewater via domestic sewage treatment: 88.4% (EUSES).
Conditions and measures related to external treatment of waste for disposal:	External treatment and disposal of waste should comply with applicable local and/or national regulations.
Conditions and measures related to external recovery of waste:	External recovery and recycling of waste should comply with applicable local and/or national regulations.
Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply:	Spills are cleaned immediately. All risk management measures utilised must also comply with all relevant local regulations.

3. Exposure estimation and reference to its source

Environment

Information for contributing scenario (2): ERC5 (ESVOC SpERC 4.21.v1)

Assessment method: EUSES.

Exposure estimation:

Compartment	PEC	RCR	Notes
Freshwater	0.000202 mg/L	0.0546	
Freshwater sediment	0.0176 mg/kg ww	0.0546	
Marine water	0.000025 mg/L	0.0676	
Marine water sediment	0.00218 mg/kg ww	0.0676	
Soil	0.988 mg/kg ww	0.988	
STP	0 mg/L	0	

RCR=Risk characterization ratio (PEC/PNEC or Exposure estimate/DNEL); PEC=Predicted environmental concentration.

4. Guidance to the Downstream User to evaluate whether he works inside the boundaries set by the ES

Environment: Continuous use/release. Maximum daily use at a site: 14917 kg/day. Discharge to either on-site or municipal sewage treatment plant (STP). Estimated substance removal from wastewater via domestic sewage treatment: 88.4% (EUSES). The downstream user can check the compliance of his site by comparing site specific data with defaults used in the exposure assessment. The site specific quotient should be inferior or equal to the SpERC quotient. Further details on scaling and control technologies are provided in the SpERC factsheet (http://www.cefic.org/Industry-support/Implementing-reach/Libraries/).

(MSpERC * (1 - Eer-SpERC * Frelease-SpERC)/DFSpERC)/DFSpERC >= (Msite * (1 - Eer-site) * Frelease-site)/DFsite

- MSpERC = substance use rate in SpERC
- Eer-SpERC = efficacy of risk management measure in SpERC
- Frelease-SpERC = initial release fraction in SpERC
- DF-SpERC = dilution factor of STP (sewage treatment plant) effluent in river
- Msite = substance use rate at site
- Eer-site = efficacy of risk management measure at site
- DFsite = dilution factor of site STP (sewage treatment plant) effluent in river

Exposure scenario (11): Professional and consumer use as a plasticizer

1. Exposure scenario (11)

Short title of the exposure scenario:

Professional and consumer use as a plasticizer

List of use descriptors:

Sector of use category (SU): SU21, SU22

Product category (PC): PC32

Process category (PROC): PROC5, PROC8a, PROC8b, PROC9, PROC10, PROC11, PROC13, PROC17, PROC20
Environmental release category (ERC): ERC8c, ERC8f, ERC10a, ERC11a (ESVOC SpERC 8.21b.v1)
Article category (AC): AC5, AC10, AC13

List of names of contributing worker scenarios and corresponding PROCs:

PROC5 Mixing or blending in batch processes. Covers mixing or blending of solid or liquid materials in the context of manufacturing or formulating sectors, as well as upon end use.
PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities. Transfer includes loading, filling, dumping, bagging and weighing.
PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities. Transfer includes loading, filling, dumping, bagging.
PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing). Filling lines specifically designed to both capture vapour and aerosol emissions and minimise spillage.
PROC10 Roller application or brushing. This includes application of paints, coatings, removers, adhesives or cleaning agents to surfaces with potential exposure arising from splashes.
PROC11 Non industrial spraying. Air dispersive techniques i.e. dispersion into air (= atomization) by e.g. pressurized air, hydraulic pressure or centrifugation, applicable for liquids and powders.
PROC13 Treatment of articles by dipping and pouring.
PROC17 Lubrication at high energy conditions in metal working operations. Covers metal working processes where the lubricants are exposed to high temperature and friction e.g. metal rolling/forming processes, drilling and grinding, etc.
PROC20 Use of functional fluids in small devices. Motor and engine oils, brake fluids. Includes the filling and emptying of systems containing functional fluids (including transfers via the closed system) e.g. heat and pressure transfer fluids; takes place on routine basis.

Name of contributing environmental scenario and corresponding ERCs:

ERC8c Widespread use leading to inclusion into/onto article (indoor).
ERC8f Widespread use leading to inclusion into/onto article (outdoor).
ERC10a Widespread use of articles with low release (outdoor).
ERC11a Widespread use of articles with low release (indoor).

Further explanations:

Processing of formulated polymers including material transfers, moulding and forming activities, material re-works and associated maintenance.

For further information on standardized use descriptors see the European Chemical Agency (ECHA) Guidance on information requirements and chemical safety assessment, Chapter R.12: Use descriptor system (http://guidance.echa.europa.eu/docs/guidance_document/information_requirements_r12_en.pdf). For further information on CEFIC (The European Chemical Industry Council) Specific Environmental Release Categories (SpERCs), see http://www.cefic.org/Industry-support/Implementing-reach/Libraries/.

2. Conditions of use affecting exposure

2.1 Control of workers exposure

General:	This substance is not classified for human health end-points therefore a human health risk assessment was not conducted.

2.2 Control of environmental exposure

Product characteristics:	Concentration of substance: Up to 100%. Physical state: liquid. Vapour pressure: 0.00016 Pa at 25 °C
Amounts used:	Amounts used in the EU: 1210 tonnes/year. Fraction of EU tonnage used in region: 0.1. Fraction of regional tonnage used locally: 0.0005.
Frequency and duration of use:	Emission days: <=365 days/year. Wide dispersive use.
Environmental factors not influenced by risk management:	Flow rate of receiving surface water: >=18000 m3/day (default). Local freshwater dilution factor: 10 (default). Local marine water dilution factor: 100 (default).
Other given operational conditions affecting environmental exposure:	Industry category: 15/0: Others. Use category: 55: Others. Release fraction to air from process: 0.98 (ESVOC SpERC 8.21b.v1). Release fraction to wastewater from process: 0.01 (ESVOC SpERC 8.21b.v1). Release fraction to soil from process: 0.01 (ESVOC SpERC 8.21b.v1).
Conditions and measures related to municipal sewage treatment plant:	Municipal Sewage Treatment Plant (STP): Yes (freshwater). Size of municipal sewage system/treatment plant: >=2000 m3/day (standard town). Estimated substance removal from wastewater via domestic sewage treatment: 88.4% (EUSES).
Conditions and measures related to external treatment of waste for disposal:	External treatment and disposal of waste should comply with applicable local and/or national regulations.
Conditions and measures related to external recovery of waste:	External recovery and recycling of waste should comply with applicable local and/or national regulations.

Additional good practive advice. Obligations according to Article 37(4) of REACH do not apply:	Spills are cleaned immediately. All risk management measures utilised must also comply with all relevant local regulations.

3. Exposure estimation and reference to its source

Environment

Information for contributing scenario (2): ERC8c, ERC8f, ERC10a, ERC11a (ESVOC SpERC 8.21b.v1)

Assessment method: EUSES.

Exposure estimation:

Compartment	PEC	RCR	Notes
Freshwater	0.00021 mg/L	0.0568	
Freshwater sediment	0.0184 mg/kg ww	0.0568	
Marine water	0.0000258 mg/L	0.0698	
Marine water sediment	0.00226 mg/kg ww	0.0698	
Soil	0.00723 mg/kg ww	0.00723	
STP	0.0000822 mg/L	0	

RCR=Risk characterization ratio (PEC/PNEC or Exposure estimate/DNEL); PEC=Predicted environmental concentration.

4. Guidance to the Downstream User to evaluate whether he works inside the boundaries set by the ES

Environment:	Wide dispersive use. Discharge to either on-site or municipal sewage treatment plant (STP). Estimated substance removal from wastewater via domestic sewage treatment: 88.4% (EUSES).

Exposure scenario (12): Professional and consumer use as a carrier for agrochemicals

1. Exposure scenario (12)

Short title of the exposure scenario:

Professional and consumer use as a carrier for agrochemicals

List of use descriptors:

Sector of use category (SU): SU21, SU22
Product category (PC): PC8, PC27
Process category (PROC): PROC4, PROC7, PROC8a, PROC8b, PROC11, PROC13
Environmental release category (ERC): ERC8d (ECPA SpERC 8d.2.v1)

List of names of contributing worker scenarios and corresponding PROCs:

PROC4 Chemical production where opportunity for exposure arises.
PROC7 Industrial spraying. Air dispersive techniques i.e. dispersion into air (= atomization) by e.g. pressurized air, hydraulic pressure or centrifugation, applicable for liquids and powders.
PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities. Transfer includes loading, filling, dumping, bagging and weighing.
PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities. Transfer includes loading, filling, dumping, bagging.
PROC11 Non industrial spraying. Air dispersive techniques i.e. dispersion into air (= atomization) by e.g. pressurized air, hydraulic pressure or centrifugation, applicable for liquids and powders.
PROC13 Treatment of articles by dipping and pouring.

Name of contributing environmental scenario and corresponding ERCs:

ERC8d Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor).

Further explanations:

Covers the outdoor use of substances as co-formulants in plant protection products by consumers and professional users.

For further information on standardized use descriptors see the European Chemical Agency (ECHA) Guidance on information requirements and chemical safety assessment, Chapter R.12: Use descriptor system (http://guidance.echa.europa.eu/docs/guidance_document/information_requirements_r12_en.pdf). For further information on CEFIC (The European Chemical Industry Council) Specific Environmental Release Categories (SpERCs), see http://www.cefic.org/Industry-support/Implementing-reach/Libraries/.

2. Conditions of use affecting exposure

2.1 Control of workers exposure

General:	This substance is not classified for human health end-points therefore a human health risk assessment was not conducted.

2.2 Control of environmental exposure

Product characteristics:	Concentration of substance: Up to 100%. Physical state: liquid. Vapour pressure: 0.00016 Pa at 25 °C
Amounts used:	Amounts used in the EU: 550 tonnes/year. Fraction of EU tonnage used in region: 0.1. Fraction of regional tonnage used locally: 0.002.

Frequency and duration of use:	Emission days: <=365 days/year. Wide dispersive use.
Environmental factors not influenced by risk management:	Flow rate of receiving surface water: >=18000 m3/day (default). Local freshwater dilution factor: 10 (default). Local marine water dilution factor: 100 (default).
Other given operational conditions affecting environmental exposure:	Industry category: 15/0: Others. Use category: 55: Others. Release fraction to air from process: 0.1 (EPCA SpERC 8d.2.v1). Release fraction to wastewater from process: 0 (EPCA SpERC 8d.2.v1). Release fraction to soil from process: 0.9 (EPCA SpERC 8d.2.v1).
Conditions and measures related to municipal sewage treatment plant:	Municipal Sewage Treatment Plant (STP): Yes (freshwater). Size of municipal sewage system/treatment plant: >=2000 m3/day (standard town). Estimated substance removal from wastewater via domestic sewage treatment: 88.4% (EUSES).
Conditions and measures related to external treatment of waste for disposal:	External treatment and disposal of waste should comply with applicable local and/or national regulations.
Conditions and measures related to external recovery of waste:	External recovery and recycling of waste should comply with applicable local and/or national regulations.
Additional good practive advice. Obligations according to Article 37(4) of REACH do not apply:	Spills are cleaned immediately. All risk management measures utilised must also comply with all relevant local regulations.

3. Exposure estimation and reference to its source

Environment

Information for contributing scenario (2): ERC8d (ECPA SpERC 8d.2.v1)

Assessment method: EUSES.

Exposure estimation:

Compartment	PEC	RCR	Notes
Freshwater	0.000202 mg/L	0.0546	
Freshwater sediment	0.0176 mg/kg ww	0.0546	
Marine water	0.000025 mg/L	0.0676	
Marine water sediment	0.00218 mg/kg ww	0.0676	
Soil	0.00671 mg/kg ww	0.00671	
STP	0 mg/L	0	

RCR=Risk characterization ratio (PEC/PNEC or Exposure estimate/DNEL); PEC=Predicted environmental concentration.

4. Guidance to the Downstream User to evaluate whether he works inside the boundaries set by the ES

Environment: Wide dispersive use. Discharge to either on-site or municipal sewage treatment plant (STP). Estimated substance removal from wastewater via domestic sewage treatment: 88.4% (EUSES).

Exposure scenario (13): Professional laboratory use

1. Exposure scenario (13)

Short title of the exposure scenario:

Professional laboratory use

List of use descriptors:

Sector of use category (SU): SU22

Process category (PROC): PROC15

Environmental release category (ERC): ERC8a, ERC9a (ESVOC SpERC 8.17.v1)

List of names of contributing worker scenarios and corresponding PROCs:

PROC15 Use as laboratory reagent. Use of substances at small scale in laboratories (less than or equal to 1 l or 1 kg present at workplace).

Name of contributing environmental scenario and corresponding ERCs:

ERC8a Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor).

ERC9a Widespread use of functional fluid (indoor).

Further explanations:

Use of small quantities within laboratory settings, including material transfers and equipment cleaning.

For further information on standardized use descriptors see the European Chemical Agency (ECHA) Guidance on information requirements and chemical safety assessment, Chapter R.12: Use descriptor system (http://guidance.echa.europa.eu/docs/guidance_document/information_requirements_r12_en.pdf). For further information on CEFIC (The European Chemical Industry Council) Specific Environmental Release Categories (SpERCs), see http://www.cefic.org/Industry-support/Implementing-reach/Libraries/.

2. Conditions of use affecting exposure

2.1 Control of workers exposure

General:	This substance is not classified for human health end-points therefore a human health risk assessment was not conducted.

2.2 Control of environmental exposure

Product characteristics:	Concentration of substance: Up to 100%. Physical state: liquid. Vapour pressure: 0.00016 Pa at 25 °C
Amounts used:	Amounts used in the EU: 120 tonnes/year. Fraction of EU tonnage used in region: 0.1. Fraction of regional tonnage used locally: 0.0005.
Frequency and duration of use:	Emission days: <=365 days/year. Wide dispersive use.
Environmental factors not influenced by risk management:	Flow rate of receiving surface water: >=18000 m3/day (default). Local freshwater dilution factor: 10 (default). Local marine water dilution factor: 100 (default).
Other given operational conditions affecting environmental exposure:	Industry category: 15/0: Others. Use category: 55: Others. Release fraction to air from process: 0.5 (ESVOC SpERC 8.17.v1). Release fraction to wastewater from process: 0.5 (ESVOC SpERC 8.17.v1). Release fraction to soil from process: 0 (ESVOC SpERC 8.17.v1).
Conditions and measures related to municipal sewage treatment plant:	Municipal Sewage Treatment Plant (STP): Yes (freshwater). Size of municipal sewage system/treatment plant: >=2000 m3/day (standard town). Estimated substance removal from wastewater via domestic sewage treatment: 88.4% (EUSES).
Conditions and measures related to external treatment of waste for disposal:	External treatment and disposal of waste should comply with applicable local and/or national regulations.
Conditions and measures related to external recovery of waste:	External recovery and recycling of waste should comply with applicable local and/or national regulations.
Additional good practive advice. Obligations according to Article 37(4) of REACH do not apply:	Spills are cleaned immediately. All risk management measures utilised must also comply with all relevant local regulations.

3. Exposure estimation and reference to its source

Environment

Information for contributing scenario (2): ERC8a, ERC9a (ESVOC SpERC 8.17.v1)

Assessment method: EUSES.

Exposure estimation:

Compartment	PEC	RCR	Notes
Freshwater	0.000243 mg/L	0.0658	
Freshwater sediment	0.0212 mg/kg ww	0.0658	
Marine water	0.0000291 mg/L	0.0788	
Marine water sediment	0.00254 mg/kg ww	0.0788	
Soil	0.00945 mg/kg ww	0.00945	
STP	0.000415 mg/L	0	

RCR=Risk characterization ratio (PEC/PNEC or Exposure estimate/DNEL); PEC=Predicted environmental concentration.

4. Guidance to the Downstream User to evaluate whether he works inside the boundaries set by the ES

Environment: Wide dispersive use. Discharge to either on-site or municipal sewage treatment plant (STP). Estimated substance removal from wastewater via domestic sewage treatment: 88.4% (EUSES).

Exposure scenario (14): Consumer use of cosmetics and personal care products

1. Exposure scenario (14)

Short title of the exposure scenario:

Consumer use of cosmetics and personal care products

List of use descriptors:

Sector of use category (SU): SU21

Product category (PC): PC39

Environmental release category (ERC): ERC8a, ERC8c (COLIPA SpERC 8a.1.a.v1)

Name of contributing environmental scenario and corresponding ERCs:

ERC8a Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor).

ERC8c Widespread use leading to inclusion into/onto article (indoor).

Further explanations:

Covers the use of substances in cosmetic products (e.g. hair care, oral care, body care and deodorants) for end users.

For further information on standardized use descriptors see the European Chemical Agency (ECHA) Guidance on information requirements and chemical safety assessment, Chapter R.12: Use descriptor system (http://guidance.echa.europa.eu/docs/guidance_document/information_requirements_r12_en.pdf). For further information on CEFIC (The European Chemical Industry Council) Specific Environmental Release Categories (SpERCs), see http://www.cefic.org/Industry-support/Implementing-reach/Libraries/.

2. Conditions of use affecting exposure

2.1 Control of consumer exposure

General:	This substance is not classified for human health end-points therefore a human health risk assessment was not conducted.

2.2 Control of environmental exposure

Product characteristics:	Concentration of substance: Up to 100%. Physical state: liquid. Vapour pressure: 0.00016 Pa at 25 °C
Amounts used:	Amounts used in the EU: 305 tonnes/year. Fraction of EU tonnage used in region: 0.1. Fraction of regional tonnage used locally: 0.00075.
Frequency and duration of use:	Emission days: <=365 days/year. Wide dispersive use.
Environmental factors not influenced by risk management:	Flow rate of receiving surface water: >=18000 m3/day (default). Local freshwater dilution factor: 10 (default). Local marine water dilution factor: 100 (default).
Other given operational conditions affecting environmental exposure:	Industry category: 15/0: Others. Use category: 55: Others. Release fraction to air from process: 0 (COLIPA SpERC 8a.1.a.v1). Release fraction to wastewater from process: 1 (COLIPA SpERC 8a.1.a.v1). Release fraction to soil from process: 0 (COLIPA SpERC 8a.1.a.v1).
Conditions and measures related to municipal sewage treatment plant:	Municipal Sewage Treatment Plant (STP): Yes (freshwater). Size of municipal sewage system/treatment plant: >=2000 m3/day (standard town). Estimated substance removal from wastewater via domestic sewage treatment: 88.4% (EUSES).
Conditions and measures related to external treatment of waste for disposal:	External treatment and disposal of waste should comply with applicable local and/or national regulations.
Conditions and measures related to external recovery of waste:	External recovery and recycling of waste should comply with applicable local and/or national regulations.
Additional good practive advice. Obligations according to Article 37(4) of REACH do not apply:	Spills are cleaned immediately. All risk management measures utilised must also comply with all relevant local regulations.

3. Exposure estimation and reference to its source

Environment

Information for contributing scenario (2): ERC8a, ERC8c (COLIPA SpERC 8a.1.a.v1)

Assessment method: EUSES.

Exposure estimation:

Compartment	PEC	RCR	Notes
Freshwater	0.000512 mg/L	0.138	
Freshwater sediment	0.0447 mg/kg ww	0.138	
Marine water	0.000337 mg/L	0.909	
Marine water sediment	0.0294 mg/kg ww	0.909	
Soil	0.0274 mg/kg ww	0.0274	
STP	0.00312 mg/L	0.000312	

RCR=Risk characterization ratio (PEC/PNEC or Exposure estimate/DNEL); PEC=Predicted environmental concentration.

4. Guidance to the Downstream User to evaluate whether he works inside the boundaries set by the ES

Environment:	Wide dispersive use. Discharge to either on-site or municipal sewage treatment plant (STP). Estimated substance removal from wastewater via domestic sewage treatment: 88.4% (EUSES).

Exposure scenario (15): Distribution and storage

1. Exposure scenario (15)

Short title of the exposure scenario:

Distribution and storage

List of use descriptors:

Sector of use category (SU): SU10
Process category (PROC): PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9, PROC15
Environmental release category (ERC): ERC2 (ESVOC SpERC 1.1b.v1)

List of names of contributing worker scenarios and corresponding PROCs:

PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions.
PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions.
PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition.
PROC4 Chemical production where opportunity for exposure arises.
PROC5 Mixing or blending in batch processes. Covers mixing or blending of solid or liquid materials in the context of manufacturing or formulating sectors, as well as upon end use.
PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities. Transfer includes loading, filling, dumping, bagging and weighing.
PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities. Transfer includes loading, filling, dumping, bagging.
PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing). Filling lines specifically designed to both capture vapour and aerosol emissions and minimise spillage.
PROC15 Use as laboratory reagent. Use of substances at small scale in laboratories (less than or equal to 1 l or 1 kg present at workplace).

Name of contributing environmental scenario and corresponding ERCs:

ERC2 Formulation into mixture.

Further explanations:

Loading (including marine vessel/barge, rail/road car and IBC loading) and repacking (including drums and small packs) of substance, including its distribution.

For further information on standardized use descriptors see the European Chemical Agency (ECHA) Guidance on information requirements and chemical safety assessment, Chapter R.12: Use descriptor system (http://guidance.echa.europa.eu/docs/guidance_document/information_requirements_r12_en.pdf). For further information on CEFIC (The European Chemical Industry Council) Specific Environmental Release Categories (SpERCs), see http://www.cefic.org/Industry-support/Implementing-reach/Libraries/.

2. Conditions of use affecting exposure

2.1 Control of workers exposure

General:	This substance is not classified for human health end-points therefore a human health risk assessment was not conducted.

2.2 Control of environmental exposure

Product characteristics:	Concentration of substance: Up to 100%. Physical state: liquid. Vapour pressure: 0.00016 Pa at 25 °C
Amounts used:	Maximum daily use at a site: 666667 kg/day. Maximum annual use at a site: 200000 tonnes/year. Fraction of EU tonnage used in region: 1. Fraction of regional tonnage used locally: 1.
Frequency and duration of use:	Emission days: 300 days/year. Continuous use/release.
Environmental factors not influenced by risk management:	Flow rate of receiving surface water: >=18000 m3/day (default). Local freshwater dilution factor: 10 (default). Local marine water dilution factor: 100 (default).
Other given operational conditions affecting environmental exposure:	Industry category: 15/0: Others. Use category: 55: Others. Release fraction to air from process: 0.0001 (ESVOC SpERC 1.1b.v1). Release fraction to wastewater from process: 0.000001 (ESVOC SpERC 1.1b.v1). Release fraction to soil from process: 0.00001 (ESVOC SpERC 1.1b.v1).
Conditions and measures related to municipal sewage treatment plant:	Municipal Sewage Treatment Plant (STP): Yes (freshwater). Size of municipal sewage system/treatment plant: >=2000 m3/day (standard town). Estimated substance removal from wastewater via domestic sewage treatment: 88.4% (EUSES).
Conditions and measures related to external treatment of waste for disposal:	External treatment and disposal of waste should comply with applicable local and/or national regulations.
Conditions and measures related to external recovery of waste:	External recovery and recycling of waste should comply with applicable local and/or national regulations.
Additional good practive advice. Obligations according to Article 37(4) of REACH do not apply:	Spills are cleaned immediately. All risk management measures utilised must also comply with all relevant local regulations.

3. Exposure estimation and reference to its source

Environment

Information for contributing scenario (2): ERC2 (ESVOC SpERC 1.1b.v1)

Assessment method: EUSES.

Exposure estimation:

Compartment	PEC	RCR	Notes
Freshwater	0.00362 mg/L	0.978	
Freshwater sediment	0.316 mg/kg ww	0.978	
Marine water	0.000367 mg/L	0.991	
Marine water sediment	0.032 mg/kg ww	0.991	
Soil	0.281 mg/kg ww	0.281	
STP	0.0344 mg/L	0.00344	

RCR=Risk characterization ratio (PEC/PNEC or Exposure estimate/DNEL); PEC=Predicted environmental concentration.

4. Guidance to the Downstream User to evaluate whether he works inside the boundaries set by the ES

Environment: Continuous use/release. Maximum daily use at a site: 666667 kg/day. Discharge to either on-site or municipal sewage treatment plant (STP). Estimated substance removal from wastewater via domestic sewage treatment: 88.4% (EUSES). The downstream user can check the compliance of his site by comparing site specific data with defaults used in the exposure assessment. The site specific quotient should be inferior or equal to the SpERC quotient. Further details on scaling and control technologies are provided in the SpERC factsheet (http://www.cefic.org/Industry-support/Implementing-reach/Libraries/).

(MSpERC * (1 - Eer-SpERC * Frelease-SpERC)/DFSpERC)/DFSpERC >= (Msite * (1 - Eer-site) * Frelease-site)/DFsite

- MSpERC = substance use rate in SpERC
- Eer-SpERC = efficacy of risk management measure in SpERC
- Frelease-SpERC = initial release fraction in SpERC
- DF-SpERC = dilution factor of STP (sewage treatment plant) effluent in river
- Msite = substance use rate at site
- Eer-site = efficacy of risk management measure at site
- DFsite = dilution factor of site STP (sewage treatment plant) effluent in river