



Safety Data Sheet

The Dow Chemical Company

Product Name: Diisobutyl Ketone, 96%

Revision Date: 2011/03/30

Print Date: 31 Mar 2011

The Dow Chemical Company encourages and expects you to read and understand the entire (M)SDS, as there is important information throughout the document. We expect you to follow the precautions identified in this document unless your use conditions would necessitate other appropriate methods or actions.

Section 1. Identification of the substance/preparation and of the company/undertaking

1.1 Product identifiers

Product Name

Diisobutyl Ketone, 96%

Chemical Name: 2,6-Dimethylheptan-4-one; di-isobutyl ketone

CAS-No. 108-83-8

EC-No. 203-620-1

REACH Registration Number

01-2119474441-41-0000

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

Identified uses

Manufacture of substance, industrial. Distribution of substance, industrial. Formulation & (re)packing of substances and mixtures, industrial. Uses in Coatings, industrial. Uses in Coatings, professional. Uses in Coatings, consumer. Use in Cleaning Agents, industrial. Use in Cleaning Agents, professional. Use in Cleaning Agents, consumer. Use as process solvent (resin manufacture) Use as a co-formulant in liquid plant protection products (outdoor), professional Use as a co-formulant in liquid plant protection products (outdoor), consumer For details on use descriptors and exposure scenarios, please refer to the extended part of the Safety Data Sheet.

1.3 Details of the supplier of the safety data sheet

COMPANY IDENTIFICATION

The Dow Chemical Company
2030 Willard H. Dow Center
48674 Midland, MI
USA

Customer Information Number:

800-258-2436

SDSQuestion@dow.com

1.4 EMERGENCY TELEPHONE NUMBER

24-Hour Emergency Contact:

989-636-4400

Local Emergency Contact:

00 31 115 69 4982

®(TM)*Trademark

Section 2. Hazards Identification

2.1 Classification of the substance or mixture

Classification - REGULATION (EC) No 1272/2008

Flammable liquids	Category 3	H226	Flammable liquid and vapour.
Specific target organ toxicity - single exposure (Inhalation) (Respiratory tract irritant.)	Category 3	H335	May cause respiratory irritation.

Classification according to EU Directives 67/548/EEC or 1999/45/EC

	R10	Flammable.
Xi	R37	Irritating to respiratory system.

2.2 Label elements

Labelling - REGULATION (EC) No 1272/2008

Hazard pictograms



Signal Word: Warning

Hazard statements:

- H226 Flammable liquid and vapour.
H335 May cause respiratory irritation.

Precautionary Statements:

- P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P261 Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P370 + P378 In case of fire: Use foam for extinction.
P304 + P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P403 + P233 Store in a well-ventilated place. Keep container tightly closed.
P501 Dispose of contents and container to licensed, permitted incinerator, or other thermal destruction device.

2.3 Other Hazards

No information available.

Section 3. Composition/information on ingredients

3.1 Substance

This product is a substance.

CAS-No. / EC-No. / Index	REACH No.	Amount	Component	Classification: REGULATION (EC) No 1272/2008
CAS-No. 108-83-8 EC-No. 203-620-1	01- 2119474441- 41	> 80.0 - < 96.0 %	2,6- Dimethylheptan- 4-one; di-isobutyl ketone	Flam. Liq., 3, H226 STOT SE, 3, H335

Index 606-005-00-X				
CAS-No. 19549-80-5	—	> 4.0 - < 20.0 %	4,6-Dimethyl-2- heptanone##	Not classified
EC-No. 243-148-3				
CAS-No. 108-82-7	—	<= 2.0 %	2,6-Dimethyl-4- heptanol	Aquatic Chronic, 3, H412
EC-No. 203-619-6				

CAS-No. / EC-No. / Index	Amount	Component	Classification: 67/548/EEC
CAS-No. 108-83-8 EC-No. 203-620-1 Index 606-005-00-X	> 80.0 - < 96.0 %	2,6-Dimethylheptan-4- one; di-isobutyl ketone	R10; Xi: R37
CAS-No. 19549-80-5 EC-No. 243-148-3	> 4.0 - < 20.0 %	4,6-Dimethyl-2- heptanone##	Not classified.
CAS-No. 108-82-7 EC-No. 203-619-6	<= 2.0 %	2,6-Dimethyl-4- heptanol	Xi: R36; R52/53; R67

Voluntarily disclosed component(s).
For the full text of the H-Statements mentioned in this Section, see Section 16.
See Section 16 for full text of R-phrases.

Section 4. First-aid measures

4.1 Description of first aid measures

General advice: First Aid responders should pay attention to self-protection and use the recommended protective clothing (chemical resistant gloves, splash protection). If potential for exposure exists refer to Section 8 for specific personal protective equipment.

Inhalation: Move person to fresh air. If not breathing, give artificial respiration; if by mouth to mouth use rescuer protection (pocket mask, etc). If breathing is difficult, oxygen should be administered by qualified personnel. Call a physician or transport to a medical facility.

Skin Contact: Wash skin with plenty of water.

Eye Contact: Flush eyes thoroughly with water for several minutes. Remove contact lenses after the initial 1-2 minutes and continue flushing for several additional minutes. If effects occur, consult a physician, preferably an ophthalmologist. Suitable emergency eye wash facility should be available in work area.

Ingestion: Do not induce vomiting. Call a physician and/or transport to emergency facility immediately.

4.2 Most important symptoms and effects, both acute and delayed

Aside from the information found under Description of first aid measures (above) and Indication of immediate medical attention and special treatment needed (below), no additional symptoms and effects are anticipated.

4.3 Indication of immediate medical attention and special treatment needed

Maintain adequate ventilation and oxygenation of the patient. If lavage is performed, suggest endotracheal and/or esophageal control. Danger from lung aspiration must be weighed against toxicity when considering emptying the stomach. The decision of whether to induce vomiting or not should be made by a physician. No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.

Skin contact may aggravate preexisting dermatitis.

Section 5. Fire Fighting Measures**5.1 Extinguishing Media**

Water fog or fine spray. Dry chemical fire extinguishers. Carbon dioxide fire extinguishers. Foam. Alcohol resistant foams (ATC type) are preferred. General purpose synthetic foams (including AFFF) or protein foams may function, but will be less effective.

5.2 Special hazards arising from the substance or mixture

Hazardous Combustion Products: During a fire, smoke may contain the original material in addition to combustion products of varying composition which may be toxic and/or irritating. Combustion products may include and are not limited to: Carbon monoxide. Carbon dioxide.

Unusual Fire and Explosion Hazards: Violent steam generation or eruption may occur upon application of direct water stream to hot liquids. Vapors are heavier than air and may travel a long distance and accumulate in low lying areas. Ignition and/or flash back may occur.

5.3 Advice for firefighters

Fire Fighting Procedures: Keep people away. Isolate fire and deny unnecessary entry. Stay upwind. Keep out of low areas where gases (fumes) can accumulate. Use water spray to cool fire exposed containers and fire affected zone until fire is out and danger of reignition has passed. Do not use direct water stream. May spread fire. Eliminate ignition sources. Burning liquids may be moved by flushing with water to protect personnel and minimize property damage. Avoid accumulation of water. Product may be carried across water surface spreading fire or contacting an ignition source.

Special Protective Equipment for Firefighters: Wear positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, trousers, boots, and gloves). If protective equipment is not available or not used, fight fire from a protected location or safe distance.

Section 6. Accidental Release Measures

6.1 Personal precautions, protective equipment and emergency procedures: No smoking in area. Eliminate all sources of ignition in vicinity of spill or released vapor to avoid fire or explosion. Ground and bond all containers and handling equipment. Vapor explosion hazard. Keep out of sewers. Keep personnel out of low areas. Keep upwind of spill. Ventilate area of leak or spill. Isolate area. Refer to Section 7, Handling, for additional precautionary measures. Keep unnecessary and unprotected personnel from entering the area. Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection.

6.2 Environmental precautions: Material may float on water and any runoff may create an explosion or fire hazard if ignited. Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12, Ecological Information.

6.3 Methods and materials for containment and cleaning up: Contain spilled material if possible. Pump into suitable and properly labeled containers. Pump with explosion-proof equipment. If available, use foam to smother or suppress. Collect in suitable and properly labeled containers. Small

spills: Wash the spill site with large quantities of water. See Section 13, Disposal Considerations, for additional information.

Section 7. Handling and Storage

7.1 Precautions for safe handling

Handling

General Handling: Keep away from heat, sparks and flame. Avoid breathing vapor. Avoid contact with eyes. Do not swallow. Wash thoroughly after handling. Keep container closed. Use with adequate ventilation. See Section 8, EXPOSURE CONTROLS AND PERSONAL PROTECTION. No smoking, open flames or sources of ignition in handling and storage area. Vapors are heavier than air and may travel a long distance and accumulate in low lying areas. Ignition and/or flash back may occur. Electrically ground and bond all equipment. Containers, even those that have been emptied, can contain vapors. Do not cut, drill, grind, weld, or perform similar operations on or near empty containers. Use of non-sparking or explosion-proof equipment may be necessary, depending upon the type of operation.

7.2 Conditions for safe storage, including any incompatibilities

Storage

Use of non-sparking or explosion-proof equipment may be necessary, depending upon the type of operation. Minimize sources of ignition, such as static build-up, heat, spark or flame. Additional storage and handling information on this product may be obtained by calling your sales or customer service contact. Ask for a product brochure.

Drum

24 Months

Bulk

6 Months

7.3 Specific end uses

See the technical data sheet on this product for further information.

Section 8. Exposure Controls / Personal Protection

8.1 Control parameters

Exposure Limits

Component	List	Type	Value
2,6-Dimethylheptan-4-one; di-isobutyl ketone	Ireland OELV	TWA	150 mg/m ³ 25 ppm
	ACGIH	TWA	25 ppm
	UK WEL	TWA	148 mg/m ³ 25 ppm

Derived No Effect Level (DNEL)

Workers

Potential Health Effects	Possible route(s) of exposure:	Value
Acute - systemic effects	Skin Contact	Not available
Acute - systemic effects	Inhalation	290 mg/m ³
Acute - local effects	Skin Contact	Not available

Acute - local effects	Inhalation	290 mg/m3
Long-term - systemic effects	Skin Contact	80 mg/kg bw/day
Long-term - systemic effects	Inhalation	479 mg/m3
Long-term - local effects	Skin Contact	Not available
Long-term - local effects	Inhalation	290 mg/m3

Consumers

Potential Health Effects	Possible route(s) of exposure:	Value
Acute - systemic effects	Skin Contact	no data available
Acute - systemic effects	Inhalation	145 mg/m3
Acute - systemic effects	Ingestion	no data available
Acute - local effects	Skin Contact	no data available
Acute - local effects	Inhalation	145 mg/m3
Long-term - systemic effects	Skin Contact	28.5 mg/kg bw/day
Long-term - systemic effects	Inhalation	171 mg/m3
Long-term - systemic effects	Ingestion	7.14 mg/kg bw/day
Long-term - local effects	Skin Contact	no data available
Long-term - local effects	Inhalation	145 mg/m3

Predicted No Effect Concentration (PNEC)

Compartment	Value	Remarks
Fresh water	0.03 mg/l	
Marine water	0.003 mg/l	
Intermittent releases	0.3 mg/l	
Fresh water sediment	0.46 mg/kg	
Marine sediment	0.046 mg/kg	
STP	2.55 mg/l	
Soil	0.0746 mg/kg	

8.2 Exposure controls

Personal Protection

Eye/Face Protection: Use chemical goggles. Chemical goggles should be consistent with EN 166 or equivalent. If exposure causes eye discomfort, use a full-face respirator.

Skin Protection: Wear clean, body-covering clothing.

Hand protection: Use gloves chemically resistant to this material when prolonged or frequently repeated contact could occur. Use chemical resistant gloves classified under Standard EN374: Protective gloves against chemicals and micro-organisms. Examples of preferred glove barrier materials include: Butyl rubber. Polyethylene. Ethyl vinyl alcohol laminate ("EVAL"). Examples of acceptable glove barrier materials include: Chlorinated polyethylene. Natural rubber ("latex"). Neoprene. Nitrile/butadiene rubber ("nitrile" or "NBR"). Polyvinyl alcohol ("PVA"). Polyvinyl chloride ("PVC" or "vinyl"). Viton. When prolonged or frequently repeated contact may occur, a glove with a protection class of 4 or higher (breakthrough time greater than 120 minutes according to EN 374) is recommended. When only brief contact is expected, a glove with a protection class of 1 or higher (breakthrough time greater than 10 minutes according to EN 374) is recommended. NOTICE: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as well as the instructions/specifications provided by the glove supplier.

Respiratory Protection: Respiratory protection should be worn when there is a potential to exceed the exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, use an approved respirator. Selection of air-purifying or positive-pressure supplied-air will depend on the specific operation and the potential airborne concentration of the material. For emergency conditions, use an approved positive-pressure self-contained breathing apparatus. Use the following CE approved air-purifying respirator: Organic vapor cartridge with a particulate pre-filter, type AP2.

Ingestion: Avoid ingestion of even very small amounts; do not consume or store food or tobacco in the work area; wash hands and face before smoking or eating.

Engineering Controls

Ventilation: Use engineering controls to maintain airborne level below exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, use only with adequate ventilation. Local exhaust ventilation may be necessary for some operations.

Section 9. Physical and Chemical Properties

9.1 Information on basic physical and chemical properties

Appearance

Physical State	Liquid.
Color	Colorless
Odor	Mild
Odor Threshold	No test data available
pH	No test data available
Melting Point	Not applicable to liquids
Freezing Point	-46 °C <i>Literature</i>
Boiling Point (760 mmHg)	169 °C <i>Literature</i> .
Flash Point - Closed Cup	49 °C <i>ASTM D56</i>
Evaporation Rate (Butyl Acetate = 1)	0.15 <i>Literature</i>
Flammability (solid, gas)	Not applicable to liquids
Flammable Limits In Air	Lower: 0.8 %(V) <i>Literature</i> Upper: 7.1 %(V) <i>Literature</i>
Vapor Pressure	0.23 kPa @ 20 °C <i>Literature</i>
Vapor Density (air = 1)	4.9 <i>Literature</i>
Specific Gravity (H ₂ O = 1)	0.808 <i>Literature</i>
Solubility in water (by weight)	0.043 % @ 25 °C <i>Not reported</i>
Partition coefficient, n-octanol/water (log Pow)	3.71 <i>OECD Guideline 117 (Partition Coefficient (n-octanol / water), HPLC Method)</i>
Autoignition Temperature	1,013 hPa 345 °C <i>No information available.</i>
Decomposition Temperature	No test data available
Dynamic Viscosity	1.05 mPa.s @ 20 °C <i>Literature</i>
Kinematic Viscosity	1.3 mm ² /s <i>Literature</i>
Explosive properties	Not explosive <i>Unspecified</i>
Oxidizing properties	No

9.2 Other information

Molecular Weight	142 g/mol <i>Literature</i>
Molecular Formula	C ₉ H ₁₈ O
Henry's Law Constant (H)	1.17E-04 atm*m ³ /mole; 25 °C Measured

Section 10. Stability and Reactivity

10.1 Reactivity

No dangerous reaction known under conditions of normal use.

10.2 Chemical stability

Thermally stable at typical use temperatures.

10.3 Possibility of hazardous reactions

Polymerization will not occur.

10.4 Conditions to Avoid: Exposure to elevated temperatures can cause product to decompose.

10.5 Incompatible Materials: Avoid contact with: Strong acids. Strong oxidizers.

10.6 Hazardous decomposition products

Decomposition products depend upon temperature, air supply and the presence of other materials.

Section 11. Toxicological Information

11.1 Information on toxicological effects

Acute Toxicity

Ingestion

Very low toxicity if swallowed. Harmful effects not anticipated from swallowing small amounts.

LD50, Rat, male and female > 2,000 mg/kg

Aspiration hazard

Aspiration into the lungs may occur during ingestion or vomiting, causing lung damage or even death due to chemical pneumonia.

Dermal

Prolonged skin contact is unlikely to result in absorption of harmful amounts.

LD50, Rabbit > 2,000 mg/kg

Inhalation

Prolonged excessive exposure may cause adverse effects. Vapor may cause severe irritation of the upper respiratory tract (nose and throat). Symptoms of excessive exposure may be anesthetic or narcotic effects; dizziness and drowsiness may be observed.

LC50, 4 h, Vapor, Rat > 14.5 mg/l

Eye damage/eye irritation

May cause slight eye irritation. May cause slight corneal injury. Vapor or mist may cause eye irritation.

Skin corrosion/irritation

Prolonged contact may cause slight skin irritation with local redness. May cause drying and flaking of the skin.

Sensitization

Skin

Did not cause allergic skin reactions when tested in guinea pigs.

Respiratory

No relevant data found.

Repeated Dose Toxicity

In animals, effects have been reported on the following organs: Kidney. Liver. Lung.

Chronic Toxicity and Carcinogenicity

No relevant data found.

Developmental Toxicity

Did not cause birth defects or any other fetal effects in laboratory animals.

Reproductive Toxicity

In animal studies, did not interfere with reproduction. In animal studies, did not interfere with fertility.

Genetic Toxicology

In vitro genetic toxicity studies were negative.

Section 12. Ecological Information

12.1 Toxicity

Material is harmful to aquatic organisms (LC50/EC50/IC50 between 10 and 100 mg/L in the most sensitive species).

Fish Acute & Prolonged Toxicity

LC50, rainbow trout (*Oncorhynchus mykiss*), flow-through, 96 h: 30 mg/l

Aquatic Invertebrate Acute Toxicity

EC50, water flea *Daphnia magna*, semi-static test, 48 h, immobilization: 37.2 mg/l

Aquatic Plant Toxicity

ErC50, green alga *Pseudokirchneriella subcapitata* (formerly known as *Selenastrum capricornutum*), static, Growth rate inhibition, 72 h: 46.9 mg/l

EbC50, green alga *Pseudokirchneriella subcapitata* (formerly known as *Selenastrum capricornutum*), biomass growth inhibition, 72 h: 37.3 mg/l

Toxicity to Micro-organisms

EC50; bacteria: 255 mg/l

12.2 Persistence and Degradability

Material is readily biodegradable. Passes OECD test(s) for ready biodegradability.

OECD Biodegradation Tests:

Biodegradation	Exposure Time	Method	10 Day Window
88 %	20 d	OECD 301D Test	pass

12.3 Bioaccumulative potential

Bioaccumulation: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

Partition coefficient, n-octanol/water (log Pow): 3.71 OECD Guideline 117 (Partition Coefficient (n-octanol / water), HPLC Method)

Bioconcentration Factor (BCF): 130; fish; Estimated.

12.4 Mobility in soil

Mobility in soil: Potential for mobility in soil is medium (Koc between 150 and 500).

Partition coefficient, soil organic carbon/water (Koc): 155 Estimated.

Henry's Law Constant (H): 1.17E-04 atm*m3/mole; 25 °C Measured

Distribution in Environment: Mackay Level 1 Fugacity Model:

Air	Water.	Biota	Soil	Sediment
94.2 %	5.0 %		0.4 %	0.4 %

12.5 Results of PBT and vPvB assessment

This substance is not considered to be persistent, bioaccumulating and toxic (PBT). This substance is not considered to be very persistent and very bioaccumulating (vPvB).

12.6 Other adverse effects

This substance is not in Annex I of Regulation (EC) 2037/2000 on substances that deplete the ozone layer.

Section 13. Disposal Considerations

13.1 Waste treatment methods

This product, when being disposed of in its unused and uncontaminated state should be treated as a hazardous waste according to EC Directive 91/689/EEC. Any disposal practices must be in compliance with all national and provincial laws and any municipal or local by-laws governing

hazardous waste. For used, contaminated and residual materials additional evaluations may be required. Do not dump into any sewers, on the ground, or into any body of water.

Section 14. Transport Information

ROAD & RAIL

Proper Shipping Name: DIISOBUTYL KETONE

Hazard Class: 3 ID Number: UN1157 Packing Group: PG III

Environmental Hazard: No

OCEAN

Proper Shipping Name: DIISOBUTYL KETONE

Hazard Class: 3 ID Number: UN1157 Packing Group: PG III

EMS Number: F-E,S-D

Marine pollutant.: No

AIR

Proper Shipping Name: DIISOBUTYL KETONE

Hazard Class: 3 ID Number: UN1157 Packing Group: PG III

Cargo Packing Instruction: 366

Passenger Packing Instruction: 355

Environmental Hazard: No

INLAND WATERWAYS

Proper Shipping Name: DIISOBUTYL KETONE

Hazard Class: 3 ID Number: UN1157 Packing Group: PG III

Environmental Hazard: No

Section 15. Regulatory Information

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

European Inventory of Existing Commercial Chemical Substances (EINECS)

The components of this product are on the EINECS inventory or are exempt from inventory requirements.

15.2 Chemical Safety Assessment

A Chemical Safety Assessment has been carried out for this substance.

Section 16. Other Information

Hazard statement in the composition section

H226 Flammable liquid and vapour.
H335 May cause respiratory irritation.
H412 Harmful to aquatic life with long lasting effects.

Risk-phrases in the Composition section

R10 Flammable.
R36 Irritating to eyes.
R37 Irritating to respiratory system.
R52/53 Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
R67 Vapours may cause drowsiness and dizziness.

Revision

Identification Number: 905 / 1001 / Issue Date 2011/03/30 / Version: 5.0

Most recent revision(s) are noted by the bold, double bars in left-hand margin throughout this document.

The Dow Chemical Company urges each customer or recipient of this (M)SDS to study it carefully and consult appropriate expertise, as necessary or appropriate, to become aware of and understand the data contained in this (M)SDS and any hazards associated with the product. The information herein is provided in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied, is given. Regulatory requirements are subject to change and may differ between various locations. It is the buyer's/user's responsibility to ensure that his activities comply with all federal, state, provincial or local laws. The information presented here pertains only to the product as shipped. Since conditions for use of the product are not under the control of the manufacturer, it is the buyer's/user's duty to determine the conditions necessary for the safe use of this product. Due to the proliferation of sources for information such as manufacturer-specific (M)SDSs, we are not and cannot be responsible for (M)SDSs obtained from any source other than ourselves. If you have obtained an (M)SDS from another source or if you are not sure that the (M)SDS you have is current, please contact us for the most current version.

Section 1		Exposure Scenario: worker
Title	Manufacture of substance, industrial	
Sector of Use	SU3; SU8; SU9	
Process Category	PROC1; PROC2; PROC3; PROC4; PROC8a; PROC8b; PROC15	
Product Category	n/a	
Article Category	n/a	
Environmental Release Category	ERC1; ERC4	
Specific Environmental Release Category	ESVOC SpERC 1.1.v1	
Processes, tasks, activities covered	Manufacture of the substance or use as a process chemical or extraction agent. Includes recycling/recovery, material transfers, storage, maintenance and loading (including marine vessel/barge, road/rail car and bulk container), sampling and associated laboratory activities	
Section 2		Operational conditions and risk management measures
Product/article characteristics		
Physical form of product/article	Liquid	
Volatility	Liquid, vapour pressure < 0.5 kPa at STP	
Dustiness	n/a	
Concentration in a preparation/product (w/w%)	up to 100	
Other product/article characteristics	Readily biodegradable.	
Section 2.1		Control of worker exposure
Operational conditions		
Amounts used	n/a	
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently)	
Human factors not influenced by risk management	n/a	
Other Operational Conditions affecting exposure	Assumes use at not more than 20°C above ambient temperature, unless stated differently Assumes a good basic standard of occupational hygiene is implemented	
Risk Management Measures		
Contributing Scenarios		
General exposures Continuous process (closed systems)	No other specific measures identified	
General exposures Continuous process with sample collection (closed systems)	No other specific measures identified	
Use in contained batch processes	No other specific measures identified	
General exposures (open systems)	No other specific measures identified	
Process sampling (closed systems)	No other specific measures identified	
Equipment cleaning and maintenance	No other specific measures identified	
Bulk transfers Dedicated facility	No other specific measures identified	

Bulk product storage (closed systems)	No other specific measures identified
Laboratory activities	No other specific measures identified
Section 2.2	Control of environmental exposure
Operational conditions	
Amounts used	Daily site tonnage: 2000000 kg/day
Frequency and Duration of use/exposure	<i>Emission days (days/year): 300</i>
Environmental factors not influenced by risk management	Local freshwater dilution factor: 10. Local marine water dilution factor: 100.
Other Operational Conditions of use affecting environmental exposure	n/a
Risk Management Measures	
Technical conditions and measures at process level (source) to prevent release	Common practices vary across sites thus conservative process release estimates used.
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	Waste gas treatment - thermal oxidation. Wet scrubber for gas removal.
Organisation measures to prevent/limit release from site	Do not apply industrial sludge to natural soils.
Conditions and measures related to municipal sewage treatment plant	Biological treatment - anaerobic. Biological treatment - aerobic. Estimated substance removal from wastewater via domestic sewage treatment (%); 87.3
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.
Other environmental control measures additional to above	Prevent leaks and prevent soil / water pollution caused by leaks A leak prevention plan is needed to prevent low level continual releases Site should have a spill plan to ensure that adequate safeguards are in place to minimize the impact of episodic releases Bund storage facilities to prevent soil and water pollution in the event of spillage
Section 3	Exposure Estimation
3.1. Health	
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.	
3.2. Environment	
EUSES version 2.1. has been used to estimate environmental emissions unless otherwise indicated. When the recommended risk management measures and operational conditions are observed, exposures are not expected to exceed the predicted PNECs and the resulting risk characterisation ratios are expected to be less than 1.	
Section 4	Guidance to check compliance with the Exposure Scenario
4.1. Health	
Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.	
4.2. Environment	

<p>Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Further details on scaling and control technologies are provided in spERC factsheet (http://cefic.org/en/reeach-for-industries-libraries.html).</p>	
Section 1	
Exposure Scenario: worker	
Title	<i>Distribution of substance, industrial</i>
Sector of Use	<i>SU3; SU8; SU9</i>
Process Category	<i>PROC1; PROC2; PROC3; PROC8a; PROC8b; PROC9; PROC15</i>
Product Category	<i>n/a</i>
Article Category	<i>n/a</i>
Environmental Release Category	<i>ERC1; ERC2; ERC3; ERC4; ERC5; ERC6a; ERC7</i>
Specific Environmental Release Category	<i>ESVOC SpERC 1.1b.v1</i>
Processes, tasks, activities covered	<i>Loading (including marine vessel/barge, rail/road car and IBC loading) and repacking (including drums and small packs) of substance, including its sampling, storage, unloading distribution and associated laboratory activities</i>
Section 2	
Operational conditions and risk management measures	
Product/article characteristics	
Physical form of product/article	<i>Liquid</i>
Volatility	<i>Liquid, vapour pressure < 0.5 kPa at STP</i>
Dustiness	<i>n/a</i>
Concentration in a preparation/product (w/w%)	<i>up to 100</i>
Other product/article characteristics	<i>Readily biodegradable.</i>
Section 2.1	
Control of worker exposure	
Operational conditions	
Amounts used	<i>n/a</i>
Frequency and duration of use	<i>Covers daily exposures up to 8 hours (unless stated differently)</i>
Human factors not influenced by risk management	<i>n/a</i>
Other Operational Conditions affecting exposure	<i>Assumes use at not more than 20°C above ambient temperature, unless stated differently Assumes a good basic standard of occupational hygiene is implemented</i>
Risk Management Measures	
Contributing Scenarios	
General exposures (closed systems) Continuous process No sampling	<i>No other specific measures identified</i>
General exposures (closed systems) Continuous process With sample collection	<i>No other specific measures identified</i>
General exposures Use in contained batch processes With sample collection	<i>No other specific measures identified</i>
General exposures (closed systems)	<i>No other specific measures identified</i>

Process sampling (closed systems)	<i>No other specific measures identified</i>
Bulk transfers Dedicated facility (closed systems)	<i>No other specific measures identified</i>
Bulk transfers Dedicated facility (open systems)	<i>No other specific measures identified</i>
Drum/batch transfers Dedicated facility	<i>No other specific measures identified</i>
Dedicated facility Drum and small package filling	<i>No other specific measures identified</i>
Equipment cleaning and maintenance	<i>No other specific measures identified</i>
Bulk product storage (closed systems)	<i>No other specific measures identified</i>
Laboratory activities	<i>No other specific measures identified</i>
Section 2.2	Control of environmental exposure
Operational conditions	
Amounts used	Daily site tonnage: 30000 kg/day
Frequency and Duration of use/exposure	<i>Emission days (days/year): 300</i>
Environmental factors not influenced by risk management	Local freshwater dilution factor: 10. Local marine water dilution factor: 100.
Other Operational Conditions of use affecting environmental exposure	n/a
Risk Management Measures	
Technical conditions and measures at process level (source) to prevent release	Common practices vary across sites thus conservative process release estimates used.
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	Waste gas treatment - thermal oxidation. Wet scrubber for gas removal. Treat air emission to provide the required removal efficiency of (%): 90 No wastewater treatment required.
Organisation measures to prevent/limit release from site	Do not apply industrial sludge to natural soils.
Conditions and measures related to municipal sewage treatment plant	Biological treatment - anaerobic. Biological treatment - aerobic. Estimated substance removal from wastewater via domestic sewage treatment (%): 87.3
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.

Other environmental control measures additional to above	Prevent leaks and prevent soil / water pollution caused by leaks A leak prevention plan is needed to prevent low level continual releases Site should have a spill plan to ensure that adequate safeguards are in place to minimize the impact of episodic releases Bund storage facilities to prevent soil and water pollution in the event of spillage Use vapour recovery units when necessary
Section 3	Exposure Estimation
3.1. Health	
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.	
3.2. Environment	
EUSES version 2.1. has been used to estimate environmental emissions unless otherwise indicated. When the recommended risk management measures and operational conditions are observed, exposures are not expected to exceed the predicted PNECs and the resulting risk characterisation ratios are expected to be less than 1.	
Section 4	Guidance to check compliance with the Exposure Scenario
4.1. Health	
Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.	
4.2. Environment	
Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Further details on scaling and control technologies are provided in spERC factsheet (http://cefic.org/en/reeach-for-industries-libraries.html).	

Section 1	Exposure Scenario: worker
Title	Formulation and (re)packing
Sector of Use	SU3; SU10
Process Category	PROC1; PROC2; PROC3; PROC4; PROC5; PROC8a; PROC8b; PROC9; PROC14; PROC15
Product Category	n/a
Article Category	n/a
Environmental Release Category	ERC2
Specific Environmental Release Category	ESVOC SpERC 2.2.v1
Processes, tasks, activities covered	Formulation, packing and re-packing of the substance and its mixtures in batch or continuous operations, including storage, materials transfers, mixing, tableting, compression, pelletisation, extrusion, large and small scale packing, sampling, maintenance and associated laboratory activities.
Section 2	Operational conditions and risk management measures
Product/article characteristics	
Physical form of product/article	Liquid
Volatility	Liquid, vapour pressure < 0.5 kPa at STP
Dustiness	n/a
Concentration in a preparation/product (w/w%)	up to 100
Other product/article characteristics	Readily biodegradable.
Section 2.1	Control of worker exposure
Operational conditions	

Amounts used	n/a
Frequency and duration of use	<i>Covers daily exposures up to 8 hours (unless stated differently)</i>
Human factors not influenced by risk management	n/a
Other Operational Conditions affecting exposure	<i>Assumes use at not more than 20°C above ambient temperature, unless stated differently Assumes a good basic standard of occupational hygiene is implemented</i>
Risk Management Measures	
Contributing Scenarios	
General exposures; Continuous process; No sampling; (closed systems)	No other specific measures identified
General exposures Continuous process with sample collection (closed systems)	No other specific measures identified
General exposures; Use in contained batch processes; With sample collection	No other specific measures identified
General exposures (open systems)	No other specific measures identified
Batch processes at elevated temperatures.; (closed systems)	No other specific measures identified
Process sampling (closed systems)	No other specific measures identified
Bulk transfers Dedicated facility	No other specific measures identified
Mixing operations (open systems)	Provide a good standard of general ventilation (not less than 3-5 air changes per hour)
Transfer from/pouring from containers ; Manual	No other specific measures identified
Equipment cleaning and maintenance	No other specific measures identified
Drum/batch transfers [CS8]. ; Dedicated facility	No other specific measures identified
Production or preparation of articles by tableting, compression, extrusion or pelletisation	No other specific measures identified
Drum and small package filling; Dedicated facility	No other specific measures identified
Bulk product storage (closed systems)	No other specific measures identified
Laboratory activities	No other specific measures identified
Section 2.2	
Operational conditions	
Amounts used	Daily site tonnage: 100000 kg/day
Frequency and Duration of use/exposure	<i>Emission days (days/year): 300</i>
Environmental factors not influenced by risk management	Local freshwater dilution factor: 10. Local marine water dilution factor: 100.
Other Operational Conditions of use affecting environmental exposure	n/a
Risk Management Measures	

Technical conditions and measures at process level (source) to prevent release	Common practices vary across sites thus conservative process release estimates used.
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	Waste gas treatment - thermal oxidation. Wet scrubber for gas removal. Typical onsite wastewater treatment technology provides removal efficiency of (%): 87.3.
Organisation measures to prevent/limit release from site	Do not apply industrial sludge to natural soils.
Conditions and measures related to municipal sewage treatment plant	Biological treatment - anaerobic. Biological treatment - aerobic. Estimated substance removal from wastewater via domestic sewage treatment (%); 87.3
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.
Other environmental control measures additional to above	Prevent leaks and prevent soil / water pollution caused by leaks A leak prevention plan is needed to prevent low level continual releases Site should have a spill plan to ensure that adequate safeguards are in place to minimize the impact of episodic releases Bund storage facilities to prevent soil and water pollution in the event of spillage
Section 3	Exposure Estimation
3.1. Health	
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.	
3.2. Environment	
EUSES version 2.1. has been used to estimate environmental emissions unless otherwise indicated. When the recommended risk management measures and operational conditions are observed, exposures are not expected to exceed the predicted PNECs and the resulting risk characterisation ratios are expected to be less than 1.	
Section 4	Guidance to check compliance with the Exposure Scenario
4.1. Health	
Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.	
4.2. Environment	
Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Further details on scaling and control technologies are provided in spERC factsheet (http://cefic.org/en/reeach-for-industries-libraries.html).	
Section 1	Exposure Scenario: worker
Title	Industrial use in Coatings
Sector of Use	SU3
Process Category	PROC1; PROC2; PROC3; PROC4; PROC5; PROC7; PROC8a; PROC8b; PROC10; PROC13; PROC15
Product Category	n/a
Article Category	n/a
Environmental Release Category	ERC4

Specific Environmental Release Category	<i>ESVOC SpERC 4.3a.v1</i>
Processes, tasks, activities covered	<i>Covers the use in coatings (paints, inks, adhesives, etc) including exposures during use (including materials receipt, storage, preparation and transfer from bulk and semi-bulk, application by spray, roller, spreader, dip, flow, fluidised bed on production lines and film formation) and equipment cleaning, maintenance and associated laboratory activities.</i>
Section 2	Operational conditions and risk management measures
Product/article characteristics	
Physical form of product/article	<i>Liquid</i>
Volatility	<i>Liquid, vapour pressure < 0.5 kPa at STP</i>
Dustiness	<i>n/a</i>
Concentration in a preparation/product (w/w%)	<i>up to 100</i>
Other product/article characteristics	<i>Readily biodegradable.</i>
Section 2.1	Control of worker exposure
Operational conditions	
Amounts used	<i>n/a</i>
Frequency and duration of use	<i>Covers daily exposures up to 8 hours (unless stated differently)</i>
Human factors not influenced by risk management	<i>n/a</i>
Other Operational Conditions affecting exposure	<i>Assumes use at not more than 20°C above ambient temperature, unless stated differently Assumes a good basic standard of occupational hygiene is implemented</i>
Risk Management Measures	
Contributing Scenarios	
General exposures (closed systems)	<i>No other specific measures identified</i>
General exposures (closed systems) With sample collection	<i>No other specific measures identified</i>
Film formation - force drying (50 - 100°C). Stoving (>100°C). UV/EB radiation curing	<i>No other specific measures identified</i>
Mixing operations (closed systems); General exposures (closed systems)	<i>No other specific measures identified</i>
Film formation - air drying	<i>No other specific measures identified</i>
Preparation of material for application; Mixing operations (open systems)	<i>No other specific measures identified</i>
Spraying (automatic/robotic)	<i>No other specific measures identified</i>
Spraying; Manual	<i>Provide a good standard of general ventilation (not less than 3-5 air changes per hour) Avoid carrying out activities involving exposure for more than 4 hours. Wear suitable gloves tested to EN374</i>
Material transfers; Non-dedicated facility	<i>No other specific measures identified</i>
Material transfers; Dedicated facility	<i>No other specific measures identified</i>

Roller, spreader, flow application	No other specific measures identified
Roller, spreader, flow application	No other specific measures identified
Laboratory activities	No other specific measures identified
Section 2.2	Control of environmental exposure
Operational conditions	
Amounts used	Daily site tonnage: 50000 kg/day
Frequency and Duration of use/exposure	<i>Emission days (days/year): 300</i>
Environmental factors not influenced by risk management	Local freshwater dilution factor: 10. Local marine water dilution factor: 100.
Other Operational Conditions of use affecting environmental exposure	n/a
Risk Management Measures	
Technical conditions and measures at process level (source) to prevent release	Common practices vary across sites thus conservative process release estimates used.
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	Waste gas treatment - thermal oxidation. Wet scrubber for gas removal. Treat air emission to provide the required removal efficiency of (%): 90 Typical onsite wastewater treatment technology provides removal efficiency of (%): 87.3.
Organisation measures to prevent/limit release from site	Do not apply industrial sludge to natural soils.
Conditions and measures related to municipal sewage treatment plant	Biological treatment - anaerobic. Biological treatment - aerobic. Estimated substance removal from wastewater via domestic sewage treatment (%): 87.3
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.
Other environmental control measures additional to above	Prevent leaks and prevent soil / water pollution caused by leaks A leak prevention plan is needed to prevent low level continual releases Site should have a spill plan to ensure that adequate safeguards are in place to minimize the impact of episodic releases Bund storage facilities to prevent soil and water pollution in the event of spillage
Section 3	Exposure Estimation
3.1. Health	
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.	
3.2. Environment	
EUSES version 2.1. has been used to estimate environmental emissions unless otherwise indicated. When the recommended risk management measures and operational conditions are observed, exposures are not expected to exceed the predicted PNECs and the resulting risk characterisation ratios are expected to be less than 1.	
Section 4	Guidance to check compliance with the Exposure Scenario
4.1. Health	
Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.	
4.2. Environment	

<p>Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Further details on scaling and control technologies are provided in spERC factsheet (http://cefic.org/en/reeach-for-industries-libraries.html).</p>	
Section 1	
Exposure Scenario: worker	
Title	<i>Professional use in coatings</i>
Sector of Use	<i>SU22</i>
Process Category	<i>PROC1; PROC2; PROC3; PROC4; PROC5; PROC8a; PROC8b; PROC10; PROC11; PROC13; PROC15; PROC19</i>
Product Category	<i>n/a</i>
Article Category	<i>n/a</i>
Environmental Release Category	<i>ERC8a, ERC8d</i>
Specific Environmental Release Category	<i>ESVOC SpERC 8.3b.v1</i>
Processes, tasks, activities covered	<i>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 film formation), and equipment cleaning, maintenance and associated laboratory activities.</i>
Section 2	
Operational conditions and risk management measures	
Product/article characteristics	
Physical form of product/article	<i>Liquid</i>
Volatility	<i>Liquid, vapour pressure < 0.5 kPa at STP</i>
Dustiness	<i>n/a</i>
Concentration in a preparation/product (w/w%)	<i>up to 100</i>
Other product/article characteristics	<i>Readily biodegradable.</i>
Section 2.1	
Control of worker exposure	
Operational conditions	
Amounts used	<i>n/a</i>
Frequency and duration of use	<i>Covers daily exposures up to 8 hours (unless stated differently)</i>
Human factors not influenced by risk management	<i>n/a</i>
Other Operational Conditions affecting exposure	<i>Assumes use at not more than 20°C above ambient temperature, unless stated differently Assumes a good basic standard of occupational hygiene is implemented</i>
Risk Management Measures	
Contributing Scenarios	
General exposures (closed systems)	<i>No other specific measures identified</i>
Filling / preparation of equipment from drums or containers.	<i>No other specific measures identified</i>
General exposures (closed systems); Use in contained systems	<i>No other specific measures identified</i>
Preparation of material for application	<i>No other specific measures identified</i>

Film formation - air drying; Outdoor	No other specific measures identified
Film formation - air drying; Indoor	No other specific measures identified
Preparation of material for application; Indoor	No other specific measures identified
Preparation of material for application; Outdoor	Ensure operation is undertaken outdoors
Material transfers; Drum/batch transfers; Non-dedicated facility	No other specific measures identified
Material transfers; Dedicated facility; Drum/batch transfers	No other specific measures identified
Roller, spreader, flow application; Indoor	No other specific measures identified
Roller, spreader, flow application; Outdoor	No other specific measures identified
Spraying; Manual; Indoor	Carry out in a vented booth or extracted enclosure
Spraying; Manual; Outdoor	Ensure operation is undertaken outdoors. Wear a respirator conforming to EN140 with Type A filter or better; Wear suitable gloves tested to EN374
Dipping, immersion and pouring; Indoor	No other specific measures identified
Dipping, immersion and pouring; Outdoor	No other specific measures identified
Laboratory activities	No other specific measures identified
Hand application - fingerpaints, pastels, adhesives; Indoor	Wear suitable gloves tested to EN374
Hand application - fingerpaints, pastels, adhesives; Outdoor	Wear suitable gloves tested to EN374
Section 2.2	Control of environmental exposure
Operational conditions	
Amounts used	Daily site tonnage: 0.274 kg/day
Frequency and Duration of use/exposure	Emission days (days/year): 365
Environmental factors not influenced by risk management	Local freshwater dilution factor: 10. Local marine water dilution factor: 100.
Other Operational Conditions of use affecting environmental exposure	n/a
Risk Management Measures	
Technical conditions and measures at process level (source) to prevent release	Common practices vary across sites thus conservative process release estimates used.
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	n/a
Organisation measures to prevent/limit release from site	Many professional users must comply with the EU solvents directive which require RMMs that limit air emissions to 1 to 30% depending on coating application.

Conditions and measures related to municipal sewage treatment plant	Biological treatment - anaerobic. Biological treatment - aerobic.
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.
Other environmental control measures additional to above	Clean up should minimize release to waste water and the environment. Site should have a spill plan to ensure that adequate safeguards are in place to minimize the impact of episodic releases
Section 3	Exposure Estimation
3.1. Health	
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.	
3.2. Environment	
EUSES version 2.1. has been used to estimate environmental emissions unless otherwise indicated. When the recommended risk management measures and operational conditions are observed, exposures are not expected to exceed the predicted PNECs and the resulting risk characterisation ratios are expected to be less than 1.	
Section 4	Guidance to check compliance with the Exposure Scenario
4.1. Health	
Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.	
4.2. Environment	
Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reeach-for-industries-libraries.html).	
Section 1	Exposure Scenario: worker
Title	<i>Industrial Use in Cleaning Agents</i>
Sector of Use	SU3
Process Category	PROC1; PROC2; PROC3; PROC4; PROC7; PROC8a; PROC8b; PROC10; PROC13
Product Category	n/a
Article Category	n/a
Environmental Release Category	ERC4
Specific Environmental Release Category	ESVOC SpERC 4.4a.v1
Processes, tasks, activities covered	<i>Covers the use as a component of cleaning products including transfer from storage, pouring/unloading from drums or containers. Exposures during mixing/diluting in the preparatory phase and cleaning activities (including spraying, brushing, dipping, wiping, automated and by hand), related equipment cleaning and maintenance</i>
Section 2	Operational conditions and risk management measures
Product/article characteristics	
Physical form of product/article	Liquid

Volatility	<i>Liquid, vapour pressure < 0.5 kPa at STP</i>
Dustiness	<i>n/a</i>
Concentration in a preparation/product (w/w%)	<i>Up to 100%</i>
Other product/article characteristics	<i>Readily biodegradable.</i>
Section 2.1	Control of worker exposure
Operational conditions	
Amounts used	<i>n/a</i>
Frequency and duration of use	<i>Covers daily exposures up to 8 hours (unless stated differently)</i>
Human factors not influenced by risk management	<i>n/a</i>
Other Operational Conditions affecting exposure	<i>Assumes use at not more than 20°C above ambient temperature, unless stated differently Assumes a good basic standard of occupational hygiene is implemented</i>
Risk Management Measures	
Contributing Scenarios	
General exposures (closed systems)	No other specific measures identified
Bulk transfers; Non-dedicated facility	No other specific measures identified
Use in contained systems; Automated process with (semi) closed systems	No other specific measures identified
Use in contained systems; Automated process with (semi) closed systems; Drum/batch transfers	No other specific measures identified
Application of cleaning products in closed systems	No other specific measures identified
Filling / preparation of equipment from drums or containers.; Dedicated facility	No other specific measures identified
Use in contained batch processes; Treatment by heating	No other specific measures identified
Degreasing small objects in cleaning station	No other specific measures identified
Cleaning with low-pressure washers	No other specific measures identified
Cleaning with high pressure washers	Provide a good standard of general ventilation (not less than 3-5 air changes per hour) Avoid carrying out activities involving exposure for more than 4 hours. Wear suitable gloves tested to EN374
Cleaning; Surfaces; No spraying; Manual	No other specific measures identified
Section 2.2	Control of environmental exposure
Operational conditions	
Amounts used	Daily site tonnage: 5000 kg/day
Frequency and Duration of use/exposure	Emission days (days/year): 20
Environmental factors not influenced by risk management	Local freshwater dilution factor: 10. Local marine water dilution factor: 100.

Other Operational Conditions of use affecting environmental exposure	n/a
Risk Management Measures	
Technical conditions and measures at process level (source) to prevent release	Common practices vary across sites thus conservative process release estimates used.
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	Waste gas treatment - thermal oxidation. Wet scrubber for gas removal. Treat air emission to provide the required removal efficiency of (%): 70 Typical onsite wastewater treatment technology provides removal efficiency of (%): 87.3.
Organisation measures to prevent/limit release from site	n/a
Conditions and measures related to municipal sewage treatment plant	Biological treatment - anaerobic. Biological treatment - aerobic. Estimated substance removal from wastewater via domestic sewage treatment (%): 87.3
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.
Other environmental control measures additional to above	Prevent leaks and prevent soil / water pollution caused by leaks A leak prevention plan is needed to prevent low level continual releases Site should have a spill plan to ensure that adequate safeguards are in place to minimize the impact of episodic releases Bund storage facilities to prevent soil and water pollution in the event of spillage
Section 3	
3.1. Health	
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.	
3.2. Environment	
EUSES version 2.1. has been used to estimate environmental emissions unless otherwise indicated. When the recommended risk management measures and operational conditions are observed, exposures are not expected to exceed the predicted PNECs and the resulting risk characterisation ratios are expected to be less than 1.	
Section 4	
Guidance to check compliance with the Exposure Scenario	
4.1. Health	
Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.	
4.2. Environment	
Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Further details on scaling and control technologies are provided in spERC factsheet (http://cefic.org/en/reeach-for-industries-libraries.html).	
Section 1	
Exposure Scenario: worker	
Title	Professional Use in Cleaning Agents
Sector of Use	<i>SU22</i>

Process Category	<i>PROC1; PROC2; PROC3; PROC4; PROC8a; PROC8b; PROC10; PROC11; PROC13</i>
Product Category	<i>n/a</i>
Article Category	<i>n/a</i>
Environmental Release Category	<i>ERC8a, ERC8d</i>
Specific Environmental Release Category	<i>ESVOC SpERC 8.4b.v1</i>
Processes, tasks, activities covered	<i>Covers the use as a component of cleaning products including pouring/unloading from drums or containers; and exposures during mixing/diluting in the preparatory phase and cleaning activities (including spraying, brushing, dipping, wiping automated and by hand).</i>
Section 2	Operational conditions and risk management measures
Product/article characteristics	
Physical form of product/article	<i>Liquid</i>
Volatility	<i>Liquid, vapour pressure < 0.5 kPa at STP</i>
Dustiness	<i>n/a</i>
Concentration in a preparation/product (w/w%)	<i>Up to 100%</i>
Other product/article characteristics	<i>Readily biodegradable.</i>
Section 2.1	Control of worker exposure
Operational conditions	
Amounts used	<i>n/a</i>
Frequency and duration of use	<i>Covers daily exposures up to 8 hours (unless stated differently)</i>
Human factors not influenced by risk management	<i>n/a</i>
Other Operational Conditions affecting exposure	<i>Assumes use at not more than 20°C above ambient temperature, unless stated differently Assumes a good basic standard of occupational hygiene is implemented</i>
Risk Management Measures	
Contributing Scenarios	
General exposures (closed systems)	<i>No other specific measures identified</i>
Filling / preparation of equipment from drums or containers.; Dedicated facility	<i>No other specific measures identified</i>
Use in contained systems [CS38]. ; Automated process with (semi) closed systems	<i>No other specific measures identified</i>
Use in contained systems; Automated process with (semi) closed systems; Drum/batch transfers	<i>No other specific measures identified</i>
Semi Automated process. (e.g.: Semi automatic application of floor care and maintenance products)	<i>No other specific measures identified</i>

Filling / preparation of equipment from drums or containers.; Non-dedicated facility; Outdoor	Ensure operation is undertaken outdoors
Cleaning; Surfaces; Manual; Dipping, immersion and pouring	No other specific measures identified
Cleaning with low-pressure washers	No other specific measures identified
Cleaning with high pressure washers; Indoor	Limit the substance content in the product to 25%. Provide a good standard of general ventilation (not less than 3-5 air changes per hour). Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training
Cleaning with high pressure washers; Outdoor	Limit the substance content in the product to 25%. .Ensure operation is undertaken outdoors. Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training
Cleaning; Surfaces; Manual; Spraying	No other specific measures identified
Ad hoc manual application via trigger sprays, dipping, etc.; Rolling, Brushing	No other specific measures identified
Ad hoc manual application via trigger sprays, dipping, etc.; Rolling, Brushing	No other specific measures identified
Application of cleaning products in closed systems	No other specific measures identified
Cleaning of medical devices	No other specific measures identified
Section 2.2	Control of environmental exposure
Operational conditions	
Amounts used	Daily site tonnage: 2.74
Frequency and Duration of use/exposure	Emission days (days/year): 365
Environmental factors not influenced by risk management	Local freshwater dilution factor: 10. Local marine water dilution factor: 100.
Other Operational Conditions of use affecting environmental exposure	n/a
Risk Management Measures	
Technical conditions and measures at process level (source) to prevent release	Common practices vary across sites thus conservative process release estimates used.
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	n/a
Organisation measures to prevent/limit release from site	Many professional users must comply with the EU solvents directive which require RMMs that limit air emissions to 1 to 30% depending on coating application.
Conditions and measures related to municipal sewage treatment plant	Biological treatment - anaerobic. Biological treatment - aerobic.
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.
Other environmental control measures additional to above	Use vapour recovery units when necessary Site should have a spill plan to ensure that adequate safeguards are in place to minimize the impact of episodic releases.
Section 3	Exposure Estimation
3.1. Health	
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.	
3.2. Environment	
EUSES version 2.1. has been used to estimate environmental emissions unless otherwise indicated. When the recommended risk management measures and operational conditions are observed, exposures are not expected to exceed the predicted PNECs and the resulting risk characterisation ratios are expected to be less than 1.	
Section 4	Guidance to check compliance with the Exposure Scenario
4.1. Health	
Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.	
4.2. Environment	
Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Further details on scaling and control technologies are provided in spERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html).	
Section 1	Exposure Scenario: worker
Title	<i>Use as process solvent (resin manufacture)</i>
Sector of Use	<i>SU3</i>
Process Category	<i>PROC1; PROC2; PROC3; PROC4; PROC8a; PROC8b; PROC15</i>
Product Category	<i>n/a</i>
Article Category	<i>n/a</i>
Environmental Release Category	<i>ERC6A</i>
Specific Environmental Release Category	<i>ESVOC SpERC 6.1a.v1</i>
Processes, tasks, activities covered	<i>Use of substance as an intermediate (not related to Strictly Controlled Conditions). Includes material transfers, storage, sampling, associated laboratory activities, maintenance and loading (including marine vessel/barge, road/rail car and bulk container).</i>
Section 2	Operational conditions and risk management measures
Product/article characteristics	
Physical form of product/article	<i>Liquid</i>
Volatility	<i>Liquid, vapour pressure < 0.5 kPa at STP</i>
Dustiness	<i>n/a</i>
Concentration in a preparation/product (w/w%)	<i>up to 100</i>
Other product/article characteristics	<i>Readily biodegradable.</i>
Section 2.1	Control of worker exposure
Operational conditions	

Amounts used	n/a
Frequency and duration of use	<i>Covers daily exposures up to 8 hours (unless stated differently)</i>
Human factors not influenced by risk management	n/a
Other Operational Conditions affecting exposure	<i>Assumes use at not more than 20°C above ambient temperature, unless stated differently</i>
Risk Management Measures	
Contributing Scenarios	
General exposures Continuous process (closed systems)	No other specific measures identified
General exposures Continuous process with sample collection (closed systems)	No other specific measures identified
Use in contained batch processes	No other specific measures identified
General exposures (open systems)	No other specific measures identified
Process sampling (closed systems)	No other specific measures identified
Equipment cleaning and maintenance	No other specific measures identified
Bulk transfers Dedicated facility	No other specific measures identified
Bulk product storage (closed systems)	No other specific measures identified
Laboratory activities	No other specific measures identified
Section 2.2	
Control of environmental exposure	
Operational conditions	
Amounts used	Daily site tonnage Msperc (kg/day): 50000
Frequency and Duration of use/exposure	Emission days (days/year): 300
Environmental factors not influenced by risk management	Local freshwater dilution factor: 10. Local marine water dilution factor: 100.
Other Operational Conditions of use affecting environmental exposure	n/a
Risk Management Measures	
Technical conditions and measures at process level (source) to prevent release	Common practices vary across sites thus conservative process release estimates used.
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	Waste gas treatment - thermal oxidation. Wet scrubber for gas removal. Treat air emission to provide the required removal efficiency of (%): 80 No wastewater treatment required.
Organisation measures to prevent/limit release from site	Do not apply industrial sludge to natural soils.

Conditions and measures related to municipal sewage treatment plant	Biological treatment - anaerobic. Biological treatment - aerobic. Estimated substance removal from wastewater via domestic sewage treatment (%); 87.3
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.
Other environmental control measures additional to above	Prevent leaks and prevent soil / water pollution caused by leaks A leak prevention plan is needed to prevent low level continual releases Site should have a spill plan to ensure that adequate safeguards are in place to minimize the impact of episodic releases Bund storage facilities to prevent soil and water pollution in the event of spillage Use vapour recovery units when necessary
Section 3	Exposure Estimation
3.1. Health	
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.	
3.2. Environment	
EUSES version 2.1. has been used to estimate environmental emissions unless otherwise indicated. When the recommended risk management measures and operational conditions are observed, exposures are not expected to exceed the predicted PNECs and the resulting risk characterisation ratios are expected to be less than 1.	
Section 4	Guidance to check compliance with the Exposure Scenario
4.1. Health	
Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.	
4.2. Environment	
Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Further details on scaling and control technologies are provided in spERC factsheet (http://cefic.org/en/reeach-for-industries-libraries.html).	

Section 1	Exposure Scenario: worker
Title	<i>professional use as a co-formulant in liquid plant protection products (outdoor)</i>
Sector of Use	<i>SU3</i>
Process Category	<i>PROC8b; PROC11</i>
Product Category	<i>n/a</i>
Article Category	<i>n/a</i>
Environmental Release Category	<i>ERC8d</i>
Specific Environmental Release Category	<i>ESVOC 2</i>
Processes, tasks, activities covered	<i>Use as an agrochemical excipient for application by manual spraying and fogging; including formulation/mixing.</i>
Section 2	Operational conditions and risk management measures
Product/article characteristics	
Physical form of product/article	<i>Liquid</i>

Volatility	<i>Liquid, vapour pressure < 0.5 kPa at STP</i>
Dustiness	<i>n/a</i>
Concentration in a preparation/product (w/w%)	<i>Up to 99%</i>
Other product/article characteristics	<i>Readily biodegradable.</i>
Section 2.1	Control of worker exposure
Operational conditions	
Amounts used	<i>1 kg/day</i>
Frequency and duration of use	<i>Covers daily exposures up to 6 hours. Covers use up to 10 days/year.</i>
Human factors not influenced by risk management	<i>n/a</i>
Other Operational Conditions affecting exposure	<i>Assumes use at not > 20oC above ambient. Outdoor. Covers concentrations up to 1 %.</i>
Risk Management Measures	
Contributing Scenarios	
Mixing operations (open systems); Outdoor	No other specific measures identified
Spraying/fogging by manual application; Outdoor	No other specific measures identified
Section 2.2	Control of environmental exposure
Operational conditions	
Amounts used	Amounts used in the EU (tonnes/year): 375
Frequency and Duration of use/exposure	Emission days (days/year): 300
Environmental factors not influenced by risk management	Local freshwater dilution factor: 10. Local marine water dilution factor: 100.
Other Operational Conditions of use affecting environmental exposure	<i>n/a</i>
Risk Management Measures	
Technical conditions and measures at process level (source) to prevent release	Common practices vary across sites thus conservative process release estimates used.
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	<i>n/a</i>
Organisation measures to prevent/limit release from site	<i>n/a</i>
Conditions and measures related to municipal sewage treatment plant	Estimated substance removal from wastewater via domestic sewage treatment (%); 87.3
Conditions and measures related to external treatment of waste for disposal	Dispose of waste solvent and used containers according to local regulations. Dispose of waste or used sacks/containers according to local regulations.
Conditions and measures related to external recovery of waste	<i>n/a</i>
Other environmental control measures additional to above	<i>n/a</i>
Section 3	Exposure Estimation

3.1. Health	
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.	
3.2. Environment	
EUSES version 2.1. has been used to estimate environmental emissions unless otherwise indicated. When the recommended risk management measures and operational conditions are observed, exposures are not expected to exceed the predicted PNECs and the resulting risk characterisation ratios are expected to be less than 1.	
Section 4	Guidance to check compliance with the Exposure Scenario
4.1. Health	
Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.	
4.2. Environment	
Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Further details on scaling and control technologies are provided in spERC factsheet (http://cefic.org/en/reeach-for-industries-libraries.html).	

Section 1	Exposure Scenario: consumer
Title	Consumer use in coatings
Sector of Use	SU21
Process Category	n/a
Product Category	PC9; PC18; PC23
Article Category	n/a
Environmental Release Category	ERC8A and ERC8D
Specific Environmental Release Category	ESVOC SpERC 8.3c.v1
Processes, tasks, activities covered	Covers the use in coatings (paints, inks, adhesives, etc) including exposures during use (including product transfer and spraying, brushing, aerosol and other manual application tasks); and equipment cleaning.
Section 2	Operational conditions and risk management measures
Product/article characteristics	
Physical form of product/article	<i>Liquid</i>
Volatility	<i>Liquid, vapour pressure < 0.5 kPa at STP</i>
Dustiness	<i>n/a</i>
Concentration in a preparation/product (w/w%)	<i>Up to 3%</i>
Other product/article characteristics	<i>Readily biodegradable.</i>
Section 2.1	Control of consumer exposure
Operational conditions	
Amounts used	<i>n/a</i>
Frequency and duration of use	<i>Covers daily exposures up to 8 hours (unless stated differently)</i>
Human factors not influenced by risk management	<i>n/a</i>
Other Operational Conditions affecting exposure	<i>Assumes use at not more than 20°C above ambient temperature, unless stated differently</i>
Risk Management Measures	
Product (sub) Categories	

Coatings and Paints, Fillers, Putties, Thinners; Ink and toners; Leather tanning, dye, finishing, impregnation and care products	Avoid using in room with closed doors
Section 2.2	
Operational conditions	
Amounts used	Not relevant for this scenario
Frequency and Duration of use/exposure	Emission days (days/year): 365
Environmental factors not influenced by risk management	Local freshwater dilution factor: 10. Local marine water dilution factor: 100.
Other Operational Conditions of use affecting environmental exposure	n/a
Risk Management Measures	
Technical conditions and measures at process level (source) to prevent release	Common practices vary across sites thus conservative process release estimates used.
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	n/a
Organisation measures to prevent/limit release from site	n/a
Conditions and measures related to municipal sewage treatment plant	n/a
Conditions and measures related to external treatment of waste for disposal	n/a
Conditions and measures related to external recovery of waste	n/a
Other environmental control measures additional to above	Do not put down the drain. Dispose of waste cans and containers according to local regulations. Prevent exposure of soil using protective covers
Section 3	
Exposure Estimation	
3.1. Health	
The ConsExpo tool has been used to estimate consumer exposures unless otherwise indicated. When the recommended risk management measures and operational conditions are observed, exposures are not expected to exceed the predicted DNELs and the resulting risk characterisation ratios are expected to be less than 1.	
3.2. Environment	
EUSES version 2.1. has been used to estimate environmental emissions unless otherwise indicated. When the recommended risk management measures and operational conditions are observed, exposures are not expected to exceed the predicted PNECs and the resulting risk characterisation ratios are expected to be less than 1.	
Section 4	
Guidance to check compliance with the Exposure Scenario	
4.1. Health	
Predicted exposures are not expected to exceed the DN(M)EL when the risk management measures/operational conditions outlined in section 2 are implemented. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.	
4.2. Environment	
Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Further details on scaling and control technologies are provided in spERC factsheet (http://cefic.org/en/reeach-for-industries-libraries.html).	

Section 1	Exposure Scenario: consumer
Title	Consumer use in cleaning agents
Sector of Use	SU21
Process Category	n/a
Product Category	PC35
Article Category	n/a
Environmental Release Category	ERC8A and ERC8D
Specific Environmental Release Category	ESVOC SpERC 8.4c.v1
Processes, tasks, activities covered	Covers general exposures to consumers arising from the use of household products sold as washing and cleaning products, aerosols, coatings, deicers, lubricants, and air care products
Section 2	Operational conditions and risk management measures
Product/article characteristics	
Physical form of product/article	<i>Liquid</i>
Volatility	<i>Liquid, vapour pressure < 0.5 kPa at STP</i>
Dustiness	<i>n/a</i>
Concentration in a preparation/product (w/w%)	<i>Up to 0.03%</i>
Other product/article characteristics	<i>Readily biodegradable.</i>
Section 2.1	Control of consumer exposure
Operational conditions	
Amounts used	<i>n/a</i>
Frequency and duration of use	<i>Covers daily exposures up to 8 hours (unless stated differently)</i>
Human factors not influenced by risk management	<i>n/a</i>
Other Operational Conditions affecting exposure	<i>Assumes use at not more than 20°C above ambient temperature, unless stated differently</i>
Risk Management Measures	
Product (sub) Categories	
<i>Cleaning agents</i>	
Section 2.2	Control of environmental exposure
Operational conditions	
Amounts used	Daily site tonnage: 2.74 kg/day
Frequency and Duration of use/exposure	Emission days (days/year): 365
Environmental factors not influenced by risk management	Local freshwater dilution factor: 10. Local marine water dilution factor: 100.
Other Operational Conditions of use affecting environmental exposure	<i>n/a</i>
Risk Management Measures	
Technical conditions and measures at process level (source) to prevent release	Common practices vary across sites thus conservative process release estimates used.
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	<i>n/a</i>
Organisation measures to prevent/limit release from site	<i>n/a</i>

Conditions and measures related to municipal sewage treatment plant	n/a
Conditions and measures related to external treatment of waste for disposal	n/a
Conditions and measures related to external recovery of waste	n/a
Other environmental control measures additional to above	Dispose of waste cans and containers according to local regulations. Prevent exposure of soil using protective covers
Section 3	Exposure Estimation
3.1. Health	
The ConsExpo tool has been used to estimate consumer exposures unless otherwise indicated. When the recommended risk management measures and operational conditions are observed, exposures are not expected to exceed the predicted DNELs and the resulting risk characterisation ratios are expected to be less than 1.	
3.2. Environment	
EUSES version 2.1. has been used to estimate environmental emissions unless otherwise indicated. When the recommended risk management measures and operational conditions are observed, exposures are not expected to exceed the predicted PNECs and the resulting risk characterisation ratios are expected to be less than 1.	
Section 4	Guidance to check compliance with the Exposure Scenario
4.1. Health	
Predicted exposures are not expected to exceed the DN(M)EL when the risk management measures/operational conditions outlined in section 2 are implemented. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.	
4.2. Environment	
Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Further details on scaling and control technologies are provided in spERC factsheet (http://cefic.org/en/reeach-for-industries-libraries.html).	

Section 1	Exposure Scenario: consumer
Title	Consumer use as a co-formulant in liquid plant protection products (outdoor)
Sector of Use	SU21
Process Category	n/a
Product Category	PC27
Article Category	n/a
Environmental Release Category	ERC8A
Specific Environmental Release Category	ESVOC2
Processes, tasks, activities covered	Use as an agrochemical excipient for application by manual spraying and fogging; including formulation/mixing.
Section 2	Operational conditions and risk management measures
Product/article characteristics	
Physical form of product/article	<i>Liquid</i>
Volatility	<i>Low volatility</i>
Dustiness	<i>n/a</i>
Concentration in a preparation/product (w/w%)	<i>Up to 99%</i>
Other product/article characteristics	<i>Readily biodegradable.</i>
Section 2.1	Control of consumer exposure

Operational conditions	
Amounts used	For each use event, covers use amounts up to 20 g. [consOC2]
Frequency and duration of use	Covers use up to 2 days/year. Covers exposure up to 1 hour/event
Human factors not influenced by risk management	Child resistant closures.
Other Operational Conditions affecting exposure	Assumes use at not > 20oC above ambient. Outdoor. Covers concentrations up to 1 %.
Risk Management Measures	
Product (sub) Categories	
Plant Protection Products	
Section 2.2	Control of environmental exposure
Operational conditions	
Amounts used	Amounts used in the EU (tonnes/year): 3000
Frequency and Duration of use/exposure	Emission days (days/year): 365
Environmental factors not influenced by risk management	Local freshwater dilution factor: 10. Local marine water dilution factor: 100.
Other Operational Conditions of use affecting environmental exposure	n/a
Risk Management Measures	
Technical conditions and measures at process level (source) to prevent release	Common practices vary across sites thus conservative process release estimates used.
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	n/a
Organisation measures to prevent/limit release from site	n/a
Conditions and measures related to municipal sewage treatment plant	Estimated substance removal from wastewater via domestic sewage treatment (%); 87.3
Conditions and measures related to external treatment of waste for disposal	Dispose of waste cans and containers according to local regulations. Prevent exposure of soil using protective covers
Conditions and measures related to external recovery of waste	n/a
Other environmental control measures additional to above	n/a
Section 3	Exposure Estimation
3.1. Health	
The ConsExpo tool has been used to estimate consumer exposures unless otherwise indicated. When the recommended risk management measures and operational conditions are observed, exposures are not expected to exceed the predicted DNELs and the resulting risk characterisation ratios are expected to be less than 1.	
3.2. Environment	
EUSES version 2.1. has been used to estimate environmental emissions unless otherwise indicated. When the recommended risk management measures and operational conditions are observed, exposures are not expected to exceed the predicted PNECs and the resulting risk characterisation ratios are expected to be less than 1.	
Section 4	Guidance to check compliance with the Exposure Scenario
4.1. Health	

Predicted exposures are not expected to exceed the DN(M)EL when the risk management measures/operational conditions outlined in section 2 are implemented.
Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

4.2. Environment

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.
Further details on scaling and control technologies are provided in spERC factsheet (<http://cefic.org/en/reeach-for-industries-libraries.html>).