

SAFETY DATA SHEET SOLVENT DEGREASER

1.1. Product identifier

Product name Solvent Degreaser
Product No. 0020
REACH Registration number 01-2119458049-33-xxxx
EC No. 919-446-0

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

Identified uses

- Manufacture of substance
- Distribution of substance
- Formulation and (re)packing of substances and mixtures
- Uses in coatings
- Use in cleaning agents
- Lubricants
- Use in metal working fluids/Rolling oils
- Agrochemical uses
- Use as a functional fluid
- Laboratories
- Road and construction applications
- Use as a fuel.

Uses advised against This product is not recommended for any industrial, professional or consumer use other than the Identified Uses above.

1.3. Details of the supplier of the safety data sheet

Supplier Paul Dyson Limited T/A BIKEAUTO
Unit EU2 Armadillo Business Storage, Industry Road, Newcastle upon Tyne NE6 5XB
0191 2666111 info@bikeauto.co.uk

1.4. Emergency telephone number

0207 405 5375 (National Chemical Emergency Centre)
0870 190 6777 (National Chemical Emergency Centre)

SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

Classification (EC 1272/2008)

Physical and Chemical Hazards Flam. Liq. 3 - H226
Human health EUH066;STOT SE 3 - H336;Asp. Tox. 1 - H304
Environment Aquatic Chronic 2 - H411

Classification (1999/45/EEC)

Xn;R65. N;R51/53. R10, R66, R67.

The Full Text for all R-Phrases and Hazard Statements are Displayed in Section 16.

Human health

High concentrations of vapours when inhaled, have a narcotic effect on the centrsal nervous system. Prolonged skin contact may cause redness, irritation and dry skin.

Environment

The product contains a substance which is toxic to aquatic organisms.

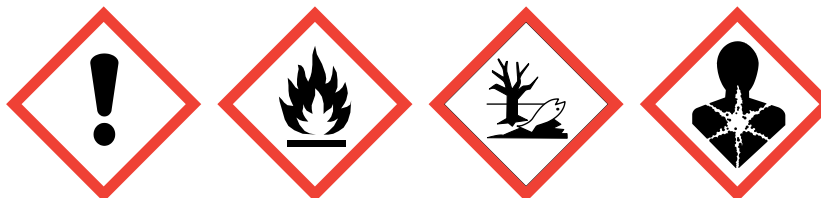
Solvent Degreaser

Physical and Chemical Hazards

Vapours may form explosive mixture with air. Vapours are heavier than air and may travel along the floor and in the bottom of containers.

2.2. Label elements

EC No. 919-446-0
Contains Hydrocarbons, C9-12, n-alkanes, isoalkanes, cyclics, (2-25%) aromatics
Label In Accordance With (EC) No. 1272/2008



Signal Word Danger

Hazard Statements

H226	Flammable liquid and vapour.
H304	May be fatal if swallowed and enters airways.
H336	May cause drowsiness or dizziness.
H411	Toxic to aquatic life with long lasting effects.

Precautionary Statements

P271	Use only outdoors or in a well-ventilated area.
P273	Avoid release to the environment.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P260	Do not breathe vapours.
P301+310	IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
P331	Do NOT induce vomiting.

Supplemental label information

EUH066 Repeated exposure may cause skin dryness or cracking.

2.3. Other hazards

Not Classified as PBT/vPvB by current EU criteria.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.2. Mixtures

Hydrocarbons, C9-12, n-alkanes, isoalkanes, cyclics, (2-25%) aromatics	55-100%	
CAS-No.:	EC No.: 919-446-0	Registration Number: 01-2119458049-33-xxxx
Classification (EC 1272/2008)	Classification (67/548/EEC)	
Flam. Liq. 3 - H226	Xn;R65.	
EUH066	N;R51/53.	
STOT SE 3 - H336	R10,R66,R67.	
Asp. Tox. 1 - H304		
Aquatic Chronic 2 - H411		

The Full Text for all R-Phrases and Hazard Statements are Displayed in Section 16.

REACH Registration number 01-2119458049-33-xxxx

EC No. 919-446-0

Composition Comments

Related CAS No. 64742-82-1.

SECTION 4: FIRST AID MEASURES

4.1. Description of first aid measures

General information

Move the exposed person to fresh air at once. Get medical attention if any discomfort continues.

Inhalation

Move the exposed person to fresh air at once. Get medical attention. Provide rest, warmth and fresh air. When breathing is difficult, properly trained personnel may assist affected person by administering oxygen.

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Ingestion

DO NOT INDUCE VOMITING! NEVER MAKE AN UNCONSCIOUS PERSON VOMIT OR DRINK FLUIDS! If vomiting occurs, keep head low so that stomach content doesn't get into the lungs. Drink plenty of water. Get medical attention immediately! Provide rest, warmth and fresh air.

Skin contact

Remove contaminated clothing immediately and wash skin with soap and water. Get medical attention if any discomfort continues.

Eye contact

Make sure to remove any contact lenses from the eyes before rinsing. Promptly wash eyes with plenty of water while lifting the eye lids. Continue to rinse for at least 15 minutes and get medical attention.

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

Inhalation.

Vapours may cause drowsiness and dizziness. Vapours inhaled in high concentrations have a narcotic effect on the central nervous system.

Ingestion

May cause stomach pain or vomiting. The product may enter the lungs due to its low viscosity, and lead to the rapid development of very serious inhalation pulmonary lesions (medical survey during 48 hours).

Skin contact

Prolonged contact may cause redness, irritation and dry skin.

Eye contact

May cause temporary eye irritation.

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

Treat symptomatically.

SECTION 5: FIREFIGHTING MEASURES

5.1. Extinguishing media

Extinguishing media

Fire can be extinguished using: Foam. Dry chemicals, sand, dolomite etc.

Unsuitable extinguishing media

Do not use water jet as an extinguisher, as this will spread the fire.

5.2. Special hazards arising from the substance or mixture

Hazardous combustion products

Thermal decomposition or combustion may liberate carbon oxides and other toxic gases or vapours. Hydrocarbons. Aldehydes.

Unusual Fire & Explosion Hazards

Vapours are heavier than air and may spread near ground to sources of ignition.

Specific hazards

The product is flammable, and heating may generate vapours which may form explosive vapour/air mixtures. In case of fire, toxic gases may be formed.

5.3. Advice for firefighters

Special Fire Fighting Procedures

Avoid breathing fire vapours. Cool containers exposed to flames with water until well after the fire is out. Keep run-off water out of sewers and water sources. Dike for water control.

Protective equipment for fire-fighters

Wear full protective clothing. Self contained breathing apparatus and full protective clothing must be worn in case of fire. Use air-supplied respirator, gloves and protective goggles.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

Use protective gloves, goggles and suitable protective clothing. In case of inadequate ventilation, use respiratory protection.

6.2. Environmental precautions

Do not discharge into drains, water courses or onto the ground. Spillages or uncontrolled discharges into watercourses must be IMMEDIATELY alerted to the Environmental Agency or other appropriate regulatory body.

6.3. Methods and material for containment and cleaning up

Absorb in vermiculite, dry sand or earth and place into containers. Dike far ahead of larger spills for later disposal. Do not contaminate water sources or sewer. Flush area with water.

6.4. Reference to other sections

For waste disposal, see section 13.

SECTION 7: HANDLING AND STORAGE

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7.1. Precautions for safe handling

Avoid spilling, skin and eye contact. Ventilate well, avoid breathing vapours. Use approved respirator if air contamination is above accepted level. Static electricity and formation of sparks must be prevented.

7.2. Conditions for safe storage, including any incompatibilities

Store in tightly closed original container in a dry, cool and well-ventilated place. Avoid contact with oxidising agents. Take precautionary measures against static discharges.

Storage Class

Flammable liquid storage.

7.3. Specific end use(s)

The identified uses for this product are detailed in Section 1.2.

Usage Description

Pump at < 7 metres per second. Take precautionary measures against static discharges.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

Name	STD	TWA - 8 Hrs	STEL - 15 Min	Notes
WHITE SPIRIT	WEL	350 mg/m3		

WEL = Workplace Exposure Limit.

DNEL

Industry	Inhalation.	Short Term	570	mg/m3
Industry	Inhalation.	Long Term	1980	mg/m3
Consumer	Inhalation.	Short Term	570	mg/m3
Consumer	Dermal	Long Term	1040	mg/kg/day
Consumer	Inhalation.	Long Term	710	mg/m3
Consumer	Oral	Long Term	1040	mg/kg/day

The hydrocarbons block method has been used to calculate environmental exposure with the Petrorisk model.

Hydrocarbons, C9-12, n-alkanes, isoalkanes, cyclics, (2-25%) aromatics

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Consumer	Oral	Long Term	1040	mg/m3

The hydrocarbons block method has been used to calculate environmental exposure with the Petrorisk model.

8.2. Exposure controls

Protective equipment



Engineering measures

Provide adequate general and local exhaust ventilation.

Respiratory equipment

No specific recommendation made, but respiratory protection must be used if the general level exceeds the recommended occupational exposure limit.

Hand protection

Protective gloves must be used if there is a risk of direct contact or splash. Use protective gloves made of: Nitrile. Polyvinyl alcohol (PVA). Neoprene. Manufactured/tested in accordance with EN 374. Be aware that the liquid may penetrate the gloves. Frequent change is advisable.

Eye protection

Wear splash-proof eye goggles to prevent any possibility of eye contact. Manufactured/Tested in accordance with EN 166.

Other Protection

Wear appropriate clothing to prevent any possibility of liquid contact and repeated or prolonged vapour contact.

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Hygiene measures

Wash hands at the end of each work shift and before eating, smoking and using the toilet. Wash promptly with soap & water if skin becomes contaminated. Promptly remove any clothing that becomes contaminated. Use appropriate skin cream to prevent drying of skin. When using do not eat, drink or smoke.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Appearance	Liquid
Colour	Colourless.
Odour	Characteristic. Pungent.
Solubility	Not applicable.
Initial boiling point and boiling range	150-200 760 mm Hg
Melting point (°C)	Not applicable.
Relative density	0.774 - 0.795 15
Vapour pressure	<5 hPa 20.0
Evaporation rate	65 (EtEt=1)
Viscosity	0.95 mm/s ² 40
Solubility Value (G/100G H₂O@20°C)	

Technically not feasible.

Substance is a UVCB. Standard tests for this endpoint are intended for single substances, and are not appropriate for this complex substance.

Flash point	>=38 CC (Closed cup).
Auto Ignition Temperature (°C)	>230
Flammability Limit - Lower(%)	0.7
Flammability Limit - Upper(%)	7

Partition Coefficient (N-Octanol/Water)

Not applicable.

Substance is a UVCB. Standard tests for this endpoint are intended for single substances, and are not appropriate for this complex substance.

Explosive properties

Not considered explosive based on chemical structure and oxygen balance considerations.

Oxidising properties

Not applicable.

9.2. Other information

Mol. Weight	ca. 147.0
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SECTION 10: STABILITY AND REACTIVITY

10.1. Reactivity

No specific reactivity hazards associated with this product.

10.2. Chemical stability

Stable under normal temperature conditions and recommended use.

10.3. Possibility of hazardous reactions

None under normal processing.

Hazardous Polymerisation

Will not polymerise.

10.4. Conditions to avoid

Avoid heat, flames and other sources of ignition. Take precautionary measures against static discharges.

10.5. Incompatible materials

Materials To Avoid

Strong oxidising substances. Strong acids.

10.6. Hazardous decomposition products

During fire, toxic gases (CO, CO₂) are formed.

SECTION 11: TOXICOLOGICAL INFORMATION

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11.1. Information on toxicological effects

Other Health Effects

This substance has no evidence of carcinogenic properties.

Acute toxicity:

Acute Toxicity (Oral LD50)

> 15000 mg/kg Rat

Acute Toxicity (Dermal LD50)

> 3400 mg/kg Rat

Acute Toxicity (Inhalation LC50)

> 13100 mg/l (vapours) Rat 4 hours

Skin Corrosion/Irritation:

Erythema/Eschar score

Very slight erythema -barely perceptible (1).

Oedema score

Very slight oedema -barely perceptible (1).

Not irritating.

Non Corrosive to skin.

Not irritating. Non Corrosive to skin.

Serious eye damage/irritation:

Not Irritating.

Respiratory or skin sensitisation:

Respiratory sensitisation

Not determined.

Not classified as a sensitizer.

Skin sensitisation

Guinea pig maximization test (GPMT): Guinea Pig

Not classified as a sensitizer.

Germ cell mutagenicity:

Negative.

Genotoxicity - In Vivo

Chromosome aberration:

Negative.

Carcinogenicity:

Carcinogenicity

NOAEL 300 mg/kg Oral Rat

Not classified carcinogenic.

Reproductive Toxicity:

Reproductive Toxicity - Fertility

No information available.

Screening: NOAEC >300 Inhalation. Rat P

Units ppm.

Reproductive Toxicity - Development

Developmental toxicity: NOAEC >300 Inhalation. Rat

Units ppm.

No evidence of developmental toxicity.

Specific target organ toxicity - single exposure:

Target Organs

Central nervous system

Vapours may cause drowsiness and dizziness.

Specific target organ toxicity - repeated exposure:

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STOT - Repeated exposure

NOAEL 1056 mg/kg Oral Rat

No known effects based on information supplied.

Aspiration hazard:

Viscosity

The fluid can enter the lungs and cause damage (chemical pneumonitis, possibly fatal).

Inhalation

Vapour may affect central nervous system and cause headache, discomfort, vomiting or intoxication.

Ingestion

Harmful: may cause lung damage if swallowed. May cause stomach pain or vomiting.

Skin contact

Prolonged and frequent contact may cause redness and irritation. Dry skin.

Eye contact

May cause temporary eye irritation.

Route of entry

Skin and/or eye contact. Inhalation.

Target Organs

Central nervous system

SECTION 12: ECOLOGICAL INFORMATION

Ecotoxicity

The product contains a substance which is toxic to aquatic organisms and which may cause long term adverse effects in the aquatic environment. Dangerous for the environment if discharged into watercourses.

12.1. Toxicity

Acute Toxicity - Fish

LC50 96 hours < 30 mg/l Onchorhynchus mykiss (Rainbow trout)

Acute Toxicity - Aquatic Invertebrates

EC50 48 hours < 22 mg/l Daphnia magna

Acute Toxicity - Aquatic Plants

EC50 72 hours < 10 mg/l

Acute Toxicity - Microorganisms

EC50 48 hours 43.98 mg/l

Chronic Toxicity - Aquatic Invertebrates

NOEC 21 days 0.097 mg/l Daphnia magna

Acute Toxicity - Terrestrial

Not available.

12.2. Persistence and degradability

Degradability

Readily biodegradable.

Phototransformation

Scientifically unjustified.

This substance does not have the potential to undergo photolysis in water and soil, and this fate process will not contribute to a measurable degradative loss of this substance from the environment.

Stability (Hydrolysis)

Scientifically unjustified.

Biodegradation

Degradation (75%) 28 days

12.3. Bioaccumulative potential

Bioaccumulation factor

Scientifically unjustified.

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Substance is a hydrocarbon UVCB. Standard tests for this endpoint are intended for single substances and are not appropriate for this complex substance.

Partition coefficient

Not applicable.

Substance is a UVCB. Standard tests for this endpoint are intended for single substances, and are not appropriate for this complex substance.

12.4. Mobility in soil

Mobility:

Substance is a UVCB. Standard tests for this endpoint are intended for single substances and are not appropriate for this complex substance.

Adsorption/Desorption Coefficient

Scientifically unjustified.

Substance is a UVCB. Standard tests for this endpoint are intended for single substances and are not appropriate for this complex substance.

Henry's Law Constant

Scientifically unjustified.

Volatilisation is dependent on Henry's Law constant (HLC) which is not applicable to complex substances.

12.5. Results of PBT and vPvB assessment

Not Classified as PBT/vPvB by current EU criteria.

12.6. Other adverse effects

This substance may contribute to ozone formation in the near surface atmosphere. However, the photochemical formation of ozone depends on a complex interaction of other atmospheric pollutant sources and environmental conditions. Therefore, the contribution of this substance to ozone formation is outside the scope of this substance assessment and is more appropriately addressed via EU air quality directives.

SECTION 13: DISPOSAL CONSIDERATIONS

General information

Waste is classified as hazardous waste. Disposal to licensed waste disposal site in accordance with the local Waste Disposal Authority.

13.1. Waste treatment methods

Dispose of waste and residues in accordance with local authority requirements. Confirm disposal procedures with environmental engineer and local regulations.

Waste Class

EWC NUMBER: Allocation of a waste code number in accordance with the European Waste Catalogue, should be carried out in agreement with an EA authorised waste disposal company.

SECTION 14: TRANSPORT INFORMATION

14.1. UN number

UN No. (ADR/RID/ADN)	1300
UN No. (IMDG)	1300
UN No. (ICAO)	1300

14.2. UN proper shipping name

Proper Shipping Name	Turpentine Substitute
Proper Shipping Name	(contains aromatic hydrocarbons)

14.3. Transport hazard class(es)

ADR/RID/ADN Class	3
ADR/RID/ADN Class	Class 3: Flammable liquids.
ADR Label No.	3
IMDG Class	3
ICAO Class/Division	3

Transport Labels

Solvent Degreaser

Flammable liquid (class 3) (red diamond with flame symbol).



14.4. Packing group

ADR/RID/ADN Packing group	III
IMDG Packing group	III
ICAO Packing group	III

14.5. Environmental hazards

Environmentally Hazardous Substance/Marine Pollutant



14.6. Special precautions for user

EMS	F-E, S-E
Emergency Action Code	3Y
Hazard No. (ADR)	30
Hazard No. (ADR)	30 Flammable liquid (flash-point between 23°C and 60°C, inclusive) or flammable liquid or solid in the molten state with a flash-point above 60°C, heated to a temperature equal to or above its flash-point, or self heating liquid.
Tunnel Restriction Code	(D/E)

14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code

SECTION 15: REGULATORY INFORMATION

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

Uk Regulatory References

Health and Safety at Work Act 1974. Chemicals (Hazard Information & Packaging) Regulations.

Statutory Instruments

Control of Substances Hazardous to Health.

Approved Code Of Practice

Classification and Labelling of Substances and Preparations Dangerous for Supply.

Guidance Notes

Workplace Exposure Limits EH40.

EU Legislation

Regulation (EC) No 1272/2008 CLP. Regulation (EC) No 1907/2006 REACH.

National Regulations

Related CAS No. 64742-82-1 The substance is listed in the following International Inventories: EINECS/ELINCS TSCA (US) DSL (CA) ENCS IECSC KECL PICCS AICS (AU) NZIOc

15.2. Chemical Safety Assessment

A chemical safety assessment has been carried out.

SECTION 16: OTHER INFORMATION

General information

Residual vapours may explode on ignition, do not cut, drill, grind or weld on or near this container.

Information Sources

Manufacturer's Material Safety Data Sheet Approved Supply List

Solvent Degreaser

Revision Comments

Inclusion of Exposure Scenarios

Issued By	Compliance Department
Revision Date	03/05/2012
Revision	3
Supersedes date	23/08/2011
SDS No.	0020
Safety Data Sheet Status	Approved.
Date	03-May-12

Risk Phrases In Full

R10	Flammable.
R65	Harmful: may cause lung damage if swallowed.
R66	Repeated exposure may cause skin dryness or cracking.
R51/53	Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
R67	Vapours may cause drowsiness and dizziness.

Hazard Statements In Full

EUH066	Repeated exposure may cause skin dryness or cracking.
H226	Flammable liquid and vapour.
H304	May be fatal if swallowed and enters airways.
H336	May cause drowsiness or dizziness.
H411	Toxic to aquatic life with long lasting effects.

Disclaimer

This information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process. Such information is, to the best of the company's knowledge and belief, accurate and reliable as of the date indicated. However, no warranty guarantee or representation is made to its accuracy, reliability or completeness. It is the user's responsibility to satisfy themselves as to the suitability of such information for his own particular use.

Hydrocarbons, C9-C12, n-alkanes, isoalkanes, cyclics, aromatics (2-25%): EC: 919-446-0

Section 1		Exposure Scenario: Worker
Title	Uses in Coatings - Consumer	
Sector of Use	SU21	
Process Category	n/a	
Product Category	PC1, PC4, PC8, PC9a, PC9b, PC15, PC18, PC23, PC24, PC31, PC34, PC09c	
Article Category	n/a	
Environmental release Category	ERC8a, 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 covered by the exposure use (including product transfer and preparation, application by brush, spray by hand or scenario similar methods) and equipment cleaning.	
Section 2		Operational conditions and risk management measures
Product characteristics		
Physical form of product	Liquid, vapour pressure < 0.5 kPa at STP. - Vapour pressure 200 Pa	
Concentration of substance in product	up to 100%	
Other product characteristics	n/a	
Section 2.1		Control of worker exposure
Operational conditions		
Amounts used	Unless otherwise stated. Covers use up to 13800 g. Covers skin contact area up to 857.5 cm ²	
Frequency and duration of use	Unless otherwise stated. Covers use up to 1 application per day Use duration: 6h	
Human factors not influenced by risk management	n/a	
Other Operational Conditions affecting worker exposure	Unless otherwise stated. Assumes activities are at ambient temperature (unless stated differently). - Covers use in room size of 20m ³ - Provide adequate ventilation.	
Risk Management Measures		
Contributing Scenarios	Operational conditions	Risk Management Measures
Adhesives, sealants Glues, hobby use	Unless otherwise stated, Covers concentrations up to 30% - Covers use up to 365 days/year - Covers exposure up to 1 application per day - Covers skin contact area up to 35.73 cm ² - Covers exposure up to 9 g. - Covers use in room size of 20m ³ - For each use event, covers use amounts up to 4 h/per task: - Covers use under typical household ventilation.	
Adhesives, sealants Glues DIY-use (carpet glue, tile glue, wood parquet glue)	Unless otherwise stated. Covers concentrations up to 30% - Covers use up to 1 days/year - Covers use up to 1 application per day - Covers skin contact area up to 110 cm ² - For each use event, covers use amounts up to 6390 g. - Covers use in room size of 20m ³ - For each use event, covers use amounts up to 6 h - Covers use under typical household ventilation.	No specific risk management measure identified beyond those operational conditions stated.
Adhesives, Sealants Glue from spray	Unless otherwise stated, Covers concentrations up to 30 % - Covers use up to 6 days/year - Covers use up to 1 application per day - Covers skin contact area up to 35.73 cm ² - For each use event, covers use amounts up to 85.05 g. - Covers use in room size of 20m ³ - For each use event, covers use amounts up to 4 h - Covers use under typical household ventilation.	No specific risk management measure identified beyond those operational conditions stated.
Adhesives, sealants Sealants	Unless otherwise stated. Covers concentrations up to 30 % - Covers use up to 365 days/year - Covers use up to 1 application per day - Covers skin contact area up to 35.73 cm ² - For each use event, covers use amounts up to 75 g. - Covers use in room size of 20m ³ - For each use event, covers use	No specific risk management measure identified beyond those operational conditions stated.

Hydrocarbons, C9-C12, n-alkanes, isoalkanes, cyclics, aromatics (2-25%): EC: 919-446-0

	amounts up to 1 h - Covers use under typical household ventilation.	
Anti-Freeze and de-icing products - Washing car window	Unless otherwise stated. Covers concentrations up to 1 % - Covers use up to 365 days/year - Covers use up to 1 application per day - For each use event, covers use amounts up to 0.5 g. - Covers use in a one car garage (34 m3) under typical ventilation. - Covers use in room size of 34 m3 - For each use event, covers use amounts up to 0.02 h	No specific risk management measure identified beyond those operational conditions stated.
Anti-Freeze and de-icing products Pouring into radiator	Covers concentrations up to 10 % - Covers use up to 365 days/year - Covers use up to 1 application per day - Covers skin contact area up to 428 cm2 - For each use event, covers use amounts up to 2000 g. - Covers use in a one car garage (34 m3) under typical ventilation. - covers use in room size of 34 m3 - For each use event, covers use amounts up to 0.17 h	No specific risk management measure identified beyond those operational conditions stated.
Anti-Freeze and de-icing products - Lock de-icer	Unless otherwise stated. Covers concentrations up to 50 % - Covers use up to 365 days/year - Covers use up to 1 application per day - Covers skin contact area up to 214 cm2 - For each use event, covers use amounts up to 4 g. - Covers use in a one car garage (34 m3) under typical ventilation. - Covers use in room size of 34 m3 For each use event, covers use amounts up to 0.25 h	No specific risk management measure identified beyond those operational conditions stated.
Biocidal products (e.g. Disinfectants, pest control) - Laundry and dish-washing products	Covers concentrations up to Unless otherwise stated. 5 % - Covers use up to 365 days/year - Covers use up to 1 application per day - Covers skin contact area up to 857.50 cm2 - For each use event, covers use amounts up to 15 g. - Covers use in room size of 20m3 - For each use event, covers use amounts up to 0.5 h - Covers use under typical household ventilation.	No specific risk management measure identified beyond those operational conditions stated.
Biocidal products (e.g. Disinfectants, pest control) - Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners)	Unless otherwise stated, Covers concentrations up to 5 % - Covers use up to 128 days/year - Covers use up to 1 application per day - Covers skin contact area up to 857.50 cm2 - For each use event, covers use amounts up to 27 g. - Covers use under typical household ventilation. - Covers use in room size of 20m3 - For each use event, covers use amounts up to 0.33 h	No specific risk management measure identified beyond those operational conditions stated.
Biocidal products (e.g. Disinfectants, pest control) - Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners)	Unless otherwise stated, Covers concentrations up to 15 % - Covers use up to 128 days/year - Covers use up to 1 application per day - Covers skin contact area up to 428.00 cm2 - For each use event, covers use amounts up to 35 g. - Covers use under typical household ventilation. - Covers use in room size of 20m3 - For each use event, covers use amounts up to 0.17 h	No specific risk management measure identified beyond those operational conditions stated.
Coatings and paints, thinners, paint removers - Water-borne latex wall paint	Covers concentrations up to Unless otherwise stated. 1.5 % - Covers use up to 4 days/year - Covers use up to 1 application per day - Covers skin contact area up to 428.75 cm2 - For each use event, covers use amounts up to 2260 g. - Covers use under typical household ventilation. - Covers use in room size of 20m3 - Covers exposure up to 2.20 h	No specific risk management measure identified beyond those operational conditions stated.
Coatings and paints, thinners, paint removers - Solvent-rich, high-solid, water-borne paint	Unless otherwise stated. Covers concentrations up to 27.5 % - Covers use up to 6 days/year - Covers use up to 1 application per day - Covers skin contact area up to 428.75 cm2 - Covers use up to 744 g. - Covers use in room size of 20m3 - Covers use under typical household ventilation. - For each use event, covers use amounts up to 2.20 h	No specific risk management measure identified beyond those operational conditions stated.
Coatings and paints, thinners, paint removers - Aerosol spray can	Unless otherwise stated. Covers exposure up to 50 % - Covers use up to 2 days/year Covers use up to 1 application per day - Covers use up to 215 g. - Covers use in a one car garage (34 m3) under typical ventilation. - Covers use in room size of 34 m3 For each use event, covers use amounts up to 0.33 h	No specific risk management measure identified beyond those operational conditions stated.
Coatings and paints, thinners, paint removers - Removers (paint, glue, wall	Unless otherwise stated. Covers concentrations up to 50 % - Covers use up to 3 days/year - Covers use up to 1 application per day - Covers skin contact area up to 857.50 cm2 - For each use event, covers use amounts up to 491 g. - Covers use	No specific risk management measure identified beyond those operational conditions stated.

Hydrocarbons, C9-C12, n-alkanes, isoalkanes, cyclics, aromatics (2-25%): EC: 919-446-0

paper, sealant-remover)	under typical household ventilation. - Covers use in room size of 20m ³ - For each use event, covers use amounts up to 2.00 h.	
Fillers, putties, plasters, modelling clay - Fillers and putty	Unless otherwise stated, Covers concentrations up to 2 % - Covers use up to 12 days/year - Covers use up to 1 application per day - Covers skin contact area up to 35.73 cm ² - For each use event, covers use amounts up to 85 g. - Covers use in room size of 20m ³ - Covers use under typical household ventilation. - For each use event, covers use amounts up to 4.00 h	No specific risk management measure identified beyond those operational conditions stated.
Fillers, putties, plasters, modelling clay - Plasters and floor equalisers	Unless otherwise stated, Covers concentrations up to 2% Covers use up to 12 days/year - Covers use up to 1 application per day - Covers skin contact area up to 857.50 cm ² - For each use event, covers use amounts up to 13800 g. - Covers use under typical household ventilation. - Covers use in room size of 20m ³ - For each use event, covers use amounts up to 2.00 h	No specific risk management measure identified beyond those operational conditions stated.
Fillers, putties, plasters, modelling clay - Modelling clay	Unless otherwise stated, Covers concentrations up to 1 % - Covers use up to 365 days/year - Covers use up to 1 application per day - Covers skin contact area up to 254.4 cm ² - For each use event, assumes swallowed amount of 1g.	No specific risk management measure identified beyond those operational conditions stated.
Finger paints	Unless otherwise stated, Covers concentrations up to 50 % - Covers use up to 365 days/year - Covers use up to 1 application per day - Covers skin contact area up to 254.40 cm ² - For each use event, assumes swallowed amount of 1.35 g.	Avoid using at a product concentration greater than 5 %
Non-metal-surface treatment products - Water-borne latex wall paint	Unless otherwise stated, Covers concentrations up to 1.5 % - Covers use up to 4 days/year - Covers use up to 1 application per day - Covers skin contact area up to 428.75 cm ² - For each use event, covers use amounts up to 2760 g. - Covers use under typical household ventilation. - Covers use in room size of 20m ³ - For each use event, covers use amounts up to 2.20 h	No specific risk management measure identified beyond those operational conditions stated.
Non-metal-surface treatment products - Solvent-rich, high-solid, water-borne paint	Unless otherwise stated, Covers concentrations up to 27.5 % - Covers use up to 6 days/year - Covers use up to 1 application per day - Covers skin contact area up to 428.75 cm ² - For each use event, covers use amounts up to 744 g. - Covers use under typical household ventilation. - Covers use in room size of 20m ³ - For each use event, covers use amounts up to 2.20 h	No specific risk management measure identified beyond those operational conditions stated.
Non-metal-surface treatment products - Aerosol spray can	Unless otherwise stated, Covers concentrations up to 50 % Covers use up to 2 days/year - Covers use up to 1 application per day - For each use event, covers use amounts up to 215 g. - Covers use in a one car garage (34 m ³) under typical ventilation. - Covers use in room size of 34 m ³ - For each use event, covers use amounts up to 0.33 h	No specific risk management measure identified beyond those operational conditions stated.
Non-metal-surface treatment products - Removers (paint-, glue-, wall paper-, sealant-remover)	Unless otherwise stated, Covers concentrations up to 50 % - Covers use up to 3 days/year - Covers use up to 1 application per day - Covers skin contact area up to 857.50 cm ² - For each use event, covers use amounts up to 491g. - Covers use under typical household ventilation. - Covers use in room size of 20m ³ - For each use event, covers use amounts up to 2.00 h	No specific risk management measure identified beyond those operational conditions stated.
Ink and toners	Unless otherwise stated, Covers concentrations up to 10 % - Covers use up to 365 days/year - Covers use up to 1 application per day - Covers skin contact area up to 71.40 cm ² - For each use event, covers use amounts up to 40 g. - Covers use under typical household ventilation. - Covers use in room size of 20m ³ - For each use event, covers use amounts up to 2.20 h	No specific risk management measure identified beyond those operational conditions stated.
Leather tanning, dye, finishing, impregnation and care products - Polishes, wax/cream (floor, furniture, shoes)	Unless otherwise stated, Covers concentrations up to 50 % Covers use up to 29 days/year - Covers use up to 1 application per day - Covers skin contact area up to 430.00 cm ² - For each use event, covers use amounts up to 56 g. - Covers use under typical household ventilation. - Covers use in room size of 20m ³ - For each use event, covers use amounts up to 1.23 h	No specific risk management measure identified beyond those operational conditions stated.
Leather tanning, dye, finishing,	Unless otherwise stated, Covers concentrations up to 50 % - Covers use up to 8 days/year - Covers use up to 1 application	No specific risk management measure identified beyond those

Hydrocarbons, C9-C12, n-alkanes, isoalkanes, cyclics, aromatics (2-25%): EC: 919-446-0

impregnation and care products - Polishes, spray (furniture, shoes)	per day - Covers skin contact area up to 430.00 cm ² - For each use event, covers use amounts up to 56 g. - Covers use under typical household ventilation. - Covers use in room size of 20m ³ - For each use event, covers use amounts up to 0.33 h	operational conditions stated.
Lubricants, greases, release products - Liquids	Unless otherwise stated, Covers concentrations up to 100 % - Covers use up to 4 days/year - Covers use up to 1 application per day - Covers skin contact area up to 468.00 cm ² - For each use event, covers use amounts up to 2200 g. - Covers use in a one car garage (34 m ³) under typical ventilation. - Covers use in room size of 34 m ³ - For each use event, covers use amounts up to 0.17 h/per task	No specific risk management measure identified beyond those operational conditions stated.
Lubricants, greases, release products - Pastes	Unless otherwise stated, Covers concentrations up to 20 % - Covers use up to 10 days/year - Covers use up to 1 application per day - Covers skin contact area up to 468.00 cm ² - For each use event, covers use amounts up to 34 g.	No specific risk management measure identified beyond those operational conditions stated.
Lubricants, greases, release products Sprays	Unless otherwise stated, Covers concentrations up to 50 % - Covers use up to 6 days/year - Covers use up to 1 application per day - Covers skin contact area up to 428.75 cm ² - For each use event, covers use amounts up to 73 g. - Covers use under typical household ventilation. - Covers use in room size of 20m ³ - Covers exposure up to 0.17 h	No specific risk management measure identified beyond those operational conditions stated.
Polishes and wax blends - Polishes, wax/cream (floor, furniture, shoes)	Unless otherwise stated, Covers concentrations up to 50 % - Covers use up to 29 days/year - Covers use up to 1 application per day - Covers skin contact area up to 430 cm ² - For each use event, covers use amounts up to 142 g. - Covers use in room size of 20m ³ - Covers use under typical household ventilation. - For each use event, covers use amounts up to 1.23 h	No specific risk management measure identified beyond those operational conditions stated.
Polishes and wax blends - Polishes, spray (furniture, shoes)	Unless otherwise stated, Covers concentrations up to 50 % - Covers use up to 8 days/year - Covers use up to 1 application per day - Covers skin contact area up to 430 cm ² - For each use event, covers use amounts up to 35 g. - Covers use under typical household ventilation. - Covers use in room size of 20m ³ - For each use event, covers use amounts up to 0.33 h	No specific risk management measure identified beyond those operational conditions stated.
Textile dyes, finishing and impregnating products; including bleaches and other processing aids	Unless otherwise stated, Covers concentrations up to 10 % - Covers use up to 365 days/year - Covers use up to 1 application per day - Covers skin contact area up to 857.50 cm ² - For each use event, covers use amounts up to 115 g. - Covers use in room size of 20m ³ - Covers use under typical household ventilation. - For each use event, covers use amounts up to 1 h	No specific risk management measure identified beyond those operational conditions stated.

Section 2.2	Control of environmental exposure
Operational conditions	
Contributing scenario	Uses in Coatings
Operational Conditions	
Frequency and duration of use	Emission Days (days/year): 365 - Continuous release
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	Release fraction to air from wide dispersive use (regional only): 0.985 Release fraction to wastewater from wide dispersive use: 0.01 Release fraction to air from wide dispersive use (regional only): 0.005
Technical conditions and measures at process level (source) to prevent release	n/a
Conditions and measures related to municipal sewage treatment plant	Risk from environmental exposure is driven by soil. Estimated substance removal from wastewater via domestic sewage treatment (%): 93.7 Maximum allowable site tonnage (MSafe) based on release

Hydrocarbons, C9-C12, n-alkanes, isoalkanes, cyclics, aromatics (2-25%): EC: 919-446-0

	following total wastewater treatment removal (kg/d): 1900 Assumed domestic sewage treatment plant flow (m ³ /d): 2000
Conditions and measures related treatment of waste	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 treatment and disposal of waste should comply with applicable local and/or national regulations.
Other environmental control measures additional to above	n/a

Section 3	Exposure estimation
3.1 Health	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.
3.2. Environment	The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model.

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-industrieslibraries.html).

Section 1	Exposure Scenario: Worker
Title	Use in Lubricants – Consumer - Low Environmental Release
Sector of Use	SU21
Process Category	n/a
Product Category	PC1, PC24, PC31
Article Category	n/a
Environmental release Category	ERC9a, ERC9b
Specific environmental release category	ESVOC SpERC 9.6d.v1
Processes, tasks, activities covered	Covers the consumer use of formulated lubricants in closed and open systems covered by the exposure including transfer operations, application, operation of engines and similar articles, scenario equipment maintenance and disposal of waste oil.
Section 2	Operational conditions and risk management measures
Product characteristics	
Physical form of product	Liquid, vapour pressure < 0.5 kPa at STP. - Vapour pressure 200 Pa
Concentration of substance in product	up to 100%
Other product characteristics	n/a

Hydrocarbons, C9-C12, n-alkanes, isoalkanes, cyclics, aromatics (2-25%): EC: 919-446-0

Section 2.1		Control of worker exposure
Operational conditions		
Amounts used	Unless otherwise stated. Covers use up to 6390 g Covers skin contact area up to 468 cm ²	
Frequency and duration of use	Unless otherwise stated. Covers use up to 1 application per day Use duration: 6h	
Human factors not influenced by risk management	n/a	
Other Operational Conditions affecting worker exposure	Unless otherwise stated. Assumes activities are at ambient temperature (unless stated differently). - Covers use in room size of 20m ³ - Provide adequate ventilation.	
Risk Management Measures		
Contributing Scenarios	Operational conditions	Risk Management Measures
Lubricants, greases, release products - Sprays	Unless otherwise stated, Covers concentrations up to 50% - Covers use up to 6 days/year - Covers use up to 1 application per day - Covers skin contact area up to 428.75 cm ² - For each use event, covers use amounts up to 73g - Covers use under typical household ventilation. - Covers use in room size of 20m ³ - Covers exposure up to 0.17 hr/ Single event.	No specific risk management measure identified beyond those operational conditions stated.
Adhesives, sealants - Glues, hobby use	Unless otherwise stated, Covers concentrations up to 30% - Covers use up to 365 days/year - Covers use up to 1 application per day - Covers skin contact area up to 35.73 cm ² - For each use event, covers use amounts up to 9g - Covers use under typical household ventilation. - Covers use in room size of 20m ³ - Covers exposure up to 4 hr/Single event	No specific risk management measure identified beyond those operational conditions stated.
Adhesives, Sealants Glue from spray	Unless otherwise stated, Covers concentrations up to 30% - Covers use up to 6 days/year - Covers use up to 1 application per day - Covers skin contact area up to 35.73 cm ² - For each use event, covers use amounts up to 85.05g - Covers use under typical household ventilation. - Covers use in room size of 20m ³ - Covers exposure up to 4.00 hr/Single event.	No specific risk management measure identified beyond those operational conditions stated.
Adhesives, sealants	Unless otherwise stated, Covers concentrations up to 30% - Covers use up to 365 days/year - Covers use up to 1 application per day - Covers skin contact area up to 35.73 cm ² - For each use event, covers use amounts up to 75g - Covers use under typical household ventilation. - Covers use in room size of 20m ³ - Covers use up to 1.00 hr/Single event.	No specific risk management measure identified beyond those operational conditions stated.
Polishes and wax blends - Polishes, wax/cream (floor, furniture, shoes)	Unless otherwise stated, Covers concentrations up to 50% - Covers use up to 29 days/year - Covers use up to 1 application per day - Covers skin contact area up to 430.00 cm ² For each use event, covers use amounts up to 142g - Covers use under typical household ventilation. - Covers use in room size of 20m ³ - Covers exposure up to 1.23 hr/Single event.	No specific risk management measure identified beyond those operational conditions stated.
Polishes and wax blends - Polishes, spray (furniture, shoes)	Unless otherwise stated, Covers concentrations up to 50% - Covers use up to 8 days/year - Covers use up to 1 application per day - Covers skin contact area up to 430.00 cm ² - For each use event, covers use amounts up to 35g - Covers use under typical household ventilation. - Covers use in room size of 20m ³ - Covers exposure up to 0.33 hr/Single event.	No specific risk management measure identified beyond those operational conditions stated.
Lubricants, greases, release products - Liquids	Unless otherwise stated, Covers concentrations up to 100% - Covers use up to 4 days/year - Covers use up to 1 application per day - Covers skin contact area up to 468.00 cm ² - For each use event, covers use amounts up to 2200g - Covers use in a one car garage (34 m ³) under typical ventilation. - Covers use in room size of 34m ³ - Covers exposure up to 0.17 hr/ Single event.	No specific risk management measure identified beyond those operational conditions stated.
Lubricants, greases, release products - Pastes	Unless otherwise stated, Covers concentrations up to 20% - Covers use up to 10 days/year - Covers use up to 1 application per day - Covers skin contact area up to 468cm ² - For each use event, covers use amounts up to 34g	No specific risk management measure identified beyond those operational conditions stated.
Adhesives, sealants, Glues DIY-use (carpet glue, tile glue, wood parquet glue)	Unless otherwise stated, Covers concentrations up to 30% - Covers use up to 1 application per day - Covers use up to 1 days/year - Covers skin contact area up to 110cm ² - For each use event, covers use amounts up to 6390g - Covers use	No specific risk management measure identified beyond those operational conditions stated.

Hydrocarbons, C9-C12, n-alkanes, isoalkanes, cyclics, aromatics (2-25%): EC: 919-446-0

	under typical household ventilation. - Covers use in room size of 20m ³ - For each use event, covers use amounts up to 6hr/per task	
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Section 2.2	Control of environmental exposure
Operational conditions	
Contributing scenario	Use in Lubricants
Operational Conditions	
Frequency and duration of use	Emission Days (days/year): 365 - Continuous release
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	Release fraction to air from wide dispersive use (regional only): 0.5 Release fraction to wastewater from wide dispersive use: 0.05 Release fraction to air from wide dispersive use (regional only): 0.005
Conditions and measures related to municipal sewage treatment plant	Risk from environmental exposure is driven by freshwater. Estimated substance removal from wastewater via domestic sewage treatment (%): 93.7 Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal (kg/d): 38 Assumed domestic sewage treatment plant flow (m ³ /d): 2000
Conditions and measures related treatment of waste	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 treatment and disposal of waste should comply with applicable local and/or national regulations.
Other environmental control measures additional to above	n/a

Section 3	Exposure estimation
3.1 Health	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.
3.2. Environment	The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model.

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-industrieslibraries.html).

Section 1	Exposure Scenario: Worker
Title	Use in Lubricants – Consumer - High Environmental Release

Hydrocarbons, C9-C12, n-alkanes, isoalkanes, cyclics, aromatics (2-25%): EC: 919-446-0

Sector of Use	SU21	
Process Category	n/a	
Product Category	PC1, PC21, PC31	
Article Category	n/a	
Environmental release Category	ERC8a, ERC8d	
Specific environmental release category	ESVOV SpERC 8.6e.v1	
Processes, tasks, activities covered	Covers the consumer use of formulated lubricants in closed and open systems covered by the exposure including transfer operations, application, operation of engines and similar articles, scenario equipment maintenance and disposal of waste oil.	
Section 2	Operational conditions and risk management measures	
Product characteristics		
Physical form of product	Liquid, vapour pressure < 0.5 kPa at STP. - Vapour pressure 200 Pa	
Concentration of substance in product	up to 100%	
Other product characteristics	n/a	
Section 2.1	Control of worker exposure	
Operational conditions		
Amounts used	Unless otherwise stated. Covers use up to 6390 g Covers skin contact area up to 468 cm ²	
Frequency and duration of use	Unless otherwise stated. Covers use up to 1 application per day Use duration: 6h	
Human factors not influenced by risk management	n/a	
Other Operational Conditions affecting worker exposure	Unless otherwise stated. Assumes activities are at ambient temperature (unless stated differently). - Covers use in room size of 20m ³ - Provide adequate ventilation.	
Risk Management Measures		
Contributing Scenarios	Operational conditions	Risk Management Measures
Lubricants, greases, release products - Sprays	Unless otherwise stated, Covers concentrations up to 50% - Covers use up to 6 days/year - Covers use up to 1 application per day - Covers skin contact area up to 428.75 cm ² - For each use event, covers use amounts up to 73g - Covers use under typical household ventilation. - Covers use in room size of 20m ³ - Covers exposure up to 0.17 hr/ Single event.	No specific risk management measure identified beyond those operational conditions stated.
Adhesives, sealants - Glues, hobby use	Unless otherwise stated, Covers concentrations up to 30% - Covers use up to 365 days/year - Covers use up to 1 application per day - Covers skin contact area up to 35.73 cm ² - For each use event, covers use amounts up to 9g - Covers use under typical household ventilation. - Covers use in room size of 20m ³ - Covers exposure up to 4 hr/Single event	No specific risk management measure identified beyond those operational conditions stated.
Adhesives, Sealants Glue from spray	Unless otherwise stated, Covers concentrations up to 30% - Covers use up to 6 days/year - Covers use up to 1 application per day - Covers skin contact area up to 35.73 cm ² - For each use event, covers use amounts up to 85.05g - Covers use under typical household ventilation. - Covers use in room size of 20m ³ - Covers exposure up to 4.00 hr/Single event.	No specific risk management measure identified beyond those operational conditions stated.
Adhesives, sealants	Unless otherwise stated, Covers concentrations up to 30% - Covers use up to 365 days/year - Covers use up to 1 application per day - Covers skin contact area up to 35.73 cm ² - For each use event, covers use amounts up to 75g - Covers use under typical household ventilation. - Covers use in room size of 20m ³ - Covers use up to 1.00 hr/Single event.	No specific risk management measure identified beyond those operational conditions stated.
Polishes and wax blends - Polishes, wax/cream (floor,	Unless otherwise stated, Covers concentrations up to 50% - Covers use up to 29 days/year - Covers use up to 1 application per day - Covers skin contact area up to 430.00	No specific risk management measure identified beyond those operational conditions stated.

Hydrocarbons, C9-C12, n-alkanes, isoalkanes, cyclics, aromatics (2-25%): EC: 919-446-0

furniture, shoes)	cm2 For each use event, covers use amounts up to 142g - Covers use under typical household ventilation. - Covers use in room size of 20m3 - Covers exposure up to 1.23 hr/Single event.	
Polishes and wax blends - Polishes, spray (furniture, shoes)	Unless otherwise stated, Covers concentrations up to 50% - Covers use up to 8 days/year - Covers use up to 1 application per day - Covers skin contact area up to 430.00 cm2 - For each use event, covers use amounts up to 35g - Covers use under typical household ventilation. - Covers use in room size of 20m3 - Covers exposure up to 0.33 hr/Single event.	No specific risk management measure identified beyond those operational conditions stated.
Lubricants, greases, release products - Liquids	Unless otherwise stated, Covers concentrations up to 100% - Covers use up to 4 days/year - Covers use up to 1 application per day - Covers skin contact area up to 468.00 cm2 - For each use event, covers use amounts up to 2200g - Covers use in a one car garage (34 m3) under typical ventilation. - Covers use in room size of 34m3 - Covers exposure up to 0.17 hr/Single event.	No specific risk management measure identified beyond those operational conditions stated.
Lubricants, greases, release products - Pastes	Unless otherwise stated, Covers concentrations up to 20% - Covers use up to 10 days/year - Covers use up to 1 application per day - Covers skin contact area up to 468cm2 - For each use event, covers use amounts up to 34g	No specific risk management measure identified beyond those operational conditions stated.
Adhesives, sealants, Glues DIY-use (carpet glue, tile glue, wood parquet glue)	Unless otherwise stated, Covers concentrations up to 30% - Covers use up to 1 application per day - Covers use up to 1 days/year - Covers skin contact area up to 110cm2 - For each use event, covers use amounts up to 6390g - Covers use under typical household ventilation. - Covers use in room size of 20m3 - For each use event, covers use amounts up to 6hr/per task	No specific risk management measure identified beyond those operational conditions stated.

Section 2.2	Control of environmental exposure
Operational conditions	
Contributing scenario	Use in Lubricants
Operational Conditions	
Frequency and duration of use	Emission Days (days/year): 365 - Continuous release
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	Release fraction to air from wide dispersive use (regional only): 0.15 Release fraction to wastewater from wide dispersive use: 0.05 Release fraction to air from wide dispersive use (regional only): 0.05
Conditions and measures related to municipal sewage treatment plant	Risk from environmental exposure is driven by freshwater. Estimated substance removal from wastewater via domestic sewage treatment (%): 93.7 Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal (kg/d): 38 Assumed domestic sewage treatment plant flow (m3/d): 2000
Conditions and measures related treatment of waste	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 treatment and disposal of waste should comply with applicable local and/or national regulations.
Other environmental control measures additional to above	n/a

Section 3	Exposure estimation
3.1 Health	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.

Hydrocarbons, C9-C12, n-alkanes, isoalkanes, cyclics, aromatics (2-25%): EC: 919-446-0

3.2. Environment	The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model.
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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-industrieslibraries.html).

Section 1	Exposure Scenario: Worker	
Title	Use in Agrochemicals – Consumer	
Sector of Use	SU21	
Process Category	n/a	
Product Category	PC12, PC27	
Article Category	n/a	
Environmental release Category	ERC8a, ERC8d	
Specific environmental release category	ESVOV SpERC 8.11b.v1	
Processes, tasks, activities covered	Covers the consumer use in agrochemicals in liquid and solid forms.	
Section 2	Operational conditions and risk management measures	
Product characteristics		
Physical form of product	Liquid, vapour pressure < 0.5 kPa at STP. - Vapour pressure 200 Pa	
Concentration of substance in product	up to 50%	
Other product characteristics	n/a	
Section 2.1	Control of worker exposure	
Operational conditions		
Amounts used	Covers skin contact area up to 857.5 cm ²	
Frequency and duration of use	Unless otherwise stated. Covers use up to 1 application per day	
Human factors not influenced by risk management	n/a	
Other Operational Conditions affecting worker exposure	Unless otherwise stated. Assumes activities are at ambient temperature (unless stated differently). - Covers use in room size of 20m ³ - Provide adequate ventilation.	
Risk Management Measures		
Contributing Scenarios	Operational conditions	Risk Management Measures

Hydrocarbons, C9-C12, n-alkanes, isoalkanes, cyclics, aromatics (2-25%): EC: 919-446-0

Fertilisers. Lawn and garden preparations	Unless otherwise stated, Covers concentrations up to 50% - Covers use up to 365 days/year - Covers exposure up to 1 application per day - Covers skin contact area up to 857.5 cm ² - For each use event, assumes swallowed amount of 0.3 g.	No specific risk management measure identified beyond those operational conditions stated.
Plant Protection Product	Unless otherwise stated. Covers concentrations up to 50% - Covers use up to 365 days/year - Covers use up to 1 application per day - Covers skin contact area up to 857.5 cm ² - For each use event, assumes swallowed amount of 0.3 g.	No specific risk management measure identified beyond those operational conditions stated.

Section 2.2	Control of environmental exposure
Operational conditions	
Contributing scenario	Use in Agrochemicals
Operational Conditions	
Frequency and duration of use	Emission Days (days/year): 365 - Continuous release
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	Release fraction to air from wide dispersive use (regional only): 0.9 Release fraction to wastewater from wide dispersive use: 0.01 Release fraction to air from wide dispersive use (regional only): 0.09
Conditions and measures related to municipal sewage treatment plant	Risk from environmental exposure is driven by freshwater. Estimated substance removal from wastewater via domestic sewage treatment (%): 93.6 Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal (kg/d): 12 Assumed domestic sewage treatment plant flow (m ³ /d): 2000
Conditions and measures related treatment of waste	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 treatment and disposal of waste should comply with applicable local and/or national regulations.
Other environmental control measures additional to above	n/a

Section 3	Exposure estimation
3.1 Health	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.
3.2. Environment	The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model.

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-industrieslibraries.html).

Hydrocarbons, C9-C12, n-alkanes, isoalkanes, cyclics, aromatics (2-25%): EC: 919-446-0

Section 1		Exposure Scenario: Worker
Title	Use in Cleaning Agent – Consumer	
Sector of Use	SU21	
Process Category	n/a	
Product Category	PC08, PC09a, PC09b, PC24, PC03, PC04, PC09c, PC35, PC38	
Article Category	n/a	
Environmental release Category	ERC8a, ERC8d	
Specific environmental release category	ESVOV 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, de-icers, lubricants and scenario air-care products.	
Section 2		Operational conditions and risk management measures
Product characteristics		
Physical form of product	Liquid, vapour pressure < 0.5 kPa at STP. - Vapour pressure 200 Pa	
Concentration of substance in product	up to 100%	
Other product characteristics	n/a	
Section 2.1		Control of worker exposure
Operational conditions		
Amounts used	Unless otherwise stated. Covers use up to 13800 g. Covers skin contact area up to 857.5 cm ²	
Frequency and duration of use	Unless otherwise stated. Covers use up to 4 application per day - Covers exposure up to 8h/per task:	
Human factors not influenced by risk management	n/a	
Other Operational Conditions affecting worker exposure	Unless otherwise stated. Assumes activities are at ambient temperature (unless stated differently). - Covers use in room size of 20m ³ - Provide adequate ventilation.	
Risk Management Measures		
Contributing Scenarios	Operational conditions	Risk Management Measures
Air care, instant action (aerosol sprays)	Unless otherwise stated, Covers concentrations up to 50% - Covers use up to 365 days/year - Covers exposure up to 4 application per day - For each use event, covers use amounts up to 0.1 g. - Covers use in room size of 20m ³ - For each use event, covers use amounts up to 0.25 hr/per task: - Covers use under typical household ventilation.	No specific risk management measure identified beyond those operational conditions stated.
Air care, instant action (aerosol sprays) - Pesticide. - excipient only	Unless otherwise stated. Covers concentrations up to 50% - Covers use up to 365 days/year - Covers use up to 4 application per day - For each use event, covers use amounts up to 5 g. - Covers use in room size of 20m ³ - For each use event, covers use amounts up to 0.25 h/per task: - Covers use under typical household ventilation.	No specific risk management measure identified beyond those operational conditions stated.
Air care, continuous action (solid and liquid)	Unless otherwise stated, Covers concentrations up to 10 % - Covers use up to 365 days/year - Covers use up to 1 application per day - Covers skin contact area up to 35.7 cm ² - For each use event, covers use amounts up to 0.48 g. - Covers use in room size of 20m ³ - For each use event, covers use amounts up to 8hr/per task: Covers use under typical household ventilation.	No specific risk management measure identified beyond those operational conditions stated.
Anti-freezing agents - Washing car window	Unless otherwise stated. Covers concentrations up to 1 % - Covers use up to 365 days/year - Covers use up to 1 application per day - For each use event, covers use amounts	No specific risk management measure identified beyond those operational conditions stated.

Hydrocarbons, C9-C12, n-alkanes, isoalkanes, cyclics, aromatics (2-25%): EC: 919-446-0

	up to 0.5 g. - Covers use in room size of 34 m ² - For each use event, covers use amounts up to 0.2 hr/per task: - Covers use in a one car garage (34 m ³) under typical ventilation.	
Welding and soldering agents, Fluxing agents	Unless otherwise stated. Covers concentrations up to 20 % - Covers use up to 365 days/year - Covers use up to 1 application per day - For each use event, covers use amounts up to 12 g. - Covers use in room size of 20m ³ - For each use event, covers use amounts up to 1 hr/per task:	No specific risk management measure identified beyond those operational conditions stated.
Anti-Freeze and de-icing products Pouring into radiator	Covers concentrations up to 10 % - Covers use up to 365 days/year - Covers use up to 1 application per day - Covers skin contact area up to 428 cm ² - For each use event, covers use amounts up to 2000 g. - Covers use in a one car garage (34 m ³) under typical ventilation. - Covers use in a one car garage (34 m ³) under typical ventilation. - For each use event, covers use amounts up to 0.17 hr/per task:	No specific risk management measure identified beyond those operational conditions stated.
Anti-Freeze and de-icing products - Lock de-icer	Unless otherwise stated. Covers concentrations up to 50 % - Covers use up to 365 days/year - Covers use up to 1 application per day - Covers skin contact area up to 214 cm ² - For each use event, covers use amounts up to 4 g. - Covers use in a one car garage (34 m ³) under typical ventilation. - Covers use in room size of 34 m ³ For each use event, covers use amounts up to 0.25 hr/per task:	No specific risk management measure identified beyond those operational conditions stated.
Biocidal products (e.g. Disinfectants, pest control) - Laundry and dish-washing products	Covers concentrations up to Unless otherwise stated. 5 % - Covers use up to 365 days/year - Covers use up to 1 application per day - Covers skin contact area up to 857.50 cm ² - For each use event, covers use amounts up to 15 g. - Covers use in room size of 20m ³ - For each use event, covers use amounts up to 0.5 hr/per task: Covers use under typical household ventilation.	No specific risk management measure identified beyond those operational conditions stated.
Biocidal products (e.g. Disinfectants, pest control) - Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners)	Unless otherwise stated, Covers concentrations up to 5 % - Covers use up to 128 days/year - Covers use up to 1 application per day - Covers skin contact area up to 857.50 cm ² - For each use event, covers use amounts up to 27 g. - Covers use under typical household ventilation. - Covers use in room size of 20m ³ - For each use event, covers use amounts up to 0.33 hr/per task:	No specific risk management measure identified beyond those operational conditions stated.
Biocidal products (e.g. Disinfectants, pest control) - Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners)	Unless otherwise stated, Covers concentrations up to 15 % - Covers use up to 128 days/year - Covers use up to 1 application per day - Covers skin contact area up to 428.00 cm ² - For each use event, covers use amounts up to 35 g. - Covers use under typical household ventilation. - Covers use in room size of 20m ³ - For each use event, covers use amounts up to 0.17 hr/per task:	No specific risk management measure identified beyond those operational conditions stated.
Coatings and paints, thinners, paint removers - Water-borne latex wall paint	Unless otherwise stated. Covers concentrations up to 1.5 % - Covers use up to 4 days/year - Covers use up to 1 application per day - Covers skin contact area up to 428.75 cm ² - For each use event, covers use amounts up to 2760 g. - Covers use under typical household ventilation. - Covers use in room size of 20m ³ - Covers exposure up to 2.20 hr/per task:	No specific risk management measure identified beyond those operational conditions stated.
Coatings and paints, thinners, paint removers - Solvent-rich, high-solid, water-borne paint	Unless otherwise stated. Covers concentrations up to 27.5 % - Covers use up to 6 days/year - Covers use up to 1 application per day - Covers skin contact area up to 428.75 cm ² - Covers use up to 744 g. - Covers use in room size of 20m ³ - Covers use under typical household ventilation. - For each use event, covers use amounts up to 2.2 hr/per task:	No specific risk management measure identified beyond those operational conditions stated.
Coatings and paints, thinners, paint removers - Aerosol spray can	Unless otherwise stated. Covers exposure up to 50 % - Covers use up to 2 days/year Covers use up to 1 application per day - Covers use up to 215 g. - Covers use in a one car garage (34 m ³) under typical ventilation. - Covers use in room size of 34 m ³ For each use event, covers use amounts up to 0.33 hr/per task:	No specific risk management measure identified beyond those operational conditions stated.
Coatings and paints, thinners, paint removers - Removers	Unless otherwise stated. Covers concentrations up to 50 % - Covers use up to 3 days/year - Covers use up to 1 application per day - Covers skin contact area up to 857.50 cm ² - For	No specific risk management measure identified beyond those operational conditions stated.

Hydrocarbons, C9-C12, n-alkanes, isoalkanes, cyclics, aromatics (2-25%): EC: 919-446-0

(paint, glue, wall paper, sealant-remover)	each use event, covers use amounts up to 491 g. - Covers use under typical household ventilation. - Covers use in room size of 20m ³ - For each use event, covers use amounts up to 2.00 hr/per task:	
Fillers, putties, plasters, modelling clay - Fillers and putty	Unless otherwise stated, Covers concentrations up to 2 % - Covers use up to 12 days/year - Covers use up to 1 application per day - Covers skin contact area up to 35.73 cm ² - For each use event, covers use amounts up to 85 g. - Covers use in room size of 20m ³ - Covers use under typical household ventilation. - For each use event, covers use amounts up to 4.00 hr/per task:	No specific risk management measure identified beyond those operational conditions stated.
Fillers, putties, plasters, modelling clay - Plasters and floor equalisers	Unless otherwise stated, Covers concentrations up to 2% Covers use up to 12 days/year - Covers use up to 1 application per day - Covers skin contact area up to 857.50 cm ² - For each use event, covers use amounts up to 13800 g. - Covers use under typical household ventilation. - Covers use in room size of 20m ³ - For each use event, covers use amounts up to 2.00 hr/per task:	No specific risk management measure identified beyond those operational conditions stated.
Fillers, putties, plasters, modelling clay - Modelling clay	Unless otherwise stated, Covers concentrations up to 1 % - Covers use up to 365 days/year - Covers use up to 1 application per day - Covers skin contact area up to 254.4 cm ² - For each use event, assumes swallowed amount of 1g.	No specific risk management measure identified beyond those operational conditions stated.
Finger paints	Unless otherwise stated, Covers concentrations up to 50 % - Covers use up to 365 days/year - Covers use up to 1 application per day - Covers skin contact area up to 254.40 cm ² - For each use event, assumes swallowed amount of 1.35 g.	Avoid using at a product concentration greater than 5 %
Cleaning and Washing operations. - Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners)	Unless otherwise stated, Covers concentrations up to 15 % - Covers use up to 128 days/year - Covers use up to 1 application per day - Covers skin contact area up to 428 cm ² - For each use event, covers use amounts up to 35 g. - Covers use under typical household ventilation. - Covers use in room size of 20m ³ - For each use event, covers use amounts up to 0.17hr/per task:	No specific risk management measure identified beyond those operational conditions stated.
Cleaning and Washing operations. - Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners)	Unless otherwise stated, Covers concentrations up to 5 % - Covers use up to 128 days/year - Covers use up to 1 application per day - Covers skin contact area up to 457.5 cm ² - For each use event, covers use amounts up to 27 g. - Covers use under typical household ventilation. - Covers use in room size of 20m ³ - For each use event, covers use amounts up to 0.33 hr/per task:	No specific risk management measure identified beyond those operational conditions stated.
Cleaning and Washing operations. - Laundry and dish-washing products	Unless otherwise stated, Covers concentrations up to 5 % Covers use up to 365 days/year - Covers use up to 1 application per day - Covers skin contact area up to 857.5 cm ² - For each use event, covers use amounts up to 15 g. - Covers use under typical household ventilation. - Covers use in room size of 20m ³ - For each use event, covers use amounts up to 0.5 hr/per task:	No specific risk management measure identified beyond those operational conditions stated.
Lubricants, greases, release products - Liquids	Unless otherwise stated, Covers concentrations up to 100 % - Covers use up to 4 days/year - Covers use up to 1 application per day - Covers skin contact area up to 468.00 cm ² - For each use event, covers use amounts up to 2200 g. - Covers use in a one car garage (34 m ³) under typical ventilation. - Covers use in room size of 34 m ³ - For each use event, covers use amounts up to 0.17 h/per task:	No specific risk management measure identified beyond those operational conditions stated.
Lubricants, greases, release products - Pastes	Unless otherwise stated, Covers concentrations up to 20 % - Covers use up to 10 days/year - Covers use up to 1 application per day - Covers skin contact area up to 468.00 cm ² - For each use event, covers use amounts up to 34 g.	No specific risk management measure identified beyond those operational conditions stated.
Lubricants, greases, release products Sprays	Unless otherwise stated, Covers concentrations up to 50 % - Covers use up to 6 days/year - Covers use up to 1 application per day - Covers skin contact area up to 428.75 cm ² - For each use event, covers use amounts up to 73 g. - Covers use under typical household ventilation. - Covers use in room size of 20m ³ - For each use event,	No specific risk management measure identified beyond those operational conditions stated.

Hydrocarbons, C9-C12, n-alkanes, isoalkanes, cyclics, aromatics (2-25%): EC: 919-446-0

	covers use amounts up to 0.17 hr/per task:	
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Section 2.2	Control of environmental exposure
Operational conditions	
Contributing scenario	Use in Cleaning Agent
Operational Conditions	
Frequency and duration of use	Emission Days (days/year): 365 - Continuous release
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	Release fraction to air from wide dispersive use (regional only): 0.95 Release fraction to wastewater from wide dispersive use: 0.025 Release fraction to air from wide dispersive use (regional only): 0.025
Conditions and measures related to municipal sewage treatment plant	Risk from environmental exposure is driven by soil. Estimated substance removal from wastewater via domestic sewage treatment (%): 93.7 Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal (kg/d): 77 Assumed domestic sewage treatment plant flow (m3/d): 2000
Conditions and measures related treatment of waste	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 treatment and disposal of waste should comply with applicable local and/or national regulations.
Other environmental control measures additional to above	n/a

Section 3	Exposure estimation
3.1 Health	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.
3.2. Environment	The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model.

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-industrieslibraries.html).

Section 1	Exposure Scenario: Worker
Title	Use as a fuel – Consumer
Sector of Use	SU21

Hydrocarbons, C9-C12, n-alkanes, isoalkanes, cyclics, aromatics (2-25%): EC: 919-446-0

Process Category	n/a	
Product Category	PC13	
Article Category	n/a	
Environmental release Category	ERC9a, ERC9b	
Specific environmental release category	ESVOV SpERC 9.12c.v1	
Processes, tasks, activities covered	Covers consumer uses in liquid fuels.	
Section 2	Operational conditions and risk management measures	
Product characteristics		
Physical form of product	Liquid, vapour pressure < 0.5 kPa at STP. - Vapour pressure 200 Pa	
Concentration of substance in product	up to 100%	
Other product characteristics	n/a	
Section 2.1	Control of worker exposure	
Operational conditions		
Amounts used	Unless otherwise stated. Covers use up to 37500 g. Covers skin contact area up to 420 cm ²	
Frequency and duration of use	Unless otherwise stated. Covers use up to 1 application per day - Covers exposure up to 2h/per task:	
Human factors not influenced by risk management	n/a	
Other Operational Conditions affecting worker exposure	Unless otherwise stated. Assumes activities are at ambient temperature (unless stated differently). - Covers use in room size of 20m ³ - Provide adequate ventilation.	
Risk Management Measures		
Contributing Scenarios	Operational conditions	Risk Management Measures
Fuel. Liquid: Automotive Refuelling	Unless otherwise stated, Covers concentrations up to 100% - Covers exposure up to 1 application per day - Covers use up to 52 days/year - Covers skin contact area up to 210 cm ² - For each use event, covers use amounts up to 37500 g. - Covers outdoor use. - Covers use in room size of 100 m ³ - Covers exposure up to 0.03 hr/per task:	No specific risk management measure identified beyond those operational conditions stated.
Fuel. Liquid Scooter Refuelling	Unless otherwise stated. Covers concentrations up to 100% - Covers use up to 52 days/year - Covers use up to 1 application per day - Covers skin contact area up to 210 cm ² - For each use event, covers use amounts up to 3750 g. - Covers outdoor use. - Covers use in room size of 100 m ³ - Covers exposure up to 0.03 hr/per task:	No specific risk management measure identified beyond those operational conditions stated.
Fuel. Liquid Garden Equipment - Use	Unless otherwise stated. Covers concentrations up to 100% - Covers use up to 26 days/year - Covers use up to 1 application per day - For each use event, covers use amounts up to 750g - Covers outdoor use. - Covers use in room size of 100m ³ Covers exposure up to 2 hr/per task:	No specific risk management measure identified beyond those operational conditions stated.
Fuel. Liquid: Garden Equipment - Refuelling	Unless otherwise stated. Covers concentrations up to 100% - Covers use up to 26 days/year - Covers use up to 1 application per day - Covers skin contact area up to 420 cm ² - For each use event, covers use amounts up to 750g - Covers use in a one car garage (34 m ³) under typical ventilation. - Covers use in room size of 34 m ³ Covers exposure up to 0.03 hr/per task:	No specific risk management measure identified beyond those operational conditions stated.
Fuel. Liquid: Home space heater fuel	Unless otherwise stated. Covers concentrations up to 100% - Covers use up to 365 days/year - Covers use up to 1 application per day - Covers skin contact area up to 210 cm ² - For each use event, covers use amounts up to 3000g - Covers use under typical household ventilation. - Covers use in room	No specific risk management measure identified beyond those operational conditions stated.

Hydrocarbons, C9-C12, n-alkanes, isoalkanes, cyclics, aromatics (2-25%): EC: 919-446-0

	size of 20m3 - Covers exposure up to 0.03 hr/per task:	
Fuel. Liquid: Lamp oil	Unless otherwise stated. Covers concentrations up to 100% - Covers use up to 52 days/year - Covers use up to 1 application per day - Covers skin contact area up to 210 cm2 - For each use event, covers use amounts up to 100g - Covers use under typical household ventilation. - Covers use in room size of 20m3 - Covers use up to 0.01 hr/per task:	No specific risk management measure identified beyond those operational conditions stated.

Section 2.2	Control of environmental exposure
Operational conditions	
Contributing scenario	Use as a fuel
Operational Conditions	
Frequency and duration of use	Emission Days (days/year): 365 - Continuous release
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	Release fraction to air from wide dispersive use (regional only): 0.0001 Release fraction to wastewater from wide dispersive use: 0.00001 Release fraction to air from wide dispersive use (regional only): 0.00001
Conditions and measures related to municipal sewage treatment plant	Risk from environmental exposure is driven by freshwater. Estimated substance removal from wastewater via domestic sewage treatment (%): 93.7 Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal (kg/d): 49 Assumed domestic sewage treatment plant flow (m3/d): 2000
Conditions and measures related treatment of waste	Combustion emissions limited by required exhaust emission controls. - Combustion emissions considered in regional exposure assessment. External treatment and disposal of waste should comply with applicable local and/or national regulations.
Conditions and measures related to external recovery of waste	This substance is consumed during use and no waste from the substance is generated.
Other environmental control measures additional to above	n/a

Section 3	Exposure estimation
3.1 Health	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.
3.2. Environment	The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model.

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-industrieslibraries.html).

Hydrocarbons, C9-C12, n-alkanes, isoalkanes, cyclics, aromatics (2-25%): EC: 919-446-0

Section 1		Exposure Scenario: Worker
Title	Use as Functional Fluids – Consumer	
Sector of Use	SU21	
Process Category	n/a	
Product Category	PC16, PC17	
Article Category	n/a	
Environmental release Category	ERC9a, ERC9b	
Specific environmental release category	ESVOV SpERC 9.13c.v1	
Processes, tasks, activities covered	Uses of sealed items containing functional fluids e.g. transfer oils, hydraulic fluids, covered by the exposure refrigerants.	
Section 2		Operational conditions and risk management measures
Product characteristics		
Physical form of product	Liquid, vapour pressure < 0.5 kPa at STP. - Vapour pressure 200 Pa	
Concentration of substance in product	up to 100%	
Other product characteristics	n/a	
Section 2.1		Control of worker exposure
Operational conditions		
Amounts used	Unless otherwise stated. Covers use up to 2200 g. Covers skin contact area up to 468 cm ²	
Frequency and duration of use	Exposure duration per day: 0.01 – Covers exposure up to 0.167h/per task:	
Human factors not influenced by risk management	n/a	
Other Operational Conditions affecting worker exposure	Unless otherwise stated. Assumes activities are at ambient temperature (unless stated differently). - Covers use in room size of 20m ³ - Provide adequate ventilation.	
Risk Management Measures		
Contributing Scenarios	Operational conditions	Risk Management Measures
Heat transfer agents, liquid, Fluid.	Unless otherwise stated, Covers concentrations up to 100% - Covers exposure up to 1 application per day - Covers use up to 4 days/year - Covers skin contact area up to 468 cm ² - For each use event, covers use amounts up to 2200 g. - Covers use in a one car garage (34 m ³) under typical ventilation. - Covers use in room size of 34 m ³ - Covers exposure up to 0.17 hr/per task:	No specific risk management measure identified beyond those operational conditions stated.
Hydraulic fluids and additives, liquid	Unless otherwise stated. Covers concentrations up to 100% - Covers use up to 4 days/year - Covers use up to 1 application per day - Covers skin contact area up to 468 cm ² - For each use event, covers use amounts up to 2200 g. - Covers use in room size of 34 m ³ - Covers exposure up to 0.17 hr/per task: - Covers use in a one car garage (34 m ³) under typical ventilation.	No specific risk management measure identified beyond those operational conditions stated.

Section 2.2	Control of environmental exposure
Operational conditions	

Hydrocarbons, C9-C12, n-alkanes, isoalkanes, cyclics, aromatics (2-25%): EC: 919-446-0

Contributing scenario	Use as Functional Fluids
Operational Conditions	
Frequency and duration of use	Emission Days (days/year): 365 - Continuous release
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	Release fraction to air from wide dispersive use (regional only): 0.05 Release fraction to wastewater from wide dispersive use: 0.025 Release fraction to air from wide dispersive use (regional only): 0.025
Conditions and measures related to municipal sewage treatment plant	Risk from environmental exposure is driven by freshwater. Estimated substance removal from wastewater via domestic sewage treatment (%): 93.7 Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal (kg/d): 33 Assumed domestic sewage treatment plant flow (m3/d): 2000
Conditions and measures related treatment of waste	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	n/a

Section 3	Exposure estimation
3.1 Health	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.
3.2. Environment	The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model.

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-industrieslibraries.html).

Section 1	Exposure Scenario: Worker
Title	Use in Cleaning Agents - Professional
Sector of Use	SU22
Process Category	PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC10, PROC11, PROC13

Hydrocarbons, C9-C12, n-alkanes, isoalkanes, cyclics, aromatics (2-25%): EC: 919-446-0

Product Category	n/a
Article Category	n/a
Environmental release Category	ERC8a, ERC8b
Specific environmental release category	ESVOV SpERC 8.4b.v1
Processes, tasks, activities covered	Covers the use as a component of cleaning products including pouring/unloading from covered by the exposure drums or containers; and exposures during mixing/diluting in the preparatory phase scenario and cleaning activities (including spraying, brushing, dipping, wiping automated and by hand).
Section 2	Operational conditions and risk management measures
Product characteristics	
Physical form of product	Liquid, vapour pressure < 0.5 kPa at STP.
Concentration of substance in product	up to 100%
Other product characteristics	n/a
Section 2.1	Control of worker exposure
Operational conditions	
Amounts used	No limit
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 worker 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	Risk Management Measures
Filling/preparation of equipment from drums or containers	No other specific measures identified.
Automatic processing with: (semi) Closed system - Use in contained systems	No other specific measures identified.
Automatic processing with: (semi) Closed system - Drum/batch transfers - Use in contained systems	No other specific measures identified.
Semi-automated process. (e.g. Semi-automatic application of floor care and maintenance products)	No other specific measures identified.
Filling/preparation of equipment from drums or containers	No other specific measures identified.
Manual Surfaces Cleaning Dipping, immersion and pouring	No other specific measures identified.
Cleaning with low-pressure washers - Rolling, Brushing no spraying	No other specific measures identified.
Cleaning with high-pressure washers - Spraying Indoor.	Provide enhanced general ventilation by mechanical means.
Cleaning with high-pressure washers - Spraying Outdoor.	Ensure operation is undertaken outdoors. - Limit the substance content in the product to 25%.
Manual Cleaning Spraying	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 Outdoor.	No other specific measures identified.
Cleaning of medical devices	No other specific measures identified.

Section 2.2	Control of environmental exposure
Operational conditions	
Contributing scenario	Use in Cleaning Agents

Hydrocarbons, C9-C12, n-alkanes, isoalkanes, cyclics, aromatics (2-25%): EC: 919-446-0

Operational Conditions	
Frequency and duration of use	Emission Days (days/year): 365 - Continuous release
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	Release fraction to air from wide dispersive use (regional only): 0.02 Release fraction to wastewater from wide dispersive use: 0.000001 Release fraction to air from wide dispersive use (regional only): 0
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	Risk from environmental exposure is driven by freshwater. No wastewater treatment required. Treat air emission to provide a typical removal efficiency of (%):N/A Treat on-site wastewater (prior to receiving water discharge) to provide the required removal efficiency of >= (%):0 If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of >= (%):0
Organizational measures to prevent / limit release from site	Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed.
Conditions and measures related to municipal sewage treatment plant	Estimated substance removal from wastewater via domestic sewage treatment (%): 93.7 Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal (kg/d): 580 Assumed domestic sewage treatment plant flow (m3/d): 2000
Conditions and measures related treatment of waste	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	n/a

Section 3	Exposure estimation
3.1 Health	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.
3.2. Environment	The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model.

Section 4	Guidance to check compliance with the Exposure Scenario
4.1 Health	Risk Management Measures are based on qualitative risk characterisation. Available hazard data do not support the need for a DNEL to be established for other health effects. Users are advised to consider national Occupational Exposure Limits or other equivalent values. 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. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination. Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination. Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html).

Hydrocarbons, C9-C12, n-alkanes, isoalkanes, cyclics, aromatics (2-25%): EC: 919-446-0

Section 1	Exposure Scenario: Worker	
Title	Use in Cleaning Agents - Industrial	
Sector of Use	SU3	
Process Category	PROC2, PROC3, PROC4, PROC7, PROC8a, PROC8b, PROC10, PROC13	
Product Category	n/a	
Article Category	n/a	
Environmental release Category	ERC4	
Specific environmental release category	ESVOV SpERC 4.4a.v1	
Processes, tasks, activities covered	Covers the use as a component of cleaning products including pouring/unloading from covered by the exposure drums or containers; and exposures during mixing/diluting in the preparatory phase scenario and cleaning activities (including spraying, brushing, dipping, wiping automated and by hand).	
Section 2	Operational conditions and risk management measures	
Product characteristics		
Physical form of product	Liquid, vapour pressure < 0.5 kPa at STP.	
Concentration of substance in product	up to 100%	
Other product characteristics	n/a	
Section 2.1	Control of worker exposure	
Operational conditions		
Amounts used	No limit	
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 worker 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	Risk Management Measures	
Bulk transfers	No other specific measures identified.	
Automatic processing with: (semi) Closed system - Use in contained systems	No other specific measures identified.	
Automatic processing with: (semi) Closed system - Use in contained systems	No other specific measures identified.	
Automatic processing with: (semi) 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	No other specific measures identified.	
Use in contained batch processes	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 enhanced general ventilation by mechanical means.	
Manual Surfaces Cleaning	No other specific measures identified.	

Section 2.2	Control of environmental exposure
Operational conditions	

Hydrocarbons, C9-C12, n-alkanes, isoalkanes, cyclics, aromatics (2-25%): EC: 919-446-0

Contributing scenario	Use in Cleaning Agents
Operational Conditions	
Frequency and duration of use	Emission Days (days/year): 20 - Continuous release
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	Release fraction to air from process (initial release prior to RMM):1.0 Release fraction to wastewater from process (initial release prior to RMM):0.00003 Release fraction to soil from process (initial release prior to RMM):0
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	Risk from environmental exposure is driven by soil. No wastewater treatment required. Treat air emission to provide a typical removal efficiency of (%):70 Treat on-site wastewater (prior to receiving water discharge) to provide the required removal efficiency of >= (%):0 If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of >= (%):0
Organizational measures to prevent / limit release from site	Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed.
Conditions and measures related to municipal sewage treatment plant	Risk from environmental exposure is driven by soil. Estimated substance removal from wastewater via domestic sewage treatment (%): 93.7 Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal (kg/d): 5100000 Assumed domestic sewage treatment plant flow (m3/d): 2000
Conditions and measures related treatment of waste	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	n/a

Section 3	Exposure estimation
3.1 Health	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.
3.2. Environment	The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model.

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

Hydrocarbons, C9-C12, n-alkanes, isoalkanes, cyclics, aromatics (2-25%): EC: 919-446-0

Section 1	Exposure Scenario: Worker	
Title	Use in Lubricant - Professional: Low environmental Release	
Sector of Use	SU22	
Process Category	PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC9, PROC10, PROC11, PROC13, PROC17, PROC18, PROC20	
Product Category	n/a	
Article Category	n/a	
Environmental release Category	ERC9a, ERC9b	
Specific environmental release category	ESVOV SpERC 9.6b.v1	
Processes, tasks, activities covered	Covers the use of formulated lubricants within closed or contained systems including covered by the exposure incidental exposures during material transfers, operation of machinery/engines and scenario similar articles, equipment maintenance and disposal of wastes.	
Section 2	Operational conditions and risk management measures	
Product characteristics		
Physical form of product	Liquid, vapour pressure < 0.5 kPa at STP.	
Concentration of substance in product	up to 100%	
Other product characteristics	n/a	
Section 2.1	Control of worker exposure	
Operational conditions		
Amounts used	No limit	
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 worker 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	Risk Management Measures	
General exposures (closed systems)	No other specific measures identified.	
General exposures (open systems)	No other specific measures identified.	
Operation of equipment containing engine oils and similar	No other specific measures identified.	
Bulk transfers	No other specific measures identified.	
Filling/preparation of equipment from drums or containers - Dedicated facility	No other specific measures identified.	
Filling/preparation of equipment from drums or containers - Non-dedicated facility	No other specific measures identified.	
Operation and lubrication of high energy open equipment - Indoor.	No other specific measures identified.	
Operation and lubrication of high energy open equipment	No other specific measures identified.	
Manual applications e.g. brushing, rolling	No other specific measures identified.	
Treatment by dipping and pouring	No other specific measures identified.	
Maintenance (of larger plant items) and machine set-up - Operation is carried out at elevated temperature (> 20 °C	No other specific measures identified.	

Hydrocarbons, C9-C12, n-alkanes, isoalkanes, cyclics, aromatics (2-25%): EC: 919-446-0

above ambient temperature).	
Maintenance (of larger plant items) and machine set-up	No other specific measures identified.
Operation and lubrication of high energy open equipment - Outdoor.	No other specific measures identified.
Maintenance of small items - Operation is carried out at elevated temperature (> 20 °C above ambient temperature).	No other specific measures identified.
Engine lubricant service	No other specific measures identified.
Spraying	Provide enhanced general ventilation by mechanical means.
Material storage	No other specific measures identified.

Section 2.2	Control of environmental exposure
Operational conditions	
Contributing scenario	Use in Lubricant
Operational Conditions	
Frequency and duration of use	Emission Days (days/year): 365 - Continuous release
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	Release fraction to air from wide dispersive use (regional only): 0.15 Release fraction to wastewater from wide dispersive use: 0.05 Release fraction to air from wide dispersive use (regional only): 0.05
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	Risk from environmental exposure is driven by freshwater. No wastewater treatment required. Treat air emission to provide a typical removal efficiency of (%):n/a Treat on-site wastewater (prior to receiving water discharge) to provide the required removal efficiency of >= (%):0 If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of >= (%):0
Organizational measures to prevent / limit release from site	Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed.
Conditions and measures related to municipal sewage treatment plant	Estimated substance removal from wastewater via domestic sewage treatment (%): 93.7 Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal (kg/d): 52 Assumed domestic sewage treatment plant flow (m3/d): 2000
Conditions and measures related treatment of waste	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	n/a

Section 3	Exposure estimation
3.1 Health	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.
3.2. Environment	The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model.

Section 4	Guidance to check compliance with the Exposure Scenario

Hydrocarbons, C9-C12, n-alkanes, isoalkanes, cyclics, aromatics (2-25%): EC: 919-446-0

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

Section 1	Exposure Scenario: Worker	
Title	Use in Lubricant - Professional: High Environmental Release	
Sector of Use	SU22	
Process Category	PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC9, PROC10, PROC11, PROC13, PROC17, PROC18, PROC20	
Product Category	n/a	
Article Category	n/a	
Environmental release Category	ERC8a, ERC8b	
Specific environmental release category	ESVOV SpERC 8.6c.v1	
Processes, tasks, activities covered	Covers the use of formulated lubricants in closed and open systems including transfer covered by the exposure operations, operation of engines and similar articles, reworking on reject articles, scenario equipment maintenance and disposal of waste oil.	
Section 2	Operational conditions and risk management measures	
Product characteristics		
Physical form of product	Liquid, vapour pressure < 0.5 kPa at STP.	
Concentration of substance in product	up to 100%	
Other product characteristics	n/a	
Section 2.1	Control of worker exposure	
Operational conditions		
Amounts used	No limit	
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 worker 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	Risk Management Measures	
General exposures (closed systems)	No other specific measures identified.	
General exposures (open systems)	No other specific measures identified.	
Operation of equipment containing engine oils and similar	No other specific measures identified.	

Hydrocarbons, C9-C12, n-alkanes, isoalkanes, cyclics, aromatics (2-25%): EC: 919-446-0

Bulk transfers	No other specific measures identified.
Filling/preparation of equipment from drums or containers - Dedicated facility	No other specific measures identified.
Filling/preparation of equipment from drums or containers - Non-dedicated facility	No other specific measures identified.
Operation and lubrication of high energy open equipment - Indoor.	No other specific measures identified.
Operation and lubrication of high energy open equipment	No other specific measures identified.
Manual applications e.g. brushing, rolling	No other specific measures identified.
Treatment by dipping and pouring	No other specific measures identified.
Maintenance (of larger plant items) and machine set-up - Operation is carried out at elevated temperature (> 20°C above ambient temperature).	No other specific measures identified.
Maintenance (of larger plant items) and machine set-up	No other specific measures identified.
Operation and lubrication of high energy open equipment - Outdoor.	No other specific measures identified.
Maintenance of small items - Operation is carried out at elevated temperature (> 20°C above ambient temperature).	No other specific measures identified.
Engine lubricant service	No other specific measures identified.
Spraying	Provide enhanced general ventilation by mechanical means.
Material storage	No other specific measures identified.

Section 2.2	Control of environmental exposure
Operational conditions	
Contributing scenario	Use in Lubricant
Operational Conditions	
Frequency and duration of use	Emission Days (days/year): 365 - Continuous release
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	Release fraction to air from wide dispersive use (regional only): 0.15 Release fraction to wastewater from wide dispersive use: 0.05 Release fraction to air from wide dispersive use (regional only): 0.05
Technical conditions and measures at process level (source) to prevent release	Common practices vary across sites thus conservative process release estimates used.
Engineering controls	Drain down system prior to equipment break-in or maintenance.
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	Risk from environmental exposure is driven by freshwater. No wastewater treatment required. Treat air emission to provide a typical removal efficiency of (%):0 Treat on-site wastewater (prior to receiving water discharge) to provide the required removal efficiency of >= (%):0 If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of >= (%):0
Organizational measures to prevent / limit release from site	Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed.
Conditions and measures related to municipal sewage treatment plant	Estimated substance removal from wastewater via domestic sewage treatment (%): 93.7 Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal (kg/d): 57 Assumed domestic sewage treatment plant flow (m3/d): 2000
Conditions and measures related treatment of waste	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	n/a

Hydrocarbons, C9-C12, n-alkanes, isoalkanes, cyclics, aromatics (2-25%): EC: 919-446-0

Section 3	Exposure estimation
3.1 Health	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.
3.2. Environment	The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model.

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

Section 1	Exposure Scenario: Worker
Title	Use in Lubricant - Industrial
Sector of Use	SU3
Process Category	PROC1, PROC2, PROC3, PROC4, PROC7, PROC8a, PROC8b, PROC9, PROC10, PROC13, PROC17, PROC18
Product Category	n/a
Article Category	n/a
Environmental release Category	ERC4, ERC7
Specific environmental release category	ESVOV SpERC 4.6a.v1
Processes, tasks, activities covered	Covers the use of formulated lubricants in closed and open systems including transfer covered by the exposure operations, operation of machinery/engines and similar articles, reworking on reject scenario articles, equipment maintenance and disposal of wastes.
Section 2	Operational conditions and risk management measures
Product characteristics	
Physical form of product	Liquid, vapour pressure < 0.5 kPa at STP.
Concentration of substance in product	up to 100%
Other product characteristics	n/a
Section 2.1	Control of worker exposure
Operational conditions	
Amounts used	No limit
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently).

Hydrocarbons, C9-C12, n-alkanes, isoalkanes, cyclics, aromatics (2-25%): EC: 919-446-0

Human factors not influenced by risk management	n/a
Other Operational Conditions affecting worker 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	Risk Management Measures
General exposures (closed systems)	No other specific measures identified.
General exposures (open systems)	No other specific measures identified.
Bulk transfers	No other specific measures identified.
Filling/preparation of equipment from drums or containers - Dedicated facility	No other specific measures identified.
Initial factory fill of equipment	No other specific measures identified.
Operation and lubrication of high energy open equipment	No other specific measures identified.
Manual applications e.g. brushing, rolling	No other specific measures identified.
Treatment by dipping and pouring	No other specific measures identified.
Spraying	Provide enhanced general ventilation by mechanical means.
Maintenance (of larger plant items) and machine set-up - Operation is carried out at elevated temperature (> 20°C above ambient temperature).	Drain down and flush system prior to equipment break-in or maintenance.
Maintenance (of larger plant items) and machine set-up	No other specific measures identified.
Remanufacture of reject articles	No other specific measures identified.
Maintenance of small items	Avoid manual contact with wet work pieces.
Material storage	No other specific measures identified.

Section 2.2	Control of environmental exposure
Operational conditions	
Contributing scenario	Use in Lubricant
Operational Conditions	
Frequency and duration of use	Emission Days (days/year): 20 - Continuous release
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	Release fraction to air from process (initial release prior to RMM): 0.005 Release fraction to wastewater from process (initial release prior to RMM): 0.000003 Release fraction to soil from process (initial release prior to RMM): 0.001
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	Risk from environmental exposure is driven by freshwater. No wastewater treatment required. Treat air emission to provide a typical removal efficiency of (%):70 Treat on-site wastewater (prior to receiving water discharge) to provide the required removal efficiency of >= (%):0 If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of >= (%):0
Organizational measures to prevent / limit release from site	Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed.
Conditions and measures related to municipal sewage treatment plant	Estimated substance removal from wastewater via domestic sewage treatment (%): 93.7 Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal (kg/d): 570000

Hydrocarbons, C9-C12, n-alkanes, isoalkanes, cyclics, aromatics (2-25%): EC: 919-446-0

	Assumed domestic sewage treatment plant flow (m3/d): 2000
Conditions and measures related treatment of waste	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	n/a

Section 3	Exposure estimation
3.1 Health	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.
3.2. Environment	The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model.

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

Section 1	Exposure Scenario: Worker
Title	Use in Metal Working Fluids/Rolling Oils - Industrial
Sector of Use	SU3
Process Category	PROC1, PROC2, PROC3, PROC4, PROC5, PROC7, PROC8a, PROC8b, PROC9, PROC10, PROC13, PROC17
Product Category	n/a
Article Category	n/a
Environmental release Category	ERC4
Specific environmental release category	ESVOV SpERC 4.7a.v1
Processes, tasks, activities covered	Covers the use in formulated MWFs/rolling oils including transfer operations, rolling covered by the exposure and annealing activities, cutting/machining activities, automated and manual scenario application of corrosion protections (including brushing, dipping and spraying), equipment maintenance, draining and disposal of waste oils.
Section 2	Operational conditions and risk management measures
Product characteristics	
Physical form of product	Liquid, vapour pressure < 0.5 kPa at STP.
Concentration of substance in product	up to 100%

Hydrocarbons, C9-C12, n-alkanes, isoalkanes, cyclics, aromatics (2-25%): EC: 919-446-0

Other product characteristics	n/a
Section 2.1	Control of worker exposure
Operational conditions	
Amounts used	No limit
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 worker 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	Risk Management Measures
General exposures (closed systems)	No other specific measures identified.
General exposures (open systems)	No other specific measures identified.
Bulk transfers	No other specific measures identified.
Filling/preparation of equipment from drums or containers	No other specific measures identified.
Material storage	No other specific measures identified.
Process sampling	No other specific measures identified.
Metal machining operations	No other specific measures identified.
Treatment by dipping and pouring	No other specific measures identified.
Manual applications e.g. brushing, rolling	No other specific measures identified.
Spraying	Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings.
Automated metal rolling/forming - Operation is carried out at elevated temperature (> 20 °C above ambient temperature).	No other specific measures identified.
Semi-automated metal rolling/forming - Operation is carried out at elevated temperature (> 20 °C above ambient temperature).	No other specific measures identified.
Equipment cleaning and maintenance - Dedicated facility	No other specific measures identified.
Equipment cleaning and maintenance - Non-dedicated facility	No other specific measures identified.

Section 2.2	Control of environmental exposure
Operational conditions	
Contributing scenario	Use in Metal Working Fluids/Rolling Oils
Operational Conditions	
Frequency and duration of use	Emission Days (days/year): 20 - Continuous release
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	Release fraction to air from wide dispersive use (regional only): 0.02 Release fraction to wastewater from process (initial release prior to RMM): 0.0003 Release fraction to soil from process (initial release prior to RMM): 0
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	Risk from environmental exposure is driven by freshwater. No wastewater treatment required. Treat air emission to provide a typical removal efficiency of

Hydrocarbons, C9-C12, n-alkanes, isoalkanes, cyclics, aromatics (2-25%): EC: 919-446-0

	(%):70 Treat on-site wastewater (prior to receiving water discharge) to provide the required removal efficiency of >= (%):0 If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of >= (%):0
Organizational measures to prevent / limit release from site	Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed.
Conditions and measures related to municipal sewage treatment plant	Estimated substance removal from wastewater via domestic sewage treatment (%): 93.7 Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal (kg/d): 6400000 Assumed domestic sewage treatment plant flow (m3/d): 2000
Conditions and measures related treatment of waste	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	n/a

Section 3	Exposure estimation
3.1 Health	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.
3.2. Environment	The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model.

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

Section 1	Exposure Scenario: Worker
Title	Use in Metal Working Fluids/Rolling Oils - Professional
Sector of Use	SU22
Process Category	PROC1, PROC2, PROC3, PROC8a, PROC8b, PROC9, PROC10, PROC11, PROC13, PROC17
Product Category	n/a
Article Category	n/a
Environmental release Category	ERC8a, ERC9a
Specific environmental release category	ESVOV SpERC 8.7c.v1

Hydrocarbons, C9-C12, n-alkanes, isoalkanes, cyclics, aromatics (2-25%): EC: 919-446-0

Processes, tasks, activities covered	Covers the use in formulated MWFs/rolling oils including transfer operations, rolling covered by the exposure and annealing activities, cutting/machining activities, automated and manual scenario application of corrosion protections (including brushing, dipping and spraying), equipment maintenance, draining and disposal of waste oils.
Section 2	Operational conditions and risk management measures
Product characteristics	
Physical form of product	Liquid, vapour pressure < 0.5 kPa at STP.
Concentration of substance in product	up to 100%
Other product characteristics	n/a
Section 2.1	Control of worker exposure
Operational conditions	
Amounts used	No limit
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 worker 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	Risk Management Measures
General exposures (closed systems)	No other specific measures identified.
Bulk transfers	No other specific measures identified.
Filling/preparation of equipment from drums or containers - Dedicated facility	No other specific measures identified.
Filling/preparation of equipment from drums or containers - Non-dedicated facility	No other specific measures identified.
Material storage	No other specific measures identified.
Process sampling	No other specific measures identified.
Metal machining operations	No other specific measures identified.
Treatment by dipping and pouring	No other specific measures identified.
Manual applications e.g. brushing, rolling	No other specific measures identified.
Spraying	Provide enhanced general ventilation by mechanical means.
Equipment cleaning and maintenance - Dedicated facility	No other specific measures identified.
Equipment cleaning and maintenance - Non-dedicated facility	No other specific measures identified.

Section 2.2	Control of environmental exposure
Operational conditions	
Contributing scenario	Use in Metal Working Fluids/Rolling Oils
Operational Conditions	
Frequency and duration of use	Emission Days (days/year): 365 - Continuous release
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	Release fraction to air from wide dispersive use (regional only): 0.015 Release fraction to wastewater from wide dispersive use: 0.05 Release fraction to air from wide dispersive use (regional only): 0.05

Hydrocarbons, C9-C12, n-alkanes, isoalkanes, cyclics, aromatics (2-25%): EC: 919-446-0

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	Risk from environmental exposure is driven by freshwater. No wastewater treatment required. Treat air emission to provide a typical removal efficiency of (%):n/a Treat on-site wastewater (prior to receiving water discharge) to provide the required removal efficiency of >= (%):0 If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of >= (%):0
Organizational measures to prevent / limit release from site	Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed.
Conditions and measures related to municipal sewage treatment plant	Estimated substance removal from wastewater via domestic sewage treatment (%): 93.7 Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal (kg/d): 29 Assumed domestic sewage treatment plant flow (m3/d): 2000
Conditions and measures related treatment of waste	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	n/a

Section 3	Exposure estimation
3.1 Health	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.
3.2. Environment	The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model.

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

Section 1	Exposure Scenario: Worker
Title	Use in Agrochemicals - Professional
Sector of Use	SU22
Process Category	PROC1, PROC2, PROC4, PROC8a, PROC8b, PROC11, PROC13
Product Category	n/a
Article Category	n/a
Environmental release Category	ERC8a, ERC8d
Specific environmental release category	ESVOV SpERC 8.11a.v1

Hydrocarbons, C9-C12, n-alkanes, isoalkanes, cyclics, aromatics (2-25%): EC: 919-446-0

Processes, tasks, activities covered	Use as an agrochemical excipient for application by manual or machine spraying, covered by the exposure smokes and fogging; including equipment clean-downs and disposal. scenario
Section 2	Operational conditions and risk management measures
Product characteristics	
Physical form of product	Liquid, vapour pressure < 0.5 kPa at STP.
Concentration of substance in product	up to 100%
Other product characteristics	n/a
Section 2.1	Control of worker exposure
Operational conditions	
Amounts used	No limit
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 worker 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	Risk Management Measures
Transfer from/pouring from containers	No other specific measures identified.
Mixing in containers	No other specific measures identified.
Spraying/fogging by manual application	Wear a respirator conforming to EN140 with Type A/P2 filter or better. - Apply within a vented cab supplied with filtered air under positive pressure and with a protection factor of >20 (professional use)
Ad hoc manual application via trigger sprays, dipping etc.	No other specific measures identified.
Clean-down and maintenance of equipment	No other specific measures identified.
Disposal. waste	No other specific measures identified.
Material storage	No other specific measures identified.

Section 2.2	Control of environmental exposure
Operational conditions	
Contributing scenario	Use in Agrochemicals
Operational Conditions	
Frequency and duration of use	Emission Days (days/year): 365 - Continuous release
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	Release fraction to air from wide dispersive use (regional only): 0.9 Release fraction to wastewater from wide dispersive use: 0.01 Release fraction to air from wide dispersive use (regional only): 0.09
Technical conditions and measures at process level (source) to prevent release	Common practices vary across sites thus conservative process release estimates used.
Engineering controls	Drain down system prior to equipment break-in or maintenance.
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	Risk from environmental exposure is driven by freshwater. No wastewater treatment required. Treat air emission to provide a typical removal efficiency of (%):n/a

Hydrocarbons, C9-C12, n-alkanes, isoalkanes, cyclics, aromatics (2-25%): EC: 919-446-0

	Treat on-site wastewater (prior to receiving water discharge) to provide the required removal efficiency of >= (%):0 If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of >= (%):0
Organizational measures to prevent / limit release from site	Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed.
Conditions and measures related to municipal sewage treatment plant	Estimated substance removal from wastewater via domestic sewage treatment (%): 93.7 Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal (kg/d): 63 Assumed domestic sewage treatment plant flow (m3/d): 2000
Conditions and measures related treatment of waste	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	n/a

Section 3	Exposure estimation
3.1 Health	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.
3.2. Environment	The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model.

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

Section 1	Exposure Scenario: Worker
Title	Use as a Fuel - Industrial
Sector of Use	SU3
Process Category	PROC1, PROC2, PROC3, PROC8a, PROC8b, PROC16
Product Category	n/a
Article Category	n/a
Environmental release Category	ERC7
Specific environmental release category	ESVOV SpERC 7.12a.v1

Hydrocarbons, C9-C12, n-alkanes, isoalkanes, cyclics, aromatics (2-25%): EC: 919-446-0

Processes, tasks, activities covered	Covers the use as a fuel (or fuel additive) and includes activities associated with its covered by the exposure transfer, use, equipment maintenance and handling of waste.
Section 2	Operational conditions and risk management measures
Product characteristics	
Physical form of product	Liquid, vapour pressure < 0.5 kPa at STP.
Concentration of substance in product	up to 100%
Other product characteristics	n/a
Section 2.1	Control of worker exposure
Operational conditions	
Amounts used	No limit
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 worker 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	Risk Management Measures
General exposures (closed systems)	No other specific measures identified.
Bulk transfers	No other specific measures identified.
Material storage	No other specific measures identified.
Drum/batch transfers	No other specific measures identified.
Use as a fuel - Closed system	No other specific measures identified.
Equipment cleaning and maintenance	No other specific measures identified.
Vessel and container cleaning	No other specific measures identified.

Section 2.2	Control of environmental exposure
Operational conditions	
Contributing scenario	Use as a Fuel
Operational Conditions	
Frequency and duration of use	Emission Days (days/year): 20 - Continuous release
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	Release fraction to air from process (initial release prior to RMM): 0.005 Release fraction to wastewater from process (initial release prior to RMM): 0.00001 Release fraction to soil from process (initial release prior to RMM): 0
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	Risk from environmental exposure is driven by freshwater sediment. No wastewater treatment required. Prevent discharge of undissolved substance to or recover from onsite wastewater. Treat air emission to provide a typical removal efficiency of (%):95 Treat on-site wastewater (prior to receiving water discharge) to provide the required removal efficiency of >= (%):0

Hydrocarbons, C9-C12, n-alkanes, isoalkanes, cyclics, aromatics (2-25%): EC: 919-446-0

	If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of \geq (%):0
Organizational measures to prevent / limit release from site	Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed.
Conditions and measures related to municipal sewage treatment plant	Estimated substance removal from wastewater via domestic sewage treatment (%): 93.7 Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal (kg/d): 1900000 Assumed domestic sewage treatment plant flow (m ³ /d): 2000
Conditions and measures related treatment of waste	Combustion emissions limited by required exhaust emission controls. Combustion emissions considered in regional exposure assessment. 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. - This substance is consumed during use and no waste from the substance is generated.
Other environmental control measures additional to above	n/a

Section 3	Exposure estimation
3.1 Health	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.
3.2. Environment	The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model.

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

Section 1	Exposure Scenario: Worker
Title	Use as a Fuel - Professional
Sector of Use	SU3, SU22
Process Category	PROC1, PROC2, PROC3, PROC8a, PROC8b, PROC16
Product Category	n/a
Article Category	n/a
Environmental release Category	ERC9a, ERC9b
Specific environmental release category	ESVOV SpERC 9.12b.v1

Hydrocarbons, C9-C12, n-alkanes, isoalkanes, cyclics, aromatics (2-25%): EC: 919-446-0

Processes, tasks, activities covered	Covers the use as a fuel (or fuel additive) and includes activities associated with its covered by the exposure transfer, use, equipment maintenance and handling of waste.
Section 2	Operational conditions and risk management measures
Product characteristics	
Physical form of product	Liquid, vapour pressure < 0.5 kPa at STP.
Concentration of substance in product	up to 100%
Other product characteristics	n/a
Section 2.1	Control of worker exposure
Operational conditions	
Amounts used	No limit
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 worker 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	Risk Management Measures
General exposures (closed systems)	No other specific measures identified.
Bulk transfers	No other specific measures identified.
Material storage	No other specific measures identified.
Drum/batch transfers	No other specific measures identified.
Use as a fuel - Closed system	No other specific measures identified.
Equipment cleaning and maintenance	No other specific measures identified.
Vessel and container cleaning	No other specific measures identified.
General exposures	No other specific measures identified.

Section 2.2	Control of environmental exposure
Operational conditions	
Contributing scenario	Use as a Fuel
Operational Conditions	
Frequency and duration of use	Emission Days (days/year): 365 - Continuous release
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	Release fraction to air from process (initial release prior to RMM): 0.0001 Release fraction to wastewater from process (initial release prior to RMM): 0.00001 Release fraction to soil from process (initial release prior to RMM): 0.00001
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	Risk from environmental exposure is driven by freshwater. No wastewater treatment required. Treat air emission to provide a typical removal efficiency of (%):n/a Treat on-site wastewater (prior to receiving water discharge) to provide the required removal efficiency of >= (%):0

Hydrocarbons, C9-C12, n-alkanes, isoalkanes, cyclics, aromatics (2-25%): EC: 919-446-0

	If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of \geq (%):0
Organizational measures to prevent / limit release from site	Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed.
Conditions and measures related to municipal sewage treatment plant	Estimated substance removal from wastewater via domestic sewage treatment (%): 93.7 Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal (kg/d): 170 Assumed domestic sewage treatment plant flow (m ³ /d): 2000
Conditions and measures related treatment of waste	Combustion emissions limited by required exhaust emission controls. Combustion emissions considered in regional exposure assessment. External treatment and disposal of waste should comply with applicable local and/or national regulations.
Conditions and measures related to external recovery of waste	This substance is consumed during use and no waste from the substance is generated.
Other environmental control measures additional to above	n/a

Section 3	Exposure estimation
3.1 Health	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.
3.2. Environment	The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model.

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

Section 1	Exposure Scenario: Worker
Title	Use as Functional Fluids - Industrial
Sector of Use	SU3
Process Category	PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC9
Product Category	n/a
Article Category	n/a
Environmental release Category	ERC7
Specific environmental release category	ESVOV SpERC 7.13a.v1

Hydrocarbons, C9-C12, n-alkanes, isoalkanes, cyclics, aromatics (2-25%): EC: 919-446-0

Processes, tasks, activities covered	Use as functional fluids e.g. cable oils, transfer oils, coolants, insulators, refrigerants, hydraulic fluids in closed industrial equipment including incidental exposures during maintenance and related material transfers
Section 2	Operational conditions and risk management measures
Product characteristics	
Physical form of product	Liquid, vapour pressure < 0.5 kPa at STP.
Concentration of substance in product	up to 100%
Other product characteristics	n/a
Section 2.1	Control of worker exposure
Operational conditions	
Amounts used	No limit
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 worker 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	Risk Management Measures
General exposures (closed systems)	No other specific measures identified.
General exposures (open systems)	No other specific measures identified.
Bulk transfers (Closed system)	No other specific measures identified.
Filling/preparation of equipment from drums or containers	No other specific measures identified.
Material storage	No other specific measures identified.
Remanufacture of reject articles	No other specific measures identified.
Equipment maintenance	No other specific measures identified.
Drum/batch transfers	No other specific measures identified.
Filling of articles/equipment (Closed system)	No other specific measures identified.

Section 2.2	Control of environmental exposure
Operational conditions	
Contributing scenario	Use as Functional Fluids
Operational Conditions	
Frequency and duration of use	Emission Days (days/year): 20 - Continuous release
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	Release fraction to air from process (initial release prior to RMM): 0.000003 Release fraction to wastewater from process (initial release prior to RMM): 0.005 Release fraction to soil from process (initial release prior to RMM): 0.001
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	Risk from environmental exposure is driven by freshwater. No wastewater treatment required. Treat air emission to provide a typical removal efficiency of (%):0 Treat on-site wastewater (prior to receiving water discharge) to provide the required removal efficiency of >= (%):0

Hydrocarbons, C9-C12, n-alkanes, isoalkanes, cyclics, aromatics (2-25%): EC: 919-446-0

	If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of \geq (%):0
Organizational measures to prevent / limit release from site	Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed.
Conditions and measures related to municipal sewage treatment plant	Estimated substance removal from wastewater via domestic sewage treatment (%): 93.7 Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal (kg/d): 570000 Assumed domestic sewage treatment plant flow (m3/d): 2000
Conditions and measures related treatment of waste	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	n/a

Section 3	Exposure estimation
3.1 Health	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.
3.2. Environment	The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model.

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

Section 1	Exposure Scenario: Worker
Title	Distribution of substance - Industrial
Sector of Use	SU3
Process Category	PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC9, PROC15
Product Category	n/a
Article Category	n/a
Environmental release Category	ERC1, ERC2
Specific environmental release category	ESVOV SpERC 1.1b.v1

Hydrocarbons, C9-C12, n-alkanes, isoalkanes, cyclics, aromatics (2-25%): EC: 919-446-0

Processes, tasks, activities covered	Loading (including marine vessel/barge, rail/road car and IBC loading) and repacking covered by the exposure (including drums and small packs) of substance, including its sampling, storage, unloading distribution and associated laboratory activities.
Section 2	Operational conditions and risk management measures
Product characteristics	
Physical form of product	Liquid, vapour pressure < 0.5 kPa at STP.
Concentration of substance in product	up to 100%
Other product characteristics	n/a
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 worker 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	Risk Management Measures
General exposures (closed systems)	No other specific measures identified.
General exposures (open systems)	No other specific measures identified.
Process sampling	No other specific measures identified.
Laboratory activities	No other specific measures identified.
Bulk transfers (closed systems)	No other specific measures identified.
Bulk transfers (open systems)	No other specific measures identified.
Drum and small package filling	No other specific measures identified.
Equipment cleaning and maintenance	No other specific measures identified.
Storage	No other specific measures identified.

Section 2.2	Control of environmental exposure
Operational conditions	
Contributing scenario	Distribution of substance
Operational Conditions	
Frequency and duration of use	Emission Days (days/year): 20 - Continuous release
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	Release fraction to air from process (initial release prior to RMM): 0.001 Release fraction to wastewater from process (initial release prior to RMM): 0.00001 Release fraction to soil from process (initial release prior to RMM): 0.00001
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	Risk from environmental exposure is driven by freshwater. No wastewater treatment required. Treat air emission to provide a typical removal efficiency of (%):90 Treat on-site wastewater (prior to receiving water discharge) to

Hydrocarbons, C9-C12, n-alkanes, isoalkanes, cyclics, aromatics (2-25%): EC: 919-446-0

	provide the required removal efficiency of \geq (%):0 If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of \geq (%):0
Organizational measures to prevent / limit release from site	Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed.
Conditions and measures related to municipal sewage treatment plant	Estimated substance removal from wastewater via domestic sewage treatment (%): 93.7 Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal (kg/d): 210000 Assumed domestic sewage treatment plant flow (m ³ /d): 2000
Conditions and measures related treatment of waste	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	n/a

Section 3	Exposure estimation
3.1 Health	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.
3.2. Environment	The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model.

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

Section 1	Exposure Scenario: Worker
Title	Manufacture of substance - Industrial
Sector of Use	SU3
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	ESVOV SpERC 1.1.v1

Hydrocarbons, C9-C12, n-alkanes, isoalkanes, cyclics, aromatics (2-25%): EC: 919-446-0

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 characteristics	
Physical form of product	Liquid, vapour pressure < 0.5 kPa at STP.
Concentration of substance in product	up to 100%
Other product characteristics	n/a
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 worker 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	Risk Management Measures
General exposures (closed systems)	No other specific measures identified.
General exposures (open systems)	No other specific measures identified.
Process sampling	No other specific measures identified.
Laboratory activities	No other specific measures identified.
Bulk transfers	No other specific measures identified.
Equipment cleaning and maintenance	No other specific measures identified.
Storage	No other specific measures identified.

Section 2.2	Control of environmental exposure
Operational conditions	
Contributing scenario	Manufacture of substance
Operational Conditions	
Frequency and duration of use	Emission Days (days/year): 300 - Continuous release
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	Release fraction to air from process (initial release prior to RMM): 1.0e-2 Release fraction to wastewater from process (initial release prior to RMM): 3.0e-4 Release fraction to soil from process (initial release prior to RMM): 0.0001
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	Risk from environmental exposure is driven by freshwater sediment. Prevent discharge of undissolved substance to or recover from onsite wastewater. No wastewater treatment required. Treat air emission to provide a typical removal efficiency of (%):90 Treat on-site wastewater (prior to receiving water discharge) to

Hydrocarbons, C9-C12, n-alkanes, isoalkanes, cyclics, aromatics (2-25%): EC: 919-446-0

	provide the required removal efficiency of \geq (%):0 If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of \geq (%):0
Organizational measures to prevent / limit release from site	Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed.
Conditions and measures related to municipal sewage treatment plant	Estimated substance removal from wastewater via domestic sewage treatment (%): 93.7 Total efficiency of removal from wastewater after on-site and off-site (domestic treatment plant) RMMs (%):93.7 Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal (kg/d): 3200000 Assumed domestic sewage treatment plant flow (m3/d): 10000
Conditions and measures related treatment of waste	During manufacturing, no waste of the substance is generated. External treatment and disposal of waste should comply with applicable local and/or national regulations.
Conditions and measures related to external recovery of waste	During manufacturing, no waste of the substance is generated. External recovery and recycling of waste should comply with applicable local and/or national regulations.
Other environmental control measures additional to above	n/a

Section 3	Exposure estimation
3.1 Health	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.
3.2. Environment	The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model.

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

Section 1	Exposure Scenario: Worker
Title	Formulation and (re)packing of substances and mixtures - Industrial
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

Hydrocarbons, C9-C12, n-alkanes, isoalkanes, cyclics, aromatics (2-25%): EC: 919-446-0

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 characteristics	
Physical form of product	Liquid, vapour pressure < 0.5 kPa at STP.
Concentration of substance in product	up to 100%
Other product characteristics	n/a
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 worker 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	Risk Management Measures
General exposures (closed systems)	No other specific measures identified.
General exposures (open systems)	No other specific measures identified.
Process sampling	No other specific measures identified.
Batch process, elevated temperature Operation is carried out at elevated temperature (> 20°C above ambient temperature).	No other specific measures identified.
Laboratory activities	No other specific measures identified.
Bulk transfers	No other specific measures identified.
Mixing operations (open systems)	No other specific measures identified.
Manual-Transfer from/pouring from containers	No other specific measures identified.
Drum/batch transfers	No other specific measures identified.
Production of preparation or articles by tableting, compression, extrusion or pelletisation	No other specific measures identified.
Drum and small package filling	No other specific measures identified.
Equipment cleaning and maintenance	No other specific measures identified.
Storage	No other specific measures identified.

Section 2.2	Control of environmental exposure
Operational conditions	
Contributing scenario	Formulation and (re)packing of substances and mixtures
Operational Conditions	
Frequency and duration of use	Emission Days (days/year): 300 - Continuous release
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	Release fraction to air from process (after typical onsite RMMS consistent with EU conditions of use affecting Solvent Emissions Directive requirements):1.0e-2

Hydrocarbons, C9-C12, n-alkanes, isoalkanes, cyclics, aromatics (2-25%): EC: 919-446-0

	Release fraction to wastewater from process (initial release prior to RMM):0.002 Release fraction to soil from process (initial release prior to RMM):0.0001
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	Risk from environmental exposure is driven by freshwater sediment. Prevent discharge of undissolved substance to or recover from onsite wastewater. No wastewater treatment required. Treat air emission to provide a typical removal efficiency of (%):0 Treat on-site wastewater (prior to receiving water discharge) to provide the required removal efficiency of >= (%):0 If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of >= (%):0
Organizational measures to prevent / limit release from site	Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed.
Conditions and measures related to municipal sewage treatment plant	Estimated substance removal from wastewater via domestic sewage treatment (%): 93.7 Total efficiency of removal from wastewater after on-site and off-site (domestic treatment plant) RMMs (%):93.7 Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal (kg/d): 950000 Assumed domestic sewage treatment plant flow (m3/d): 2000
Conditions and measures related treatment of waste	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	n/a

Section 3	Exposure estimation
3.1 Health	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.
3.2. Environment	The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model.

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

Section 1	Exposure Scenario: Worker
Title	Uses in Coatings - Industrial
Sector of Use	SU3

Hydrocarbons, C9-C12, n-alkanes, isoalkanes, cyclics, aromatics (2-25%): EC: 919-446-0

Process Category	PROC01, PROC02, PROC03, PROC04, PROC05, PROC07, PROC08a, PROC08b, PROC09, PROC10, PROC13, PROC15
Product Category	n/a
Article Category	n/a
Environmental release Category	ERC4
Specific environmental release category	ESVOC SpERC 4.3a.v1
Processes, tasks, activities covered	Covers the use in coatings (paints, inks, adhesives, etc) within closed or contained systems including incidental exposures during use (including materials receipt, storage, preparation and transfer from bulk and semi-bulk, application activities and film formation) and equipment cleaning, maintenance and associated laboratory activities.
Section 2	Operational conditions and risk management measures
Product characteristics	
Physical form of product	Liquid, vapour pressure < 0.5 kPa at STP.
Concentration of substance in product	up to 100%
Other product characteristics	n/a
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 worker 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	Risk Management Measures
General exposures (closed systems)	No other specific measures identified.
General exposures (closed systems) with sample collection	No other specific measures identified.
Film formation - force drying (50 - 100°C). Stoving (>100°C). UV/EB radiation curing	No other specific measures identified.
Mixing operations (closed systems)	No other specific measures identified.
Film formation - air drying	No other specific measures identified.
Preparation of material for application Mixing operations (open systems)	No other specific measures identified.
Spraying (automatic/robotic)	Carry out in a vented booth or extracted enclosure.
Spraying/fogging by manual application	Provide enhanced general ventilation by mechanical means.
Material transfers	No other specific measures identified.
Roller, spreader, flow application	No other specific measures identified.
Dipping, immersion and pouring	No other specific measures identified.
Laboratory activities	No other specific measures identified.
Material transfers Drum/batch transfers Transfer from/pouring from containers	No other specific measures identified.
Production of preparation or articles by tableting, compression, extrusion or pelletisation	No other specific measures identified.

Section 2.2	Control of environmental exposure
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Hydrocarbons, C9-C12, n-alkanes, isoalkanes, cyclics, aromatics (2-25%): EC: 919-446-0

Operational conditions	
Contributing scenario	Uses in Coatings
Operational Conditions	
Frequency and duration of use	Emission Days (days/year): 100 - Continuous release
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	Release fraction to air from process (initial release prior to RMM): 0.98 Release fraction to wastewater from process (initial release prior to RMM): 0.007 Release fraction to soil from process (initial release prior to RMM): 0
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	Risk from environmental exposure is driven by freshwater sediment. Prevent discharge of undissolved substance to or recover from onsite wastewater. If discharging to domestic sewage treatment plant, no onsite wastewater treatment required. Treat air emission to provide a typical removal efficiency of (%):90 Treat on-site wastewater (prior to receiving water discharge) to provide the required removal efficiency of >= (%):59.8 If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of >= (%):0
Organizational measures to prevent / limit release from site	Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed.
Conditions and measures related to municipal sewage treatment plant	Estimated substance removal from wastewater via domestic sewage treatment (%): 93.7 Total efficiency of removal from wastewater after on-site and off-site (domestic treatment plant) RMMs (%):93.7 Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal (kg/d): 270000 Assumed domestic sewage treatment plant flow (m3/d): 2000
Conditions and measures related treatment of waste	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	n/a

Section 3	Exposure estimation
3.1 Health	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.
3.2. Environment	The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model.

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

Hydrocarbons, C9-C12, n-alkanes, isoalkanes, cyclics, aromatics (2-25%): EC: 919-446-0

	Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination. Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html).
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Section 1	Exposure Scenario: Worker	
Title	Use as Functional Fluids - Professional	
Sector of Use	SU22	
Process Category	PROC01, PROC02, PROC03, PROC08a, PROC09, PROC20	
Product Category	n/a	
Article Category	n/a	
Environmental release Category	ERC09a, ERC09b	
Specific environmental release category	ESVOC SpERC 9.13b	
Processes, tasks, activities covered	Use as functional fluids e.g. cable oils, transfer oils, insulators, refrigerants, hydraulic fluids in closed professional equipment including incidental exposures during maintenance and related material transfers.	
Section 2	Operational conditions and risk management measures	
Product characteristics		
Physical form of product	Liquid, vapour pressure < 0.5 kPa at STP.	
Concentration of substance in product	up to 100%	
Other product characteristics	n/a	
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 worker 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	Risk Management Measures	
General exposures (closed systems)	No other specific measures identified.	
General exposures (open systems)	No other specific measures identified.	
General exposures (open systems) Operation is carried out at elevated temperature (> 20°C above ambient temperature).	No other specific measures identified.	
Filling/preparation of equipment from drums or containers	No other specific measures identified.	
Transfer from/pouring from containers	No other specific measures identified.	
Material storage	No other specific measures identified.	
Equipment maintenance	No other specific measures identified.	
Remanufacture of reject articles	No other specific measures identified.	
Drum/batch transfers	No other specific measures identified.	

Hydrocarbons, C9-C12, n-alkanes, isoalkanes, cyclics, aromatics (2-25%): EC: 919-446-0

Section 2.2	Control of environmental exposure
Operational conditions	
Contributing scenario	Use as Functional Fluids
Operational Conditions	
Frequency and duration of use	Emission Days (days/year): 365 - Continuous release
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	Release fraction to air from wide dispersive use (regional only): 0.05 Release fraction to wastewater from wide dispersive use: 0.025 Release fraction to soil from wide dispersive use (regional only): 0.025
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	Risk from environmental exposure is driven by freshwater. No wastewater treatment required. Treat air emission to provide a typical removal efficiency of (%):n/a Treat on-site wastewater (prior to receiving water discharge) to provide the required removal efficiency of >= (%):0 If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of >= (%):0
Organizational measures to prevent / limit release from site	Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed.
Conditions and measures related to municipal sewage treatment plant	Estimated substance removal from wastewater via domestic sewage treatment (%): 93.7 Total efficiency of removal from wastewater after on-site and off-site (domestic treatment plant) RMMs (%):93.7 Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal (kg/d): 140 Assumed domestic sewage treatment plant flow (m3/d): 2000
Conditions and measures related treatment of waste	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	n/a

Section 3	Exposure estimation
3.1 Health	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.
3.2. Environment	The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model.

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

Hydrocarbons, C9-C12, n-alkanes, isoalkanes, cyclics, aromatics (2-25%): EC: 919-446-0

	either alone or in combination. Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html).
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Section 1	Exposure Scenario: Worker	
Title	Use in Laboratories - Professional	
Sector of Use	SU22	
Process Category	PROC10, PROC15	
Product Category	n/a	
Article Category	n/a	
Environmental release Category	ERC8a	
Specific environmental release category	SVOC SpERC 8.17	
Processes, tasks, activities covered	Use of the substance within laboratory settings, including material transfers and equipment cleaning.	
Section 2	Operational conditions and risk management measures	
Product characteristics		
Physical form of product	Liquid, vapour pressure < 0.5 kPa at STP.	
Concentration of substance in product	up to 100%	
Other product characteristics	n/a	
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 worker 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	Risk Management Measures	
Laboratory activities	No other specific measures identified.	
Cleaning	No other specific measures identified.	

Section 2.2	Control of environmental exposure
Operational conditions	
Contributing scenario	Use in Laboratories
Operational Conditions	
Frequency and duration of use	Emission Days (days/year): 365 - Continuous release
Environmental factors not influenced by risk management	
Local freshwater dilution factor:	10

Hydrocarbons, C9-C12, n-alkanes, isoalkanes, cyclics, aromatics (2-25%): EC: 919-446-0

Local marine water dilution factor:	100
Other Operational Conditions of use affecting environmental exposure	Release fraction to air from wide dispersive use (regional only): 0.5 Release fraction to wastewater from wide dispersive use: 0.5 Release fraction to soil from wide dispersive use (regional only): 0
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	Risk from environmental exposure is driven by freshwater. No wastewater treatment required. Treat air emission to provide a typical removal efficiency of (%):0 Treat on-site wastewater (prior to receiving water discharge) to provide the required removal efficiency of >= (%):0 If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of >= (%):0
Organizational measures to prevent / limit release from site	Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed.
Conditions and measures related to municipal sewage treatment plant	Estimated substance removal from wastewater via domestic sewage treatment (%): 93.7 Total efficiency of removal from wastewater after on-site and off-site (domestic treatment plant) RMMs (%):93.7 Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal (kg/d): 0.017 Assumed domestic sewage treatment plant flow (m3/d): 2000
Conditions and measures related treatment of waste	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	n/a

Section 3	Exposure estimation
3.1 Health	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.
3.2. Environment	The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model.

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

Section 1	Exposure Scenario: Worker
Title	Uses Road and construction applications - Professional
Sector of Use	SU22

Hydrocarbons, C9-C12, n-alkanes, isoalkanes, cyclics, aromatics (2-25%): EC: 919-446-0

Process Category	ROC08a, PROC08b, PROC11, PROC13, PROC10
Product Category	n/a
Article Category	n/a
Environmental release Category	ERC08d, ERC08f
Specific environmental release category	ESVOC SpERC 8.15.v1
Processes, tasks, activities covered	Application of surface coatings and binders in road and construction activities, including paving uses, manual mastic and in the application of roofing and water-proofing membranes.
Section 2	Operational conditions and risk management measures
Product characteristics	
Physical form of product	Liquid, vapour pressure < 0.5 kPa at STP.
Concentration of substance in product	up to 100%
Other product characteristics	n/a
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 worker 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	Risk Management Measures
Drum/batch transfers - Non-dedicated facility	No other specific measures identified.
Drum/batch transfers - Dedicated facility	No other specific measures identified.
Spraying/fogging by machine application - Operation is carried out at elevated temperature (> 20°C above ambient temperature).	Wear a respirator conforming to EN140 with Type A/P2 filter or better.
Manual applications e.g. brushing, rolling	No other specific measures identified.
Drum/batch transfers - Dedicated facility - Operation is carried out at elevated temperature (> 20°C above ambient temperature).	No other specific measures identified.
Spraying/fogging by machine application	Wear a respirator conforming to EN140 with Type A/P2 filter or better.
Dipping, immersion and pouring	No other specific measures identified.
Equipment cleaning and maintenance	No other specific measures identified.

Section 2.2	Control of environmental exposure
Operational conditions	
Contributing scenario	Uses Road and construction applications
Operational Conditions	
Frequency and duration of use	Emission Days (days/year): 365 - Continuous release
Environmental factors not influenced by risk management	
Local freshwater dilution factor:	10
Local marine water dilution factor:	100

Hydrocarbons, C9-C12, n-alkanes, isoalkanes, cyclics, aromatics (2-25%): EC: 919-446-0

Other Operational Conditions of use affecting environmental exposure	Release fraction to air from wide dispersive use (regional only): 0.95 Release fraction to wastewater from wide dispersive use: 0.01 Release fraction to soil from wide dispersive use (regional only): 0.04
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	Risk from environmental exposure is driven by freshwater. No wastewater treatment required. Treat air emission to provide a typical removal efficiency of (%):n/a Treat on-site wastewater (prior to receiving water discharge) to provide the required removal efficiency of >= (%):0 If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of >= (%):0
Organizational measures to prevent / limit release from site	Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed.
Conditions and measures related to municipal sewage treatment plant	Estimated substance removal from wastewater via domestic sewage treatment (%): 93.7 Total efficiency of removal from wastewater after on-site and off-site (domestic treatment plant) RMMs (%):93.7 Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal (kg/d): 270 Assumed domestic sewage treatment plant flow (m3/d): 2000
Conditions and measures related treatment of waste	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	n/a

Section 3	Exposure estimation
3.1 Health	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.
3.2. Environment	The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrорisk model.

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

Section 1	Exposure Scenario: Worker
Title	Use in Laboratories - Industrial
Sector of Use	SU3

Hydrocarbons, C9-C12, n-alkanes, isoalkanes, cyclics, aromatics (2-25%): EC: 919-446-0

Process Category	PROC10, PROC15
Product Category	n/a
Article Category	n/a
Environmental release Category	ERC2, ERC4
Specific environmental release category	n/a
Processes, tasks, activities covered	Use of the substance within laboratory settings, including material transfers and equipment cleaning.
Section 2	Operational conditions and risk management measures
Product characteristics	
Physical form of product	Liquid, vapour pressure < 0.5 kPa at STP.
Concentration of substance in product	up to 100%
Other product characteristics	n/a
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).
Engineering controls	Drain down system prior to equipment break-in or maintenance.
Human factors not influenced by risk management	n/a
Other Operational Conditions affecting worker 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	Risk Management Measures
Laboratory activities	No other specific measures identified.
Cleaning	No other specific measures identified.

Section 2.2	Control of environmental exposure
Operational conditions	
Contributing scenario	Use in Laboratories
Operational Conditions	
Frequency and duration of use	Emission Days (days/year): 20 - Continuous release
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	Release fraction to air from process (initial release prior to RMM): 0.025 Release fraction to wastewater from process (initial release prior to RMM): 0.02 Release fraction to soil from process (initial release prior to RMM): 0.0001
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	Risk from environmental exposure is driven by freshwater. No wastewater treatment required. Treat air emission to provide a typical removal efficiency of (%):0 Treat on-site wastewater (prior to receiving water discharge) to

Hydrocarbons, C9-C12, n-alkanes, isoalkanes, cyclics, aromatics (2-25%): EC: 919-446-0

	provide the required removal efficiency of \geq (%):0 If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of \geq (%):0
Organizational measures to prevent / limit release from site	Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed.
Conditions and measures related to municipal sewage treatment plant	Estimated substance removal from wastewater via domestic sewage treatment (%): 93.7 Total efficiency of removal from wastewater after on-site and off-site (domestic treatment plant) RMMs (%):93.7 Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal (kg/d): 390 Assumed domestic sewage treatment plant flow (m ³ /d): 2000
Conditions and measures related treatment of waste	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	n/a

Section 3	Exposure estimation
3.1 Health	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.
3.2. Environment	The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model.

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