

Safety Data Sheet

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING**1.1 Product Identifier**

Material Name : **IPA**
Product Code : S1111
Other Identifier : Dimethyl carbinol, Propanol, sec-, Isopropanol, Propyl alcohol, sec-, IPA, propan-2-ol
REACH Registration No. : 01-2119457558-25-0002, 01-2119457558-25-0001

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

Product use : Please refer to Ch16 and/or the annexes for the registered uses under REACH.

1.3 Details of the Supplier of the safety data sheet

Manufacturer/Supplier : **Shell Chemicals Europe B.V.**
PO Box 2334
3000 CH Rotterdam
Netherlands

Telephone : +31 (0)10 441 5137 / +31 (0)10 441 5191
Fax : +31 (0)20 716 8316 / +31 (0)20 713 9230
Email contact for MSDS : sccmsds@shell.com

1.4 Emergency Telephone Number

: +44 (0) 1235 239 670

2. HAZARDS IDENTIFICATION**2.1 Classification of the substance or mixture**

Regulation (EC) No 1272/2008 (CLP)	
Hazard Class & Category	Hazard statement
Flammable liquids, Category 2	H225
Serious eye damage/eye irritation, Category 2	H319
Specific target organ toxicity - single exposure, Category 3; Narcotic effects.	H336

67/548/EEC or 1999/45/EC	
Hazard characteristics	R-phrases
Highly flammable. Irritant.	R11, R36, R67

Safety Data Sheet**2.2 Label Elements**

Label Name : ISOPROPYL ALCOHOL
EC Number : 200-661-7
EC Annex I Number : 603-117-00-0

Labeling according to Regulation (EC) No 1272/2008

Symbol(s) :  

Signal Words : Danger

CLP Hazard statements : PHYSICAL HAZARDS:
H225: Highly flammable liquid and vapor.
HEALTH HAZARDS:
H319: Causes serious eye irritation.
H336: May cause drowsiness or dizziness.
ENVIRONMENTAL HAZARDS:
Not classified as environmental hazard according to CLP criteria.

CLP Precautionary statements

Prevention : P210: Keep away from heat/sparks/open flames/hot surfaces. - No smoking.

Response : P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P301+P310: IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.

Storage : P403+P235: Store in a well-ventilated place. Keep cool.
P233: Keep container tightly closed.
P405: Store locked up.

Disposal: : P501: Dispose of contents and container to appropriate waste site or reclaimer in accordance with local and national regulations.

Labeling according to Directive 1999/45/EC

EC Symbols : F Highly flammable.
Xi Irritant.

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EC Classification : Highly flammable. Irritant.
EC Risk Phrases : R11 Highly flammable.
R36 Irritating to eyes.
R67 Vapours may cause drowsiness and dizziness.
EC Safety Phrases : S2 Keep out of the reach of children.
S7 Keep container tightly closed.
S16 Keep away from sources of ignition - No smoking.
S24/25 Avoid contact with skin and eyes.
S26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

2.3 Other Hazards

Health Hazards : Vapours may cause drowsiness and dizziness. Slightly irritating to respiratory system. Repeated exposure may cause skin dryness or cracking. Irritating to eyes.
Aggravated Medical Condition : Pre-existing medical conditions of the following organ(s) or organ system(s) may be aggravated by exposure to this material: Eyes. Skin. Respiratory system.
Safety Hazards : Highly flammable. Vapours are heavier than air. Vapours may travel across the ground and reach remote ignition sources causing a flashback fire danger. Electrostatic charges may be generated during pumping. Electrostatic discharge may cause fire.
Other Information : For Industry guidance and tools on REACH please visit the CEFIC website at <http://cefic.org/Industry-support>.

3. COMPOSITION/INFORMATION ON INGREDIENTS**3.1 Substance**

Material Formal Name : Propan-2-ol
Synonyms : Dimethyl carbinol
Propanol, sec-
Isopropanol
Propyl alcohol, sec-
IPA
propan-2-ol
CAS No. : 67-63-0
INDEX No. : 603-117-00-0
EC Number : 200-661-7

3.2 Mixtures**Hazardous Components****Classification of components according to Regulation (EC) No 1272/2008**

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Chemical Name	CAS No.	EINECS	REACH Registration No.	Conc.
Isopropyl Alcohol	67-63-0	200-661-7	01-2119457558-25	100.00%

Chemical Name	Hazard Class & Category	Hazard statement
Isopropyl Alcohol	Flam. Liq., 2; Eye Dam., 2A; STOT SE, 3;	H225, H319, H336,

Classification of components according to 67/548/EEC

Chemical Name	CAS	EINECS	REACH Registration No.	Symbol(s)	R-phrase(s)	Conc.
Isopropyl Alcohol	67-63-0	200-661-7	01-2119457558-25	F, Xi	R11; R36; R67	100.00 %

4. FIRST AID MEASURES
4.1 Description of first aid measures

- Inhalation** : Remove to fresh air. If rapid recovery does not occur, transport to nearest medical facility for additional treatment.
- Skin Contact** : Remove contaminated clothing. Flush exposed area with water and follow by washing with soap if available.
- Eye Contact** : Immediately flush eyes with large amounts of water for at least 15 minutes while holding eyelids open. Transport to the nearest medical facility for additional treatment.
- Ingestion** : If swallowed, do not induce vomiting: transport to nearest medical facility for additional treatment. If vomiting occurs spontaneously, keep head below hips to prevent aspiration. If any of the following delayed signs and symptoms appear within the next 6 hours, transport to the nearest medical facility: fever greater than 101° F (38.3° C), shortness of breath, chest congestion or continued coughing or wheezing. If vomiting occurs spontaneously, keep head below hips to prevent aspiration. Give nothing by mouth. Do not induce vomiting.

4.2 Most important symptoms and effects, both acute and delayed

- : Eye irritation signs and symptoms may include a burning sensation, redness, swelling, and/or blurred vision. Defatting dermatitis signs and symptoms may include a burning sensation and/or a dried/cracked appearance. Other signs and symptoms of central nervous system (CNS) depression may include headache, nausea, and lack of coordination. Respiratory irritation signs and symptoms may include a temporary burning sensation of the nose and throat, coughing, and/or difficulty breathing.

4.3 Indication of any immediate medical attention and special treatment needed

- : Causes central nervous system depression. Call a doctor or poison control center for guidance.

5. FIRE FIGHTING MEASURES

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Clear fire area of all non-emergency personnel.

- 5.1 Extinguishing Media** : Alcohol-resistant foam, water spray or fog. Dry chemical powder, carbon dioxide, sand or earth may be used for small fires only. Do not discharge extinguishing waters into the aquatic environment.
- Unsuitable Extinguishing Media** : Do not use water in a jet.
- 5.2 Special hazards arising from the substance or mixture** : Carbon monoxide may be evolved if incomplete combustion occurs. The vapour is heavier than air, spreads along the ground and distant ignition is possible.
- 5.3 Advice for fire-fighters** : Wear full protective clothing and self-contained breathing apparatus.
- Additional Information** : Keep adjacent containers cool by spraying with water.

6. ACCIDENTAL RELEASE MEASURES

Observe all relevant local and international regulations.

- 6.1 Personal Precautions, Protective Equipment and Emergency Procedures** : Avoid contact with spilled or released material. Immediately remove all contaminated clothing. For guidance on selection of personal protective equipment see Chapter 8 of this Material Safety Data Sheet. For guidance on disposal of spilled material see Chapter 13 of this Material Safety Data Sheet.
- 6.2 Environmental Precautions** : Shut off leaks, if possible without personal risks. Remove all possible sources of ignition in the surrounding area. Use appropriate containment (of product and fire fighting water) to avoid environmental contamination. Prevent from spreading or entering drains, ditches or rivers by using sand, earth, or other appropriate barriers. Attempt to disperse the vapour or to direct its flow to a safe location for example by using fog sprays. Take precautionary measures against static discharge. Ensure electrical continuity by bonding and grounding (earthing) all equipment. Monitor area with combustible gas indicator.
- 6.3 Methods and Material for Containment and Cleaning up** : For large liquid spills (> 1 drum), transfer by mechanical means such as vacuum truck to a salvage tank for recovery or safe disposal. Do not flush away residues with water. Retain as contaminated waste. Allow residues to evaporate or soak up with an appropriate absorbent material and dispose of safely. Remove contaminated soil and dispose of safely. For small liquid spills (< 1 drum), transfer by mechanical means to a labelled, sealable container for product recovery or safe disposal. Allow residues to evaporate or soak up with an appropriate absorbent material and dispose of safely. Remove contaminated soil and dispose of safely.
- Additional Advice** : See Chapter 13 for information on disposal. Notify authorities if any exposure to the general public or the environment occurs or is likely to occur. Vapour may form an explosive mixture with air.

7. HANDLING AND STORAGE

- General Precautions** : Avoid breathing vapours or contact with material. Only use in well ventilated areas. Wash thoroughly after handling. On

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- guidance on selection of personal protective equipment see Chapter 8 of this Material Safety Data Sheet. Use the information in this data sheet as input to a risk assessment of local circumstances to help determine appropriate controls for safe handling, storage and disposal of this material.
- 7.1 Precautions for Safe Handling** : Electrostatic charges may be generated during pumping. Electrostatic discharge may cause fire. Ensure electrical continuity by bonding and grounding (earthing) all equipment. Restrict line velocity during pumping in order to avoid generation of electrostatic discharge (≤ 10 m/sec). Avoid splash filling. Do NOT use compressed air for filling, discharging, or handling operations. Extinguish any naked flames. Do not smoke. Remove ignition sources. Avoid sparks. Handling Temperature: Ambient.
- 7.2 Conditions for safe storage, including any incompatibilities** : Keep away from aerosols, flammables, oxidizing agents, corrosives and from products harmful or toxic to man or to the environment. Must be stored in a well-ventilated area, away from sunlight, ignition sources and other sources of heat. Storage Temperature: Ambient.
- 7.3 Specific end use(s)** : Please refer to Ch16 and/or the annexes for the registered uses under REACH.
- Product Transfer** : Keep containers closed when not in use. Do not use compressed air for filling, discharging or handling.
- Recommended Materials** : For container paints, use epoxy paint, zinc silicate paint. For containers, or container linings use mild steel, stainless steel.
- Unsuitable Materials** : Aluminium if > 50 °C. Most plastics. Neoprene rubber.
- Container Advice** : Containers, even those that have been emptied, can contain explosive vapours. Do not cut, drill, grind, weld or perform similar operations on or near containers.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

If the American Conference of Governmental Industrial Hygienists (ACGIH) value is provided on this document, it is provided for information only.

8.1 Control Parameters
Occupational Exposure Limits

Material	Source	Type	ppm	mg/m3	Notation
Isopropyl Alcohol	EH40 WEL	TWA	400 ppm	999 mg/m3	
		STEL	500 ppm	1,250 mg/m3	
	ACGIH	TWA	200 ppm		
	ACGIH	STEL	400 ppm		

Additional Information : Wash hands before eating, drinking, smoking and using the toilet.

Biological Exposure Index (BEI)

Material	Determinant	Sampling time	BEI	Reference
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Isopropyl Alcohol	acetone in Urine	Sampling time: End of shift at end of work week.	40 mg/l	ACGIH BEL (2008)
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Derived No Effect Levels (DNEL/DMEL) Table

Component	Exposure Route	Exposure Type (long/short)	Application Area	Value
Isopropyl Alcohol	Dermal	long term, systemic effects	Worker	888mg/kg
	Inhalation	long term, systemic effects	Worker	500 mg/m3
	Dermal	long term, systemic effects	Consumer	319mg/kg
	Inhalation	long term, systemic effects	Consumer	89 mg/m3
	Oral	long term, systemic effects	Consumer	26mg/kg

Predicted No Effect Concentration (PNEC)

Component	Exposure Route	Value	Remark
Isopropyl Alcohol			Exposure assessments have not been presented for the environment therefore PNEC values not required.

8.2 Exposure Controls

General Information : Read in conjunction with the Exposure Scenario for your specific use contained in the Annex.

The level of protection and types of controls necessary will vary depending upon potential exposure conditions. Select controls based on a risk assessment of local circumstances. Appropriate measures include: Adequate explosion-proof ventilation to control airborne concentrations below the exposure guidelines/limits. Eye washes and showers for emergency use.

Occupational Exposure Controls

Personal Protective Equipment : Personal protective equipment (PPE) should meet recommended national standards. Check with PPE suppliers.

Eye Protection : Chemical splash goggles (chemical monogoggles). Monogoggles (EN166)

Hand Protection : Where hand contact with the product may occur the use of gloves approved to relevant standards (e.g. Europe: EN374, US: F739, AS/NZS:2161) made from the following materials may provide suitable chemical protection:
 Longer term protection: Natural rubber. Butyl rubber. Incidental contact/Splash protection: Neoprene rubber. Viton. Suitability and durability of a glove is dependent on usage, e.g. frequency and duration of contact, chemical resistance of glove material,

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- glove thickness, dexterity. Always seek advice from glove suppliers. Contaminated gloves should be replaced. Personal hygiene is a key element of effective hand care. Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturizer is recommended.
- Body protection** : Use protective clothing which is chemical resistant to this material. Safety shoes and boots should also be chemical resistant.
- Respiratory Protection** : If engineering controls do not maintain airborne concentrations to a level which is adequate to protect worker health, select respiratory protection equipment suitable for the specific conditions of use and meeting relevant legislation. Check with respiratory protective equipment suppliers. Where air-filtering respirators are suitable, select an appropriate combination of mask and filter. Select a filter suitable for organic gases and vapours [boiling point >65 °C (149 °F)] meeting EN14387. Where air-filtering respirators are unsuitable (e.g., airborne concentrations are high, risk of oxygen deficiency, confined space) use appropriate positive pressure breathing apparatus.
- Thermal hazards** : Not applicable
- Monitoring Methods** : Monitoring of the concentration of substances in the breathing zone of workers or in the general workplace may be required to confirm compliance with an OEL and adequacy of exposure controls. For some substances biological monitoring may also be appropriate. Examples of sources of recommended air monitoring methods are given below or contact supplier. Further national methods may be available. National Institute of Occupational Safety and Health (NIOSH), USA: Manual of Analytical Methods, <http://www.cdc.gov/niosh/nmam/nmammenu.html>. Occupational Safety and Health Administration (OSHA), USA: Sampling and Analytical Methods <http://www.osha.gov/dts/sltc/methods/toc.html> Health and Safety Executive (HSE), UK: Methods for the Determination of Hazardous Substances, <http://www.hsl.gov.uk/publications/mdhs.aspx>.
- Environmental Exposure Controls**
- Environmental exposure control measures** : Local guidelines on emission limits for volatile substances must be observed for the discharge of exhaust air containing vapour.

9. PHYSICAL AND CHEMICAL PROPERTIES**9.1 Information on basic physical and chemical properties**

- Appearance : Clear. Liquid.
Odour : Characteristic.
Odour threshold : ca. 30 ppm
Data not available.
pH : Not applicable

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Boiling point	: 82 - 83 °C / 180 - 181 °F
Melting / freezing point	: -88 °C / -126 °F
Flash point	: 12 °C / 54 °F (Abel)
Explosion / Flammability limits in air	: 2 - 12 %(V)
Auto-ignition temperature	: 425 °C / 797 °F (ASTM D-2155)
Vapour pressure	: 6,020 Pa at 20 °C / 68 °F
Specific gravity	: 0.78 - 0.79 at 20 °C / 68 °F
Density	: 785 - 786 kg/m ³ at 20 °C / 68 °F (ASTM D-4052)
Water solubility	: Completely miscible.
Solubility in other solvents	: Chloroform Miscible. Alcohol(s) Miscible. Ether(s) Miscible. Readily soluble in various organic solvents.
n-octanol/water partition coefficient (log Pow)	: 0.05
Dynamic viscosity	: 2.43 mPa.s
Kinematic viscosity	: Data not available.
Vapour density (air=1)	: 2 at 20 °C / 68 °F
Electrical conductivity	: 6 µS/m at 20 °C / 68 °F (ASTM D-4308)
Evaporation rate (nBuAc=1)	: 1.5 (ASTM D 3539, nBuAc=1)
Surface tension	: 22.7 mN/m at 20 °C / 68 °F
Molecular weight	: 60.1 g/mol
Hygroscopicity	: Completely miscible.
Decomposition temperature	: Not applicable

9.2 Other Information

Volatile organic carbon content	: 59.9 % (EC/1999/13)
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10. STABILITY AND REACTIVITY

10.1 Reactivity	: Reacts with strong oxidising agents.
10.2 Stability	: Stable under normal conditions of use. Reacts with strong oxidising agents. Reacts with strong acids.
10.3 Possibility of Hazardous Reactions	: Data not available.
10.4 Conditions to Avoid	: Avoid heat, sparks, open flames and other ignition sources.
10.5 Incompatible Materials	: Strong oxidising agents. Strong acids.
10.6 Hazardous Decomposition Products	: Thermal decomposition is highly dependent on conditions. A complex mixture of airborne solids, liquids and gases, including carbon monoxide, carbon dioxide and other organic compounds will be evolved when this material undergoes combustion or thermal or oxidative degradation.

Other Information

Hazardous Polymerisation	: No, hazardous, exothermic polymerization cannot occur.
Sensitivity to Mechanical	: No, product will not become self-reactive.

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Impact
Sensitivity to Static Discharge : Yes, in certain circumstances product can ignite due to static electricity.

11. TOXICOLOGICAL INFORMATION**11.1 Information on Toxicological effects**

Basis for Assessment : Information given is based on product testing.
Routes of Exposure : Exposure may occur via inhalation, ingestion, skin absorption, skin or eye contact, and accidental ingestion.

Acute Oral Toxicity : Low toxicity: LD50 >5000 mg/kg
Acute Dermal Toxicity : Low toxicity: LD50 >5000 mg/kg
Acute Inhalation Toxicity : Low toxicity if inhaled.
High concentrations may cause central nervous system depression resulting in headaches, dizziness and nausea.

Skin Irritation : Not irritating to skin.
Eye Irritation : Irritating to eyes.
Respiratory Irritation : Data not available.
Sensitisation : Not a skin sensitiser.

Aspiration hazard : Aspiration into the lungs when swallowed or vomited may cause chemical pneumonitis which can be fatal.

Mutagenicity : Not mutagenic.
Carcinogenicity : Not a carcinogen.
Reproductive and Developmental Toxicity : Does not impair fertility.
Not a developmental toxicant.

Specific target organ toxicity - single exposure : Vapours may cause drowsiness and dizziness.
Specific target organ toxicity - repeated exposure : Kidney: caused kidney effects in male rats which are not considered relevant to humans
Additional Information : Exposure may enhance the toxicity of other materials.

12. ECOLOGICAL INFORMATION

Basis for Assessment : Information given is based on product testing.

12.1 Toxicity

Acute Toxicity

Fish : Practically non toxic: LL/EL/IL50 > 100 mg/l
Aquatic crustacea : Practically non toxic: LL/EL/IL50 > 100 mg/l
Algae/aquatic plants : Practically non toxic: LL/EL/IL50 > 100 mg/l
Microorganisms : Practically non toxic: LL/EL/IL50 > 100 mg/l

Chronic Toxicity

Fish : Data not available.
Aquatic crustacea : Data not available.

12.2 Persistence and degradability : Oxidises rapidly by photo-chemical reactions in air.
Readily biodegradable.

12.3 Bioaccumulative Potential : Not expected to bioaccumulate significantly.

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- 12.4 Mobility** : If product enters soil, one or more constituents will be mobile and may contaminate groundwater.
Dissolves in water.
- 12.5 Result of the PBT and vPvB assessment** : The substance does not fulfill all screening criteria for persistence, bioaccumulation and toxicity and hence is not considered to be PBT or vPvB.

13. DISPOSAL CONSIDERATIONS**13.1 Waste Treatment Methods**

- Material Disposal** : Recover or recycle if possible. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste classification and disposal methods in compliance with applicable regulations. Do not dispose into the environment, in drains or in water courses. Waste product should not be allowed to contaminate soil or water.
- Container Disposal** : Drain container thoroughly. After draining, vent in a safe place away from sparks and fire. Residues may cause an explosion hazard. Do not puncture, cut or weld uncleaned drums. Send to drum recoverer or metal reclaimer.
- Local Legislation** : Disposal should be in accordance with applicable regional, national, and local laws and regulations. Local regulations may be more stringent than regional or national requirements and must be complied with.

14. TRANSPORT INFORMATION**ADR**

- 14.1 UN number : 1219
14.2 UN proper shipping name : ISOPROPANOL
14.3 Transport hazard class(es) : 3
14.4 Packing group : II
Classification code : F1
Hazard identification no. : 33
Danger label (primary risk) : 3
14.5 Environmental hazards : No

RID

- 14.1 UN number : 1219
14.2 UN proper shipping name : ISOPROPANOL
14.3 Transport hazard class(es) : 3
14.4 Packing group : II
Classification code : F1
Hazard identification no. : 33
Danger label (primary risk) : 3
14.5 Environmental hazards : No

Safety Data Sheet**Sea transport (IMDG Code):**

14.1 UN number : 1219
14.2 UN proper shipping name : ISOPROPANOL
14.3 Transport hazard class(es) : 3
14.4 Packing group : II
14.5 Marine pollutant: : No

Air transport (IATA):

14.1 UN number : 1219
14.2 UN proper shipping name : Isopropanol
14.3 Transport hazard class(es) : 3
14.4 Packing group : II

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

Pollution Category : Z
Ship Type : 3
Product Name : Isopropyl alcohol
Special Precaution : Refer to Chapter 7, Handling & Storage, for special precautions which a user needs to be aware of or needs to comply with in connection with transport.

Additional Information : This product may be transported under nitrogen blanketing. Nitrogen is an odourless and invisible gas. Exposure to nitrogen may cause asphyxiation or death. Personnel must observe strict safety precautions when involved with a confined space entry.

15. REGULATORY INFORMATION

The regulatory information is not intended to be comprehensive. Other regulations may apply to this material.

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**Other regulatory information****Chemical Inventory Status**

AICS : Listed.
DSL : Listed.
INV (CN) : Listed.
ENCS (JP) : Listed. (2)-207
ISHL (JP) : Listed. 2-(8)-319
TSCA : Listed.
EINECS : Listed. 200-661-7

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KECI (KR) : Listed. KE-29363
PICCS (PH) : Listed.

National Legislation

OE_HP V : Listed.

15.2 Chemical Safety Assessment : A Chemical Safety Assessment was performed for all substances of this product.

16. OTHER INFORMATION**R-phrases**

R11 Highly flammable.
R36 Irritating to eyes.
R67 Vapours may cause drowsiness and dizziness.

CLP Hazard statements

H225 Highly flammable liquid and vapor.
H319 Causes serious eye irritation.
H336 May cause drowsiness or dizziness.

Identified Uses according to the Use Descriptor System**Uses - Worker**

Title : Manufacture of substance
- Industrial

Uses - Worker

Title Use as an intermediate
- Industrial

Uses - Worker

Title Distribution of substance
- Industrial

Uses - Worker

Title Formulation & (re)packing of substances and mixtures
- Industrial

Uses - Worker

Title Uses in Coatings
- Industrial

Uses - Worker

Title Uses in Coatings
- Professional

Uses - Worker

Title Use in Cleaning Agents
- Industrial

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Title Use in Cleaning Agents
- Professional

Uses - Worker

Title Lubricants
- Industrial

Uses - Worker

Title Lubricants
- Professional

Uses - Worker

Title Metal working fluids / rolling oils
- Industrial

Uses - Worker

Title Metal working fluids / rolling oils
- Professional

Uses - Worker

Title Use as binders and release agents
- Industrial

Uses - Worker

Title Use as binders and release agents
- Professional

Uses - Worker

Title Use in Agrochemicals uses
- Professional

Uses - Worker

Title Use as a fuel
- Industrial

Uses - Worker

Title Use as a fuel
- Professional

Uses - Worker

Title Functional Fluids
- Industrial

Uses - Worker

Title Functional Fluids
- Professional

Uses - Worker

Title De-icing and anti-icing applications
- Professional

Uses - Worker

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Title	Use in laboratories - Industrial
Uses - Worker Title	Use in laboratories - Professional
Uses - Worker Title	Water treatment chemicals - Industrial
Uses - Worker Title	Water treatment chemicals - Professional
Uses - Consumer Title	: Uses in Coatings - Consumer
Uses - Consumer Title	: Use in Cleaning Agents - Consumer
Uses - Consumer Title	: Lubricants - Consumer
Uses - Consumer Title	: Use in Agrochemicals uses - Consumer
Uses - Consumer Title	: Use as a fuel - Consumer
Uses - Consumer Title	: Functional Fluids - Consumer
Uses - Consumer Title	: De-icing and anti-icing applications - Consumer

Safety Data Sheet**Uses - Consumer**

Title : Other Consumer Uses
- Consumer

Uses - Consumer

Title : Water treatment chemicals
- Consumer

Other Information

Further information : For Industry guidance and tools on REACH please visit the
CEFIC website at <http://cefic.org/Industry-support>.

MSDS Version Number : 3.1

MSDS Effective Date : 19.03.2012

MSDS Revisions : A vertical bar (|) in the left margin indicates an amendment from
the previous version.

MSDS Regulation : The content and format of this safety data sheet is in accordance
with Regulation 1907/2006/EC.

MSDS Distribution : The information in this document should be made available to all
who may handle the product

Disclaimer : This information is based on our current knowledge and is
intended to describe the product for the purposes of health,
safety and environmental requirements only. It should not
therefore be construed as guaranteeing any specific property of
the product.

Safety Data Sheet
Exposure Scenario - Worker

SECTION 1	EXPOSURE SCENARIO TITLE
Title	Manufacture of substance - Industrial
Use Descriptor	Sector of Use: SU 3, SU8, SU9 Process Categories: PROC 1, PROC 2, PROC 3, PROC 4, PROC 8a, PROC 8b, PROC 15 Environmental Release Categories: ERC 1, ERC 4
Scope of process	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
Additional Information	No exposure assessment presented for the environment.

Section 2.1	Control of Worker Exposure
Product Characteristics	
Physical form of product	Liquid, vapour pressure 0.5 - 10 kPa at STP
Concentration of substance in product	Covers use of substance/product up to 100% (unless stated differently).;
Frequency and Duration of Use	
Covers daily exposures up to 8 hours (unless stated differently)	
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	

Contributing scenarios	Risk Management Measures
General measures (eye irritants).	Use suitable eye protection Avoid direct eye contact with product, also via contamination on hands.
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 (open systems)	No other specific measures identified

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Bulk transfers (closed systems)	No other specific measures identified
Equipment cleaning and maintenance	Drain down system prior to equipment break-in or maintenance Retain drain downs in sealed storage pending disposal or for subsequent recycle
Storage	Store substance within a closed system

Section 2.2	Control of Environmental Exposure
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SECTION 3	EXPOSURE ESTIMATION
Section 3.1 - Health	
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.	

Section 3.2 -Environment	
No exposure assessment presented for the environment.	

SECTION 4	GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO
Section 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.	

Section 4.2 -Environment	
No exposure assessment presented for the environment.	

Safety Data Sheet
Exposure Scenario - Worker

SECTION 1	EXPOSURE SCENARIO TITLE
Title	Use as an intermediate - Industrial
Use Descriptor	Sector of Use: SU 3, SU8, SU9 Process Categories: PROC 1, PROC 2, PROC 3, PROC 4, PROC 8a, PROC 8b, PROC 15 Environmental Release Categories: ERC 6A
Scope of process	Use of substance as an intermediate (not related to Strictly Controlled Conditions). Includes recycling/ recovery, material transfers, storage, sampling, associated laboratory activities, maintenance and loading (including marine vessel/barge, road/rail car and bulk container).

SECTION 2	OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES
Additional Information	No exposure assessment presented for the environment.

Section 2.1	Control of Worker Exposure
Product Characteristics	
Physical form of product	Liquid, vapour pressure 0.5 - 10 kPa at STP
Concentration of substance in product	Covers use of substance/product up to 100% (unless stated differently).;
Frequency and Duration of Use	
Covers daily exposures up to 8 hours (unless stated differently)	
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	

Contributing scenarios	Risk Management Measures
General measures (eye irritants).	Use suitable eye protection Avoid direct eye contact with product, also via contamination on hands.
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 (open systems)	No other specific measures identified

Safety Data Sheet

Bulk transfers (closed systems)	No other specific measures identified
Equipment cleaning and maintenance	Drain down system prior to equipment break-in or maintenance Retain drain downs in sealed storage pending disposal or for subsequent recycle
Storage	Store substance within a closed system

Section 2.2	Control of Environmental Exposure
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SECTION 3	EXPOSURE ESTIMATION
Section 3.1 - Health	
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.	

Section 3.2 -Environment	
No exposure assessment presented for the environment.	

SECTION 4	GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO
Section 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.	

Section 4.2 -Environment	
No exposure assessment presented for the environment.	

Safety Data Sheet
Exposure Scenario - Worker

SECTION 1	EXPOSURE SCENARIO TITLE
Title	Distribution of substance - Industrial
Use Descriptor	Sector of Use: SU 3, SU8, SU9 Process Categories: PROC 1, PROC 2, PROC 3, PROC 4, PROC 8a, PROC 8b, PROC 9, PROC 15 Environmental Release Categories: ERC 1, ERC 2, ERC 3, ERC 4, ERC 5, ERC 6A, ERC 7
Scope of process	Loading (including marine vessel/barge, rail/road car and IBC loading) and repacking (including drums and small packs) of substance, including its sampling, storage, unloading distribution and associated laboratory activities.

SECTION 2	OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES
Additional Information	No exposure assessment presented for the environment.

Section 2.1	Control of Worker Exposure
Product Characteristics	
Physical form of product	Liquid, vapour pressure 0.5 - 10 kPa at STP
Concentration of substance in product	Covers use of substance/product up to 100% (unless stated differently).;
Frequency and Duration of Use	
Covers daily exposures up to 8 hours (unless stated differently)	
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	

Contributing scenarios	Risk Management Measures
General measures (eye irritants).	Use suitable eye protection Avoid direct eye contact with product, also via contamination on hands.
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 (open systems)	No other specific measures identified

Safety Data Sheet

Bulk transfers (closed systems)	No other specific measures identified
Drum and small package filling	No other specific measures identified
Equipment cleaning and maintenance	Drain down system prior to equipment break-in or maintenance Retain drain downs in sealed storage pending disposal or for subsequent recycle
Storage	Store substance within a closed system

Section 2.2	Control of Environmental Exposure
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SECTION 3	EXPOSURE ESTIMATION
Section 3.1 - Health	
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.	

Section 3.2 -Environment	
No exposure assessment presented for the environment.	

SECTION 4	GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO
Section 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.	

Section 4.2 -Environment	
No exposure assessment presented for the environment.	

Safety Data Sheet
Exposure Scenario - Worker

SECTION 1	EXPOSURE SCENARIO TITLE
Title	Formulation & (re)packing of substances and mixtures - Industrial
Use Descriptor	Sector of Use: SU 3, SU 10 Process Categories: PROC 1, PROC 2, PROC 3, PROC 4, PROC 5, PROC 8a, PROC 8b, PROC 9, PROC 14, PROC 15 Environmental Release Categories: ERC 2
Scope of process	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
Additional Information	No exposure assessment presented for the environment.

Section 2.1	Control of Worker Exposure
Product Characteristics	
Physical form of product	Liquid, vapour pressure 0.5 - 10 kPa at STP
Concentration of substance in product	Covers use of substance/product up to 100% (unless stated differently).;
Frequency and Duration of Use	
Covers daily exposures up to 8 hours (unless stated differently)	
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	

Contributing scenarios	Risk Management Measures
General measures (eye irritants).	Use suitable eye protection Avoid direct eye contact with product, also via contamination on hands.
General exposures (closed systems)	No other specific measures identified
General exposures (open systems)	No other specific measures identified
Batch processes at elevated temperatures	No other specific measures identified
Process sampling	No other specific measures identified
Laboratory activities	No other specific measures identified

Safety Data Sheet

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 or preparation of 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	Drain down system prior to equipment break-in or maintenance Retain drain downs in sealed storage pending disposal or for subsequent recycle
Storage	Store substance within a closed system

Section 2.2	Control of Environmental Exposure
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SECTION 3	EXPOSURE ESTIMATION
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Section 3.1 - Health

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.

Section 3.2 -Environment

No exposure assessment presented for the environment.

SECTION 4	GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO
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Section 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.

Section 4.2 -Environment

No exposure assessment presented for the environment.

Safety Data Sheet
Exposure Scenario - Worker

SECTION 1	EXPOSURE SCENARIO TITLE
Title	Uses in Coatings - Industrial
Use Descriptor	Sector of Use: SU 3 Process Categories: PROC 1, PROC 2, PROC 3, PROC 4, PROC 5, PROC 7, PROC 8a, PROC 8b, PROC 10, PROC 13, PROC 15 Environmental Release Categories: ERC 4
Scope of process	Covers the use in coatings (paints, inks, adhesives, etc) including exposures during use (including materials receipt, storage, preparation and transfer from bulk and semi-bulk, application by spray, roller, spreader, dip, flow, fluidised bed on production lines and film formation) and equipment cleaning, maintenance and associated laboratory activities.

SECTION 2	OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES
Additional Information	No exposure assessment presented for the environment.

Section 2.1	Control of Worker Exposure
Product Characteristics	
Physical form of product	Liquid, vapour pressure 0.5 - 10 kPa at STP
Concentration of substance in product	Covers use of substance/product up to 100% (unless stated differently).;
Frequency and Duration of Use	
Covers daily exposures up to 8 hours (unless stated differently)	
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	

Contributing scenarios	Risk Management Measures
General measures (eye irritants).	Use suitable eye protection Avoid direct eye contact with product, also via contamination on hands.
General exposures (closed systems)	No other specific measures identified
General exposures (open systems)	No other specific measures identified
Film formation - force drying, stoving and other technologies.	No other specific measures identified

Safety Data Sheet

Film formation - air drying	No other specific measures identified
Mixing operations (closed systems) General exposures (closed systems)	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
Manual Spraying	Provide a good standard of controlled ventilation (10 to 15 air changes per hour)
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 or preparation of articles by tableting, compression, extrusion or pelletisation	No other specific measures identified

Section 2.2	Control of Environmental Exposure
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SECTION 3	EXPOSURE ESTIMATION
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Section 3.1 - Health
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.

Section 3.2 -Environment
No exposure assessment presented for the environment.

SECTION 4	GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO
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Section 4.1 - Health
Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management

Safety Data Sheet

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.

Section 4.2 -Environment

No exposure assessment presented for the environment.

Safety Data Sheet
Exposure Scenario - Worker

SECTION 1	EXPOSURE SCENARIO TITLE
Title	Uses in Coatings - Professional
Use Descriptor	Sector of Use: SU 22 Process Categories: PROC 1, PROC 2, PROC 3, PROC 4, PROC 5, PROC 8a, PROC 8b, PROC 10, PROC 11, PROC 13, PROC 15, PROC 19 Environmental Release Categories: ERC 8A, ERC 8D
Scope of process	Covers the use in coatings (paints, inks, adhesives, etc) including exposures during use (including materials receipt, storage, preparation and transfer from bulk and semi-bulk, application by spray, roller, brush, spreader by hand or similar methods, and film formation), and equipment cleaning, maintenance and associated laboratory activities.

SECTION 2	OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES
Additional Information	No exposure assessment presented for the environment.

Section 2.1	Control of Worker Exposure
Product Characteristics	
Physical form of product	Liquid, vapour pressure 0.5 - 10 kPa at STP
Concentration of substance in product	Covers use of substance/product up to 100% (unless stated differently).;
Frequency and Duration of Use	
Covers daily exposures up to 8 hours (unless stated differently)	
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	

Contributing scenarios	Risk Management Measures
General measures (eye irritants).	Use suitable eye protection Avoid direct eye contact with product, also via contamination on hands.
General exposures (closed systems)	No other specific measures identified
Filling / preparation of equipment from drums or containers.	No other specific measures identified
General exposures (open systems)	No other specific measures identified

Safety Data Sheet

Preparation of material for application	No other specific measures identified
Film formation - air drying Outdoor	No other specific measures identified
Film formation - air drying Indoor	No other specific measures identified
Preparation of material for application Indoor	No other specific measures identified
Material transfers Drum/batch transfers	No other specific measures identified
Roller, spreader, flow application	No other specific measures identified
Manual Spraying Indoor	Carry out in a vented booth or extracted enclosure
Manual Spraying Outdoor	Wear a respirator conforming to EN140 with Type A filter or better.
Dipping, immersion and pouring	No other specific measures identified
Laboratory activities	No other specific measures identified
Hand application - fingerpaints, pastels, adhesives	No other specific measures identified

Section 2.2	Control of Environmental Exposure
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SECTION 3	EXPOSURE ESTIMATION
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Section 3.1 - Health

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.

Section 3.2 -Environment

No exposure assessment presented for the environment.

SECTION 4	GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO
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Section 4.1 - Health

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management

Safety Data Sheet

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.

Section 4.2 -Environment

No exposure assessment presented for the environment.

Safety Data Sheet
Exposure Scenario - Worker

SECTION 1		EXPOSURE SCENARIO TITLE	
Title		Use in Cleaning Agents - Industrial	
Use Descriptor		Sector of Use: SU 3 Process Categories: PROC 1, PROC 2, PROC 3, PROC 4, PROC 7, PROC 8a, PROC 8b, PROC 10, PROC 13 Environmental Release Categories: ERC 4	
Scope of process		Covers the use as a component of cleaning products including transfer from storage, pouring/unloading from drums or containers. Exposures during mixing/diluting in the preparatory phase and cleaning activities (including spraying, brushing, dipping, wiping, automated and by hand), related equipment cleaning and maintenance.	

SECTION 2		OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES	
Additional Information		No exposure assessment presented for the environment.	

Section 2.1		Control of Worker Exposure	
Product Characteristics			
Physical form of product		Liquid, vapour pressure 0.5 - 10 kPa at STP	
Concentration of substance in product		Covers use of substance/product up to 100% (unless stated differently).;	
Frequency and Duration of Use			
Covers daily exposures up to 8 hours (unless stated differently)			
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			

Contributing scenarios		Risk Management Measures	
General measures (eye irritants).		Use suitable eye protection Avoid direct eye contact with product, also via contamination on hands.	
Bulk transfers		Clear transfer lines prior to de-coupling	
Automated process with (semi) closed systems. Use in contained systems		No other specific measures identified	
Application of cleaning products in closed systems		No other specific measures identified	
Filling / preparation of equipment from drums or		No other specific measures identified	

Safety Data Sheet

containers.	
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 a good standard of controlled ventilation (10 to 15 air changes per hour)
Manual Surfaces Cleaning no spraying	No other specific measures identified
Storage	Store substance within a closed system

Section 2.2	Control of Environmental Exposure
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SECTION 3	EXPOSURE ESTIMATION
Section 3.1 - Health	
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.	

Section 3.2 -Environment	
No exposure assessment presented for the environment.	

SECTION 4	GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO
Section 4.1 - Health	
<p>Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.</p> <p>Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.</p>	

Section 4.2 -Environment	
No exposure assessment presented for the environment.	

Safety Data Sheet
Exposure Scenario - Worker

SECTION 1		EXPOSURE SCENARIO TITLE	
Title		Use in Cleaning Agents - Professional	
Use Descriptor		Sector of Use: SU 22 Process Categories: PROC 1, PROC 2, PROC 3, PROC 4, PROC 8a, PROC 8b, PROC 10, PROC 11, PROC 13 Environmental Release Categories: ERC 8A, ERC 8D	
Scope of process		Covers the use as a component of cleaning products including pouring/unloading from drums or containers; and exposures during mixing/diluting in the preparatory phase and cleaning activities (including spraying, brushing, dipping, wiping automated and by hand).	

SECTION 2		OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES	
Additional Information		No exposure assessment presented for the environment.	

Section 2.1		Control of Worker Exposure	
Product Characteristics			
Physical form of product		Liquid, vapour pressure 0.5 - 10 kPa at STP	
Concentration of substance in product		Covers use of substance/product up to 100% (unless stated differently).;	
Frequency and Duration of Use			
Covers daily exposures up to 8 hours (unless stated differently)			
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			

Contributing scenarios		Risk Management Measures	
General measures (eye irritants).		Use suitable eye protection Avoid direct eye contact with product, also via contamination on hands.	
Filling / preparation of equipment from drums or containers.		No other specific measures identified	
Automated process with (semi) closed systems. 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	

Safety Data Sheet

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 a good standard of controlled ventilation (10 to 15 air changes per hour)
Cleaning with high pressure washers Spraying Outdoor	Limit the substance content in the product to 1 % , or: Avoid carrying out activities involving exposure for more than 15 minutes
Manual Surfaces 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
Storage	Store substance within a closed system

Section 2.2	Control of Environmental Exposure
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SECTION 3	EXPOSURE ESTIMATION
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Section 3.1 - Health

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.

Section 3.2 -Environment

No exposure assessment presented for the environment.

SECTION 4	GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE
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Safety Data Sheet

	SCENARIO
Section 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.
Section 4.2 -Environment	
	No exposure assessment presented for the environment.

Safety Data Sheet
Exposure Scenario - Worker

SECTION 1	EXPOSURE SCENARIO TITLE
Title	Lubricants - Industrial
Use Descriptor	Sector of Use: SU 3 Process Categories: PROC 1, PROC 2, PROC 3, PROC 4, PROC 7, PROC 8a, PROC 8b, PROC 9, PROC 10, PROC 13, PROC 17, PROC 18 Environmental Release Categories: ERC 7, ERC 4
Scope of process	Covers the use of formulated lubricants in closed and open systems including transfer operations, operation of machinery/engines and similar articles, reworking on reject articles, equipment maintenance and disposal of wastes.

SECTION 2	OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES
Additional Information	No exposure assessment presented for the environment.

Section 2.1	Control of Worker Exposure
Product Characteristics	
Physical form of product	Liquid, vapour pressure 0.5 - 10 kPa at STP
Concentration of substance in product	Covers use of substance/product up to 100% (unless stated differently).;
Frequency and Duration of Use	
Covers daily exposures up to 8 hours (unless stated differently)	
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	

Contributing scenarios	Risk Management Measures
General measures (eye irritants).	Use suitable eye protection Avoid direct eye contact with product, also via contamination on hands.
General exposures (closed systems)	No other specific measures identified
General exposures (open systems)	No other specific measures identified
Bulk transfers	Clear transfer lines prior to de-coupling
Filling / preparation of equipment from drums or containers.	No other specific measures identified

Safety Data Sheet

Initial factory fill of equipment	No other specific measures identified
Operation and lubrication of high energy open equipment	Provide extract ventilation to points where emissions occur Restrict area of openings to equipment
Manual Rolling, Brushing	No other specific measures identified
Treatment by dipping and pouring	No other specific measures identified
Spraying	Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings
Maintenance (of larger plant items) and machine set up	No other specific measures identified
Maintenance of small items	No other specific measures identified
Storage	Store substance within a closed system

Section 2.2	Control of Environmental Exposure
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SECTION 3	EXPOSURE ESTIMATION
Section 3.1 - Health	
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.	

Section 3.2 -Environment	
No exposure assessment presented for the environment.	

SECTION 4	GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO
Section 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.	

Section 4.2 -Environment	
No exposure assessment presented for the environment.	

Safety Data Sheet
Exposure Scenario - Worker

SECTION 1	EXPOSURE SCENARIO TITLE
Title	Lubricants - Professional
Use Descriptor	Sector of Use: SU 22 Process Categories: PROC 1, PROC 2, PROC 3, PROC 4, PROC 8a, PROC 8b, PROC 9, PROC 10, PROC 11, PROC 13, PROC 17, PROC 18, PROC 20 Environmental Release Categories: ERC 8A, ERC 8D, ERC 9A, ERC 9B
Scope of process	Covers the use of formulated lubricants in closed and open systems including transfer operations, operation of engines and similar articles, reworking on reject articles, equipment maintenance and disposal of waste oil.

SECTION 2	OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES
Additional Information	No exposure assessment presented for the environment.

Section 2.1	Control of Worker Exposure
Product Characteristics	
Physical form of product	Liquid, vapour pressure 0.5 - 10 kPa at STP
Concentration of substance in product	Covers use of substance/product up to 100% (unless stated differently).;
Frequency and Duration of Use	
Covers daily exposures up to 8 hours (unless stated differently)	
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	

Contributing scenarios	Risk Management Measures
General measures (eye irritants).	Use suitable eye protection Avoid direct eye contact with product, also via contamination on hands.
General exposures (closed systems)	No other specific measures identified
Operation of equipment containing engine oils and similar	No other specific measures identified
General exposures (open systems)	No other specific measures identified
Bulk transfers	No other specific measures identified

Safety Data Sheet

Filling / preparation of equipment from drums or containers.	No other specific measures identified
Operation and lubrication of high energy open equipment Indoor	Restrict area of openings to equipment Provide extract ventilation to points where emissions occur
Operation and lubrication of high energy open equipment Outdoor	No other specific measures identified
Maintenance (of larger plant items) and machine set up elevated temperature	Provide extract ventilation to emission points when contact with warm (>50oC) lubricant is likely
Maintenance of small items elevated temperature Covers percentage substance in the product up to 5%.	Avoid carrying out activities involving exposure for more than 4 hours Retain drain downs in sealed storage pending disposal or for subsequent recycle
Engine lubricant service	No other specific measures identified
Manual Rolling, Brushing	No other specific measures identified
Spraying	Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings , or: Wear a respirator conforming to EN140 with Type A/P2 filter or better
Treatment by dipping and pouring	Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings , or: Provide a good standard of controlled ventilation (10 to 15 air changes per hour) Allow time for product to drain from workpiece
Storage	Store substance within a closed system

Section 2.2	Control of Environmental Exposure
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SECTION 3	EXPOSURE ESTIMATION
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Section 3.1 - Health

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.

Safety Data Sheet**Section 3.2 -Environment**

No exposure assessment presented for the environment.

SECTION 4**GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO****Section 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.

Section 4.2 -Environment

No exposure assessment presented for the environment.

Safety Data Sheet
Exposure Scenario - Worker

SECTION 1		EXPOSURE SCENARIO TITLE	
Title		Metal working fluids / rolling oils - Industrial	
Use Descriptor		Sector of Use: SU 3 Process Categories: PROC 1, PROC 2, PROC 3, PROC 4, PROC 5, PROC 7, PROC 8a, PROC 8b, PROC 9, PROC 10, PROC 13, PROC 17 Environmental Release Categories: ERC 4	
Scope of process		Covers the use in formulated MWFs/rolling oils including transfer operations, rolling and annealing activities, cutting/machining activities, automated and manual 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	
Additional Information		No exposure assessment presented for the environment.	

Section 2.1		Control of Worker Exposure	
Product Characteristics			
Physical form of product		Liquid, vapour pressure 0.5 - 10 kPa at STP	
Concentration of substance in product		Covers use of substance/product up to 100% (unless stated differently).;	
Frequency and Duration of Use			
Covers daily exposures up to 8 hours (unless stated differently)			
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			

Contributing scenarios		Risk Management Measures	
General measures (eye irritants).		Use suitable eye protection Avoid direct eye contact with product, also via contamination on hands.	
General exposures (closed systems)		No other specific measures identified	
General exposures (open systems)		No other specific measures identified	
Bulk transfers Drum/batch transfers		No other specific measures identified	
Product sampling		No other specific measures identified	

Safety Data Sheet

Metal machining operations	No other specific measures identified
Treatment by dipping and pouring	No other specific measures identified
Spraying	Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings
Manual Rolling, Brushing	No other specific measures identified
Automated metal rolling/forming elevated temperature	No other specific measures identified
Semi-automated metal rolling/forming elevated temperature	Automate activity where possible No other specific measures identified
Equipment cleaning and maintenance	Retain drain downs in sealed storage pending disposal or for subsequent recycle
Storage	Store substance within a closed system

Section 2.2	Control of Environmental Exposure
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SECTION 3	EXPOSURE ESTIMATION
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Section 3.1 - Health

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.

Section 3.2 -Environment

No exposure assessment presented for the environment.

SECTION 4	GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO
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Section 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.

Section 4.2 -Environment

No exposure assessment presented for the environment.

Safety Data Sheet
Exposure Scenario - Worker

SECTION 1		EXPOSURE SCENARIO TITLE	
Title		Metal working fluids / rolling oils - Professional	
Use Descriptor		Sector of Use: SU 22 Process Categories: PROC 1, PROC 2, PROC 3, PROC 5, PROC 8a, PROC 8b, PROC 9, PROC 10, PROC 11, PROC 13, PROC 17 Environmental Release Categories: ERC 8A, ERC 8D	
Scope of process		Covers the use in formulated MWFs including transfer operations, open and contained cutting/machining activities, automated and manual application of corrosion protections, draining and working on contaminated/ reject articles, and disposal of waste oils.	

SECTION 2		OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES	
Additional Information		No exposure assessment presented for the environment.	

Section 2.1		Control of Worker Exposure	
Product Characteristics			
Physical form of product		Liquid, vapour pressure 0.5 - 10 kPa at STP	
Concentration of substance in product		Covers use of substance/product up to 100% (unless stated differently).;	
Frequency and Duration of Use			
Covers daily exposures up to 8 hours (unless stated differently)			
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			

Contributing scenarios		Risk Management Measures	
General measures (eye irritants).		Use suitable eye protection Avoid direct eye contact with product, also via contamination on hands.	
General exposures (closed systems)		No other specific measures identified	
Bulk transfers		Clear transfer lines prior to de-coupling	
Filling / preparation of equipment from drums or containers.		No other specific measures identified	
Product sampling		No other specific measures identified	
Metal machining operations		Provide extract ventilation to points where emissions occur	

Safety Data Sheet

Roller, spreader, flow application	No other specific measures identified
Spraying	Carry out in a vented booth or extracted enclosure , or: Wear a respirator conforming to EN140 with Type A/P2 filter or better
Treatment by dipping and pouring	Allow time for product to drain from workpiece No other specific measures identified
Equipment cleaning and maintenance	Retain drain downs in sealed storage pending disposal or for subsequent recycle No other specific measures identified
Storage	Handle substance within a closed system

Section 2.2	Control of Environmental Exposure
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SECTION 3	EXPOSURE ESTIMATION
Section 3.1 - Health	
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.	

Section 3.2 -Environment	
No exposure assessment presented for the environment.	

SECTION 4	GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO
Section 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.	

Section 4.2 -Environment	
No exposure assessment presented for the environment.	

Safety Data Sheet
Exposure Scenario - Worker

SECTION 1	EXPOSURE SCENARIO TITLE
Title	Use as binders and release agents - Industrial
Use Descriptor	Sector of Use: SU 3 Process Categories: PROC 1, PROC 2, PROC 3, PROC 4, PROC 6, PROC 7, PROC 8b, PROC 10, PROC 14 Environmental Release Categories: ERC 4
Scope of process	Covers the use as binders and release agents including material transfers, mixing, application (including spraying and brushing), mould forming and casting, and handling of waste.

SECTION 2	OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES
Additional Information	No exposure assessment presented for the environment.

Section 2.1	Control of Worker Exposure
Product Characteristics	
Physical form of product	Liquid, vapour pressure 0.5 - 10 kPa at STP
Concentration of substance in product	Covers use of substance/product up to 100% (unless stated differently).;
Frequency and Duration of Use	
Covers daily exposures up to 8 hours (unless stated differently)	
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	

Contributing scenarios	Risk Management Measures
General measures (eye irritants).	Use suitable eye protection Avoid direct eye contact with product, also via contamination on hands.
Bulk transfers	Clear transfer lines prior to de-coupling
Drum/batch transfers	No other specific measures identified
Mixing operations (closed systems)	No other specific measures identified
Mixing operations (open systems)	No other specific measures identified
Mould forming	No other specific measures identified
Casting operations (open systems)	Provide extract ventilation to points where emissions occur

Safety Data Sheet

elevated temperature	
Spraying (automatic/robotic)	Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings
Spraying Manual	Carry out in a vented booth or extracted enclosure
Storage	Store substance within a closed system

Section 2.2	Control of Environmental Exposure
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SECTION 3	EXPOSURE ESTIMATION
Section 3.1 - Health	
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.	

Section 3.2 -Environment	
No exposure assessment presented for the environment.	

SECTION 4	GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO
Section 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.	

Section 4.2 -Environment	
No exposure assessment presented for the environment.	

Safety Data Sheet
Exposure Scenario - Worker

SECTION 1	EXPOSURE SCENARIO TITLE
Title	Use as binders and release agents - Professional
Use Descriptor	Sector of Use: SU 22 Process Categories: PROC 1, PROC 2, PROC 3, PROC 4, PROC 6, PROC 8b, PROC 10, PROC 11, PROC 14 Environmental Release Categories: ERC 8A, ERC 8D
Scope of process	Covers the use as binders and release agents including material transfers, mixing, application by spraying, brushing, and handling of waste.

SECTION 2	OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES
Additional Information	No exposure assessment presented for the environment.

Section 2.1	Control of Worker Exposure
Product Characteristics	
Physical form of product	Liquid, vapour pressure 0.5 - 10 kPa at STP
Concentration of substance in product	Covers use of substance/product up to 100% (unless stated differently).;
Frequency and Duration of Use	
Covers daily exposures up to 8 hours (unless stated differently)	
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	

Contributing scenarios	Risk Management Measures
General measures (eye irritants).	Use suitable eye protection Avoid direct eye contact with product, also via contamination on hands.
Bulk transfers	No other specific measures identified
Drum/batch transfers	No other specific measures identified
Mixing operations (closed systems)	No other specific measures identified
Mixing operations (open systems)	No other specific measures identified
Mould forming	No other specific measures identified
Casting operations (open systems)	Provide extract ventilation to points where emissions occur

Safety Data Sheet

elevated temperature	
Machine Spraying	Carry out in a vented booth or extracted enclosure Segregate the activity away from other operations
Roller, spreader, flow application	No other specific measures identified
Manual Spraying	Carry out in a vented booth or extracted enclosure , or: Wear a respirator conforming to EN140 with Type A/P2 filter or better Segregate the activity away from other operations
Batch process	Store substance within a closed system

Section 2.2	Control of Environmental Exposure
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SECTION 3	EXPOSURE ESTIMATION
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Section 3.1 - Health	
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The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.

Section 3.2 -Environment

No exposure assessment presented for the environment.

SECTION 4	GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO
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Section 4.1 - Health	
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Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.
Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Section 4.2 -Environment

No exposure assessment presented for the environment.

Safety Data Sheet
Exposure Scenario - Worker

SECTION 1	EXPOSURE SCENARIO TITLE
Title	Use in Agrochemicals uses - Professional
Use Descriptor	Sector of Use: SU 22 Process Categories: PROC 1, PROC 2, PROC 4, PROC 8a, PROC 8b, PROC 11, PROC 13 Environmental Release Categories: ERC 8A, ERC 8D
Scope of process	Use as an agrochemical excipient for application by manual or machine spraying, smokes and fogging; including equipment clean-downs and disposal.

SECTION 2	OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES
Additional Information	No exposure assessment presented for the environment.

Section 2.1	Control of Worker Exposure
Product Characteristics	
Physical form of product	Liquid, vapour pressure 0.5 - 10 kPa at STP
Concentration of substance in product	Covers use of substance/product up to 100% (unless stated differently).;
Frequency and Duration of Use	
Covers daily exposures up to 8 hours (unless stated differently)	
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	

Contributing scenarios	Risk Management Measures
General measures (eye irritants).	Use suitable eye protection Avoid direct eye contact with product, also via contamination on hands.
Transfer from/pouring from containers	No other specific measures identified
Mixing operations (open systems)	No other specific measures identified
Spraying/fogging by manual application	Limit the substance content in the product to 25 % Avoid carrying out activities involving exposure for more than 4 hours
Spraying/fogging by machine application.	Apply within a vented cab supplied with filtered air under positive pressure and with a protection factor of >20
Ad hoc manual application	No other specific measures identified

Safety Data Sheet

via trigger sprays, dipping, etc.	
Equipment cleaning and maintenance	Retain drain downs in sealed storage pending disposal or for subsequent recycle
Storage	Store substance within a closed system

Section 2.2	Control of Environmental Exposure
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SECTION 3	EXPOSURE ESTIMATION
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Section 3.1 - Health

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.

Section 3.2 -Environment

No exposure assessment presented for the environment.

SECTION 4	GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO
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Section 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.

Section 4.2 -Environment

No exposure assessment presented for the environment.

Safety Data Sheet
Exposure Scenario - Worker

SECTION 1		EXPOSURE SCENARIO TITLE	
Title		Use as a fuel - Industrial	
Use Descriptor		Sector of Use: SU 3 Process Categories: PROC 1, PROC 2, PROC 3, PROC 8a, PROC 8b, PROC 16 Environmental Release Categories: ERC 7	
Scope of process		Covers the use as a fuel (or fuel additive) and includes activities associated with its transfer, use, equipment maintenance and handling of waste.	

SECTION 2		OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES	
Additional Information		No exposure assessment presented for the environment.	

Section 2.1		Control of Worker Exposure	
Product Characteristics			
Physical form of product		Liquid, vapour pressure 0.5 - 10 kPa at STP	
Concentration of substance in product		Covers use of substance/product up to 100% (unless stated differently).;	
Frequency and Duration of Use			
Covers daily exposures up to 8 hours (unless stated differently)			
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			

Contributing scenarios		Risk Management Measures	
General measures (eye irritants).		Use suitable eye protection Avoid direct eye contact with product, also via contamination on hands.	
Bulk transfers		Transfer via enclosed lines Clear transfer lines prior to de-coupling	
Drum/batch transfers		Use drum pumps or carefully pour from container	
General exposures (closed systems)		No other specific measures identified	
Use as a fuel (closed systems)		No other specific measures identified	
Equipment cleaning and maintenance		Drain down system prior to equipment break-in or maintenance Retain drain downs in sealed storage pending disposal or for subsequent recycle	

Safety Data Sheet

Storage	Store substance within a closed system
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Section 2.2	Control of Environmental Exposure
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SECTION 3	EXPOSURE ESTIMATION
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Section 3.1 - Health

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.

Section 3.2 -Environment

No exposure assessment presented for the environment.

SECTION 4	GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO
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Section 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.

Section 4.2 -Environment

No exposure assessment presented for the environment.

Safety Data Sheet
Exposure Scenario - Worker

SECTION 1		EXPOSURE SCENARIO TITLE	
Title		Use as a fuel - Professional	
Use Descriptor		Sector of Use: SU 22 Process Categories: PROC 1, PROC 2, PROC 3, PROC 8a, PROC 8b, PROC 16 Environmental Release Categories: ERC 9A, ERC 9B	
Scope of process		Covers the use as a fuel (or fuel additive) and includes activities associated with its transfer, use, equipment maintenance and handling of waste.	

SECTION 2		OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES	
Additional Information		No exposure assessment presented for the environment.	

Section 2.1		Control of Worker Exposure	
Product Characteristics			
Physical form of product		Liquid, vapour pressure 0.5 - 10 kPa at STP	
Concentration of substance in product		Covers use of substance/product up to 100% (unless stated differently).;	
Frequency and Duration of Use			
Covers daily exposures up to 8 hours (unless stated differently)			
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			

Contributing scenarios	Risk Management Measures
General measures (eye irritants).	Use suitable eye protection Avoid direct eye contact with product, also via contamination on hands.
Bulk transfers	Transfer via enclosed lines Clear transfer lines prior to de-coupling
Drum/batch transfers	Use drum pumps or carefully pour from container Avoid spillage when withdrawing pump
Refuelling	Avoid spillage when withdrawing pump
Use as a fuel (closed systems)	No other specific measures identified
General exposures (closed systems)	No other specific measures identified

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Equipment cleaning and maintenance	Drain down system prior to equipment break-in or maintenance Retain drain downs in sealed storage pending disposal or for subsequent recycle
Storage	Store substance within a closed system

Section 2.2	Control of Environmental Exposure
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SECTION 3	EXPOSURE ESTIMATION
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Section 3.1 - Health

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.

Section 3.2 -Environment

No exposure assessment presented for the environment.

SECTION 4	GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO
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Section 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.

Section 4.2 -Environment

No exposure assessment presented for the environment.

Safety Data Sheet
Exposure Scenario - Worker

SECTION 1	EXPOSURE SCENARIO TITLE
Title	Functional Fluids - Industrial
Use Descriptor	Sector of Use: SU 3 Process Categories: PROC 1, PROC 2, PROC 4, PROC 8b, PROC 9 Environmental Release Categories: ERC 7
Scope of process	Use as functional fluids e.g. cable oils, transfer oils, coolants, insulators, refrigerants, hydraulic fluids in industrial equipment including maintenance and related material transfers.

SECTION 2	OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES
Additional Information	No exposure assessment presented for the environment.

Section 2.1	Control of Worker Exposure
Product Characteristics	
Physical form of product	Liquid, vapour pressure 0.5 - 10 kPa at STP
Concentration of substance in product	Covers use of substance/product up to 100% (unless stated differently).;
Frequency and Duration of Use	
Covers daily exposures up to 8 hours (unless stated differently)	
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	

Contributing scenarios	Risk Management Measures
General measures (eye irritants).	Use suitable eye protection Avoid direct eye contact with product, also via contamination on hands.
Bulk transfers	Clear transfer lines prior to de-coupling
Drum/batch transfers	No other specific measures identified
Filling of articles/equipment Use of closed filling equipment;	No other specific measures identified
Manual Filling of articles/equipment	Carefully pour from containers.
Use of sealed items containing functional fluids e.g. transfer oils, hydraulic	No other specific measures identified

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fluids, refrigerants.	
General exposures (open systems)	No other specific measures identified
Equipment cleaning and maintenance	Retain drain downs in sealed storage pending disposal or for subsequent recycle
Storage	Store substance within a closed system

Section 2.2	Control of Environmental Exposure
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SECTION 3	EXPOSURE ESTIMATION
Section 3.1 - Health	
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.	

Section 3.2 -Environment	
No exposure assessment presented for the environment.	

SECTION 4	GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO
Section 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.	

Section 4.2 -Environment	
No exposure assessment presented for the environment.	

Safety Data Sheet
Exposure Scenario - Worker

SECTION 1	EXPOSURE SCENARIO TITLE
Title	Functional Fluids - Professional
Use Descriptor	Sector of Use: SU 22 Process Categories: PROC 1, PROC 2, PROC 3, PROC 8a, PROC 9, PROC 20 Environmental Release Categories: ERC 9A, ERC 9B
Scope of process	Use as functional fluids e.g. cable oils, transfer oils, coolants, insulators, refrigerants, hydraulic fluids in professional equipment including maintenance and related material transfers.

SECTION 2	OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES
Additional Information	No exposure assessment presented for the environment.

Section 2.1	Control of Worker Exposure
Product Characteristics	
Physical form of product	Liquid, vapour pressure 0.5 - 10 kPa at STP
Concentration of substance in product	Covers use of substance/product up to 100% (unless stated differently).;
Frequency and Duration of Use	
Covers daily exposures up to 8 hours (unless stated differently)	
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	

Contributing scenarios	Risk Management Measures
General measures (eye irritants).	Use suitable eye protection Avoid direct eye contact with product, also via contamination on hands.
Drum/batch transfers	No other specific measures identified
Transfer from/pouring from containers	No other specific measures identified
Manual Filling of articles/equipment	Carefully pour from containers.
Use of sealed items containing functional fluids e.g. transfer oils, hydraulic fluids, refrigerants.	No other specific measures identified
General exposures (open	No other specific measures identified

Safety Data Sheet

systems)	
Equipment cleaning and maintenance	Retain drain downs in sealed storage pending disposal or for subsequent recycle
Storage	Store substance within a closed system

Section 2.2	Control of Environmental Exposure
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SECTION 3	EXPOSURE ESTIMATION
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Section 3.1 - Health

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.

Section 3.2 -Environment

No exposure assessment presented for the environment.

SECTION 4	GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO
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Section 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.

Section 4.2 -Environment

No exposure assessment presented for the environment.

Safety Data Sheet
Exposure Scenario - Worker

SECTION 1	EXPOSURE SCENARIO TITLE
Title	De-icing and anti-icing applications - Professional
Use Descriptor	Sector of Use: SU 22 Process Categories: PROC 1, PROC 2, PROC 8a, PROC 8b, PROC 11 Environmental Release Categories: ERC 8D
Scope of process	Ice prevention and de-icing of vehicles, aircraft and other equipment by spraying.

SECTION 2	OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES
Additional Information	No exposure assessment presented for the environment.

Section 2.1	Control of Worker Exposure
Product Characteristics	
Physical form of product	Liquid, vapour pressure 0.5 - 10 kPa at STP
Concentration of substance in product	Covers use of substance/product up to 100% (unless stated differently).;
Frequency and Duration of Use	
Covers daily exposures up to 8 hours (unless stated differently)	
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	

Contributing scenarios	Risk Management Measures
General measures (eye irritants).	Use suitable eye protection Avoid direct eye contact with product, also via contamination on hands.
Bulk transfers	Clear transfer lines prior to de-coupling
Drum/batch transfers	No other specific measures identified
Spraying/fogging by machine application. elevated temperature	Ensure operation is undertaken outdoors. Avoid carrying out activities involving exposure for more than 1 hour Stay upwind/keep distance from source
Ad hoc manual application via trigger sprays, dipping, etc.	No other specific measures identified
Equipment cleaning and maintenance	No other specific measures identified

Safety Data Sheet

Section 2.2	Control of Environmental Exposure
SECTION 3	EXPOSURE ESTIMATION
Section 3.1 - Health	
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.	
Section 3.2 -Environment	
No exposure assessment presented for the environment.	
SECTION 4	GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO
Section 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.	
Section 4.2 -Environment	
No exposure assessment presented for the environment.	

Safety Data Sheet

Exposure Scenario - Worker	
SECTION 1	EXPOSURE SCENARIO TITLE
Title	Use in laboratories - Industrial
Use Descriptor	Sector of Use: SU 3 Process Categories: PROC 10, PROC 15 Environmental Release Categories: ERC 2, ERC 4
Scope of process	Use of the substance within laboratory settings, including material transfers and equipment cleaning.

SECTION 2	OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES
Additional Information	No exposure assessment presented for the environment.

Section 2.1	Control of Worker Exposure
Product Characteristics	
Physical form of product	Liquid, vapour pressure 0.5 - 10 kPa at STP
Concentration of substance in product	Covers use of substance/product up to 100% (unless stated differently).;
Frequency and Duration of Use	
Covers daily exposures up to 8 hours (unless stated differently)	
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	

Contributing scenarios	Risk Management Measures
General measures (eye irritants).	Use suitable eye protection Avoid direct eye contact with product, also via contamination on hands.
Laboratory activities	No other specific measures identified
Cleaning	No other specific measures identified

Section 2.2	Control of Environmental Exposure

SECTION 3	EXPOSURE ESTIMATION
Section 3.1 - Health	
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.	

Section 3.2 -Environment	
No exposure assessment presented for the environment.	

Safety Data Sheet

SECTION 4	GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO
Section 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.	
Section 4.2 -Environment	
No exposure assessment presented for the environment.	

Safety Data Sheet

Exposure Scenario - Worker	
SECTION 1	EXPOSURE SCENARIO TITLE
Title	Use in laboratories - Professional
Use Descriptor	Sector of Use: SU 22 Process Categories: PROC 10, PROC 15 Environmental Release Categories: ERC 8A
Scope of process	Use of small quantities within laboratory settings, including material transfers and equipment cleaning.
SECTION 2	OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES
Additional Information	No exposure assessment presented for the environment.
Section 2.1	Control of Worker Exposure
Product Characteristics	
Physical form of product	Liquid, vapour pressure 0.5 - 10 kPa at STP
Concentration of substance in product	Covers use of substance/product up to 100% (unless stated differently).;
Frequency and Duration of Use	
Covers daily exposures up to 8 hours (unless stated differently)	
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	
Contributing scenarios	Risk Management Measures
General measures (eye irritants).	Use suitable eye protection Avoid direct eye contact with product, also via contamination on hands.
Laboratory activities	No other specific measures identified
Cleaning	No other specific measures identified
Section 2.2	Control of Environmental Exposure
SECTION 3	EXPOSURE ESTIMATION
Section 3.1 - Health	
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.	
Section 3.2 -Environment	
No exposure assessment presented for the environment.	

Safety Data Sheet

SECTION 4	GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO
Section 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.	
Section 4.2 -Environment	
No exposure assessment presented for the environment.	

Safety Data Sheet
Exposure Scenario - Worker

SECTION 1	EXPOSURE SCENARIO TITLE
Title	Water treatment chemicals - Industrial
Use Descriptor	Sector of Use: SU 3 Process Categories: PROC 1, PROC 2, PROC 3, PROC 4, PROC 8b, PROC 13 Environmental Release Categories: ERC 3, ERC 4
Scope of process	Covers the use of the substance for the treatment of water at industrial facilities in open and closed systems.

SECTION 2	OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES
Additional Information	No exposure assessment presented for the environment.

Section 2.1	Control of Worker Exposure
Product Characteristics	
Physical form of product	Liquid, vapour pressure 0.5 - 10 kPa at STP
Concentration of substance in product	Covers use of substance/product up to 100% (unless stated differently).;
Frequency and Duration of Use	
Covers daily exposures up to 8 hours (unless stated differently)	
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	

Contributing scenarios	Risk Management Measures
General measures (eye irritants).	Use suitable eye protection Avoid direct eye contact with product, also via contamination on hands.
Bulk transfers	Clear transfer lines prior to de-coupling
Drum/batch transfers	Use drum pumps or carefully pour from container
General exposures (closed systems)	No other specific measures identified
General exposures (open systems)	No other specific measures identified
Manual Pouring from small containers	Carefully pour from containers.
Equipment cleaning and	Retain drain downs in sealed storage pending disposal or for

Safety Data Sheet

maintenance	subsequent recycle
Storage	Store substance within a closed system

Section 2.2	Control of Environmental Exposure
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SECTION 3	EXPOSURE ESTIMATION
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Section 3.1 - Health

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.

Section 3.2 -Environment

No exposure assessment presented for the environment.

SECTION 4	GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO
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Section 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.

Section 4.2 -Environment

No exposure assessment presented for the environment.

Safety Data Sheet
Exposure Scenario - Worker

SECTION 1	EXPOSURE SCENARIO TITLE
Title	Water treatment chemicals - Professional
Use Descriptor	Sector of Use: SU 22 Process Categories: PROC 1, PROC 3, PROC 4, PROC 8a, PROC 8b, PROC 13 Environmental Release Categories: ERC 8F
Scope of process	Covers the use of the substance for the treatment of water in open and closed systems.

SECTION 2	OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES
Additional Information	No exposure assessment presented for the environment.

Section 2.1	Control of Worker Exposure
Product Characteristics	
Physical form of product	Liquid, vapour pressure 0.5 - 10 kPa at STP
Concentration of substance in product	Covers use of substance/product up to 100% (unless stated differently).;
Frequency and Duration of Use	
Covers daily exposures up to 8 hours (unless stated differently)	
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	

Contributing scenarios	Risk Management Measures
General measures (eye irritants).	Use suitable eye protection Avoid direct eye contact with product, also via contamination on hands.
Bulk transfers	Clear transfer lines prior to de-coupling
Drum/batch transfers	Use drum pumps or carefully pour from container
General exposures (closed systems)	No other specific measures identified
General exposures (open systems)	No other specific measures identified
Manual Pouring from small containers	Carefully pour from containers.
Equipment cleaning and	Retain drain downs in sealed storage pending disposal or for

Safety Data Sheet

maintenance	subsequent recycle
Storage	Store substance within a closed system

Section 2.2	Control of Environmental Exposure
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SECTION 3	EXPOSURE ESTIMATION
Section 3.1 - Health	
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.	

Section 3.2 -Environment	
No exposure assessment presented for the environment.	

SECTION 4	GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO
Section 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.	

Section 4.2 -Environment	
No exposure assessment presented for the environment.	

Safety Data Sheet
Exposure Scenarios - Consumer

SECTION 1	EXPOSURE SCENARIO TITLE
Title	Uses in Coatings - Consumer
Use Descriptor	Sector of Use: SU 21 Product Categories: PC1, PC4, PC8 (excipient only), PC9a, PC9b, PC9c, PC15, PC18, PC23, PC24, PC31, PC34 Environmental Release Categories: ERC 8A, ERC 8D
Scope of process	Covers the use in coatings (paints, inks, adhesives, etc) including exposures during use (including product transfer and preparation, application by brush, spray by hand or similar methods) and equipment cleaning.

SECTION 2	OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES
Additional Information	No exposure assessment presented for the environment.

Section 2.1	Control of Consumer Exposure
Product Characteristics	
Physical form of product	Liquid, vapour pressure > 10 Pa at STP
Concentration of substance in product	Unless otherwise stated:
	Covers concentration up to (%): 100 %
Amounts used	
Unless otherwise stated:	
For each use event, covers amount up to (g):	13,800
covers skin contact area (cm2):	857.5
Frequency and Duration of Use	
Unless otherwise stated:	
Covers use up to (times/day of use):	1
Covers use up to (hours/event):	6
Other Operational Conditions affecting consumer Exposure	
Unless otherwise stated: Covers use at ambient temperatures. Covers use in room size of 20m3 Covers use under typical household ventilation.	

Product Categories	OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES
Adhesives, Sealants. Glues, hobby use.	Covers concentrations up to 30 %
	Covers use up to 365 days/year
	Covers use up to 1 times/day of use
	Covers skin contact area up to 35.73 cm2
	For each use event, covers amount up to 9 g
	Covers use in room size of 20 m3

Safety Data Sheet

	Covers exposure up to 4 hours/event
Adhesives, Sealants. Glues DIY-use (carpet glue, tile glue, wood parquet glue).	Covers concentrations up to 30 %
	Covers use up to 1 days/year
	Covers use up to 1 times/day of use
	Covers skin contact area up to 110.00 cm ²
	For each use event, covers amount up to 6,390 g
	Covers use in room size of 20 m ³
	Covers exposure up to 6.00 hours/event
Adhesives, Sealants. Glue from spray	Covers concentrations up to 30 %
	Covers use up to 6 days/year
	Covers use up to 1 times/day of use
	Covers skin contact area up to 35.73 cm ²
	For each use event, covers amount up to 85.05 g
	Covers use in room size of 20 m ³
	Covers exposure up to 4.00 hours/event
Adhesives, Sealants. Sealants.	Covers concentrations up to 30 %
	Covers use up to 365 days/year
	Covers use up to 1 times/day of use
	Covers skin contact area up to 35.73 cm ²
	For each use event, covers amount up to 75 g
	Covers use in room size of 20 m ³
	Covers exposure up to 1.00 hours/event
Anti-Freeze and De-icing products Washing car window.	Covers concentrations up to 50 %
	Covers use up to 365 days/year
	Covers use up to 1 times/day of use
	For each use event, covers amount up to 0.5 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 0.02 hours/event
Anti-Freeze and De-icing products Pouring into radiator	Covers concentrations up to 50 %
	Covers use up to 365 days/year
	Covers use up to 1 times/day of use
	Covers skin contact area up to 428.00 cm ²
	For each use event, covers amount up to 2,000 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 hours/event
Anti-Freeze and De-icing products Lock de-icer.	Covers concentrations up to 50 %
	Covers use up to 365 days/year
	Covers use up to 1 times/day of use
	Covers skin contact area up to 214.40 cm ²
	For each use event, covers amount up to 4 g
	Covers use in a one car garage (34 m ³) under typical ventilation.

Safety Data Sheet

	Covers use in room size of 34 m3
	Covers exposure up to 0.25 hours/event
Biocidal Products (e.g. Disinfectants, pestcontrol) (excipient only). Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners).	Covers concentrations up to 5 %
	Covers use up to 128 days/year
	Covers use up to 1 times/day of use
	Covers skin contact area up to 857.50 cm2
	For each use event, covers amount up to 27 g
	Covers use in room size of 20 m3
	Covers exposure up to 0.33 hours/event
Biocidal Products (e.g. Disinfectants, pestcontrol) (excipient only). Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners).	Covers concentrations up to 15 %
	Covers use up to 128 days/year
	Covers use up to 1 times/day of use
	Covers skin contact area up to 428.00 cm2
	For each use event, covers amount up to 35 g
	Covers use in room size of 20 m3
	Covers exposure up to 0.17 hours/event
Coatings and Paints, Thinners, paint removers Solvent rich, high solid, water borne paint.	Covers concentrations up to 27.5 %
	Covers use up to 6 days/year
	Covers use up to 1 times/day of use
	Covers skin contact area up to 428.75 cm2
	For each use event, covers amount up to 744 g
	Covers use in room size of 20 m3
	Covers exposure up to 2.20 hours/event
Coatings and Paints, Thinners, paint removers Aerosol spray can.	Covers concentrations up to 50 %
	Covers use up to 2 days/year
	Covers use up to 1 times/day of use
	For each use event, covers amount up to 215 g
	Covers use in a one car garage (34 m3) under typical ventilation.
	Covers use in room size of 34 m3
	Covers exposure up to 0.33 hours/event
Coatings and Paints, Thinners, paint removers Removers (paint-, glue-, wall paper-, sealant-remover).	Covers concentrations up to 50 %

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	Covers use up to 3 days/year
	Covers use up to 1 times/day of use
	Covers skin contact area up to 857.50 cm ²
	For each use event, covers amount up to (g): 491 g
	Covers use in room size of 20 m ³
	Covers exposure up to 2.00 hours/event
Fillers, Putties. Fillers and putty.	Covers concentrations up to 2 %
	Covers use up to 12 days/year
	Covers use up to 1 times/day of use
	Covers skin contact area up to 35.73 cm ²
	For each use event, covers amount up to 85 g
	Covers use in room size of 20 m ³
	Covers exposure up to 4.00 hours/event
Fillers, Putties. Plasters and floor equalizers.	Covers concentrations up to 2 %
	Covers use up to 12 days/year
	Covers use up to 1 times/day of use
	Covers skin contact area up to 857.50 cm ²
	For each use event, covers amount up to 13,800 g
	Covers use in room size of 20 m ³
	Covers exposure up to 2.00 hours/event
Fillers, Putties. Modelling clay.	Covers concentrations up to 10 %
	Covers use up to 365 days/year
	Covers use up to 1 times/day of use
	Covers skin contact area up to 254.40 cm ²
	For each use event, assumes swallowed amount of 1 g
	Covers use in room size of 20 m ³
Finger paints Finger paints	Covers concentrations up to 15 %
	Covers use up to 365 days/year
	Covers use up to 1 times/day of use
	Covers skin contact area up to 254.40 cm ²
	For each use event, assumes swallowed amount of 1.35 g
	Covers use in room size of 20 m ³
Non-metal-surface treatment products. Solvent rich, high solid, water borne paint.	Covers concentrations up to 27.5 %
	Covers use up to 6 days/year
	Covers use up to 1 times/day of use
	Covers skin contact area up to 428.75 cm ²
	For each use event, covers amount up to 744 g
	Covers use in room size of 20 m ³
	Covers exposure up to 2.20 hours/event
Non-metal-surface treatment products. Aerosol spray can.	Covers concentrations up to 50 %
	Covers use up to 2 days/year
	Covers use up to 1 times/day of use
	For each use event, covers amount up to 215 g
	Covers use in a one car garage (34 m ³) under typical ventilation.

Safety Data Sheet

	Covers use in room size of 34 m3
	Covers exposure up to 0.33 hours/event
Non-metal-surface treatment products. Removers (paint-, glue-, wall paper-, sealant-remover).	Covers concentrations up to 50 %
	Covers use up to 3 days/year
	Covers use up to 1 times/day of use
	Covers skin contact area up to 857.50 cm2
	For each use event, covers amount up to 491 g
	Covers use in room size of 20 m3
	Covers exposure up to 2.00 hours/event
Ink and Toners Inks and toners.	Covers concentrations up to 10 %
	Covers use up to 365 days/year
	Covers use up to 1 times/day of use
	Covers skin contact area up to 71.40 cm2
	For each use event, covers amount up to 40 g
	Covers use in room size of 20 m3
	Covers exposure up to 2.20 hours/event
Leather tanning, dye, finishing, impregnation and care products. Polishes, wax / cream (floor, furniture, shoes).	Covers concentrations up to 50 %
	Covers use up to 29 days/year
	Covers use up to 1 times/day of use
	Covers skin contact area up to 430.00 cm2
	For each use event, covers amount up to 56 g
	Covers use in room size of 20 m3
	Covers exposure up to 1.23 hours/event
Leather tanning, dye, finishing, impregnation and care products. Polishes, spray (furniture, shoes).	Covers concentrations up to 50 %
	Covers use up to 8 days/year
	Covers use up to 1 times/day of use
	Covers skin contact area up to 430.00 cm2
	For each use event, covers amount up to (g): 56 g
	Covers use in room size of 20 m3
	Covers exposure up to 0.33 hours/event
Lubricants, Greases and Release Products Liquids.	Covers concentrations up to 100 %
	Covers use up to 4 days/year
	Covers use up to 1 times/day of use
	Covers skin contact area up to 468.00 cm2
	For each use event, covers amount up to 2,200 g
	Covers use in a one car garage (34 m3) under typical ventilation.
	Covers use in room size of 34 m3
	Covers exposure up to 0.17 hours/event
Lubricants, Greases and	Covers concentrations up to 20 %

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Release Products Pastes.	
	Covers use up to 10 days/year
	Covers use up to 1 times/day of use
	Covers skin contact area up to 468.00 cm ²
	For each use event, covers amount up to 34 g
	Covers use in room size of 20 m ³
Lubricants, Greases and Release Products Sprays.	Covers concentrations up to 50 %
	Covers use up to 6 days/year
	Covers use up to 1 times/day of use
	Covers skin contact area up to 428.75 cm ²
	For each use event, covers amount up to 73 g
	Covers use in room size of 20 m ³
	Covers exposure up to 0.17 hours/event
Polishes and Wax Blends Polishes, wax / cream (floor, furniture, shoes).	Covers concentrations up to 50 %
	Covers use up to 29 days/year
	Covers use up to 1 times/day of use
	Covers skin contact area up to 430.00 cm ²
	For each use event, covers amount up to 142 g
	Covers use in room size of 20 m ³
	Covers exposure up to 1.23 hours/event
Polishes and Wax Blends Polishes, spray (furniture, shoes).	Covers concentrations up to 50 %
	Covers use up to 8 days/year
	Covers use up to 1 times/day of use
	Covers skin contact area up to 430.00 cm ²
	For each use event, covers amount up to 35 g
	Covers use in room size of 20 m ³
	Covers exposure up to 0.33 hours/event
Textile dyes, finishing and impregnating products; including bleaches and other processing aids	Covers concentrations up to 10 %
	Covers use up to 365 days/year
	Covers use up to 1 times/day of use
	Covers skin contact area up to 857.50 cm ²
	For each use event, covers amount up to 115 g
	Covers use in room size of 20 m ³
	Covers exposure up to 1.00 hours/event

Section 2.2	Control of Environmental Exposure
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SECTION 3	EXPOSURE ESTIMATION
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Section 3.1 - Health

The ECETOC TRA tool has been used to estimate consumer exposures unless otherwise indicated.

Section 3.2 -Environment

Safety Data Sheet

No exposure assessment presented for the environment.

SECTION 4	GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO
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Section 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.

Section 4.2 -Environment

No exposure assessment presented for the environment.

Safety Data Sheet
Exposure Scenarios - Consumer

SECTION 1	EXPOSURE SCENARIO TITLE
Title	Use in Cleaning Agents - Consumer
Use Descriptor	Sector of Use: SU 21 Product Categories: PC3, PC4, PC8 (excipient only), PC9a, PC24, PC35, PC38 Environmental Release Categories: ERC 8A, ERC 8D
Scope of process	Covers general exposures to consumers arising from the use of household products sold as washing and cleaning products, aerosols, coatings, de-icers, lubricants and air care products.

SECTION 2	OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES
Additional Information	No exposure assessment presented for the environment.

Section 2.1	Control of Consumer Exposure
Product Characteristics	
Physical form of product	Liquid, vapour pressure > 10 Pa at STP
Concentration of substance in product	Unless otherwise stated:
	Covers concentration up to (%): 100 %
Amounts used	
Unless otherwise stated:	
For each use event, covers amount up to (g):	13,800
covers skin contact area (cm ²):	857.5
Frequency and Duration of Use	
Unless otherwise stated:	
Covers use up to (times/day of use):	1
Covers use up to (hours/event):	4
Other Operational Conditions affecting consumer Exposure	
Unless otherwise stated: Covers use at ambient temperatures. Covers use in room size of 20m ³ Covers use under typical household ventilation.	

Product Categories	OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES
Air care products. Air care, instant action (aerosol sprays).	Covers concentrations up to 50 %
	Covers use up to 365 days/year
	Covers use up to 4 times/day of use
	For each use event, covers amount up to (g): 0.1 g
	Covers use in room size of 20 m ³
	Covers exposure up to 0.25 hours/event

Safety Data Sheet

Air care products. Air care, instant action (aerosol sprays). Biocidal Products (e.g. Disinfectants, pestcontrol) (excipient only).	Covers concentrations up to 50 %
	Covers use up to 365 days/year
	Covers use up to 4 times/day of use
	Covers skin contact area up to 428.00 cm ²
	For each use event, covers amount up to 0.1 g
	Covers use in room size of 20 m ³
	Covers exposure up to 0.25 hours/event
Air care products. Air care, continuous action (solid and liquid). Biocidal Products (e.g. Disinfectants, pestcontrol) (excipient only).	Covers concentrations up to 50 %
	Covers use up to 365 days/year
	Covers use up to 1 times/day of use
	Covers skin contact area up to 35.70 cm ²
	For each use event, covers amount up to 0.48 g
	Covers use in room size of 20 m ³
	Covers exposure up to 8.00 hours/event
Air care products. Air care, continuous action (solid and liquid).	Covers concentrations up to 50 %
	Covers use up to 365 days/year
	Covers use up to 1 times/day of use
	Covers skin contact area up to 35.70 cm ²
	For each use event, covers amount up to 0.48 g
	Covers use in room size of 20 m ³
	Covers exposure up to 8.00 hours/event
Anti-Freeze and De-icing products Washing car window.	Covers concentrations up to 50 %
	Covers use up to 365 days/year
	Covers use up to 1 times/day of use
	For each use event, covers amount up to 0.5 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 0.02 hours/event
Anti-Freeze and De-icing products Pouring into radiator	Covers concentrations up to 50 %
	Covers use up to 365 days/year
	Covers use up to 1 times/day of use
	Covers skin contact area up to 428.00 cm ²
	For each use event, covers amount up to 2,000 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 hours/event
Anti-Freeze and De-icing products Lock de-icer.	Covers concentrations up to 50 %

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	Covers use up to 365 days/year
	Covers use up to 1 times/day of use
	Covers skin contact area up to 214.40 cm ²
	For each use event, covers amount 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
	Covers exposure up to 0.25 hours/event
Biocidal Products (e.g. Disinfectants, pestcontrol) (excipient only). Laundry and dish washing products.	Covers concentrations up to 50 %
	Covers use up to 365 days/year
	Covers use up to 1 times/day of use
	Covers skin contact area up to 857.50 cm ²
	For each use event, covers amount up to 15 g
	Covers use in room size of 20 m ³
	Covers exposure up to 0.50 hours/event
Biocidal Products (e.g. Disinfectants, pestcontrol) (excipient only). Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners).	Covers concentrations up to 50 %
	Covers use up to 128 days/year
	Covers use up to 1 times/day of use
	Covers skin contact area up to 857.50 cm ²
	For each use event, covers amount up to 27 g
	Covers use in room size of 20 m ³
	Covers exposure up to 0.33 hours/event
Biocidal Products (e.g. Disinfectants, pestcontrol) (excipient only). Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners).	Covers concentrations up to 50 %
	Covers use up to 128 days/year
	Covers use up to 1 times/day of use
	Covers skin contact area up to 428.00 cm ²
	For each use event, covers amount up to 35 g
	Covers use in room size of 20 m ³
	Covers exposure up to 0.17 hours/event
Coatings and Paints, Thinners, paint removers Solvent rich, high solid, water borne paint.	Covers concentrations up to 27.5 %
	Covers use up to 6 days/year
	Covers use up to 1 times/day of use
	Covers skin contact area up to 428.75 cm ²
	For each use event, covers amount up to 744 g
	Covers use in room size of 20 m ³

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	Covers exposure up to 2.20 hours/event
Coatings and Paints, Thinners, paint removers Aerosol spray can.	Covers concentrations up to 50 %
	Covers use up to 2 days/year
	Covers use up to 1 times/day of use
	For each use event, covers amount up to 215 g
	Covers use in a one car garage (34 m3) under typical ventilation.
	Covers use in room size of 34 m3
	Covers exposure up to 0.33 hours/event
Coatings and Paints, Thinners, paint removers Removers (paint-, glue-, wall paper-, sealant-remover).	Covers concentrations up to 50 %
	Covers use up to 3 days/year
	Covers use up to 1 times/day of use
	Covers skin contact area up to 857.50 cm2
	For each use event, covers amount up to 491 g
	Covers use in room size of 20 m3
	Covers exposure up to 2.00 hours/event
Lubricants, Greases and Release Products Liquids.	Covers concentrations up to 100 %
	Covers use up to 4 days/year
	Covers use up to 1 times/day of use
	Covers skin contact area up to 468.00 cm2
	For each use event, covers amount up to 2,200 g
	Covers use in a one car garage (34 m3) under typical ventilation.
	Covers use in room size of 34 m3
	Covers exposure up to 0.17 hours/event
Lubricants, Greases and Release Products Pastes.	Covers concentrations up to 20 %
	Covers use up to 10 days/year
	Covers use up to 1 times/day of use
	Covers skin contact area up to 468.00 cm2
	For each use event, covers amount up to 34 g
	Covers use in room size of 20 m3
Lubricants, Greases and Release Products Sprays.	Covers concentrations up to 50 %
	Covers use up to 6 days/year
	Covers use up to 1 times/day of use
	Covers skin contact area up to 428.75 cm2
	For each use event, covers amount up to 73 g
	Covers use in room size of 20 m3
	Covers exposure up to 0.17 hours/event
Washing and Cleaning Products (including solvent based products). Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal	Covers concentrations up to 5 %

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cleaners).	
	Covers use up to 128 days/year
	Covers use up to 1 times/day of use
	Covers skin contact area up to 857.50 cm ²
	For each use event, covers amount up to 27 g
	Covers use in room size of 20 m ³
	Covers exposure up to 0.33 hours/event
Washing and Cleaning Products (including solvent based products). Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners).	Covers concentrations up to 15 %
	Covers use up to 128 days/year
	Covers use up to 1 times/day of use
	Covers skin contact area up to 428.00 cm ²
	For each use event, covers amount up to 35 g
	Covers use in room size of 20 m ³
	Covers exposure up to 0.17 hours/event
Welding and soldering products, flux products.	Covers concentrations up to 50 %
	Covers use up to 365 days/year
	Covers use up to 1 times/day of use
	For each use event, covers amount up to 12 g
	Covers use in room size of 20 m ³
	Covers exposure up to 1.00 hours/event

Section 2.2	Control of Environmental Exposure
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SECTION 3	EXPOSURE ESTIMATION
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Section 3.1 - Health
The ECETOC TRA tool has been used to estimate consumer exposures unless otherwise indicated.

Section 3.2 -Environment
No exposure assessment presented for the environment.

SECTION 4	GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO
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Section 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.

Section 4.2 -Environment
No exposure assessment presented for the environment.

Safety Data Sheet
Exposure Scenarios - Consumer

SECTION 1	EXPOSURE SCENARIO TITLE
Title	Lubricants - Consumer
Use Descriptor	Sector of Use: SU 21 Product Categories: PC1, PC24, PC31 Environmental Release Categories: ERC 8A, ERC 8D, ERC 9A, ERC 9B
Scope of process	Covers the consumer use of formulated lubricants in closed and open systems including transfer operations, application, operation of engines and similar articles, equipment maintenance and disposal of waste oil.

SECTION 2	OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES
Additional Information	No exposure assessment presented for the environment.

Section 2.1	Control of Consumer Exposure
Product Characteristics	
Physical form of product	Liquid, vapour pressure > 10 Pa at STP
Concentration of substance in product	Unless otherwise stated:
	Covers concentration up to (%): 100 %
Amounts used	
Unless otherwise stated:	
For each use event, covers amount up to (g):	6,390
covers skin contact area (cm ²):	468
Frequency and Duration of Use	
Unless otherwise stated:	
Covers use up to (times/day of use):	1
Covers use up to (hours/event):	6
Other Operational Conditions affecting consumer Exposure	
Unless otherwise stated: Covers use at ambient temperatures. Covers use in room size of 20m ³ Covers use under typical household ventilation.	

Product Categories	OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES
Adhesives, Sealants. Glues, hobby use.	Covers concentrations up to 30 %
	Covers use up to 365 days/year
	Covers use up to 1 times/day of use
	Covers skin contact area up to 35.73 cm ²
	For each use event, covers amount up to 9 g
	Covers use in room size of 20 m ³

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	Covers exposure up to 4 hours/event
Adhesives, Sealants. Glues DIY-use (carpet glue, tile glue, wood parquet glue).	Covers concentrations up to 30 %
	Covers use up to 1 days/year
	Covers use up to 1 times/day of use
	Covers skin contact area up to 110.00 cm ²
	For each use event, covers amount up to 6,390 g
	Covers use in room size of 20 m ³
	Covers exposure up to 6.00 hours/event
Adhesives, Sealants. Glue from spray	Covers concentrations up to 30 %
	Covers use up to 6 days/year
	Covers use up to 1 times/day of use
	Covers skin contact area up to 35.73 cm ²
	For each use event, covers amount up to 85.05 g
	Covers use in room size of 20 m ³
	Covers exposure up to 4.00 hours/event
Adhesives, Sealants. Sealants.	Covers concentrations up to 30 %
	Covers use up to 365 days/year
	Covers use up to 1 times/day of use
	Covers skin contact area up to 35.73 cm ²
	For each use event, covers amount up to 75 g
	Covers use in room size of 20 m ³
	Covers exposure up to 1.00 hours/event
Lubricants, Greases and Release Products Liquids.	Covers concentrations up to 100 %
	Covers use up to 4 days/year
	Covers use up to 1 times/day of use
	Covers skin contact area up to 468.00 cm ²
	For each use event, covers amount up to 2,200 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 hours/event
Lubricants, Greases and Release Products Pastes.	Covers concentrations up to 20 %
	Covers use up to 10 days/year
	Covers use up to 1 times/day of use
	Covers skin contact area up to 468.00 cm ²
	For each use event, covers amount up to 34 g
	Covers use in room size of 20 m ³
Lubricants, Greases and Release Products Sprays.	Covers concentrations up to 50 %
	Covers use up to 6 days/year
	Covers use up to 1 times/day of use
	Covers skin contact area up to 428.75 cm ²
	For each use event, covers amount up to 73 g
	Covers use in room size of 20 m ³
	Covers exposure up to 0.17 hours/event
Polishes and Wax Blends Polishes, wax / cream (floor,	Covers concentrations up to 50 %

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furniture, shoes).	
	Covers use up to 29 days/year
	Covers use up to 1 times/day of use
	Covers skin contact area up to 430.00 cm ²
	For each use event, covers amount up to 142 g
	Covers use in room size of 20 m ³
	Covers exposure up to 1.23 hours/event
Polishes and Wax Blends Polishes, spray (furniture, shoes).	Covers concentrations up to 50 %
	Covers use up to 8 days/year
	Covers use up to 1 times/day of use
	Covers skin contact area up to 430.00 cm ²
	For each use event, covers amount up to 35 g
	Covers use in room size of 20 m ³
	Covers exposure up to 0.33 hours/event

Section 2.2	Control of Environmental Exposure
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SECTION 3	EXPOSURE ESTIMATION
Section 3.1 - Health	
The ECETOC TRA tool has been used to estimate consumer exposures unless otherwise indicated.	

Section 3.2 -Environment	
No exposure assessment presented for the environment.	

SECTION 4	GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO
Section 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.	

Section 4.2 -Environment	
No exposure assessment presented for the environment.	

Safety Data Sheet
Exposure Scenarios - Consumer

SECTION 1	EXPOSURE SCENARIO TITLE
Title	Use in Agrochemicals uses - Consumer
Use Descriptor	Sector of Use: SU 21 Product Categories: PC12, PC27 Environmental Release Categories: ERC 8A, ERC 8D
Scope of process	Covers the consumer use in agrochemicals in liquid and solid forms.

SECTION 2	OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES
Additional Information	No exposure assessment presented for the environment.

Section 2.1	Control of Consumer Exposure
Product Characteristics	
Physical form of product	Liquid, vapour pressure > 10 Pa at STP
Concentration of substance in product	Unless otherwise stated:
	Covers concentration up to (%): 50 %
Amounts used	
Unless otherwise stated:	
For each use event, covers amount up to (g):	50
covers skin contact area (cm ²):	875.50
Frequency and Duration of Use	
Unless otherwise stated:	
Covers use up to (times/day of use):	0
Other Operational Conditions affecting consumer Exposure	
Unless otherwise stated: Covers use at ambient temperatures. Covers use in room size of 20m ³ Covers use under typical household ventilation.	

Product Categories	OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES
Fertilizers.	Covers concentrations up to 50 %
	Covers use up to 365 days/year
	Covers use up to 1 times/day of use
	Covers skin contact area up to 857.50 cm ²
	For each use event, assumes swallowed amount of 0.3 g
	Covers use in room size of 20 m ³
Plant Protection Products.	Covers concentrations up to 50 %
	Covers use up to 365 days/year
	Covers use up to 1 times/day of use
	Covers skin contact area up to 857.50 cm ²

Safety Data Sheet

	For each use event, assumes swallowed amount of 0.3 g
	Covers use in room size of 20 m ³

Section 2.2	Control of Environmental Exposure
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SECTION 3	EXPOSURE ESTIMATION
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Section 3.1 - Health

The ECETOC TRA tool has been used to estimate consumer exposures unless otherwise indicated.

Section 3.2 -Environment

No exposure assessment presented for the environment.

SECTION 4	GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO
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Section 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.

Section 4.2 -Environment

No exposure assessment presented for the environment.

Safety Data Sheet
Exposure Scenarios - Consumer

SECTION 1	EXPOSURE SCENARIO TITLE
Title	Use as a fuel - Consumer
Use Descriptor	Sector of Use: SU 21 Product Categories: PC13 Environmental Release Categories: ERC 9A, ERC 9B
Scope of process	Covers consumer uses in liquid fuels.

SECTION 2	OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES
Additional Information	No exposure assessment presented for the environment.

Section 2.1	Control of Consumer Exposure
Product Characteristics	
Physical form of product	Liquid, vapour pressure > 10 Pa at STP
Concentration of substance in product	Unless otherwise stated:
	Covers concentration up to (%): 100 %
Amounts used	
Unless otherwise stated:	
For each use event, covers amount up to (l):	37,500
covers skin contact area (cm ²):	420
Frequency and Duration of Use	
Unless otherwise stated:	
Covers use up to (times/day of use):	0.143
Covers use up to (hours/event):	2
Other Operational Conditions affecting consumer Exposure	
Unless otherwise stated: Covers use at ambient temperatures. Covers use in room size of 20m ³ Covers use under typical household ventilation.	

Product Categories	OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES
Fuels. Liquid: Automotive Refuelling.	Covers concentrations up to 100 %
	Covers use up to 52 days/year
	Covers use up to 1 times/day of use
	Covers skin contact area up to 210.00 cm ²
	For each use event, covers amount up to 37,500 g
	Covers outdoor use.
	Covers use in room size of 100 m ³
	Covers exposure up to 0.05 hours/event
Fuels. Liquid Scooter	Covers concentrations up to 100 %

Safety Data Sheet

Refuelling.	
	Covers use up to 52 days/year
	Covers use up to 1 times/day of use
	Covers skin contact area up to 210.00 cm ²
	For each use event, covers amount up to 3,750 g
	Covers outdoor use.
	Covers use in room size of 100 m ³
	Covers exposure up to 0.03 hours/event
Fuels. Liquid Garden Equipment - Use.	Covers concentrations up to 100 %
	Covers use up to 26 days/year
	Covers use up to 1 times/day of use
	For each use event, covers amount up to 750 g
	Covers outdoor use.
	Covers use in room size of 100 m ³
	Covers exposure up to 2.00 hours/event
Fuels. Liquid: Garden Equipment - Refuelling.	Covers concentrations up to 100 %
	Covers use up to 26 days/year
	Covers use up to 1 times/day of use
	Covers skin contact area up to 420.00 cm ²
	For each use event, covers amount up to 750 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 0.03 hours/event
Fuels. Liquid: Home space heater fuel.	Covers concentrations up to 100 %
	Covers use up to 26 days/year
	Covers use up to 1 times/day of use
	Covers skin contact area up to 420.00 cm ²
	For each use event, covers amount up to 750 g
	Covers use in room size of 20 m ³
	Covers exposure up to 8.00 hours/event
Fuels. Liquid: Lamp oil.	Covers concentrations up to 100 %
	Covers use up to 52 days/year
	Covers use up to 1 times/day of use
	Covers skin contact area up to 210.00 cm ²
	For each use event, covers amount up to 100 g
	Covers use in room size of 20 m ³
	Covers exposure up to 0.01 hours/event

Section 2.2	Control of Environmental Exposure
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SECTION 3	EXPOSURE ESTIMATION
Section 3.1 - Health	
The ECETOC TRA tool has been used to estimate consumer exposures unless otherwise indicated.	

Section 3.2 -Environment
No exposure assessment presented for the environment.

Safety Data Sheet

SECTION 4	GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO
Section 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.	
Section 4.2 -Environment	
No exposure assessment presented for the environment.	

Safety Data Sheet
Exposure Scenarios - Consumer

SECTION 1	EXPOSURE SCENARIO TITLE
Title	Functional Fluids - Consumer
Use Descriptor	Sector of Use: SU 21 Product Categories: PC16, PC17 Environmental Release Categories: ERC 9A, ERC 9B
Scope of process	Use of sealed items containing functional fluids e.g. transfer oils, hydraulic fluids, refrigerants.

SECTION 2	OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES
Additional Information	No exposure assessment presented for the environment.

Section 2.1	Control of Consumer Exposure
Product Characteristics	
Physical form of product	Liquid, vapour pressure > 10 Pa at STP
Concentration of substance in product	Unless otherwise stated:
	Covers concentration up to (%): 100 %
Amounts used	
Unless otherwise stated:	
For each use event, covers amount up to (g):	2,200
covers skin contact area (cm ²):	468
Frequency and Duration of Use	
Unless otherwise stated:	
Covers use up to (times/day of use):	0.010
Covers use up to (hours/event):	0.167
Other Operational Conditions affecting consumer Exposure	
Unless otherwise stated: Covers use at ambient temperatures. Covers use in room size of 20m ³ Covers use under typical household ventilation.	

Product Categories	OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES
Heat Transfer Fluids. Liquids.	Covers concentrations up to 100 %
	Covers use up to 4 days/year
	Covers use up to 1 times/day of use
	Covers skin contact area up to 468.00 cm ²
	For each use event, assumes swallowed amount of 2,200 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 hours/event

Safety Data Sheet

Hydraulic Fluids. Liquids.	Covers concentrations up to 100 %
	Covers use up to 4 days/year
	Covers use up to 1 times/day of use
	Covers skin contact area up to 468.00 cm ²
	For each use event, covers amount up to 2,200 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 hours/event

Section 2.2	Control of Environmental Exposure
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SECTION 3	EXPOSURE ESTIMATION
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Section 3.1 - Health

The ECETOC TRA tool has been used to estimate consumer exposures unless otherwise indicated.

Section 3.2 -Environment

No exposure assessment presented for the environment.

SECTION 4	GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO
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Section 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.

Section 4.2 -Environment

No exposure assessment presented for the environment.

Safety Data Sheet
Exposure Scenarios - Consumer

SECTION 1	EXPOSURE SCENARIO TITLE
Title	De-icing and anti-icing applications - Consumer
Use Descriptor	Sector of Use: SU 21 Product Categories: PC4 Environmental Release Categories: ERC 8D
Scope of process	De-icing of vehicles and similar equipment by spraying.

SECTION 2	OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES
Additional Information	No exposure assessment presented for the environment.

Section 2.1	Control of Consumer Exposure
Product Characteristics	
Physical form of product	Liquid, vapour pressure > 10 Pa at STP
Concentration of substance in product	Unless otherwise stated:
	Covers concentration up to (%): 40 %
Amounts used	
Unless otherwise stated:	
For each use event, covers amount up to (g):	2,000
covers skin contact area (cm ²):	428
Frequency and Duration of Use	
Unless otherwise stated:	
Covers use up to (times/day of use):	1
Covers use up to (hours/event):	0.25
Other Operational Conditions affecting consumer Exposure	
Unless otherwise stated: Covers use at ambient temperatures. Covers use in room size of 20m ³ Covers use under typical household ventilation.	

Product Categories	OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES
Anti-Freeze and De-icing products Washing car window.	Covers concentrations up to 1 %
	Covers use up to 365 days/year
	Covers use up to 1 times/day of use
	For each use event, covers amount up to 0.5 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 0.02 hours/event
Anti-Freeze and De-icing products Pouring into	Covers concentrations up to 10 %

Safety Data Sheet

radiator	
	Covers use up to 365 days/year
	Covers use up to 1 times/day of use
	Covers skin contact area up to 428.00 cm ²
	For each use event, covers amount up to 2,000 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 hours/event
Anti-Freeze and De-icing products Lock de-icer.	Covers concentrations up to 40 %
	Covers use up to 365 days/year
	Covers use up to 1 times/day of use
	Covers skin contact area up to 214.40 cm ²
	For each use event, covers amount 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
	Covers exposure up to 0.25 hours/event

Section 2.2	Control of Environmental Exposure
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SECTION 3	EXPOSURE ESTIMATION
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Section 3.1 - Health

The ECETOC TRA tool has been used to estimate consumer exposures unless otherwise indicated.

Section 3.2 -Environment

No exposure assessment presented for the environment.

SECTION 4	GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO
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Section 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.

Section 4.2 -Environment

No exposure assessment presented for the environment.

Safety Data Sheet
Exposure Scenarios - Consumer

SECTION 1	EXPOSURE SCENARIO TITLE
Title	Other Consumer Uses - Consumer
Use Descriptor	Sector of Use: SU 21 Product Categories: PC28, PC39 Environmental Release Categories: ERC 8A, ERC 8D
Scope of process	Consumer uses e.g. as a carrier in cosmetics/personal care products, perfumes and fragrances. Note: For cosmetic and personal care products, risk assessment only required for the environment under REACH as human health is covered by alternative legislation.

SECTION 2	OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES
Additional Information	No exposure assessment presented for human health. No exposure assessment presented for the environment.

Section 2.1	Control of Consumer Exposure
Product Characteristics	

Product Categories	OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES
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Section 2.2	Control of Environmental Exposure
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SECTION 3	EXPOSURE ESTIMATION
Section 3.1 - Health	
No exposure assessment presented for human health.	

Section 3.2 -Environment	
No exposure assessment presented for the environment.	

SECTION 4	GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO
Section 4.1 - Health	
No exposure assessment presented for human health.	

Section 4.2 -Environment	
No exposure assessment presented for the environment.	

Safety Data Sheet
Exposure Scenarios - Consumer

SECTION 1	EXPOSURE SCENARIO TITLE
Title	Water treatment chemicals - Consumer
Use Descriptor	Sector of Use: SU 21 Product Categories: PC36, PC37 Environmental Release Categories: ERC 8F
Scope of process	Covers the use of the substance for the treatment of water in open and closed systems.

SECTION 2	OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES
Additional Information	No exposure assessment presented for the environment.

Section 2.1	Control of Consumer Exposure
Product Characteristics	
Physical form of product	Liquid, vapour pressure > 10 Pa at STP
Concentration of substance in product	Unless otherwise stated:
	Covers concentration up to (%): 20 %
Amounts used	
Unless otherwise stated:	
For each use event, covers amount up to (g):	10
covers skin contact area (cm ²):	6,600
Frequency and Duration of Use	
Unless otherwise stated:	
Covers use up to (times/day of use):	1
Other Operational Conditions affecting consumer Exposure	
Unless otherwise stated: Covers use at ambient temperatures. Covers use in room size of 20m ³ Covers use under typical household ventilation.	

Product Categories	OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES
Water softeners.	Covers concentrations up to 20 %
	Covers use up to 365 days/year
	Covers use up to 1 times/day of use
	Covers skin contact area up to 6,600.00 cm ²
	For each use event, assumes swallowed amount of 0.02 mg
	For each use event, covers amount up to 10 g
	Covers use in room size of 20 m ³
Water treatment chemicals.	Covers concentrations up to 20 %
	Covers use up to 365 days/year
	Covers use up to 1 times/day of use

Safety Data Sheet

	Covers skin contact area up to 6,600.00 cm ²
	For each use event, assumes swallowed amount of 0.15 mg
	For each use event, covers amount up to 10 g
	Covers use in room size of 20 m ³

Section 2.2	Control of Environmental Exposure
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SECTION 3	EXPOSURE ESTIMATION
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Section 3.1 - Health

The ECETOC TRA tool has been used to estimate consumer exposures unless otherwise indicated.

Section 3.2 -Environment

No exposure assessment presented for the environment.

SECTION 4
GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO
Section 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.

Section 4.2 -Environment

No exposure assessment presented for the environment.