

SAFETY DATA SHEET

SECTION 1	IDENTIFICATION OF THE SUBSTANCE / MIXTURE AND OF THE COMPANY / UNDERTAKING
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As of the revision date above, this (M)SDS meets the regulations in the United Kingdom & Ireland.

1.1. PRODUCT IDENTIFIER

Product Name: EXXONMOBIL IPA
Product Description: Oxygenated Hydrocarbon
Registration Name:
propan-2-ol

Registration Number:

01-2119457558-25-0005

1.2. RELEVANT IDENTIFIED USES OF THE SUBSTANCE OR MIXTURE AND USES ADVISED AGAINST

Intended Use: Reactive solvent, Solvent

Identified Uses:

Manufacture of substance (PROC1, PROC15, PROC2, PROC3, PROC4, PROC8a, PROC8b, SU10, SU3, SU8, SU9)
Distribution of substance (PROC1, PROC15, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC9, SU3, SU8, SU9)
Formulation and (re)packing of substances and mixtures (PROC1, PROC14, PROC15, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9, SU10, SU3)
Use in Coatings - Industrial (PROC1, PROC10, PROC13, PROC14, PROC15, PROC2, PROC3, PROC4, PROC5, PROC7, PROC8a, PROC8b, PROC9, SU3)
Use in Cleaning Agents - Industrial (PROC10, PROC13, PROC2, PROC3, PROC4, PROC7, PROC8a, PROC8b, SU3)
Use in oil field drilling and production operations - Industrial (PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, SU3)
Lubricants - Industrial (PROC1, PROC10, PROC13, PROC17, PROC18, PROC2, PROC3, PROC4, PROC7, PROC8a, PROC8b, PROC9, SU3)
Metal working fluids / rolling oils - Industrial (PROC1, PROC10, PROC13, PROC17, PROC2, PROC3, PROC4, PROC5, PROC7, PROC8a, PROC8b, PROC9, SU3)
Blowing agents (PROC1, PROC12, PROC3, PROC8b, SU3)
Use as binders and release agents - Industrial (PROC1, PROC10, PROC14, PROC2, PROC3, PROC4, PROC6, PROC7, PROC8b, SU3)
Use as a fuel - Industrial (PROC1, PROC16, PROC2, PROC3, PROC8a, PROC8b, SU3)
Functional Fluids - Industrial (PROC1, PROC2, PROC4, PROC8a, PROC8b, PROC9, SU3)
Use in laboratories - Industrial (PROC10, PROC15, SU3)
Rubber production and processing (PROC1, PROC13, PROC14, PROC2, PROC21, PROC3, PROC4, PROC5, PROC6, PROC7, PROC8a, PROC8b, PROC9, SU10)
Polymer processing - Industrial (PROC1, PROC13, PROC14, PROC2, PROC21, PROC3, PROC4, PROC5, PROC6, PROC8a, PROC8b, PROC9, SU10, SU3)
Water treatment chemicals - Industrial (PROC1, PROC13, PROC2, PROC3, PROC4, PROC8a, PROC8b, SU3)
Mining chemicals (PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9, SU3)

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Use in Coatings - Professional (PROC1, PROC10, PROC11, PROC13, PROC15, PROC19, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, SU22)
Use in Cleaning Agents - Professional (PROC10, PROC11, PROC13, PROC2, PROC3, PROC4, PROC8a, PROC8b, SU22)
Lubricants - Professional (Low Release) (PROC1, PROC10, PROC11, PROC13, PROC17, PROC18, PROC2, PROC20, PROC3, PROC4, PROC8a, PROC8b, PROC9, SU22)
Metal working fluids / rolling oils - Professional (PROC1, PROC10, PROC11, PROC13, PROC17, PROC2, PROC3, PROC8a, PROC8b, PROC9, SU22)
Use as binders and release agents - Professional (PROC1, PROC10, PROC11, PROC14, PROC2, PROC3, PROC4, PROC6, PROC8b, SU22)
Agrochemical uses - Professional (PROC1, PROC11, PROC13, PROC2, PROC4, PROC8a, PROC8b, SU22)
Use as a fuel - Professional (PROC1, PROC16, PROC2, PROC3, PROC8a, PROC8b, SU22)
Functional Fluids - Professional (PROC1, PROC2, PROC20, PROC3, PROC8a, PROC9, SU22)
De-icing and anti-icing applications - Professional (PROC10, PROC11, PROC8b, SU22)
Road and construction applications (PROC10, PROC11, PROC13, PROC8a, PROC8b, SU22)
Use in laboratories - Professional (PROC10, PROC15, SU22)
Explosives manufacture & use (PROC1, PROC2, PROC3, PROC5, PROC8a, PROC8b, SU22)
Polymer processing - Professional (PROC1, PROC14, PROC2, PROC21, PROC6, PROC8a, PROC8b, SU22)
Water treatment chemicals - Professional (PROC1, PROC13, PROC3, PROC4, PROC8a, PROC8b, SU22)
Use in Coatings - Consumer (PC01,PC04,PC08,PC09A,PC09B,PC09C,PC15,PC18,PC23,PC24,PC31,PC34, SU21)
Use in Cleaning Agents - Consumer (PC03,PC04,PC08,PC09A,PC09B,PC09C,PC24,PC35,PC38, SU21)
Lubricants - Consumer (Low Release) (PC01,PC24,PC31, SU21)
Agrochemical uses - Consumer (PC12,PC27, SU21)
Use as a fuel - Consumer (PC13, SU21)
Functional Fluids - Consumer (PC16,PC17, SU21)
De-icing and anti-icing applications - Consumer (PC04, SU21)
Other Consumer Uses (PC28,PC39)
Water treatment chemicals - Consumer (PC36,PC37, SU21)

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

1.3. DETAILS OF THE SUPPLIER OF THE SAFETY DATA SHEET

Supplier: ExxonMobil Chemical Belgium
A division of ExxonMobil Petroleum & Chemical
Polderdijkweg 3B
B-2030 Antwerpen
Belgium
Phone: 32 3 543 31 11

Local Contact: ExxonMobil Chemical Ltd.
MAILPOINT 88
CADLAND ROAD
HARDLEY, SOUTHAMPTON
SO45 3NP HAMPSHIRE
Great Britain

Supplier General Contact: +44 (0)23-8089-3822 / (0)23-8089-5297
E-Mail: sds.uk@exxonmobil.com

1.4. EMERGENCY TELEPHONE NUMBER

24 Hour Environmental / Health Emergency +44 (0)23-8089-1558

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Telephone:

SECTION 2 HAZARDS IDENTIFICATION

2.1. CLASSIFICATION OF SUBSTANCE OR MIXTURE

Classification according to Regulation (EC) No 1272/2008

Flammable liquid: Category 2.

Eye irritation: Category 2. Target organ toxicant (central nervous system): Category 3.

H225: Highly flammable liquid and vapor.

H319: Causes serious eye irritation. H336: May cause drowsiness or dizziness.

Classification according to EU Directive 67/548/EEC / 1999/45 EC

| F; R11 | Xi; R36 | R67 |

Highly flammable. Irritant. R11; Highly flammable.

R36; Irritating to eyes. R67; Vapours may cause drowsiness and dizziness.

The classification of this product is based all or in part on test data.

2.2. LABEL ELEMENTS

Label elements according to Regulation (EC) No 1272/2008

Pictograms:



Signal Word: Danger

Hazard Statements:

H225: Highly flammable liquid and vapor.

H319: Causes serious eye irritation. H336: May cause drowsiness or dizziness.

Precautionary Statements:

P210: Keep away from heat/sparks/open flames/hot surfaces. -- No smoking. P233: Keep container tightly closed.
P240: Ground / bond container and receiving equipment. P241: Use explosion-proof electrical, ventilating, and lighting equipment. P242: Use only non-sparking tools. P243: Take precautionary measures against static discharge. P261: Avoid breathing mist / vapours. P264: Wash skin thoroughly after handling. P271: Use only outdoors or in a well-ventilated area. P280: Wear protective gloves and eye / face protection.
P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician. P303 + P361 + P353: IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. P304 +

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P340: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. P305 + P351 + P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P312: Call a POISON CENTER or doctor/physician if you feel unwell. P331: Do NOT induce vomiting. P337 + P313: If eye irritation persists: Get medical advice/attention. P370 + P378: In case of fire: Use water fog, foam, dry chemical or carbon dioxide (CO2) for extinction. P403 + P235: Store in a well-ventilated place. Keep cool. P405: Store locked up. P501: Dispose of contents and container in accordance with local regulations.

Contains: propan-2-ol

2.3. OTHER HAZARDS

Physical / Chemical Hazards:

Material can release vapours that readily form flammable mixtures. Vapour accumulation could flash and/or explode if ignited.

Health Hazards:

May be irritating to the skin, nose, throat, and lungs. May cause central nervous system depression. If swallowed, may be aspirated and cause lung damage.

Environmental Hazards:

No significant hazards. Material does not meet the criteria for PBT or vPvB in accordance with REACH Annex XIII.

SECTION 3	COMPOSITION / INFORMATION ON INGREDIENTS
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3.1. SUBSTANCES

This material is defined as a substance.

Reportable hazardous substance(s) complying with the classification criteria and/or with an exposure limit (OEL)

Name	CAS#	EC#	Registration#	Concentration*	GHS/CLP classification
propan-2-ol	67-63-0	200-661-7	01-2119457558-25	100 %	Eye Irrit. 2 H319, Flam. Liq. 2 H225, STOT SE 3 H336, [Asp. Tox. 2 H305]

Note - any classification in brackets is a GHS building block that was not adopted by the EU in the CLP regulation (No 1272/2008) and therefore is not applicable in the EU or in non-EU countries which have implemented the CLP regulation and is shown for informational purposes only.

Name	CAS#	EC#	Registration#	Concentration*	DSD Symbols/Risk Phrases
propan-2-ol	67-63-0	200-661-7	01-2119457558-25	100 %	F;R11, Xi;R36, R67

* All concentrations are percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

Note: See (M)SDS Section 16 for full text of the R-Phrases. See (M)SDS Section 16 for full text of hazard statements.

3.2. MIXTURES Not Applicable. This product is regulated as a substance.

SECTION 4	FIRST AID MEASURES
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4.1. DESCRIPTION OF FIRST AID MEASURES

INHALATION

Remove from further exposure. For those providing assistance, avoid exposure to yourself or others. Use adequate respiratory protection. If respiratory irritation, dizziness, nausea, or unconsciousness occurs, seek immediate medical assistance. If breathing has stopped, assist ventilation with a mechanical device or use mouth-to-mouth resuscitation.

SKIN CONTACT

Wash contact areas with soap and water. Remove contaminated clothing. Launder contaminated clothing before reuse.

EYE CONTACT

Flush thoroughly with water for at least 15 minutes. Get medical assistance.

INGESTION

Seek immediate medical attention. Do not induce vomiting.

4.2. MOST IMPORTANT SYMPTOMS AND EFFECTS, BOTH ACUTE AND DELAYED

Headache, dizziness, drowsiness, nausea and other CNS effects. Eye pain, redness, tearing, swelling of eyelids, itching.

4.3. INDICATION OF ANY IMMEDIATE MEDICAL ATTENTION AND SPECIAL TREATMENT NEEDED

If ingested, material may be aspirated into the lungs and cause chemical pneumonitis. Treat appropriately.

SECTION 5	FIRE FIGHTING MEASURES
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5.1. EXTINGUISHING MEDIA

Suitable Extinguishing Media: Use water fog, foam, dry chemical or carbon dioxide (CO₂) to extinguish flames.

Unsuitable Extinguishing Media: Straight streams of water

5.2. SPECIAL HAZARDS ARISING FROM THE SUBSTANCE OR MIXTURE

Hazardous Combustion Products: Smoke, Fume, Incomplete combustion products, Oxides of carbon

5.3. ADVICE FOR FIRE FIGHTERS

Fire Fighting Instructions: Evacuate area. If a leak or spill has not ignited, use water spray to disperse the vapours and to protect personnel attempting to stop a leak. Prevent run-off from fire control or dilution from entering streams, sewers or drinking water supply. Fire-fighters should use standard protective equipment and in enclosed spaces, self-contained breathing apparatus (SCBA). Use water spray to cool fire exposed surfaces and to protect personnel.

Unusual Fire Hazards: Highly flammable. Vapour is flammable and heavier than air. Vapour may travel across the ground and reach remote ignition sources, causing a flashback fire danger. Hazardous material. Firefighters should consider protective equipment indicated in Section 8.

FLAMMABILITY PROPERTIES

Flash Point [Method]: 15°C (59°F) [ASTM D-56]

Upper/Lower Flammable Limits (Approximate volume % in air): UEL: 13 LEL: 2.0 [Technical literature]

Autoignition Temperature: >350°C (662°F) [Technical literature]

SECTION 6 ACCIDENTAL RELEASE MEASURES

6.1. PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT AND EMERGENCY PROCEDURES

NOTIFICATION PROCEDURES

In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable regulations.

PROTECTIVE MEASURES

Avoid contact with spilled material. Warn or evacuate occupants in surrounding and downwind areas if required, due to toxicity or flammability of the material. See Section 5 for fire fighting information. See the Hazard Identification Section for Significant Hazards. See Section 4 for First Aid Advice. See Section 8 for advice on the minimum requirements for personal protective equipment. Additional protective measures may be necessary, depending on the specific circumstances and/or the expert judgment of the emergency responders.

6.2. ENVIRONMENTAL PRECAUTIONS

Large Spills: Dyke far ahead of liquid spill for later recovery and disposal. Prevent entry into waterways, sewers, basements or confined areas.

6.3. METHODS AND MATERIAL FOR CONTAINMENT AND CLEANING UP

Land Spill: Eliminate all ignition sources (no smoking, flares, sparks or flames in immediate area). Stop leak if you can do so without risk. All equipment used when handling the product must be grounded. Do not touch or walk through spilled material. Prevent entry into waterways, sewer, basements or confined areas. A vapour-suppressing foam may be used to reduce vapour. Use clean non-sparking tools to collect absorbed material. Absorb or cover with dry earth, sand or other non-combustible material and transfer to containers. **Large Spills:** Water spray may reduce vapour, but may not prevent ignition in enclosed spaces. Recover by pumping or with suitable absorbent.

Water Spill: Stop leak if you can do so without risk. Eliminate sources of ignition. Warn other shipping. Seek the advice of a specialist before using dispersants.

Water spill and land spill recommendations are based on the most likely spill scenario for this material; however, geographic conditions, wind, temperature, (and in the case of a water spill) wave and current direction and speed may greatly influence the appropriate action to be taken. For this reason, local experts should be consulted. Note: Local regulations may prescribe or limit action to be taken.

6.4. REFERENCES TO OTHER SECTIONS

See Section 6.1.

SECTION 7 HANDLING AND STORAGE

7.1. PRECAUTIONS FOR SAFE HANDLING

Avoid contact with eyes. Prevent exposure to ignition sources, for example use non-sparking tools and explosion-proof equipment. Potentially toxic/irritating fumes/vapour may be evolved from heated or agitated material. Use only with adequate ventilation. Use proper bonding and/or earthing procedures. However, bonding and earthing may not eliminate the hazard from static accumulation. Peroxides may form upon prolonged storage. Exposure to light, heat or air significantly increases peroxide formation. If evaporated to a residue, the mixture of peroxides residue and material vapor may explode when exposed to heat or shock. Prevent small spills and leakage to avoid slip hazard.

Loading/Unloading Temperature: [Ambient]

Transport Temperature: [Ambient]

Transport Pressure: [Ambient]

Static Accumulator: This material is not a static accumulator.

7.2. CONDITIONS FOR SAFE STORAGE, INCLUDING ANY INCOMPATIBILITIES

Ample fire water supply should be available. A fixed sprinkler/deluge system is recommended. Keep container closed. Handle containers with care. Open slowly in order to control possible pressure release. Store in a cool, well-ventilated area. Outside or detached storage preferred. Storage containers should be earthed and bonded. Fixed storage containers, transfer containers and associated equipment should be earthed and bonded to prevent accumulation of static charge.

Storage Temperature: [Ambient]

Storage Pressure: [Ambient]

Suitable Containers/Packing: Drums; Tank Cars; Tank Trucks; Tankers; Barges

Suitable Materials and Coatings (Chemical Compatibility): Carbon Steel; Stainless Steel; Polyester; Teflon; Polyethylene; Polypropylene; Copper Bronze; Epoxy Phenolic; Zinc; Vinyls

Unsuitable Materials and Coatings: Aluminium; Cast iron; Polystyrene; Ethylene-propylene-diene monomer (EPDM); Monel; Butyl Rubber; Natural Rubber

7.3. SPECIFIC END USES: Section 1 informs about identified end-uses. No industrial or sector specific guidance available.

SECTION 8	EXPOSURE CONTROLS / PERSONAL PROTECTION
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8.1. CONTROL PARAMETERS

EXPOSURE LIMIT VALUES

Exposure limits/standards (Note: Exposure limits are not additive)

Substance Name	Form	Limit/Standard	Note	Source
propan-2-ol		STEL 1250 mg/m ³ 500 ppm		UK EH40
propan-2-ol		TWA 999 mg/m ³ 400 ppm		UK EH40
propan-2-ol		STEL 400 ppm		ACGIH
propan-2-ol		TWA 200 ppm		ACGIH

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UK EH40 Workplace Exposure Limits. Exposure limits for use with Control of Substances Hazardous to Health Regulations 2002 (as amended)

Note: Information about recommended monitoring procedures can be obtained from the relevant agency(ies)/institute(s):

UK Health and Safety Executive (HSE)

DERIVED NO EFFECT LEVEL (DNEL)/DERIVED MINIMAL EFFECT LEVEL (DMEL)

Worker

Substance Name	Dermal	Inhalation
propan-2-ol	888 mg/kg bw/day DNEL, Chronic Exposure, Systemic Effects	500 mg/m ³ DNEL, Chronic Exposure, Systemic Effects

Consumer

Substance Name	Dermal	Inhalation	Oral
propan-2-ol	319 mg/kg bw/day DNEL, Chronic Exposure, Systemic Effects	89 mg/m ³ DNEL, Chronic Exposure, Systemic Effects	26 mg/kg bw/day DNEL, Chronic Exposure, Systemic Effects

Note: The Derived No Effect Level (DNEL) is an estimated safe level of exposure that is derived from toxicity data in accord with specific guidance within the European REACH regulation. The DNEL may differ from an Occupational Exposure Limit (OEL) for the same chemical. OELs may be recommended by an individual company, a governmental regulatory body or an expert organization, such as the Scientific Committee for Occupational Exposure Limits (SCOEL) or the American Conference of Governmental Industrial Hygienists (ACGIH). OELs are considered to be safe exposure levels for a typical worker in an occupational setting for an 8-hour work shift, 40 hour work week, as a time weighted average (TWA) or a 15 minute short-term exposure limit (STEL). While also considered to be protective of health, OELs are derived by a process different from that of REACH.

PREDICTED NO EFFECT CONCENTRATION (PNEC)

Substance Name	Aqua (fresh water)	Aqua (marine water)	Aqua (intermittent release)	Sewage treatment plant	Sediment	Soil	Oral (secondary poisoning)
propan-2-ol	140.9 mg/l	140.9 mg/l	140.9 mg/l	2251 mg/l	552 mg/kg (dry wt)	28 mg/kg	160 mg / kg (food)

8.2. EXPOSURE CONTROLS

ENGINEERING CONTROLS

The level of protection and types of controls necessary will vary depending upon potential exposure conditions. Control measures to consider:

Adequate ventilation should be provided so that exposure limits are not exceeded. Use explosion-proof ventilation equipment.

PERSONAL PROTECTION

Personal protective equipment selections vary based on potential exposure conditions such as applications, handling practices, concentration and ventilation. Information on the selection of protective equipment for use with this material, as provided below, is based upon intended, normal usage.

Respiratory Protection: If engineering controls do not maintain airborne contaminant concentrations at a level which is adequate to protect worker health, an approved respirator may be appropriate. Respirator selection, use, and maintenance must be in accordance with regulatory requirements, if applicable. Types of respirators to be considered for this material include:

Half-face filter respirator Type A filter material, European Committee for Standardization (CEN) standards EN 136, 140 and 405 provide respirator masks and EN 149 and 143 provide filter recommendations.

For high airborne concentrations, use an approved supplied-air respirator, operated in positive pressure mode. Supplied air respirators with an escape bottle may be appropriate when oxygen levels are inadequate, gas/vapour warning properties are poor, or if air purifying filter capacity/rating may be exceeded.

Hand Protection: Any specific glove information provided is based on published literature and glove manufacturer data. Glove suitability and breakthrough time will differ depending on the specific use conditions. Contact the glove manufacturer for specific advice on glove selection and breakthrough times for your use conditions. Inspect and replace worn or damaged gloves. The types of gloves to be considered for this material include:

If prolonged or repeated contact is likely, chemical-resistant gloves are recommended. If contact with forearms is likely, wear gauntlet-style gloves. Nitrile, CEN standards EN 420 and EN 374 provide general requirements and lists of glove types.

Eye Protection: Chemical goggles are recommended.

Skin and Body Protection: Any specific clothing information provided is based on published literature or manufacturer data. The types of clothing to be considered for this material include:

If prolonged or repeated contact is likely, chemical, and oil resistant clothing is recommended.

Specific Hygiene Measures: Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Discard contaminated clothing and footwear that cannot be cleaned. Practice good housekeeping.

For Summary of Risk Management Measures across all identified uses, see Annex.

ENVIRONMENTAL CONTROLS

Comply with applicable environmental regulations limiting discharge to air, water and soil. Protect the environment by applying appropriate control measures to prevent or limit emissions.

SECTION 9	PHYSICAL AND CHEMICAL PROPERTIES
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Note: Physical and chemical properties are provided for safety, health and environmental considerations only and may not fully represent product specifications. Contact the Supplier for additional information.

9.1. INFORMATION ON BASIC PHYSICAL AND CHEMICAL PROPERTIES

Physical State: Liquid
Form: Clear
Colour: Colourless
Odour: Alcohol
Odour Threshold: No data available
pH: No data available
Melting Point: -89°C (-128°F) [Technical literature]
Freezing Point: No data available
Initial Boiling Point / and Boiling Range: 82°C (180°F) - 83°C (181°F) [ASTM D1078]
Flash Point [Method]: 15°C (59°F) [ASTM D-56]
Evaporation Rate (n-butyl acetate = 1): 2.2 [In-house method]
Flammability (Solid, Gas): No data available
Upper/Lower Flammable Limits (Approximate volume % in air): UEL: 13 LEL: 2.0 [Technical literature]
Vapour Pressure: 4.3 kPa (32.25 mm Hg) at 20 °C [Calculated]
[In-house method]
Vapour Density (Air = 1): > 1 at 101 kPa [Calculated]
Relative Density (at 20 °C): 0.786 [With respect to water] [Calculated]
Solubility(ies): water Complete
Partition coefficient (n-Octanol/Water Partition Coefficient): 0.05 [Technical literature]
Autoignition Temperature: >350°C (662°F) [Technical literature]
Decomposition Temperature: No data available
Viscosity: [N/D at 40°C] | 2.66 cSt (2.66 mm²/sec) at 25°C [ASTM D7042]
Explosive Properties: None
Oxidizing Properties: None

9.2. OTHER INFORMATION

Density (at 20 °C): 785 kg/m³ (6.55 lbs/gal, 0.79 kg/dm³) [ISO 12185]
Molecular Weight: 60 G/MOLE [Calculated]
Hygroscopic: Yes
Coefficient of Thermal Expansion: 0.00117 V/V/DEG C [In-house method]

SECTION 10	STABILITY AND REACTIVITY
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10.1. REACTIVITY: See sub-sections below.

10.2. CHEMICAL STABILITY: Material is stable under normal conditions. Under normal storage conditions peroxides may accumulate and explode when subjected to heat or shock. Distillation or evaporation increases peroxide formation and increases the explosion hazard.

10.3. POSSIBILITY OF HAZARDOUS REACTIONS: Hazardous polymerization will not occur.

10.4. CONDITIONS TO AVOID: Avoid heat, sparks, open flames and other ignition sources.

10.5. INCOMPATIBLE MATERIALS: Aldehydes, Amines, Strong oxidisers, Caustics, Chlorinated Compounds, Alkanolamines

10.6. HAZARDOUS DECOMPOSITION PRODUCTS: Material does not decompose at ambient temperatures.

SECTION 11	TOXICOLOGICAL INFORMATION
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11.1. INFORMATION ON TOXICOLOGICAL EFFECTS

<u>Hazard Class</u>	<u>Conclusion / Remarks</u>
Inhalation	
Acute Toxicity: (Rat) 6 hour(s) LC50 > 25000 mg/m3 (Vapour) Test scores or other study results do not meet criteria for classification.	Minimally Toxic. Based on test data for the material. Test(s) equivalent or similar to OECD Guideline 403
Irritation: No end point data.	Elevated temperatures or mechanical action may form vapours, mist, or fumes which may be irritating to the eyes, nose, throat, or lungs.
Ingestion	
Acute Toxicity (Rat): LD 50 5840 mg/kg Test scores or other study results do not meet criteria for classification.	Minimally Toxic. Based on test data for the material. Test(s) equivalent or similar to OECD Guideline 401
Skin	
Acute Toxicity (Rabbit): LD 50 13900 mg/kg Test scores or other study results do not meet criteria for classification.	Minimally Toxic. Based on test data for the material. Test(s) equivalent or similar to OECD Guideline 402
Skin Corrosion/Irritation: Data available. Test scores or other study results do not meet criteria for classification.	May dry the skin leading to discomfort and dermatitis. Based on test data for the material. Test(s) equivalent or similar to OECD Guideline 404
Eye	
Serious Eye Damage/Irritation: Data available. Test scores or other study results meet criteria for classification.	Irritating and will injure eye tissue. Based on test data for the material. Test(s) equivalent or similar to OECD Guideline 405
Sensitisation	
Respiratory Sensitization: No end point data.	Not expected to be a respiratory sensitizer.
Skin Sensitization: Data available. Test scores or other study results do not meet criteria for classification.	Not expected to be a skin sensitizer. Based on test data for the material. Test(s) equivalent or similar to OECD Guideline 406
Aspiration: Data available.	May be harmful if swallowed and enters airways. Based on physico-chemical properties of the material.
Germ Cell Mutagenicity: Data available. Test scores or other study results do not meet criteria for classification.	Not expected to be a germ cell mutagen. Based on test data for the material. Test(s) equivalent or similar to OECD Guideline 471 474 476
Carcinogenicity: Data available. Test scores or other study results do not meet criteria for classification.	Not expected to cause cancer. Based on test data for the material. Test(s) equivalent or similar to OECD Guideline 451
Reproductive Toxicity: Data available. Test scores or other study results do not meet criteria for classification.	Not expected to be a reproductive toxicant. Based on test data for the material. Test(s) equivalent or similar to OECD Guideline 414 415 416
Lactation: No end point data.	Not expected to cause harm to breast-fed children.
Specific Target Organ Toxicity (STOT)	

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Single Exposure: No end point data.	May cause drowsiness or dizziness.
Repeated Exposure: Data available. Test scores or other study results do not meet criteria for classification.	Not expected to cause organ damage from prolonged or repeated exposure. Based on test data for the material. Test(s) equivalent or similar to OECD Guideline 413

OTHER INFORMATION

For the product itself:

Vapour concentrations above recommended exposure levels are irritating to the eyes and the respiratory tract, may cause headaches and dizziness, are anaesthetic and may have other central nervous system effects. Prolonged and/or repeated skin contact with low viscosity materials may defat the skin resulting in possible irritation and dermatitis. Small amounts of liquid aspirated into the lungs during ingestion or from vomiting may cause chemical pneumonitis or pulmonary edema.

Additional information is available by request.

SECTION 12 ECOLOGICAL INFORMATION

The information given is based on data available for the material, the components of the material, and similar materials.

12.1. TOXICITY

Material -- Not expected to be harmful to aquatic organisms.

Material -- Not expected to demonstrate chronic toxicity to aquatic organisms

12.2. PERSISTENCE AND DEGRADABILITY

Biodegradation:

Material -- Expected to be readily biodegradable.

Hydrolysis:

Material -- Transformation due to hydrolysis not expected to be significant.

Photolysis:

Material -- Transformation due to photolysis not expected to be significant.

Atmospheric Oxidation:

Material -- Expected to degrade at a moderate rate in air

12.3. BIOACCUMULATIVE POTENTIAL Not determined.

12.4. MOBILITY IN SOIL

Material -- Expected to remain in water or migrate through soil.

12.5. PERSISTENCE, BIOACCUMULATION AND TOXICITY FOR SUBSTANCE(S)

This product is not, or does not contain, a substance that is a PBT or a vPvB.

12.6. OTHER ADVERSE EFFECTS

No adverse effects are expected.

OTHER ECOLOGICAL INFORMATION

VOC: Yes

ECOLOGICAL DATA

Ecotoxicity

Test	Duration	Organism Type	Test Results
Aquatic - Acute Toxicity	96 hour(s)	Pimephales promelas	LC50 9640 mg/l: data for the material
Aquatic - Acute Toxicity	24 hour(s)	Daphnia magna	LC50 9714 mg/l: data for the material
Aquatic - Acute Toxicity	8 day(s)	Alga	LOEC 1000 mg/l: data for the material

Persistence, Degradability and Bioaccumulation Potential

Media	Test Type	Duration	Test Results: Basis
Octanol-Water	Calculated		log Kow 0.05 : material
Water	Ready Biodegradability	5 day(s)	Percent Degraded 53 : material

SECTION 13 DISPOSAL CONSIDERATIONS

Disposal recommendations based on material as supplied. Disposal must be in accordance with current applicable laws and regulations, and material characteristics at time of disposal.

13.1. WASTE TREATMENT METHODS

Product is suitable for burning in an enclosed controlled burner for fuel value or disposal by supervised incineration at very high temperatures to prevent formation of undesirable combustion products.

REGULATORY DISPOSAL INFORMATION

European Waste Code: 07 07 99 or 08 XX XX

NOTE: These codes are assigned based upon the most common uses for this material and may not reflect contaminants resulting from actual use. Waste producers need to assess the actual process used when generating the waste and its contaminants in order to assign the proper waste disposal code(s).

Empty Container Warning Empty Container Warning (where applicable): Empty containers may contain residue and can be dangerous. Do not attempt to refill or clean containers without proper instructions. Empty drums should be completely drained and safely stored until appropriately reconditioned or disposed. Empty containers should be taken for recycling, recovery, or disposal through suitably qualified or licensed contractor and in accordance with governmental regulations. DO NOT PRESSURISE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND, OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCES OF IGNITION. THEY MAY EXPLODE AND CAUSE INJURY OR DEATH.

SECTION 14 TRANSPORT INFORMATION

LAND (ADR/RID)

- 14.1. UN Number: 1219
- 14.2. UN Proper Shipping Name (Technical Name): ISOPROPANOL
- 14.3. Transport Hazard Class(es): 3
- 14.4. Packing Group: II
- 14.5. Environmental Hazards: None

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14.6. Special Precautions for users:

Classification Code: F1

Label(s) / Mark(s): 3

Hazard ID Number: 33

Hazchem EAC: 2YE

Transport Document Name: UN1219, ISOPROPANOL, 3, PG II

INLAND WATERWAYS (ADNR/ADN)

14.1. UN (or ID) Number: 1219

14.2. UN Proper Shipping Name (Technical Name): ISOPROPANOL

14.3. Transport Hazard Class(es): 3

14.4. Packing Group: II

14.5. Environmental Hazards: None

14.6. Special Precautions for users:

Hazard ID Number: 33

Label(s) / Mark(s): 3

Transport Document Name: UN1219, ISOPROPANOL, 3, PG II

SEA (IMDG)

14.1. UN Number: 1219

14.2. UN Proper Shipping Name (Technical Name): ISOPROPANOL

14.3. Transport Hazard Class(es): 3

14.4. Packing Group: II

14.6. Special Precautions for users:

Label(s): 3

EMS Number: F-E, S-D

Transport Document Name: UN1219, ISOPROPANOL, 3, PG II, (15°C c.c.)

SEA (MARPOL 73/78 Convention - Annex II):

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

Substance Name: ISOPROPYL ALCOHOL

Ship type required: NA

Pollution category: Z

AIR (IATA)

14.1. UN Number: 1219

14.2. UN Proper Shipping Name (Technical Name): ISOPROPYL ALCOHOL

14.3. Transport Hazard Class(es): 3

14.4. Packing Group: II

14.5. Environmental Hazards: None

14.6. Special Precautions for users:

Label(s) / Mark(s): 3

Transport Document Name: UN1219, ISOPROPYL ALCOHOL, 3, PG II

SECTION 15	REGULATORY INFORMATION
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REGULATORY STATUS AND APPLICABLE LAWS AND REGULATIONS

Complies with the following national/regional chemical inventory requirements: AICS, DSL, ENCS, IECSC, KECI, PICCS, TSCA

15.1. SAFETY, HEALTH AND ENVIRONMENTAL REGULATIONS/LEGISLATION SPECIFIC FOR THE SUBSTANCE OR MIXTURE

Applicable EU Directives and Regulations:

1907/2006 [... on the Registration, Evaluation, Authorisation and Restriction of Chemicals ... and amendments thereto]

2004/42/CE [on the limitation of emissions of volatile organic compounds due to the use of organic solvents in certain paints and varnishes and vehicle refinishing products and amending Directive 1999/13/EC.]

96/82/EC as extended by 2003/105/EC [... on the control of major-accident hazards involving dangerous substances]. Product contains a substance that falls within the criteria defined in Annex I. Refer to Directive for details of requirements taking into account the volume of product stored on site.

98/24/EC [... on the protection of workers from the risk related to chemical agents at work ...]. Refer to Directive for details of requirements.

1272/2008 [on classification, labelling and packaging of substances and mixtures.. and amendments thereto]

Refer to the relevant EU/national regulation for details of any actions or restrictions required by the above Regulation(s)/Directive(s).

15.2. CHEMICAL SAFETY ASSESSMENT

REACH Information: A Chemical Safety Assessment has been carried out for the substance(s) that makes/make up this material or for the material itself.

SECTION 16	OTHER INFORMATION
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REFERENCES: Sources of information used in preparing this SDS included one or more of the following: results from in house or supplier toxicology studies, CONCAWE Product Dossiers, publications from other trade associations, such as the EU Hydrocarbon Solvents REACH Consortium, U.S. HPV Program Robust Summaries, the EU IUCLID Data Base, U.S. NTP publications, and other sources, as appropriate.

List of abbreviations and acronyms that could be (but not necessarily are) used in this safety data sheet:

Acronym	Full text
N/A	Not applicable
N/D	Not determined
NE	Not established
VOC	Volatile Organic Compound
AICS	Australian Inventory of Chemical Substances

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AIHA WEEL	American Industrial Hygiene Association Workplace Environmental Exposure Limits
ASTM	ASTM International, originally known as the American Society for Testing and Materials (ASTM)
DSL	Domestic Substance List (Canada)
EINECS	European Inventory of Existing Commercial Substances
ELINCS	European List of Notified Chemical Substances
ENCS	Existing and new Chemical Substances (Japanese inventory)
IECSC	Inventory of Existing Chemical Substances in China
KECI	Korean Existing Chemicals Inventory
NDSL	Non-Domestic Substances List (Canada)
NZIoC	New Zealand Inventory of Chemicals
PICCS	Philippine Inventory of Chemicals and Chemical Substances
TLV	Threshold Limit Value (American Conference of Governmental Industrial Hygienists)
TSCA	Toxic Substances Control Act (U.S. inventory)
UVCB	Substances of Unknown or Variable composition, Complex reaction products or Biological materials
LC	Lethal Concentration
LD	Lethal Dose
LL	Lethal Loading
EC	Effective Concentration
EL	Effective Loading
NOEC	No Observable Effect Concentration
NOELR	No Observable Effect Loading Rate

KEY TO THE RISK CODES CONTAINED IN SECTION 2 AND 3 OF THIS DOCUMENT (for information only):

R11; Highly flammable.

R36; Irritating to eyes.

R67; Vapours may cause drowsiness and dizziness.

KEY TO THE H-CODES CONTAINED IN SECTION 3 OF THIS DOCUMENT (for information only):

Flam. Liq. 2 H225: Highly flammable liquid and vapor; Flammable Liquid, Cat 2

[Asp. Tox. 2 H305]: May be harmful if swallowed and enters airways; Aspiration, Cat 2

Eye Irrit. 2 H319: Causes serious eye irritation; Serious Eye Damage/Irr, Cat 2

STOT SE 3 H336: May cause drowsiness or dizziness; Target Organ Single, Narcotic

THIS SAFETY DATA SHEET CONTAINS THE FOLLOWING REVISIONS:

Revision Changes:

Section 09: Phys/Chem Properties Note was modified.

Section 08: Comply with applicable regulations phrase was modified.

Section 01: Company Mailing Address was modified.

Section 09: Relative Density - Header was modified.

Section 09: Viscosity was modified.

Section 14: Transport Document Name was modified.

Section 15: National Chemical Inventory Listing was modified.

Section 01: Company Mailing Address - Former Name was modified.

Section 01: Supplier Mailing Address was modified.

Composition: Component Table for REACH was modified.

Rubber production and processing: Section 1: Uses was modified.

Manufacture of substance: Section 1: Uses was modified.

Formulation and (re)packing of substances and mixtures: Section 1: Uses was modified.

Use in laboratories - Professional: Section 1: Uses was modified.

Composition: Component Table was modified.

Use as a fuel - Consumer: Annex: Section 1 Consumer Environmental Release Category was modified.

Rubber production and processing: Annex: Section 1 Worker Use Sector was modified.

Use in laboratories - Professional: Annex: Section 1 Worker Use Sector was modified.

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Formulation and (re)packing of substances and mixtures: Annex: Section 1 Worker Use Sector was modified.
Manufacture of substance: Annex: Section 1 Worker Use Sector was modified.
Use in laboratories - Industrial: Annex: Section 4.1 Worker Health was modified.
Use in Coatings - Professional: Annex: Section 4.1 Worker Health was modified.
Use in Cleaning Agents - Industrial: Annex: Section 4.1 Worker Health was modified.
Metal working fluids / rolling oils - Professional: Annex: Section 4.1 Worker Health was modified.
Use in Coatings - Industrial: Annex: Section 4.1 Worker Health was modified.
Water treatment chemicals - Industrial: Annex: Section 4.1 Worker Health was modified.
Use as binders and release agents - Industrial: Annex: Section 4.1 Worker Health was modified.
Explosives manufacture & use: Annex: Section 4.1 Worker Health was modified.
Agrochemical uses - Professional: Annex: Section 4.1 Worker Health was modified.
Distribution of substance: Annex: Section 4.1 Worker Health was modified.
Road and construction applications: Annex: Section 4.1 Worker Health was modified.
Metal working fluids / rolling oils - Industrial: Annex: Section 4.1 Worker Health was modified.
Use as binders and release agents - Professional: Annex: Section 4.1 Worker Health was modified.
Polymer processing - Industrial: Annex: Section 4.1 Worker Health was modified.
Use in oil field drilling and production operations - Industrial: Annex: Section 4.1 Worker Health was modified.
Rubber production and processing: Annex: Section 4.1 Worker Health was modified.
Polymer processing - Professional: Annex: Section 4.1 Worker Health was modified.
Lubricants - Industrial: Annex: Section 4.1 Worker Health was modified.
Functional Fluids - Professional: Annex: Section 4.1 Worker Health was modified.
Use in laboratories - Professional: Annex: Section 4.1 Worker Health was modified.
Formulation and (re)packing of substances and mixtures: Annex: Section 4.1 Worker Health was modified.
Use as a fuel - Professional: Annex: Section 4.1 Worker Health was modified.
Water treatment chemicals - Professional: Annex: Section 4.1 Worker Health was modified.
Use as a fuel - Industrial: Annex: Section 4.1 Worker Health was modified.
Manufacture of substance: Annex: Section 4.1 Worker Health was modified.
De-icing and anti-icing applications - Professional: Annex: Section 4.1 Worker Health was modified.
Blowing agents: Annex: Section 4.1 Worker Health was modified.
Lubricants - Professional (Low Release): Annex: Section 4.1 Worker Health was modified.
Functional Fluids - Industrial: Annex: Section 4.1 Worker Health was modified.
Use in Cleaning Agents - Professional: Annex: Section 4.1 Worker Health was modified.
Mining chemicals: Annex: Section 4.1 Worker Health was modified.
Metal working fluids / rolling oils - Professional: Annex: Section 1 Worker Environmental Release Category was modified.
Water treatment chemicals - Industrial: Annex: Section 1 Worker Environmental Release Category was modified.
Use as binders and release agents - Industrial: Annex: Section 1 Worker Environmental Release Category was modified.
Explosives manufacture & use: Annex: Section 1 Worker Environmental Release Category was modified.
Distribution of substance: Annex: Section 1 Worker Environmental Release Category was modified.
Polymer processing - Industrial: Annex: Section 1 Worker Environmental Release Category was modified.
Rubber production and processing: Annex: Section 1 Worker Environmental Release Category was modified.
Polymer processing - Professional: Annex: Section 1 Worker Environmental Release Category was modified.
Use as a fuel - Professional: Annex: Section 1 Worker Environmental Release Category was modified.
Water treatment chemicals - Professional: Annex: Section 1 Worker Environmental Release Category was modified.
Use as a fuel - Industrial: Annex: Section 1 Worker Environmental Release Category was modified.
Lubricants - Professional (Low Release): Annex: Section 1 Worker Environmental Release Category was modified.
Mining chemicals: Annex: Section 1 Worker Environmental Release Category was modified.
Functional Fluids - Consumer: Annex: Section 4.1 Consumer Health was modified.
Lubricants - Consumer (Low Release): Annex: Section 4.1 Consumer Health was modified.
Use in Cleaning Agents - Consumer: Annex: Section 4.1 Consumer Health was modified.
De-icing and anti-icing applications - Consumer: Annex: Section 4.1 Consumer Health was modified.

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Use in Coatings - Consumer: Annex: Section 4.1 Consumer Health was modified.
Use as a fuel - Consumer: Annex: Section 4.1 Consumer Health was modified.
Other Consumer Uses: Annex: Section 4.1 Consumer Health was modified.
Agrochemical uses - Consumer: Annex: Section 4.1 Consumer Health was modified.
Water treatment chemicals - Consumer: Annex: Section 4.1 Consumer Health was modified.
Lubricants - Consumer (Low Release): Annex: Section 2.1 Consumer Contributing Scenarios/Specific Risk Management Measures and Operating Conditions was modified.
Use in Cleaning Agents - Consumer: Annex: Section 2.1 Consumer Contributing Scenarios/Specific Risk Management Measures and Operating Conditions was modified.
Use in Coatings - Consumer: Annex: Section 2.1 Consumer Contributing Scenarios/Specific Risk Management Measures and Operating Conditions was modified.
Use as a fuel - Consumer: Annex: Section 2.1 Consumer Contributing Scenarios/Specific Risk Management Measures and Operating Conditions was modified.
Section 09: Flash Point °C(°F) was modified.
Section 09: Boiling Point °C(°F) was modified.
Section 09: Vapour Pressure was modified.
Section 01: Company Contact Methods Sorted by Priority was modified.
Section 01: Company Emergency Contact Methods Sorted by Priority was modified.
Section 01: Local Contact Mailing Address was added.
Section 01: Local Contact Mailing Address Header was added.
Section 01: Local Contact Mailing Address was added.
Section 01: Local Contact Mailing Address was added.
Section 01: Local Contact Mailing Address was added.
Section 01: Local Contact Mailing Address was added.
Section 01: Company Mailing Address - Additional information was added.
Section 08: Legal Basis was added.
Section 16: Acronyms - Lethal concentration was added.
Section 16: Acronyms - Lethal Dose was added.
Section 16: Acronyms - Lethal Loading was added.
Section 16: Acronyms - Effective Concentration was added.
Section 16: Acronyms - Effective Loading was added.
Section 16: Acronyms - No Observable Effect Concentration was added.
Section 16: Acronyms - No Observable Effect Loading Rate was added.
Section 16: Acronyms - No Observable Effect Loading Rate was added.
Section 16: Acronyms - No Observable Effect Concentration was added.
Section 16: Acronyms - Effective Loading was added.
Section 16: Acronyms - Effective Concentration was added.
Section 16: Acronyms - Lethal Loading was added.
Section 16: Acronyms - Lethal Dose was added.
Section 16: Acronyms - Lethal Concentration was added.
Section 02: GHS (REACH Registration Name) Contains for LABEL_GHS codes was added.
Section 02: GHS (REACH Registration Name) Contains - Header was added.
Section 16: Acronyms - Volatile Organic Compound was added.
Section 16: Acronyms - Volatile Organic Compound was added.
Section 01: Company Mailing Address was deleted.
Section 01: Company Mailing Address was deleted.
Section 02: GHS Contains - Header was deleted.
Section 02: GHS Contains for LABEL_GHS codes was deleted.
Use as an intermediate: Section 1: Uses was deleted.
Use as an intermediate: Section 1: Uses was deleted.
Use as an intermediate: Section 1: Uses was deleted.
Use as an intermediate: Section 1: Uses was deleted.

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Use as an intermediate: Section 1: Uses was deleted.
Use as an intermediate: Section 1: Uses was deleted.
Use as an intermediate: Section 1: Uses was deleted.
Use as an intermediate: Section 1: Uses was deleted.
Use as an intermediate: Section 1: Uses was deleted.
Use as an intermediate: Section 1: Use Table was deleted.
Section 11: Aspiration Test Comment was deleted.
Use as an intermediate: Annex: Section 1 Worker Processes, tasks, activities was deleted.
Use as an intermediate: Annex: Section 2.1 Worker Physical Form was deleted.
Use as an intermediate: Annex: Section 2.2 Worker Duration, frequency and amount was deleted.
Use as an intermediate: Annex: Section 2.2 Worker Duration, frequency and amount was deleted.
Use as an intermediate: Annex: Section 2.1 Worker Other given operational conditions affecting environmental exposure was deleted.
Use as an intermediate: Annex: Section 2.1 Worker Other given operational conditions affecting environmental exposure was deleted.
Use as an intermediate: Annex: Section 2.1 Worker Contributing Scenarios/Specific Risk Management Measures and Operating Conditions was deleted.
Use as an intermediate: Annex: Section 2.1 Worker Duration, frequency and amount was deleted.
Use as an intermediate: Annex: Section 2.1 Worker Duration, frequency and amount was deleted.
Use as an intermediate: Annex: Section 1 Worker Specific Environmental Release Category was deleted.
Use as an intermediate: Annex: Section 1 Worker Use Sector was deleted.
Use as an intermediate: Annex: Section 3.2 Worker Environment was deleted.
Use as an intermediate: Annex: Section 3.1 Worker Health was deleted.
Use as an intermediate: Annex: Section 2.1 Worker Health was deleted.
Use as an intermediate: Annex: Section 2.2 Worker Technical conditions was deleted.
Use as an intermediate: Annex: Section 2.2 Worker Technical conditions was deleted.
Use as an intermediate: Annex: Section 2.2 Worker Product characteristics was deleted.
Use as an intermediate: Annex: Section 2.2 Worker Product characteristics was deleted.
Use as an intermediate: Annex: Section 2.2 Worker Other given operational conditions affecting environmental exposure was deleted.
Use as an intermediate: Annex: Section 2.2 Worker Other given operational conditions affecting environmental exposure was deleted.
Use as an intermediate: Annex: Section 4.2 Worker Operating Conditions was deleted.
Use as an intermediate: Annex: Section 4.2 Worker Operating Conditions was deleted.
Use as an intermediate: Annex: Section 4.1 Worker Health was deleted.
Use as an intermediate: Annex: Section 4.1 Worker Health was deleted.
Use as an intermediate: Annex: Section 3.2 Worker Environment was deleted.
Use as an intermediate: Annex: Section 2.2 Worker Organisation measures to prevent/limit release from site was deleted.
Use as an intermediate: Annex: Section 2.2 Worker Organisation measures to prevent/limit release from site was deleted.
Use as an intermediate: Annex: Section 2.2 Worker Operating Conditions was deleted.
Use as an intermediate: Annex: Section 2.2 Worker Operating Conditions was deleted.
Use as an intermediate: Annex: Section 2.2 Worker Conditions and measures related to municipal sewage treatment plant was deleted.
Use as an intermediate: Annex: Section 2.2 Worker Conditions and measures related to municipal sewage treatment plant was deleted.
Use as an intermediate: Annex: Section 2.2 Worker Environmental factors not influenced by risk management was deleted.
Use as an intermediate: Annex: Section 2.2 Worker Environmental factors not influenced by risk management was deleted.
Use as an intermediate: Annex: Section 1 Worker Process Category was deleted.

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Use as an intermediate: Annex: Section 1 Worker Environmental Release Category was deleted.
Use as an intermediate: Annex: Section 1 Worker Use Group - Header was deleted.
Use as an intermediate: Annex Information was deleted.
Use as an intermediate: Annex: Section 2.2 Worker Conditions and measures related to external treatment of waste for disposal was deleted.
Use as an intermediate: Annex: Section 2.2 Worker Conditions and measures related to external treatment of waste for disposal was deleted.
Use as an intermediate: Annex: Section 2.2 Worker Conditions and measures related to external recovery of waste was deleted.
Use as an intermediate: Annex: Section 2.2 Worker Conditions and measures related to external recovery of waste was deleted.
Section 16: Revision Information - Implementation of GHS requirements phrase. was deleted.
Section 14: Pollution Category (pulled from EMS_NUMBER column) was added.
Section 14: Proper Shipping Name was added.
Section 14: Ship Type (pulled from ER_GUIDE_PAGE column) was added.
Section 14: IMO ANNEX II - Default was deleted.
Section 14: IMO ANNEX II Ship Type - Header was added.
Section 14: IMO ANNEX II Pollution Category - Header was added.
Section 10: Possibility of Hazardous Reactions was modified.
Section 14: IMO ANNEX II Product Name - Header was added.

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Internal Use Only

MHC: 2A, 0, 0, 2, 1, 1

DGN: ALL2550HGB (1004616)

ANNEX

Section 1 Exposure Scenario Title
--

Title:

Manufacture of substance

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Use Descriptor	
Sector(s) of Use	SU10, SU3, SU8, SU9
Process Categories	PROC1, PROC15, PROC2, PROC3, PROC4, PROC8a, PROC8b
Environmental Release Categories	ERC1, ERC4
Specific Environmental Release Category	
Processes, tasks, activities covered	
Manufacture of the substance or use as an intermediate, process chemical or extracting agent. Includes recycling/recovery, material transfers, storage, maintenance and loading (including marine vessel/barge, road/rail car and bulk container).	
Section 2 Operational conditions and risk management measures	
Section 2.1 Control of worker exposure	
Product Characteristic	
Liquid	
Duration, frequency and amount	
Covers daily exposures up to 8 hours (unless stated differently)[G2] Covers percentage substance in the product up to 100 %[G13]	
Other given operational conditions affecting workers exposure	
Assumes a good basic standard of occupational hygiene is implemented [G1] Assumes use at not more than 20°C above ambient temperature[G15]	
Contributing Scenarios/Specific Risk Management Measures and Operating Conditions (only required controls to demonstrate safe use listed)	
<p>General exposures (closed systems) PROC1 No specific measures identified.</p> <p>General exposures (closed systems) PROC2 Handle substance within a closed system.</p> <p>General exposures (closed systems) PROC3 Handle substance within a closed system.</p> <p>General exposures (open systems) PROC4 Handle substance within a closed system.</p> <p>Process sampling PROC8b No specific measures identified.</p> <p>Laboratory activities PROC15 No specific measures identified.</p> <p>Bulk transfers (open systems) PROC8b Handle substance within a closed system.</p> <p>Bulk transfers (closed systems) PROC8b Ensure material transfers are under containment or extract ventilation. Clear transfer lines prior to de-coupling.</p> <p>Equipment cleaning and maintenance PROC8a Retain drain downs in sealed storage pending disposal or for subsequent recycle. Clear spills immediately.</p> <p>Storage PROC2 Store substance within a closed system. Avoid dip sampling. provide a good standard of controlled ventilation (10 to 15 air changes per hour).</p>	
Section 2.2 Control of environmental exposure	
Product characteristics	
Not applicable	
Duration, frequency and amount	
Not applicable	

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Environmental factors not influenced by risk management
Not applicable
Other given operational conditions affecting environmental exposure
No exposure assessment presented for the environment [G40]
Technical conditions and measures at process level (source) to prevent release
Not applicable
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil
Not applicable
Organisation measures to prevent/limit release from site
Not applicable
Conditions and measures related to municipal sewage treatment plant
Not applicable
Conditions and measures related to external treatment of waste for disposal
Not applicable
Conditions and measures related to external recovery of waste
Not applicable
Section 3 Exposure Estimation
3.1. Health
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated [G21]
3.2. Environment
Not applicable
Section 4 Guidance to check compliance with the Exposure Scenario
4.1. Health
Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. [G22] Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.[G23]
4.2. Environment
Not applicable

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Section 1 Exposure Scenario Title	
Title:	
Distribution of substance	
Use Descriptor	
Sector(s) of Use	SU3, SU8, SU9
Process Categories	PROC1, PROC15, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC9
Environmental Release Categories	ERC1, ERC2, ERC3, ERC4, ERC5, ERC6A, ERC6B, ERC6C, ERC6D, ERC7
Specific Environmental Release Category	
Processes, tasks, activities covered	
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	
Section 2.1 Control of worker exposure	
Product Characteristic	
Liquid	
Duration, frequency and amount	
Covers daily exposures up to 8 hours (unless stated differently)[G2]	
Covers percentage substance in the product up to 100 %[G13]	
Other given operational conditions affecting workers exposure	
Assumes a good basic standard of occupational hygiene is implemented [G1]	
Assumes use at not more than 20°C above ambient temperature[G15]	
Contributing Scenarios/Specific Risk Management Measures and Operating Conditions (only required controls to demonstrate safe use listed)	
<p>General exposures (closed systems) PROC1 Handle substance within a closed system.</p> <p>General exposures (closed systems) PROC2 Handle substance within a closed system.</p> <p>General exposures (closed systems) PROC3 Handle substance within a closed system.</p> <p>General exposures (open systems) PROC4 Clear transfer lines prior to de-coupling.</p> <p>Process sampling PROC3 Avoid dip sampling.</p> <p>Laboratory activities PROC15 No specific measures identified.</p> <p>Bulk transfers (closed systems) PROC8b Clear transfer lines prior to de-coupling.</p> <p>Bulk transfers (open systems) PROC8b Clear transfer lines prior to de-coupling.</p> <p>Drum and small package filling PROC9 Clear spills immediately. Put lids on containers immediately after use.</p> <p>Equipment cleaning and maintenance PROC8a Apply vessel entry procedures including use of supplied compressed air.</p> <p>Storage PROC2 Store substance within a closed system. Avoid dip sampling.</p>	
Section 2.2 Control of environmental exposure	

Product characteristics
Not applicable
Duration, frequency and amount
Not applicable
Environmental factors not influenced by risk management
Not applicable
Other given operational conditions affecting environmental exposure
No exposure assessment presented for the environment [G40]
Technical conditions and measures at process level (source) to prevent release
Not applicable
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil
Not applicable
Organisation measures to prevent/limit release from site
Not applicable
Conditions and measures related to municipal sewage treatment plant
Not applicable
Conditions and measures related to external treatment of waste for disposal
Not applicable
Conditions and measures related to external recovery of waste
Not applicable
Section 3 Exposure Estimation
3.1. Health
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated [G21]
3.2. Environment
Not applicable
Section 4 Guidance to check compliance with the Exposure Scenario
4.1. Health
Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. [G22] Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.[G23]
4.2. Environment
Not applicable

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Section 1 Exposure Scenario Title	
Title:	
Formulation and (re)packing of substances and mixtures	
Use Descriptor	
Sector(s) of Use	SU10, SU3
Process Categories	PROC1, PROC14, PROC15, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9
Environmental Release Categories	ERC2
Specific Environmental Release Category	
Processes, tasks, activities covered	
Formulation, packing and re-packing of the substance and its mixtures in batch or continuous operations, including storage, materials transfers, mixing, tableting, compression, pelletisation, extrusion, large and small scale packing, sampling, maintenance and associated laboratory activities.	
Section 2 Operational conditions and risk management measures	
Section 2.1 Control of worker exposure	
Product Characteristic	
Liquid	
Duration, frequency and amount	
Covers daily exposures up to 8 hours (unless stated differently)[G2]	
Covers percentage substance in the product up to 100 %[G13]	
Other given operational conditions affecting workers exposure	
Assumes a good basic standard of occupational hygiene is implemented [G1]	
Assumes use at not more than 20°C above ambient temperature[G15]	
Contributing Scenarios/Specific Risk Management Measures and Operating Conditions (only required controls to demonstrate safe use listed)	
<p>General exposures (closed systems) PROC1 Handle substance within a closed system.</p> <p>General exposures (closed systems) PROC2 Handle substance within a closed system.</p> <p>General exposures (closed systems) PROC3 Handle substance within a closed system.</p> <p>General exposures (open systems) PROC4 No specific measures identified.</p> <p>Batch processes at elevated temperatures Operation is carried out at elevated temperature (> 20°C above ambient temperature). PROC3 No specific measures identified.</p> <p>Process sampling PROC3 Avoid dip sampling.</p> <p>Laboratory activities PROC15 No specific measures identified.</p> <p>Bulk transfers PROC8b Clear transfer lines prior to de-coupling. Clear spills immediately. Remotely vent displaced vapours.</p> <p>Mixing operations (open systems) PROC5 No specific measures identified.</p> <p>Manual Transfer from/pouring from containers PROC8a No specific measures identified.</p> <p>Drum/batch transfers PROC8b No specific measures identified.</p>	

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<p>Production of preparations or articles by tableting, compression, extrusion, pelettisation PROC14 No specific measures identified.</p> <p>Drum and small package filling PROC9 Put lids on containers immediately after use.</p> <p>Equipment cleaning and maintenance PROC8a Apply vessel entry procedures including use of supplied compressed air.</p> <p>Storage PROC2 Store substance within a closed system. Avoid dip sampling.</p>
<p>Section 2.2 Control of environmental exposure</p>
<p>Product characteristics Not applicable</p>
<p>Duration, frequency and amount Not applicable</p>
<p>Environmental factors not influenced by risk management Not applicable</p>
<p>Other given operational conditions affecting environmental exposure No exposure assessment presented for the environment [G40]</p>
<p>Technical conditions and measures at process level (source) to prevent release Not applicable</p>
<p>Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Not applicable</p>
<p>Organisation measures to prevent/limit release from site Not applicable</p>
<p>Conditions and measures related to municipal sewage treatment plant Not applicable</p>
<p>Conditions and measures related to external treatment of waste for disposal Not applicable</p>
<p>Conditions and measures related to external recovery of waste Not applicable</p>
<p>Section 3 Exposure Estimation</p>
<p>3.1. Health The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated [G21]</p>
<p>3.2. Environment Not applicable</p>
<p>Section 4 Guidance to check compliance with the Exposure Scenario</p>
<p>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. [G22] Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.[G23]</p>
<p>4.2. Environment Not applicable</p>

Section 1 Exposure Scenario Title	
Title:	
Use in Coatings - Industrial	
Use Descriptor	
Sector(s) of Use	SU3
Process Categories	PROC1, PROC10, PROC13, PROC14, PROC15, PROC2, PROC3, PROC4, PROC5, PROC7, PROC8a, PROC8b, PROC9
Environmental Release Categories	ERC4
Specific Environmental Release Category	
Processes, tasks, activities covered	
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	
Section 2.1 Control of worker exposure	
Product Characteristic	
Liquid	
Duration, frequency and amount	
Covers daily exposures up to 8 hours (unless stated differently)[G2] Covers percentage substance in the product up to 100 %[G13]	
Other given operational conditions affecting workers exposure	
Assumes a good basic standard of occupational hygiene is implemented [G1] Assumes use at not more than 20°C above ambient temperature[G15]	
Contributing Scenarios/Specific Risk Management Measures and Operating Conditions (only required controls to demonstrate safe use listed)	
<p>General exposures (closed systems) PROC1 Handle substance within a closed system.</p> <p>General exposures (closed systems) with sample collection Use in contained systems PROC2 Handle substance within a closed system.</p> <p>Film formation - force drying (50-100°C). stoving (>100°C). UV/EB radiation curing PROC2 Handle substance within a closed system.</p> <p>Mixing operations (closed systems) General exposures (closed systems) PROC3 Handle substance within a closed system.</p> <p>Film formation - air drying PROC4 No specific measures identified.</p> <p>Preparation of material for application Mixing operations (open systems) PROC5 No specific measures identified.</p> <p>Spraying (automatic/robotic) PROC7 Provide extract ventilation to emission points when contact with warm (> 50°C) lubricant is likely.</p> <p>Material transfers PROC8a Clear transfer lines prior to de-coupling.</p> <p>Material transfers PROC8b Clear transfer lines prior to de-coupling.</p> <p>Roller, spreader, flow application PROC10 No specific measures identified.</p> <p>Dipping, immersion and pouring PROC13 Avoid manual contact with wet work pieces.</p> <p>Laboratory activities PROC15 No specific measures identified.</p>	

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Material transfers Drum/batch transfers Transfer from/pouring from containers PROC9
No specific measures identified.
Production of preparations or articles by tableting, compression, extrusion, pelettisation PROC14
No specific measures identified.
Section 2.2 Control of environmental exposure
Product characteristics
Not applicable
Duration, frequency and amount
Not applicable
Environmental factors not influenced by risk management
Not applicable
Other given operational conditions affecting environmental exposure
No exposure assessment presented for the environment [G40]
Technical conditions and measures at process level (source) to prevent release
Not applicable
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil
Not applicable
Organisation measures to prevent/limit release from site
Not applicable
Conditions and measures related to municipal sewage treatment plant
Not applicable
Conditions and measures related to external treatment of waste for disposal
Not applicable
Conditions and measures related to external recovery of waste
Not applicable
Section 3 Exposure Estimation
3.1. Health
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated [G21]
3.2. Environment
Not applicable
Section 4 Guidance to check compliance with the Exposure Scenario
4.1. Health
Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. [G22]
Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.[G23]
4.2. Environment
Not applicable

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Section 1 Exposure Scenario Title	
Title:	
Use in Cleaning Agents - Industrial	
Use Descriptor	
Sector(s) of Use	SU3
Process Categories	PROC10, PROC13, PROC2, PROC3, PROC4, PROC7, PROC8a, PROC8b
Environmental Release Categories	ERC4
Specific Environmental Release Category	
Processes, tasks, activities covered	
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	
Section 2.1 Control of worker exposure	
Product Characteristic	
Liquid	
Duration, frequency and amount	
Covers daily exposures up to 8 hours (unless stated differently)[G2]	
Covers percentage substance in the product up to 100 %[G13]	
Other given operational conditions affecting workers exposure	
Assumes a good basic standard of occupational hygiene is implemented [G1]	
Assumes use at not more than 20°C above ambient temperature[G15]	
Contributing Scenarios/Specific Risk Management Measures and Operating Conditions (only required controls to demonstrate safe use listed)	
Bulk transfers PROC8a Clear transfer lines prior to de-coupling.	
Automated process with (semi) closed systems Use in contained systems PROC2 No specific measures identified.	
Automated process with (semi) closed systems Drum/batch transfers Use in contained systems PROC3 No specific measures identified.	
Application of cleaning products in closed systems PROC2 No specific measures identified.	
Filling / preparation of equipment from drums or containers PROC8b Clear transfer lines prior to de-coupling.	
Use in contained batch processes PROC4 No specific measures identified.	
Degreasing small objects in cleaning station PROC13 No specific measures identified.	
Cleaning with low-pressure washers PROC10 No specific measures identified.	
Cleaning with high pressure washers PROC7 provide a good standard of controlled ventilation (10 to 15 air changes per hour).	
Manual Surfaces Cleaning PROC10 No specific measures identified.	
Section 2.2 Control of environmental exposure	
Product characteristics	
Not applicable	
Duration, frequency and amount	
Not applicable	

Environmental factors not influenced by risk management
Not applicable
Other given operational conditions affecting environmental exposure
No exposure assessment presented for the environment [G40]
Technical conditions and measures at process level (source) to prevent release
Not applicable
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil
Not applicable
Organisation measures to prevent/limit release from site
Not applicable
Conditions and measures related to municipal sewage treatment plant
Not applicable
Conditions and measures related to external treatment of waste for disposal
Not applicable
Conditions and measures related to external recovery of waste
Not applicable
Section 3 Exposure Estimation
3.1. Health
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated [G21]
3.2. Environment
Not applicable
Section 4 Guidance to check compliance with the Exposure Scenario
4.1. Health
Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. [G22] Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.[G23]
4.2. Environment
Not applicable

Section 1 Exposure Scenario Title	
Title:	
Use in oil field drilling and production operations - Industrial	
Use Descriptor	
Sector(s) of Use	SU3
Process Categories	PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b
Environmental Release Categories	ERC4
Specific Environmental Release Category	
Processes, tasks, activities covered	
Oil field well drilling and production operations (including drilling muds and well cleaning) including material transfers, on-site formulation, well head operations, shaker room activities and related maintenance.	
Section 2 Operational conditions and risk management measures	
Section 2.1 Control of worker exposure	
Product Characteristic	
Liquid	
Duration, frequency and amount	
Covers daily exposures up to 8 hours (unless stated differently)[G2]	
Covers percentage substance in the product up to 100 %[G13]	
Other given operational conditions affecting workers exposure	
Assumes a good basic standard of occupational hygiene is implemented [G1]	
Assumes use at not more than 20°C above ambient temperature[G15]	
Contributing Scenarios/Specific Risk Management Measures and Operating Conditions	
(only required controls to demonstrate safe use listed)	
Bulk transfers PROC8b	
Handle substance within a closed system.	
Filling / preparation of equipment from drums or containers PROC8b	
Handle substance within a closed system.	
Drilling mud (re-)formulation PROC3	
Handle substance within a closed system.	
Drill floor operations PROC4	
No specific measures identified.	
Operation of solids filtering equipment - vapour exposures PROC4	
No specific measures identified.	
Operation of solids filtering equipment - aerosol exposures PROC4	
No specific measures identified.	
Cleaning of solids filtering equipment PROC8a	
No specific measures identified.	
Treatment and disposal of filtered solids PROC3	
No specific measures identified.	
Process sampling PROC3	
Clear transfer lines prior to de-coupling.	
Clear spills immediately.	
Remotely vent displaced vapours.	
General exposures (closed systems) PROC1	
No specific measures identified.	
Pouring from small containers PROC8a	
No specific measures identified.	
General exposures (open systems) PROC4	
No specific measures identified.	
Equipment cleaning and maintenance PROC8a	

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No specific measures identified.
Batch process PROC1
No specific measures identified.
Batch process PROC2
No specific measures identified.
Section 2.2 Control of environmental exposure
Product characteristics
Not applicable
Duration, frequency and amount
Not applicable
Environmental factors not influenced by risk management
Not applicable
Other given operational conditions affecting environmental exposure
No exposure assessment presented for the environment [G40]
Technical conditions and measures at process level (source) to prevent release
Not applicable
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil
Not applicable
Organisation measures to prevent/limit release from site
Not applicable
Conditions and measures related to municipal sewage treatment plant
Not applicable
Conditions and measures related to external treatment of waste for disposal
Not applicable
Conditions and measures related to external recovery of waste
Not applicable
Section 3 Exposure Estimation
3.1. Health
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated [G21]
3.2. Environment
Not applicable
Section 4 Guidance to check compliance with the Exposure Scenario
4.1. Health
Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. [G22]
Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.[G23]
4.2. Environment
Not applicable

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Section 1 Exposure Scenario Title	
Title:	
Lubricants - Industrial	
Use Descriptor	
Sector(s) of Use	SU3
Process Categories	PROC1, PROC10, PROC13, PROC17, PROC18, PROC2, PROC3, PROC4, PROC7, PROC8a, PROC8b, PROC9
Environmental Release Categories	ERC4, ERC7
Specific Environmental Release Category	
Processes, tasks, activities covered	
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	
Section 2.1 Control of worker exposure	
Product Characteristic	
Liquid	
Duration, frequency and amount	
Covers daily exposures up to 8 hours (unless stated differently)[G2] Covers percentage substance in the product up to 100 %[G13]	
Other given operational conditions affecting workers exposure	
Assumes a good basic standard of occupational hygiene is implemented [G1] Assumes use at not more than 20°C above ambient temperature[G15]	
Contributing Scenarios/Specific Risk Management Measures and Operating Conditions (only required controls to demonstrate safe use listed)	
<p>General exposures (closed systems) PROC1 Handle substance within a closed system.</p> <p>General exposures (closed systems) PROC2 Handle substance within a closed system.</p> <p>General exposures (closed systems) PROC3 Handle substance within a closed system.</p> <p>General exposures (open systems) PROC4 No specific measures identified.</p> <p>Bulk transfers PROC8b Clear transfer lines prior to de-coupling. Clear spills immediately. Remotely vent displaced vapours.</p> <p>Filling / preparation of equipment from drums or containers PROC8a No specific measures identified.</p> <p>Filling / preparation of equipment from drums or containers PROC8b No specific measures identified.</p> <p>Initial factory fill of equipment PROC9 No specific measures identified.</p> <p>Operation and lubrication of high energy open equipment PROC17 Restrict area of openings to equipment.</p> <p>Operation and lubrication of high energy open equipment PROC18 Restrict area of openings to equipment.</p> <p>Roller application or brushing PROC10 No specific measures identified.</p> <p>Treatment by dipping and pouring PROC13 No specific measures identified.</p>	

<p>Spraying PROC7 Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings. Automate activity where possible.</p> <p>Maintenance (of larger plant items) and machine set up PROC8b Clear transfer lines prior to de-coupling.</p> <p>Maintenance (of larger plant items) and machine set up Operation is carried out at elevated temperature (> 20°C above ambient temperature). PROC8b No specific measures identified.</p> <p>Maintenance of small items PROC8a Avoid manual contact with wet work pieces. Retain drain downs in sealed storage pending disposal or for subsequent recycle.</p> <p>Remanufacture of reject articles PROC9 Retain drain downs in sealed storage pending disposal or for subsequent recycle.</p> <p>Storage PROC1 Store substance within a closed system. Avoid dip sampling.</p> <p>Storage PROC2 Store substance within a closed system. Avoid dip sampling.</p>
Section 2.2 Control of environmental exposure
Product characteristics
Not applicable
Duration, frequency and amount
Not applicable
Environmental factors not influenced by risk management
Not applicable
Other given operational conditions affecting environmental exposure
No exposure assessment presented for the environment [G40]
Technical conditions and measures at process level (source) to prevent release
Not applicable
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil
Not applicable
Organisation measures to prevent/limit release from site
Not applicable
Conditions and measures related to municipal sewage treatment plant
Not applicable
Conditions and measures related to external treatment of waste for disposal
Not applicable
Conditions and measures related to external recovery of waste
Not applicable
Section 3 Exposure Estimation
3.1. Health
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated [G21]
3.2. Environment
Not applicable
Section 4 Guidance to check compliance with the Exposure Scenario
4.1. Health
Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. [G22]
Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are



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managed to at least equivalent levels.[G23]
4.2. Environment
Not applicable

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Section 1 Exposure Scenario Title	
Title:	
Metal working fluids / rolling oils - Industrial	
Use Descriptor	
Sector(s) of Use	SU3
Process Categories	PROC1, PROC10, PROC13, PROC17, PROC2, PROC3, PROC4, PROC5, PROC7, PROC8a, PROC8b, PROC9
Environmental Release Categories	ERC4
Specific Environmental Release Category	
Processes, tasks, activities covered	
Covers the use in formulated MWFs (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	
Section 2.1 Control of worker exposure	
Product Characteristic	
Liquid	
Duration, frequency and amount	
Covers daily exposures up to 8 hours (unless stated differently)[G2]	
Covers percentage substance in the product up to 100 %[G13]	
Other given operational conditions affecting workers exposure	
Assumes a good basic standard of occupational hygiene is implemented [G1]	
Assumes use at not more than 20°C above ambient temperature[G15]	
Contributing Scenarios/Specific Risk Management Measures and Operating Conditions (only required controls to demonstrate safe use listed)	
<p>General exposures (closed systems) PROC1 Handle substance within a closed system.</p> <p>General exposures (closed systems) PROC2 Handle substance within a closed system.</p> <p>General exposures (closed systems) PROC3 Handle substance within a closed system.</p> <p>General exposures (open systems) PROC4 No specific measures identified.</p> <p>Bulk transfers PROC8b Clear transfer lines prior to de-coupling.</p> <p>Filling / preparation of equipment from drums or containers PROC8b No specific measures identified.</p> <p>Filling / preparation of equipment from drums or containers PROC5 No specific measures identified.</p> <p>Filling / preparation of equipment from drums or containers PROC9 No specific measures identified.</p> <p>Process sampling PROC8b Use dedicated equipment.</p> <p>Metal machining operations PROC17 Restrict area of openings to equipment.</p> <p>Treatment by dipping and pouring PROC13 Allow time for product to drain from workpiece Automate activity where possible.</p> <p>Spraying PROC7 Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings.</p>	

Automate activity where possible. Roller application or brushing PROC10 Avoid splashing. Automated metal rolling/forming Operation is carried out at elevated temperature (> 20°C above ambient temperature). PROC2 No specific measures identified. Semi-automated metal rolling/forming Operation is carried out at elevated temperature (> 20°C above ambient temperature). PROC17 Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings. Automate activity where possible. Semi-automated metal rolling/forming PROC4 Automate activity where possible. Equipment cleaning and maintenance Dedicated facility PROC8b Retain drain downs in sealed storage pending disposal or for subsequent recycle. Equipment cleaning and maintenance Non-dedicated facility PROC8a Retain drain downs in sealed storage pending disposal or for subsequent recycle. Storage PROC1 Store substance within a closed system. Storage PROC2 Store substance within a closed system.
Section 2.2 Control of environmental exposure
Product characteristics
Not applicable
Duration, frequency and amount
Not applicable
Environmental factors not influenced by risk management
Not applicable
Other given operational conditions affecting environmental exposure
No exposure assessment presented for the environment [G40]
Technical conditions and measures at process level (source) to prevent release
Not applicable
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil
Not applicable
Organisation measures to prevent/limit release from site
Not applicable
Conditions and measures related to municipal sewage treatment plant
Not applicable
Conditions and measures related to external treatment of waste for disposal
Not applicable
Conditions and measures related to external recovery of waste
Not applicable
Section 3 Exposure Estimation
3.1. Health
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated [G21]
3.2. Environment
Not applicable
Section 4 Guidance to check compliance with the Exposure Scenario
4.1. Health
Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. [G22]

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Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.[G23]
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4.2. Environment

Not applicable

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Section 1 Exposure Scenario Title	
Title:	
Blowing agents	
Use Descriptor	
Sector(s) of Use	SU3
Process Categories	PROC1, PROC12, PROC3, PROC8b
Environmental Release Categories	ERC4
Specific Environmental Release Category	
Processes, tasks, activities covered	
Use as a blowing agent for rigid and flexible foams, including material transfers, mixing and injection, curing, cutting, storage and packing.	
Section 2 Operational conditions and risk management measures	
Section 2.1 Control of worker exposure	
Product Characteristic	
Liquid	
Duration, frequency and amount	
Covers daily exposures up to 8 hours (unless stated differently)[G2]	
Covers percentage substance in the product up to 100 %[G13]	
Other given operational conditions affecting workers exposure	
Assumes a good basic standard of occupational hygiene is implemented [G1]	
Assumes use at not more than 20°C above ambient temperature[G15]	
Contributing Scenarios/Specific Risk Management Measures and Operating Conditions (only required controls to demonstrate safe use listed)	
Bulk transfers PROC8b Use vapour recovery units when necessary Clear transfer lines prior to de-coupling. Mixing operations (closed systems) PROC1 No specific measures identified. Extrusion and expansion of polymer mass PROC12 No specific measures identified. Cutting and shaving PROC12 No specific measures identified. Collection and re-processing of shavings, cuttings, etc PROC12 No specific measures identified. Product packaging PROC12 No specific measures identified. Storage PROC12 No specific measures identified. Mixing operations (closed systems) Operation is carried out at elevated temperature (> 20°C above ambient temperature). PROC3 No specific measures identified. Intermediate polymer storage Operation is carried out at elevated temperature (> 20°C above ambient temperature). PROC3 No specific measures identified. Centrifuging including discharging Operation is carried out at elevated temperature (> 20°C above ambient temperature). PROC3 No specific measures identified. Drying and storage PROC12 No specific measures identified. Semi-bulk packaging PROC8b	

No specific measures identified. Treatment by heating Operation is carried out at elevated temperature (> 20°C above ambient temperature). PROC12
No specific measures identified. Drying and storage PROC12
No specific measures identified. Article formation in mould Operation is carried out at elevated temperature (> 20°C above ambient temperature). PROC12
No specific measures identified. Cutting by heated wire Manual PROC12
No specific measures identified.
Section 2.2 Control of environmental exposure
Product characteristics
Not applicable
Duration, frequency and amount
Not applicable
Environmental factors not influenced by risk management
Not applicable
Other given operational conditions affecting environmental exposure
No exposure assessment presented for the environment [G40]
Technical conditions and measures at process level (source) to prevent release
Not applicable
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil
Not applicable
Organisation measures to prevent/limit release from site
Not applicable
Conditions and measures related to municipal sewage treatment plant
Not applicable
Conditions and measures related to external treatment of waste for disposal
Not applicable
Conditions and measures related to external recovery of waste
Not applicable
Section 3 Exposure Estimation
3.1. Health
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated [G21]
3.2. Environment
Not applicable
Section 4 Guidance to check compliance with the Exposure Scenario
4.1. Health
Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. [G22] Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.[G23]
4.2. Environment
Not applicable

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Section 1 Exposure Scenario Title	
Title:	
Use as binders and release agents - Industrial	
Use Descriptor	
Sector(s) of Use	SU3
Process Categories	PROC1, PROC10, PROC14, PROC2, PROC3, PROC4, PROC6, PROC7, PROC8b
Environmental Release Categories	ERC4
Specific Environmental Release Category	
Processes, tasks, activities covered	
Covers the use as binders and release agents including material transfers, mixing, application (including spraying and brushing) and handling of waste.	
Section 2 Operational conditions and risk management measures	
Section 2.1 Control of worker exposure	
Product Characteristic	
Liquid	
Duration, frequency and amount	
Covers daily exposures up to 8 hours (unless stated differently)[G2] Covers percentage substance in the product up to 100 %[G13]	
Other given operational conditions affecting workers exposure	
Assumes a good basic standard of occupational hygiene is implemented [G1] Assumes use at not more than 20°C above ambient temperature[G15]	
Contributing Scenarios/Specific Risk Management Measures and Operating Conditions (only required controls to demonstrate safe use listed)	
<p>Material transfers PROC1 Clear transfer lines prior to de-coupling.</p> <p>Material transfers PROC2 Clear transfer lines prior to de-coupling.</p> <p>Material transfers PROC3 Clear transfer lines prior to de-coupling.</p> <p>Drum/batch transfers PROC8b No specific measures identified.</p> <p>Mixing operations (closed systems) PROC3 No specific measures identified.</p> <p>Mixing operations (open systems) PROC4 No specific measures identified.</p> <p>Mold forming PROC14 No specific measures identified.</p> <p>Casting operations (open systems) Operation is carried out at elevated temperature (> 20°C above ambient temperature). Aerosol generation due to elevated process temperature PROC6 Provide extract ventilation to points where emissions occur.</p> <p>Spraying Machine PROC7 Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings. Automate activity where possible.</p> <p>Roller application or brushing PROC10 No specific measures identified.</p> <p>Spraying Manual PROC7 Carry out in a vented booth or extracted enclosure.</p> <p>Storage PROC1 Store substance within a closed system.</p>	

Storage PROC2
Store substance within a closed system.
Section 2.2 Control of environmental exposure
Product characteristics
Not applicable
Duration, frequency and amount
Not applicable
Environmental factors not influenced by risk management
Not applicable
Other given operational conditions affecting environmental exposure
No exposure assessment presented for the environment [G40]
Technical conditions and measures at process level (source) to prevent release
Not applicable
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil
Not applicable
Organisation measures to prevent/limit release from site
Not applicable
Conditions and measures related to municipal sewage treatment plant
Not applicable
Conditions and measures related to external treatment of waste for disposal
Not applicable
Conditions and measures related to external recovery of waste
Not applicable
Section 3 Exposure Estimation
3.1. Health
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated [G21]
3.2. Environment
Not applicable
Section 4 Guidance to check compliance with the Exposure Scenario
4.1. Health
Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. [G22] Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.[G23]
4.2. Environment
Not applicable

Section 1 Exposure Scenario Title	
Title:	
Use as a fuel - Industrial	
Use Descriptor	
Sector(s) of Use	SU3
Process Categories	PROC1, PROC16, PROC2, PROC3, PROC8a, PROC8b
Environmental Release Categories	ERC7
Specific Environmental Release Category	ESVOC 7.12a.v1
Processes, tasks, activities covered	
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	
Section 2.1 Control of worker exposure	
Product Characteristic	
Liquid	
Duration, frequency and amount	
Covers daily exposures up to 8 hours (unless stated differently)[G2]	
Covers percentage substance in the product up to 100 %[G13]	
Other given operational conditions affecting workers exposure	
Assumes a good basic standard of occupational hygiene is implemented [G1]	
Assumes use at not more than 20°C above ambient temperature[G15]	
Contributing Scenarios/Specific Risk Management Measures and Operating Conditions (only required controls to demonstrate safe use listed)	
<p>Bulk transfers PROC8b Handle substance within a closed system. Clear transfer lines prior to de-coupling.</p> <p>Drum/batch transfers PROC8b Avoid spillage when withdrawing pump.</p> <p>General exposures (closed systems) PROC1 Handle substance within a closed system.</p> <p>General exposures (closed systems) PROC2 Handle substance within a closed system.</p> <p>Equipment cleaning and maintenance PROC8a Apply vessel entry procedures including use of supplied compressed air.</p> <p>Vessel and container cleaning PROC8a Apply vessel entry procedures including use of supplied compressed air.</p> <p>Storage PROC1 Store substance within a closed system. Avoid dip sampling.</p> <p>Storage PROC2 Store substance within a closed system. Avoid dip sampling.</p> <p>Use as a fuel PROC1 No specific measures identified.</p> <p>Use as a fuel PROC2 No specific measures identified.</p> <p>Use as a fuel (closed systems) PROC16 No specific measures identified.</p> <p>(closed systems) Use as a fuel PROC3 Handle substance within a closed system.</p>	

No other specific measures identified.
Section 2.2 Control of environmental exposure
Product characteristics
Not applicable
Duration, frequency and amount
Not applicable
Environmental factors not influenced by risk management
Not applicable
Other given operational conditions affecting environmental exposure
No exposure assessment presented for the environment [G40]
Technical conditions and measures at process level (source) to prevent release
Not applicable
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil
Not applicable
Organisation measures to prevent/limit release from site
Not applicable
Conditions and measures related to municipal sewage treatment plant
Not applicable
Conditions and measures related to external treatment of waste for disposal
Not applicable
Conditions and measures related to external recovery of waste
Not applicable
Section 3 Exposure Estimation
3.1. Health
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated [G21]
3.2. Environment
Not applicable
Section 4 Guidance to check compliance with the Exposure Scenario
4.1. Health
Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. [G22] Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.[G23]
4.2. Environment
Not applicable

Section 1 Exposure Scenario Title	
Title:	
Functional Fluids - Industrial	
Use Descriptor	
Sector(s) of Use	SU3
Process Categories	PROC1, PROC2, PROC4, PROC8a, PROC8b, PROC9
Environmental Release Categories	ERC7
Specific Environmental Release Category	
Processes, tasks, activities covered	
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	
Section 2.1 Control of worker exposure	
Product Characteristic	
Liquid	
Duration, frequency and amount	
Covers daily exposures up to 8 hours (unless stated differently)[G2]	
Covers percentage substance in the product up to 100 %[G13]	
Other given operational conditions affecting workers exposure	
Assumes a good basic standard of occupational hygiene is implemented [G1]	
Assumes use at not more than 20°C above ambient temperature[G15]	
Contributing Scenarios/Specific Risk Management Measures and Operating Conditions (only required controls to demonstrate safe use listed)	
<p>Bulk transfers (closed systems) PROC1 Transfer via enclosed lines Clear transfer lines prior to de-coupling.</p> <p>Bulk transfers (closed systems) PROC2 Transfer via enclosed lines Clear transfer lines prior to de-coupling.</p> <p>Drum/batch transfers PROC8b No specific measures identified.</p> <p>Filling of articles/equipment (closed systems) PROC9 No specific measures identified.</p> <p>Filling / preparation of equipment from drums or containers PROC8a Carefully pour from containers.</p> <p>General exposures (closed systems) PROC2 No specific measures identified.</p> <p>General exposures (open systems) PROC4 No specific measures identified.</p> <p>General exposures (open systems) Operation is carried out at elevated temperature (> 20°C above ambient temperature). PROC4 No specific measures identified.</p> <p>Remanufacture of reject articles PROC9 Retain drain downs in sealed storage pending disposal or for subsequent recycle.</p> <p>Equipment maintenance PROC8a Retain drain downs in sealed storage pending disposal or for subsequent recycle.</p> <p>Storage PROC1 Store substance within a closed system.</p> <p>Storage PROC2 Store substance within a closed system.</p>	

Section 2.2 Control of environmental exposure
Product characteristics
Not applicable
Duration, frequency and amount
Not applicable
Environmental factors not influenced by risk management
Not applicable
Other given operational conditions affecting environmental exposure
No exposure assessment presented for the environment [G40]
Technical conditions and measures at process level (source) to prevent release
Not applicable
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil
Not applicable
Organisation measures to prevent/limit release from site
Not applicable
Conditions and measures related to municipal sewage treatment plant
Not applicable
Conditions and measures related to external treatment of waste for disposal
Not applicable
Conditions and measures related to external recovery of waste
Not applicable
Section 3 Exposure Estimation
3.1. Health
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated [G21]
3.2. Environment
Not applicable
Section 4 Guidance to check compliance with the Exposure Scenario
4.1. Health
Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. [G22] Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.[G23]
4.2. Environment
Not applicable

Section 1 Exposure Scenario Title	
Title:	
Use in laboratories - Industrial	
Use Descriptor	
Sector(s) of Use	SU3
Process Categories	PROC10, PROC15
Environmental Release Categories	ERC2, ERC4
Specific Environmental Release Category	
Processes, tasks, activities covered	
Use of the substance within laboratory settings, including material transfers and equipment cleaning.	
Section 2 Operational conditions and risk management measures	
Section 2.1 Control of worker exposure	
Product Characteristic	
Liquid	
Duration, frequency and amount	
Covers daily exposures up to 8 hours (unless stated differently)[G2]	
Covers percentage substance in the product up to 100 %[G13]	
Other given operational conditions affecting workers exposure	
Assumes a good basic standard of occupational hygiene is implemented [G1]	
Assumes use at not more than 20°C above ambient temperature[G15]	
Contributing Scenarios/Specific Risk Management Measures and Operating Conditions	
(only required controls to demonstrate safe use listed)	
Laboratory activities PROC15	
No specific measures identified.	
Cleaning PROC10	
provide a good standard of controlled ventilation (10 to 15 air changes per hour).	
Section 2.2 Control of environmental exposure	
Product characteristics	
Not applicable	
Duration, frequency and amount	
Not applicable	
Environmental factors not influenced by risk management	
Not applicable	
Other given operational conditions affecting environmental exposure	
No exposure assessment presented for the environment [G40]	
Technical conditions and measures at process level (source) to prevent release	
Not applicable	
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	
Not applicable	
Organisation measures to prevent/limit release from site	
Not applicable	
Conditions and measures related to municipal sewage treatment plant	
Not applicable	
Conditions and measures related to external treatment of waste for disposal	
Not applicable	
Conditions and measures related to external recovery of waste	
Not applicable	
Section 3 Exposure Estimation	

3.1. Health
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated [G21]
3.2. Environment
Not applicable
Section 4 Guidance to check compliance with the Exposure Scenario
4.1. Health
Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. [G22] Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.[G23]
4.2. Environment
Not applicable

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Section 1 Exposure Scenario Title	
Title:	
Rubber production and processing	
Use Descriptor	
Sector(s) of Use	SU10
Process Categories	PROC1, PROC13, PROC14, PROC2, PROC21, PROC3, PROC4, PROC5, PROC6, PROC7, PROC8a, PROC8b, PROC9
Environmental Release Categories	ERC1, ERC4, ERC6D
Specific Environmental Release Category	ESVOC 4.19.v1
Processes, tasks, activities covered	
Manufacture of tyres and general rubber articles, including processing of raw (uncured) rubber, handling and mixing of rubber additives, vulcanising, cooling and finishing.	
Section 2 Operational conditions and risk management measures	
Section 2.1 Control of worker exposure	
Product Characteristic	
Liquid	
Duration, frequency and amount	
Covers daily exposures up to 8 hours (unless stated differently)[G2]	
Covers percentage substance in the product up to 100 %[G13]	
Other given operational conditions affecting workers exposure	
Assumes a good basic standard of occupational hygiene is implemented [G1]	
Assumes use at not more than 20°C above ambient temperature[G15]	
Contributing Scenarios/Specific Risk Management Measures and Operating Conditions (only required controls to demonstrate safe use listed)	
Material transfers (closed systems) PROC1 No specific measures identified.	
Material transfers (closed systems) PROC2 No specific measures identified.	
Material transfers PROC8b Handle substance within a closed system.	
Bulk weighing PROC1 No specific measures identified.	
Bulk weighing PROC2 No specific measures identified.	
Small scale weighing PROC9 No specific measures identified.	
Additive premixing PROC3 No specific measures identified.	
Additive premixing PROC4 No specific measures identified.	
Additive premixing PROC5 No specific measures identified.	
Material transfers PROC8b No specific measures identified.	
Material transfers PROC9 No specific measures identified.	
Calendering (including Banburys) Operation is carried out at elevated temperature (> 20°C above ambient temperature). PROC6 Minimise exposure by extracted full enclosure for the operation or equipment.	

<p>Pressing uncured rubber blanks PROC14 No specific measures identified.</p> <p>Tyre build up PROC7 Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings.</p> <p>Vulcanisation Operation is carried out at elevated temperature (> 20°C above ambient temperature). PRO C6 Minimise exposure by extracted full enclosure for the operation or equipment.</p> <p>Vulcanisation Operation is carried out at elevated temperature (> 20°C above ambient temperature). Manual PROC6 Provide extract ventilation to material transfer points and other openings.</p> <p>Cooling cured articles Operation is carried out at elevated temperature (> 20°C above ambient temperature). PROC6 Minimise exposure by extracted full enclosure for the operation or equipment.</p> <p>Production of articles by dipping and pouring PROC13 No specific measures identified.</p> <p>Finishing operations PROC21 No specific measures identified.</p> <p>Equipment maintenance PROC8a No specific measures identified.</p> <p>Storage PROC1 Store substance within a closed system.</p> <p>Storage PROC2 Store substance within a closed system.</p>
Section 2.2 Control of environmental exposure
Product characteristics
Not applicable
Duration, frequency and amount
Not applicable
Environmental factors not influenced by risk management
Not applicable
Other given operational conditions affecting environmental exposure
No exposure assessment presented for the environment [G40]
Technical conditions and measures at process level (source) to prevent release
Not applicable
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil
Not applicable
Organisation measures to prevent/limit release from site
Not applicable
Conditions and measures related to municipal sewage treatment plant
Not applicable
Conditions and measures related to external treatment of waste for disposal
Not applicable
Conditions and measures related to external recovery of waste
Not applicable
Section 3 Exposure Estimation
3.1. Health
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated [G21]
3.2. Environment
Not applicable
Section 4 Guidance to check compliance with the Exposure Scenario
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. [G22] Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.[G23]
4.2. Environment
Not applicable

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Section 1 Exposure Scenario Title	
Title:	
Polymer processing - Industrial	
Use Descriptor	
Sector(s) of Use	SU10, SU3
Process Categories	PROC1, PROC13, PROC14, PROC2, PROC21, PROC3, PROC4, PROC5, PROC6, PROC8a, PROC8b, PROC9
Environmental Release Categories	ERC4
Specific Environmental Release Category	
Processes, tasks, activities covered	
Processing of formulated polymers including material transfers, additives handling (e.g. pigments, stabilisers, fillers, plasticisers, etc.), moulding, curing and forming activities, material re-works, storage and associated maintenance.	
Section 2 Operational conditions and risk management measures	
Section 2.1 Control of worker exposure	
Product Characteristic	
Liquid	
Duration, frequency and amount	
Covers daily exposures up to 8 hours (unless stated differently)[G2] Covers percentage substance in the product up to 100 %[G13]	
Other given operational conditions affecting workers exposure	
Assumes a good basic standard of occupational hygiene is implemented [G1] Assumes use at not more than 20°C above ambient temperature[G15]	
Contributing Scenarios/Specific Risk Management Measures and Operating Conditions (only required controls to demonstrate safe use listed)	
<p>Bulk transfers (closed systems) PROC1 No specific measures identified.</p> <p>Bulk transfers (closed systems) PROC2 No specific measures identified.</p> <p>Bulk transfers PROC8b Handle substance within a closed system.</p> <p>Bulk weighing PROC1 Handle substance within a closed system.</p> <p>Bulk weighing PROC2 Handle substance within a closed system.</p> <p>Small scale weighing PROC9 Carefully handle the substance to minimise releases.</p> <p>Additive premixing PROC3 Carefully handle the substance to minimise releases.</p> <p>Additive premixing PROC4 Carefully handle the substance to minimise releases.</p> <p>Additive premixing Avoid carrying out operation for more than 4 hours. PROC5 Carefully handle the substance to minimise releases.</p> <p>Bulk transfers PROC8b Use dry break couplings for material transfer.</p> <p>Bulk transfers PROC9 Use dry break couplings for material transfer.</p> <p>Calendering (including Banburys) Operation is carried out at elevated temperature (> 20°C above ambient temperature). PROC6 No specific measures identified.</p> <p>Production of articles by dipping and pouring PROC13</p>	

No specific measures identified.
Extrusion and masterbatching PROC14
No specific measures identified.
Injection moulding of articles PROC14
No specific measures identified.
Finishing operations PROC21
No specific measures identified.
Equipment maintenance PROC8a
Clear up spills immediately and dispose of waste safely.
Storage PROC1
Store substance within a closed system.
Storage PROC2
Store substance within a closed system.
Section 2.2 Control of environmental exposure
Product characteristics
Not applicable
Duration, frequency and amount
Not applicable
Environmental factors not influenced by risk management
Not applicable
Other given operational conditions affecting environmental exposure
No exposure assessment presented for the environment [G40]
Technical conditions and measures at process level (source) to prevent release
Not applicable
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil
Not applicable
Organisation measures to prevent/limit release from site
Not applicable
Conditions and measures related to municipal sewage treatment plant
Not applicable
Conditions and measures related to external treatment of waste for disposal
Not applicable
Conditions and measures related to external recovery of waste
Not applicable
Section 3 Exposure Estimation
3.1. Health
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated [G21]
3.2. Environment
Not applicable
Section 4 Guidance to check compliance with the Exposure Scenario
4.1. Health
Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. [G22]
Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.[G23]
4.2. Environment
Not applicable

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Section 1 Exposure Scenario Title	
Title:	
Water treatment chemicals - Industrial	
Use Descriptor	
Sector(s) of Use	SU3
Process Categories	PROC1, PROC13, PROC2, PROC3, PROC4, PROC8a, PROC8b
Environmental Release Categories	ERC3, ERC4
Specific Environmental Release Category	
Processes, tasks, activities covered	
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	
Section 2.1 Control of worker exposure	
Product Characteristic	
Liquid	
Duration, frequency and amount	
Covers daily exposures up to 8 hours (unless stated differently)[G2] Covers percentage substance in the product up to 100 %[G13]	
Other given operational conditions affecting workers exposure	
Assumes a good basic standard of occupational hygiene is implemented [G1] Assumes use at not more than 20°C above ambient temperature[G15]	
Contributing Scenarios/Specific Risk Management Measures and Operating Conditions (only required controls to demonstrate safe use listed)	
Bulk transfers Dedicated facility PROC2 Handle substance within a closed system. Clear transfer lines prior to de-coupling.	
Drum/batch transfers PROC8b Avoid spillage when withdrawing pump.	
General exposures (closed systems) PROC3 No specific measures identified.	
General exposures (open systems) PROC4 Restrict area of openings to equipment.	
Pouring from small containers PROC13 Carefully pour from containers.	
Equipment maintenance PROC8a Retain drain downs in sealed storage pending disposal or for subsequent recycle.	
Storage PROC1 Store substance within a closed system.	
Section 2.2 Control of environmental exposure	
Product characteristics	
Not applicable	
Duration, frequency and amount	
Not applicable	
Environmental factors not influenced by risk management	
Not applicable	
Other given operational conditions affecting environmental exposure	
No exposure assessment presented for the environment [G40]	
Technical conditions and measures at process level (source) to prevent release	
Not applicable	

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Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil
Not applicable
Organisation measures to prevent/limit release from site
Not applicable
Conditions and measures related to municipal sewage treatment plant
Not applicable
Conditions and measures related to external treatment of waste for disposal
Not applicable
Conditions and measures related to external recovery of waste
Not applicable
Section 3 Exposure Estimation
3.1. Health
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated [G21]
3.2. Environment
Not applicable
Section 4 Guidance to check compliance with the Exposure Scenario
4.1. Health
Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. [G22] Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.[G23]
4.2. Environment
Not applicable

Section 1 Exposure Scenario Title	
Title:	
Mining chemicals	
Use Descriptor	
Sector(s) of Use	SU3
Process Categories	PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9
Environmental Release Categories	ERC4
Specific Environmental Release Category	
Processes, tasks, activities covered	
Covers the use of the substance in extraction processes at mining operations, including material transfers, winning and separation activities, and substance recovery and disposal.	
Section 2 Operational conditions and risk management measures	
Section 2.1 Control of worker exposure	
Product Characteristic	
Liquid	
Duration, frequency and amount	
Covers daily exposures up to 8 hours (unless stated differently)[G2] Covers percentage substance in the product up to 100 %[G13]	
Other given operational conditions affecting workers exposure	
Assumes a good basic standard of occupational hygiene is implemented [G1] Assumes use at not more than 20°C above ambient temperature[G15]	
Contributing Scenarios/Specific Risk Management Measures and Operating Conditions (only required controls to demonstrate safe use listed)	
Bulk transfers PROC2 Transfer via enclosed lines Clear transfer lines prior to de-coupling. Drum/batch transfers PROC8b Avoid spillage when withdrawing pump. Pouring from small containers PROC9 Carefully handle the substance to minimise releases. General exposures (closed systems) PROC3 No specific measures identified. General exposures (open systems) PROC5 No specific measures identified. phase separation (closed systems) PROC4 No specific measures identified. ion exchange processes (closed systems) PROC2 No specific measures identified. Process sampling PROC3 No specific measures identified. Mixing operations (closed systems) PROC1 No specific measures identified. Equipment cleaning and maintenance PROC8a Retain drain downs in sealed storage pending disposal or for subsequent recycle. Storage PROC1 Store substance within a closed system.	
Section 2.2 Control of environmental exposure	
Product characteristics	
Not applicable	

Duration, frequency and amount
Not applicable
Environmental factors not influenced by risk management
Not applicable
Other given operational conditions affecting environmental exposure
No exposure assessment presented for the environment [G40]
Technical conditions and measures at process level (source) to prevent release
Not applicable
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil
Not applicable
Organisation measures to prevent/limit release from site
Not applicable
Conditions and measures related to municipal sewage treatment plant
Not applicable
Conditions and measures related to external treatment of waste for disposal
Not applicable
Conditions and measures related to external recovery of waste
Not applicable
Section 3 Exposure Estimation
3.1. Health
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated [G21]
3.2. Environment
Not applicable
Section 4 Guidance to check compliance with the Exposure Scenario
4.1. Health
Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. [G22] Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.[G23]
4.2. Environment
Not applicable

Section 1 Exposure Scenario Title	
Title:	
Use in Coatings - Professional	
Use Descriptor	
Sector(s) of Use	SU22
Process Categories	PROC1, PROC10, PROC11, PROC13, PROC15, PROC19, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b
Environmental Release Categories	ERC8A, ERC8D
Specific Environmental Release Category	
Processes, tasks, activities covered	
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	
Section 2.1 Control of worker exposure	
Product Characteristic	
Liquid	
Duration, frequency and amount	
Covers daily exposures up to 8 hours (unless stated differently)[G2] Covers percentage substance in the product up to 100 %[G13]	
Other given operational conditions affecting workers exposure	
Assumes a good basic standard of occupational hygiene is implemented [G1] Assumes use at not more than 20°C above ambient temperature[G15]	
Contributing Scenarios/Specific Risk Management Measures and Operating Conditions (only required controls to demonstrate safe use listed)	
<p>General exposures (closed systems) PROC1 Handle substance within a closed system.</p> <p>Filling / preparation of equipment from drums or containers PROC2 Handle substance within a closed system.</p> <p>General exposures (closed systems) Use in contained systems PROC2 Handle substance within a closed system.</p> <p>Preparation of material for application PROC3 No specific measures identified.</p> <p>Film formation - air drying Outdoor. PROC4 No specific measures identified.</p> <p>Film formation - air drying Indoor PROC4 No specific measures identified.</p> <p>Preparation of material for application Indoor PROC5 No specific measures identified.</p> <p>Preparation of material for application Outdoor. PROC5 No specific measures identified.</p> <p>Material transfers Drum/batch transfers PROC8a No specific measures identified.</p> <p>Material transfers Drum/batch transfers PROC8b No specific measures identified.</p> <p>Roller, spreader, flow application Indoor PROC10 No specific measures identified.</p> <p>Roller, spreader, flow application Outdoor. PROC10 No specific measures identified.</p>	

<p>Manual Spraying Indoor PROC11 Carry out in a vented booth or extracted enclosure.</p> <p>Manual Spraying Outdoor. PROC11 Ensure operation is undertaken outdoors.</p> <p>Dipping, immersion and pouring Indoor PROC13 Avoid manual contact with wet work pieces. Clear up spills immediately and dispose of waste safely.</p> <p>Dipping, immersion and pouring Outdoor. PROC13 Avoid manual contact with wet work pieces. Clear up spills immediately and dispose of waste safely.</p> <p>Laboratory activities PROC15 No specific measures identified.</p> <p>Hand application - finger paints, pastels, adhesives Indoor PROC19 Ensure doors and windows are opened.</p> <p>Hand application - finger paints, pastels, adhesives Outdoor. PROC19 No specific measures identified.</p>
Section 2.2 Control of environmental exposure
Product characteristics
Not applicable
Duration, frequency and amount
Not applicable
Environmental factors not influenced by risk management
Not applicable
Other given operational conditions affecting environmental exposure
No exposure assessment presented for the environment [G40]
Technical conditions and measures at process level (source) to prevent release
Not applicable
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil
Not applicable
Organisation measures to prevent/limit release from site
Not applicable
Conditions and measures related to municipal sewage treatment plant
Not applicable
Conditions and measures related to external treatment of waste for disposal
Not applicable
Conditions and measures related to external recovery of waste
Not applicable
Section 3 Exposure Estimation
3.1. Health
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated [G21]
3.2. Environment
Not applicable
Section 4 Guidance to check compliance with the Exposure Scenario
4.1. Health
Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. [G22] Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.[G23]
4.2. Environment
Not applicable



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Section 1 Exposure Scenario Title	
Title:	
Use in Cleaning Agents - Professional	
Use Descriptor	
Sector(s) of Use	SU22
Process Categories	PROC10, PROC11, PROC13, PROC2, PROC3, PROC4, PROC8a, PROC8b
Environmental Release Categories	ERC8A, ERC8D
Specific Environmental Release Category	
Processes, tasks, activities covered	
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	
Section 2.1 Control of worker exposure	
Product Characteristic	
Liquid	
Duration, frequency and amount	
Covers daily exposures up to 8 hours (unless stated differently)[G2]	
Covers percentage substance in the product up to 100 %[G13]	
Other given operational conditions affecting workers exposure	
Assumes a good basic standard of occupational hygiene is implemented [G1]	
Assumes use at not more than 20°C above ambient temperature[G15]	
Contributing Scenarios/Specific Risk Management Measures and Operating Conditions (only required controls to demonstrate safe use listed)	
Filling / preparation of equipment from drums or containers PROC8b No specific measures identified.	
Automated process with (semi) closed systems Use in contained systems PROC2 No specific measures identified.	
Automated process with (semi) closed systems Drum/batch transfers Use in contained systems PROC3 No specific measures identified.	
Semi-automated process (e.g.: Semi-automatic application of floor care and maintenance products) PROC4 No specific measures identified.	
Filling / preparation of equipment from drums or containers PROC8a No specific measures identified.	
Manual Surfaces Cleaning Dipping, immersion and pouring PROC13 No specific measures identified.	
Cleaning with low-pressure washers Rolling, Brushing No spraying PROC10 No specific measures identified.	
Cleaning with high pressure washers Spraying Indoor PROC11 provide a good standard of general ventilation Natural ventilation is from doors, windows etc. Controlled ventilation means air is supplied or removed by a powered fan.	
Cleaning with high pressure washers Spraying Outdoor. PROC11 Limit the substance content in the mixture to 1 %. Ensure operation is undertaken outdoors.	
Manual Surfaces Cleaning Spraying PROC10 No specific measures identified.	
Ad hoc manual application via trigger sprays, dipping, etc. Rolling, Brushing PROC10 No specific measures identified.	
OR	

No specific measures identified.
Application of cleaning products in closed systems Outdoor. PROC4
No specific measures identified.
Cleaning of medical devices PROC4
No specific measures identified.
Section 2.2 Control of environmental exposure
Product characteristics
Not applicable
Duration, frequency and amount
Not applicable
Environmental factors not influenced by risk management
Not applicable
Other given operational conditions affecting environmental exposure
No exposure assessment presented for the environment [G40]
Technical conditions and measures at process level (source) to prevent release
Not applicable
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil
Not applicable
Organisation measures to prevent/limit release from site
Not applicable
Conditions and measures related to municipal sewage treatment plant
Not applicable
Conditions and measures related to external treatment of waste for disposal
Not applicable
Conditions and measures related to external recovery of waste
Not applicable
Section 3 Exposure Estimation
3.1. Health
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated [G21]
3.2. Environment
Not applicable
Section 4 Guidance to check compliance with the Exposure Scenario
4.1. Health
Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. [G22] Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.[G23]
4.2. Environment
Not applicable

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Section 1 Exposure Scenario Title	
Title:	
Lubricants - Professional (Low Release)	
Use Descriptor	
Sector(s) of Use	SU22
Process Categories	PROC1, PROC10, PROC11, PROC13, PROC17, PROC18, PROC2, PROC20, PROC3, PROC4, PROC8a, PROC8b, PROC9
Environmental Release Categories	ERC9A, ERC9B
Specific Environmental Release Category	
Processes, tasks, activities covered	
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	
Section 2.1 Control of worker exposure	
Product Characteristic	
Liquid	
Duration, frequency and amount	
Covers daily exposures up to 8 hours (unless stated differently)[G2] Covers percentage substance in the product up to 100 %[G13]	
Other given operational conditions affecting workers exposure	
Assumes a good basic standard of occupational hygiene is implemented [G1] Assumes use at not more than 20°C above ambient temperature[G15]	
Contributing Scenarios/Specific Risk Management Measures and Operating Conditions (only required controls to demonstrate safe use listed)	
<p>General exposures (closed systems) PROC1 Handle substance within a closed system. No other specific measures identified.</p> <p>General exposures (closed systems) PROC2 Handle substance within a closed system. No other specific measures identified.</p> <p>General exposures (closed systems) PROC3 Handle substance within a closed system. No other specific measures identified.</p> <p>Operation of equipment containing engine oils and similar PROC20 No specific measures identified.</p> <p>General exposures (open systems) PROC4 No specific measures identified.</p> <p>Bulk transfers PROC8b No specific measures identified.</p> <p>Filling / preparation of equipment from drums or containers Dedicated facility PROC8b No specific measures identified.</p> <p>Filling / preparation of equipment from drums or containers Non-dedicated facility PROC8a No specific measures identified.</p> <p>Operation and lubrication of high energy open equipment Indoor PROC17 Restrict area of openings to equipment. Provide extract ventilation to points where emissions occur.</p> <p>Operation and lubrication of high energy open equipment PROC18 Restrict area of openings to equipment. Provide extract ventilation to points where emissions occur.</p>	

<p>Operation and lubrication of high energy open equipment Outdoor. PROC17 Ensure operation is undertaken outdoors.</p> <p>Maintenance (of larger plant items) and machine set up PROC8b No specific measures identified.</p> <p>Maintenance (of larger plant items) and machine set up Operation is carried out at elevated temperature (> 20°C above ambient temperature). PROC8b Provide extract ventilation to emission points when contact with warm (> 50°C) lubricant is likely.</p> <p>Maintenance of small items Operation is carried out at elevated temperature (> 20°C above ambient temperature). PROC8a Wear a respirator conforming to EN140 with Type A/P2 filter or better. Retain drain downs in sealed storage pending disposal or for subsequent recycle.</p> <p>Engine lubricant service PROC9 No specific measures identified.</p> <p>Roller application or brushing PROC10 No specific measures identified.</p> <p>Spraying PROC11 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. Avoid carrying out operation for more than 4 hours.</p> <p>Treatment by dipping and pouring PROC13 Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings. Allow time for product to drain from workpiece OR provide a good standard of general ventilation Natural ventilation is from doors, windows etc. Controlled ventilation means air is supplied or removed by a powered fan. Wear a respirator conforming to EN140 with Type A/P2 filter or better. Allow time for product to drain from workpiece</p> <p>Batch process PROC1 Store substance within a closed system.</p> <p>Batch process PROC2 Store substance within a closed system.</p>
Section 2.2 Control of environmental exposure
Product characteristics
Not applicable
Duration, frequency and amount
Not applicable
Environmental factors not influenced by risk management
Not applicable
Other given operational conditions affecting environmental exposure
No exposure assessment presented for the environment [G40]
Technical conditions and measures at process level (source) to prevent release
Not applicable
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil
Not applicable
Organisation measures to prevent/limit release from site
Not applicable
Conditions and measures related to municipal sewage treatment plant
Not applicable
Conditions and measures related to external treatment of waste for disposal
Not applicable

Conditions and measures related to external recovery of waste
Not applicable
Section 3 Exposure Estimation
3.1. Health
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated [G21]
3.2. Environment
Not applicable
Section 4 Guidance to check compliance with the Exposure Scenario
4.1. Health
Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. [G22] Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.[G23]
4.2. Environment
Not applicable

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Section 1 Exposure Scenario Title	
Title:	
Metal working fluids / rolling oils - Professional	
Use Descriptor	
Sector(s) of Use	SU22
Process Categories	PROC1, PROC10, PROC11, PROC13, PROC17, PROC2, PROC3, PROC8a, PROC8b, PROC9
Environmental Release Categories	ERC8A, ERC8D
Specific Environmental Release Category	
Processes, tasks, activities covered	
Covers the use in formulated MWFs (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	
Section 2.1 Control of worker exposure	
Product Characteristic	
Liquid	
Duration, frequency and amount	
Covers daily exposures up to 8 hours (unless stated differently)[G2]	
Covers percentage substance in the product up to 100 %[G13]	
Other given operational conditions affecting workers exposure	
Assumes a good basic standard of occupational hygiene is implemented [G1]	
Assumes use at not more than 20°C above ambient temperature[G15]	
Contributing Scenarios/Specific Risk Management Measures and Operating Conditions (only required controls to demonstrate safe use listed)	
<p>General exposures (closed systems) PROC1 Handle substance within a closed system. No other specific measures identified.</p> <p>General exposures (closed systems) PROC2 Handle substance within a closed system. No other specific measures identified.</p> <p>General exposures (closed systems) PROC3 Handle substance within a closed system. No other specific measures identified.</p> <p>Bulk transfers PROC8b Clear transfer lines prior to de-coupling.</p> <p>Filling / preparation of equipment from drums or containers Dedicated facility PROC8b Clear transfer lines prior to de-coupling.</p> <p>Filling / preparation of equipment from drums or containers Dedicated facility PROC9 No specific measures identified.</p> <p>Filling / preparation of equipment from drums or containers Non-dedicated facility PROC8a Avoid carrying out operation for more than 1 hour</p> <p>Process sampling PROC8b No specific measures identified.</p> <p>Metal machining operations PROC17 Provide enhanced general ventilation by mechanical means.</p> <p>Roller application or brushing PROC10 No specific measures identified.</p> <p>Spraying PROC11 Provide enhanced general ventilation by mechanical means.</p>	

<p>Treatment by dipping and pouring PROC13 Allow time for product to drain from workpiece</p> <p>Equipment cleaning and maintenance Non-dedicated facility PROC8a Retain drain downs in sealed storage pending disposal or for subsequent recycle.</p> <p>Equipment cleaning and maintenance Dedicated facility PROC8b Clear transfer lines prior to de-coupling.</p> <p>Storage PROC1 Handle substance within a closed system. No other specific measures identified.</p> <p>Storage PROC2 Handle substance within a closed system. No other specific measures identified.</p>
Section 2.2 Control of environmental exposure
Product characteristics
Not applicable
Duration, frequency and amount
Not applicable
Environmental factors not influenced by risk management
Not applicable
Other given operational conditions affecting environmental exposure
No exposure assessment presented for the environment [G40]
Technical conditions and measures at process level (source) to prevent release
Not applicable
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil
Not applicable
Organisation measures to prevent/limit release from site
Not applicable
Conditions and measures related to municipal sewage treatment plant
Not applicable
Conditions and measures related to external treatment of waste for disposal
Not applicable
Conditions and measures related to external recovery of waste
Not applicable
Section 3 Exposure Estimation
3.1. Health
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated [G21]
3.2. Environment
Not applicable
Section 4 Guidance to check compliance with the Exposure Scenario
4.1. Health
Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. [G22] Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.[G23]
4.2. Environment
Not applicable

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Section 1 Exposure Scenario Title	
Title:	
Use as binders and release agents - Professional	
Use Descriptor	
Sector(s) of Use	SU22
Process Categories	PROC1, PROC10, PROC11, PROC14, PROC2, PROC3, PROC4, PROC6, PROC8b
Environmental Release Categories	ERC8A, ERC8D
Specific Environmental Release Category	
Processes, tasks, activities covered	
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	
Section 2.1 Control of worker exposure	
Product Characteristic	
Liquid	
Duration, frequency and amount	
Covers daily exposures up to 8 hours (unless stated differently)[G2] Covers percentage substance in the product up to 100 %[G13]	
Other given operational conditions affecting workers exposure	
Assumes a good basic standard of occupational hygiene is implemented [G1] Assumes use at not more than 20°C above ambient temperature[G15]	
Contributing Scenarios/Specific Risk Management Measures and Operating Conditions (only required controls to demonstrate safe use listed)	
<p>Material transfers (closed systems) PROC1 Retain drain downs in sealed storage pending disposal or for subsequent recycle.</p> <p>Material transfers (closed systems) PROC2 Retain drain downs in sealed storage pending disposal or for subsequent recycle.</p> <p>Material transfers (closed systems) PROC3 Retain drain downs in sealed storage pending disposal or for subsequent recycle.</p> <p>Drum/batch transfers PROC8b No specific measures identified.</p> <p>GES10.02.05 CS29 PROC3 [EXXONMOBIL IPA] PROC3 No specific measures identified.</p> <p>Mixing operations (open systems) PROC4 No specific measures identified.</p> <p>Mold forming PROC14 No specific measures identified.</p> <p>Casting operations (open systems) Operation is carried out at elevated temperature (> 20°C above ambient temperature). PROC6 Provide extract ventilation to points where emissions occur. Limit the substance content in the mixture to 25 %.</p> <p>Spraying Machine PROC11 Minimise exposure by extracted full enclosure for the operation or equipment. Segregate the activity away from other operations.</p> <p>Roller application or brushing PROC10 No specific measures identified.</p> <p>Spraying Manual PROC11 Carry out in a vented booth or extracted enclosure. Segregate the activity away from other operations.</p>	

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Batch process PROC1
Store substance within a closed system.
Batch process PROC2
Store substance within a closed system.
Section 2.2 Control of environmental exposure
Product characteristics
Not applicable
Duration, frequency and amount
Not applicable
Environmental factors not influenced by risk management
Not applicable
Other given operational conditions affecting environmental exposure
No exposure assessment presented for the environment [G40]
Technical conditions and measures at process level (source) to prevent release
Not applicable
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil
Not applicable
Organisation measures to prevent/limit release from site
Not applicable
Conditions and measures related to municipal sewage treatment plant
Not applicable
Conditions and measures related to external treatment of waste for disposal
Not applicable
Conditions and measures related to external recovery of waste
Not applicable
Section 3 Exposure Estimation
3.1. Health
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated [G21]
3.2. Environment
Not applicable
Section 4 Guidance to check compliance with the Exposure Scenario
4.1. Health
Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. [G22]
Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.[G23]
4.2. Environment
Not applicable

Section 1 Exposure Scenario Title	
Title:	
Agrochemical uses - Professional	
Use Descriptor	
Sector(s) of Use	SU22
Process Categories	PROC1, PROC11, PROC13, PROC2, PROC4, PROC8a, PROC8b
Environmental Release Categories	ERC8A, ERC8D
Specific Environmental Release Category	
Processes, tasks, activities covered	
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	
Section 2.1 Control of worker exposure	
Product Characteristic	
Liquid	
Duration, frequency and amount	
Covers daily exposures up to 8 hours (unless stated differently)[G2] Covers percentage substance in the product up to 100 %[G13]	
Other given operational conditions affecting workers exposure	
Assumes a good basic standard of occupational hygiene is implemented [G1] Assumes use at not more than 20°C above ambient temperature[G15]	
Contributing Scenarios/Specific Risk Management Measures and Operating Conditions (only required controls to demonstrate safe use listed)	
Transfer from/pouring from containers PROC8b No specific measures identified.	
Mixing operations (open systems) PROC4 No specific measures identified.	
Spraying/fogging by manual application PROC11 Avoid carrying out operation for more than 4 hours. Limit the substance content in the mixture to 25 %.	
Spraying/fogging by machine application PROC11 Apply within a vented cab supplied with filtered air under positive pressure and with a protection factor of >20.	
Ad hoc manual application via trigger sprays, dipping, etc. PROC13 No specific measures identified.	
Equipment cleaning and maintenance PROC8a Retain drain downs in sealed storage pending disposal or for subsequent recycle.	
Disposal of wastes PROC8a Dispose of waste product or used containers according to local regulations.	
Storage PROC1 Store substance within a closed system.	
Storage PROC2 Store substance within a closed system.	
Section 2.2 Control of environmental exposure	
Product characteristics	
Not applicable	
Duration, frequency and amount	
Not applicable	
Environmental factors not influenced by risk management	

Not applicable
Other given operational conditions affecting environmental exposure
No exposure assessment presented for the environment [G40]
Technical conditions and measures at process level (source) to prevent release
Not applicable
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil
Not applicable
Organisation measures to prevent/limit release from site
Not applicable
Conditions and measures related to municipal sewage treatment plant
Not applicable
Conditions and measures related to external treatment of waste for disposal
Not applicable
Conditions and measures related to external recovery of waste
Not applicable
Section 3 Exposure Estimation
3.1. Health
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated [G21]
3.2. Environment
Not applicable
Section 4 Guidance to check compliance with the Exposure Scenario
4.1. Health
Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. [G22] Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.[G23]
4.2. Environment
Not applicable

Section 1 Exposure Scenario Title	
Title:	
Use as a fuel - Professional	
Use Descriptor	
Sector(s) of Use	SU22
Process Categories	PROC1, PROC16, PROC2, PROC3, PROC8a, PROC8b
Environmental Release Categories	ERC9A, ERC9B
Specific Environmental Release Category	ESVOC 9.12b.v1
Processes, tasks, activities covered	
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	
Section 2.1 Control of worker exposure	
Product Characteristic	
Liquid	
Duration, frequency and amount	
Covers daily exposures up to 8 hours (unless stated differently)[G2]	
Covers percentage substance in the product up to 100 %[G13]	
Other given operational conditions affecting workers exposure	
Assumes a good basic standard of occupational hygiene is implemented [G1]	
Assumes use at not more than 20°C above ambient temperature[G15]	
Contributing Scenarios/Specific Risk Management Measures and Operating Conditions (only required controls to demonstrate safe use listed)	
Bulk transfers PROC8b Handle substance within a closed system. Clear transfer lines prior to de-coupling. Drum/batch transfers PROC8b Avoid spillage when withdrawing pump. Equipment cleaning and maintenance PROC8a Retain drain downs in sealed storage pending disposal or for subsequent recycle. Vessel and container cleaning PROC8a Retain drain downs in sealed storage pending disposal or for subsequent recycle. Apply vessel entry procedures including use of supplied compressed air. Storage PROC1 Store substance within a closed system. (closed systems) Use as a fuel PROC3 No other specific measures identified. Handle substance within a closed system. Use as a fuel (closed systems) PROC16 No other specific measures identified. Handle substance within a closed system. refuelling PROC8b Avoid spillage when withdrawing pump. Use as a fuel PROC1 Handle substance within a closed system. No other specific measures identified. Use as a fuel PROC2 Handle substance within a closed system. No other specific measures identified.	
Section 2.2 Control of environmental exposure	

Product characteristics
Not applicable
Duration, frequency and amount
Not applicable
Environmental factors not influenced by risk management
Not applicable
Other given operational conditions affecting environmental exposure
No exposure assessment presented for the environment [G40]
Technical conditions and measures at process level (source) to prevent release
Not applicable
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil
Not applicable
Organisation measures to prevent/limit release from site
Not applicable
Conditions and measures related to municipal sewage treatment plant
Not applicable
Conditions and measures related to external treatment of waste for disposal
Not applicable
Conditions and measures related to external recovery of waste
Not applicable
Section 3 Exposure Estimation
3.1. Health
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated [G21]
3.2. Environment
Not applicable
Section 4 Guidance to check compliance with the Exposure Scenario
4.1. Health
Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. [G22] Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.[G23]
4.2. Environment
Not applicable

Section 1 Exposure Scenario Title	
Title:	
Functional Fluids - Professional	
Use Descriptor	
Sector(s) of Use	SU22
Process Categories	PROC1, PROC2, PROC20, PROC3, PROC8a, PROC9
Environmental Release Categories	ERC9A, ERC9B
Specific Environmental Release Category	
Processes, tasks, activities covered	
Use as functional fluids e.g. cable oils, transfer oils, insulators, refrigerants, hydraulic fluids in closed professional equipment including incidental exposures during maintenance and related material transfers.	
Section 2 Operational conditions and risk management measures	
Section 2.1 Control of worker exposure	
Product Characteristic	
Liquid	
Duration, frequency and amount	
Covers daily exposures up to 8 hours (unless stated differently)[G2]	
Covers percentage substance in the product up to 100 %[G13]	
Other given operational conditions affecting workers exposure	
Assumes a good basic standard of occupational hygiene is implemented [G1]	
Assumes use at not more than 20°C above ambient temperature[G15]	
Contributing Scenarios/Specific Risk Management Measures and Operating Conditions (only required controls to demonstrate safe use listed)	
<p>Drum/batch transfers PROC8a No specific measures identified.</p> <p>Transfer from/pouring from containers PROC9 Avoid spillage when withdrawing pump.</p> <p>Filling / preparation of equipment from drums or containers PROC9 No specific measures identified.</p> <p>General exposures (closed systems) PROC1 No specific measures identified.</p> <p>General exposures (closed systems) PROC2 No specific measures identified.</p> <p>General exposures (closed systems) PROC3 No specific measures identified.</p> <p>General exposures (open systems) PROC20 No specific measures identified.</p> <p>General exposures (open systems) Operation is carried out at elevated temperature (> 20°C above ambient temperature). PROC20 No specific measures identified.</p> <p>Remanufacture of reject articles PROC9 Retain drain downs in sealed storage pending disposal or for subsequent recycle.</p> <p>Equipment maintenance PROC8a Retain drain downs in sealed storage pending disposal or for subsequent recycle.</p> <p>Storage PROC1 Store substance within a closed system.</p> <p>Storage PROC2 Store substance within a closed system.</p>	
Section 2.2 Control of environmental exposure	
Product characteristics	

Not applicable
Duration, frequency and amount
Not applicable
Environmental factors not influenced by risk management
Not applicable
Other given operational conditions affecting environmental exposure
No exposure assessment presented for the environment [G40]
Technical conditions and measures at process level (source) to prevent release
Not applicable
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil
Not applicable
Organisation measures to prevent/limit release from site
Not applicable
Conditions and measures related to municipal sewage treatment plant
Not applicable
Conditions and measures related to external treatment of waste for disposal
Not applicable
Conditions and measures related to external recovery of waste
Not applicable
Section 3 Exposure Estimation
3.1. Health
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated [G21]
3.2. Environment
Not applicable
Section 4 Guidance to check compliance with the Exposure Scenario
4.1. Health
Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. [G22] Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.[G23]
4.2. Environment
Not applicable

Section 1 Exposure Scenario Title	
Title:	
De-icing and anti-icing applications - Professional	
Use Descriptor	
Sector(s) of Use	SU22
Process Categories	PROC10, PROC11, PROC8b
Environmental Release Categories	ERC8D
Specific Environmental Release Category	
Processes, tasks, activities covered	
Ice prevention and de-icing of vehicles, aircraft and other equipment by spraying.	
Section 2 Operational conditions and risk management measures	
Section 2.1 Control of worker exposure	
Product Characteristic	
Liquid	
Duration, frequency and amount	
Covers daily exposures up to 8 hours (unless stated differently)[G2]	
Covers percentage substance in the product up to 100 %[G13]	
Other given operational conditions affecting workers exposure	
Assumes a good basic standard of occupational hygiene is implemented [G1]	
Assumes use at not more than 20°C above ambient temperature[G15]	
Contributing Scenarios/Specific Risk Management Measures and Operating Conditions	
(only required controls to demonstrate safe use listed)	
Bulk transfers PROC8b	
Clear transfer lines prior to de-coupling.	
Material transfers PROC8b	
Clear transfer lines prior to de-coupling.	
Spraying/fogging by machine application Process sampling Operation is carried out at elevated temperature (> 20°C above ambient temperature). PROC11	
Avoid carrying out operation for more than 1 hour	
Stay upwind/keep distance from source.	
Spraying/fogging by machine application Operation is carried out at elevated temperature (> 20°C above ambient temperature). PROC11	
Ensure operation is undertaken outdoors.	
Avoid carrying out operation for more than 1 hour	
Stay upwind/keep distance from source.	
Equipment cleaning and maintenance PROC10	
No specific measures identified.	
Section 2.2 Control of environmental exposure	
Product characteristics	
Not applicable	
Duration, frequency and amount	
Not applicable	
Environmental factors not influenced by risk management	
Not applicable	
Other given operational conditions affecting environmental exposure	
No exposure assessment presented for the environment [G40]	
Technical conditions and measures at process level (source) to prevent release	
Not applicable	
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	

Not applicable
Organisation measures to prevent/limit release from site
Not applicable
Conditions and measures related to municipal sewage treatment plant
Not applicable
Conditions and measures related to external treatment of waste for disposal
Not applicable
Conditions and measures related to external recovery of waste
Not applicable
Section 3 Exposure Estimation
3.1. Health
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated [G21]
3.2. Environment
Not applicable
Section 4 Guidance to check compliance with the Exposure Scenario
4.1. Health
Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. [G22] Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.[G23]
4.2. Environment
Not applicable

Section 1 Exposure Scenario Title	
Title:	
Road and construction applications	
Use Descriptor	
Sector(s) of Use	SU22
Process Categories	PROC10, PROC11, PROC13, PROC8a, PROC8b
Environmental Release Categories	ERC8D, ERC8F
Specific Environmental Release Category	
Processes, tasks, activities covered	
Bulk loading (including marine vessel/barge, rail/road car and IBC loading)	
Section 2 Operational conditions and risk management measures	
Section 2.1 Control of worker exposure	
Product Characteristic	
Liquid	
Duration, frequency and amount	
Covers daily exposures up to 8 hours (unless stated differently)[G2]	
Covers percentage substance in the product up to 100 %[G13]	
Other given operational conditions affecting workers exposure	
Assumes a good basic standard of occupational hygiene is implemented [G1]	
Assumes use at not more than 20°C above ambient temperature[G15]	
Contributing Scenarios/Specific Risk Management Measures and Operating Conditions	
(only required controls to demonstrate safe use listed)	
Drum/batch transfers Non-dedicated facility PROC8a	
No specific measures identified.	
Drum/batch transfers Dedicated facility PROC8b	
No specific measures identified.	
Drum/batch transfers Dedicated facility Operation is carried out at elevated temperature (> 20°C above ambient temperature). PROC8b	
Operation is carried out at elevated temperature (> 20°C above ambient temperature).	
Use dedicated equipment.	
Clear transfer lines prior to de-coupling.	
Wear a respirator conforming to EN140 with Type A filter or better.	
Roller application or brushing PROC10	
No specific measures identified.	
Spraying/fogging by machine application PROC11	
Automate activity where possible.	
Stay upwind/keep distance from source.	
Wear a respirator conforming to EN140 with Type A filter or better.	
Dipping, immersion and pouring PROC13	
No specific measures identified.	
Equipment cleaning and maintenance PROC8a	
Retain drain downs in sealed storage pending disposal or for subsequent recycle.	
Section 2.2 Control of environmental exposure	
Product characteristics	
Not applicable	
Duration, frequency and amount	
Not applicable	
Environmental factors not influenced by risk management	
Not applicable	

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Other given operational conditions affecting environmental exposure
No exposure assessment presented for the environment [G40]
Technical conditions and measures at process level (source) to prevent release
Not applicable
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil
Not applicable
Organisation measures to prevent/limit release from site
Not applicable
Conditions and measures related to municipal sewage treatment plant
Not applicable
Conditions and measures related to external treatment of waste for disposal
Not applicable
Conditions and measures related to external recovery of waste
Not applicable
Section 3 Exposure Estimation
3.1. Health
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated [G21]
3.2. Environment
Not applicable
Section 4 Guidance to check compliance with the Exposure Scenario
4.1. Health
Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. [G22] Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.[G23]
4.2. Environment
Not applicable

Section 1 Exposure Scenario Title	
Title:	
Use in laboratories - Professional	
Use Descriptor	
Sector(s) of Use	SU22
Process Categories	PROC10, PROC15
Environmental Release Categories	ERC8A
Specific Environmental Release Category	
Processes, tasks, activities covered	
Use of small quantities within laboratory settings, including material transfers and equipment cleaning.	
Section 2 Operational conditions and risk management measures	
Section 2.1 Control of worker exposure	
Product Characteristic	
Liquid	
Duration, frequency and amount	
Covers daily exposures up to 8 hours (unless stated differently)[G2]	
Covers percentage substance in the product up to 100 %[G13]	
Other given operational conditions affecting workers exposure	
Assumes a good basic standard of occupational hygiene is implemented [G1]	
Assumes use at not more than 20°C above ambient temperature[G15]	
Contributing Scenarios/Specific Risk Management Measures and Operating Conditions (only required controls to demonstrate safe use listed)	
Laboratory activities PROC15	
No specific measures identified.	
Cleaning PROC10	
provide a good standard of controlled ventilation (10 to 15 air changes per hour).	
Section 2.2 Control of environmental exposure	
Product characteristics	
Not applicable	
Duration, frequency and amount	
Not applicable	
Environmental factors not influenced by risk management	
Not applicable	
Other given operational conditions affecting environmental exposure	
No exposure assessment presented for the environment [G40]	
Technical conditions and measures at process level (source) to prevent release	
Not applicable	
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	
Not applicable	
Organisation measures to prevent/limit release from site	
Not applicable	
Conditions and measures related to municipal sewage treatment plant	
Not applicable	
Conditions and measures related to external treatment of waste for disposal	
Not applicable	
Conditions and measures related to external recovery of waste	
Not applicable	
Section 3 Exposure Estimation	

3.1. Health
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated [G21]
3.2. Environment
Not applicable
Section 4 Guidance to check compliance with the Exposure Scenario
4.1. Health
Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. [G22] Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.[G23]
4.2. Environment
Not applicable

Section 1 Exposure Scenario Title	
Title:	
Explosives manufacture & use	
Use Descriptor	
Sector(s) of Use	SU22
Process Categories	PROC1, PROC2, PROC3, PROC5, PROC8a, PROC8b
Environmental Release Categories	ERC8E
Specific Environmental Release Category	
Processes, tasks, activities covered	
Covers exposures arising from the manufacture and use of slurry explosives (including materials transfer, mixing and charging) and equipment cleaning.	
Section 2 Operational conditions and risk management measures	
Section 2.1 Control of worker exposure	
Product Characteristic	
Liquid	
Duration, frequency and amount	
Covers daily exposures up to 8 hours (unless stated differently)[G2]	
Covers percentage substance in the product up to 100 %[G13]	
Other given operational conditions affecting workers exposure	
Assumes a good basic standard of occupational hygiene is implemented [G1]	
Assumes use at not more than 20°C above ambient temperature[G15]	
Contributing Scenarios/Specific Risk Management Measures and Operating Conditions (only required controls to demonstrate safe use listed)	
Bulk transfers PROC3 Handle substance within a closed system. Clear transfer lines prior to de-coupling. Remotely vent displaced vapours.	
Drum/batch transfers PROC8a No specific measures identified.	
Mixing operations (closed systems) PROC3 No specific measures identified.	
Mixing operations (open systems) PROC5 No specific measures identified.	
Material transfers PROC8a No specific measures identified.	
Equipment cleaning and maintenance PROC8b No specific measures identified.	
Transfer from/pouring from containers Non-dedicated facility PROC8a No specific measures identified.	
Equipment maintenance PROC8a No specific measures identified.	
Storage PROC1 Store substance within a closed system.	
Storage PROC2 Store substance within a closed system.	
Section 2.2 Control of environmental exposure	
Product characteristics	
Not applicable	
Duration, frequency and amount	
Not applicable	

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Environmental factors not influenced by risk management
Not applicable
Other given operational conditions affecting environmental exposure
No exposure assessment presented for the environment [G40]
Technical conditions and measures at process level (source) to prevent release
Not applicable
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil
Not applicable
Organisation measures to prevent/limit release from site
Not applicable
Conditions and measures related to municipal sewage treatment plant
Not applicable
Conditions and measures related to external treatment of waste for disposal
Not applicable
Conditions and measures related to external recovery of waste
Not applicable
Section 3 Exposure Estimation
3.1. Health
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated [G21]
3.2. Environment
Not applicable
Section 4 Guidance to check compliance with the Exposure Scenario
4.1. Health
Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. [G22] Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.[G23]
4.2. Environment
Not applicable

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Section 1 Exposure Scenario Title	
Title:	
Polymer processing - Professional	
Use Descriptor	
Sector(s) of Use	SU22
Process Categories	PROC1, PROC14, PROC2, PROC21, PROC6, PROC8a, PROC8b
Environmental Release Categories	ERC8A, ERC8D
Specific Environmental Release Category	
Processes, tasks, activities covered	
Processing of formulated polymers including material transfers, moulding and forming activities, material re-works and associated maintenance.	
Section 2 Operational conditions and risk management measures	
Section 2.1 Control of worker exposure	
Product Characteristic	
Liquid	
Duration, frequency and amount	
Covers daily exposures up to 8 hours (unless stated differently)[G2] Covers percentage substance in the product up to 100 %[G13]	
Other given operational conditions affecting workers exposure	
Assumes a good basic standard of occupational hygiene is implemented [G1] Assumes use at not more than 20°C above ambient temperature[G15]	
Contributing Scenarios/Specific Risk Management Measures and Operating Conditions (only required controls to demonstrate safe use listed)	
Bulk transfers (closed systems) PROC1 Handle substance within a closed system. Bulk transfers (closed systems) PROC2 Handle substance within a closed system. Material transfers PROC8b Use bulk or semi-bulk handling systems. Injection moulding of articles PROC6 No specific measures identified. Injection moulding of articles PROC14 No specific measures identified. Rework of articles PROC21 No specific measures identified. Equipment maintenance PROC8a No specific measures identified. Storage PROC1 Store substance within a closed system. No other specific measures identified. Storage PROC2 Store substance within a closed system. No other specific measures identified.	
Section 2.2 Control of environmental exposure	
Product characteristics	
Not applicable	
Duration, frequency and amount	
Not applicable	

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Environmental factors not influenced by risk management
Not applicable
Other given operational conditions affecting environmental exposure
No exposure assessment presented for the environment [G40]
Technical conditions and measures at process level (source) to prevent release
Not applicable
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil
Not applicable
Organisation measures to prevent/limit release from site
Not applicable
Conditions and measures related to municipal sewage treatment plant
Not applicable
Conditions and measures related to external treatment of waste for disposal
Not applicable
Conditions and measures related to external recovery of waste
Not applicable
Section 3 Exposure Estimation
3.1. Health
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated [G21]
3.2. Environment
Not applicable
Section 4 Guidance to check compliance with the Exposure Scenario
4.1. Health
Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. [G22] Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.[G23]
4.2. Environment
Not applicable

Section 1 Exposure Scenario Title	
Title:	
Water treatment chemicals - Professional	
Use Descriptor	
Sector(s) of Use	SU22
Process Categories	PROC1, PROC13, PROC3, PROC4, PROC8a, PROC8b
Environmental Release Categories	ERC8F
Specific Environmental Release Category	
Processes, tasks, activities covered	
Covers the use of the substance for the treatment of water in open and closed systems.	
Section 2 Operational conditions and risk management measures	
Section 2.1 Control of worker exposure	
Product Characteristic	
Liquid	
Duration, frequency and amount	
Covers daily exposures up to 8 hours (unless stated differently)[G2]	
Covers percentage substance in the product up to 100 %[G13]	
Other given operational conditions affecting workers exposure	
Assumes a good basic standard of occupational hygiene is implemented [G1]	
Assumes use at not more than 20°C above ambient temperature[G15]	
Contributing Scenarios/Specific Risk Management Measures and Operating Conditions	
(only required controls to demonstrate safe use listed)	
Drum/batch transfers PROC8b	
Avoid spillage when withdrawing pump. Use drum pumps.	
General exposures (closed systems) PROC3	
No specific measures identified.	
General exposures (open systems) PROC4	
Restrict area of openings to equipment.	
Pouring from small containers PROC13	
Carefully pour from containers. Avoid spillage when withdrawing pump.	
Equipment maintenance PROC8a	
Retain drain downs in sealed storage pending disposal or for subsequent recycle.	
Storage PROC1	
Store substance within a closed system.	
Section 2.2 Control of environmental exposure	
Product characteristics	
Not applicable	
Duration, frequency and amount	
Not applicable	
Environmental factors not influenced by risk management	
Not applicable	
Other given operational conditions affecting environmental exposure	
No exposure assessment presented for the environment [G40]	
Technical conditions and measures at process level (source) to prevent release	
Not applicable	
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	
Not applicable	

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Organisation measures to prevent/limit release from site
Not applicable
Conditions and measures related to municipal sewage treatment plant
Not applicable
Conditions and measures related to external treatment of waste for disposal
Not applicable
Conditions and measures related to external recovery of waste
Not applicable
Section 3 Exposure Estimation
3.1. Health
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated [G21]
3.2. Environment
Not applicable
Section 4 Guidance to check compliance with the Exposure Scenario
4.1. Health
Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. [G22] Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.[G23]
4.2. Environment
Not applicable

Section 1 Exposure Scenario Title	
Title:	
Use in Coatings - Consumer	
Use Descriptor	
Sector(s) of Use	SU21
Product Categories	PC01, PC04, PC08, PC09A, PC09B, PC09C, PC15, PC18, PC23, PC24, PC31, PC34
Environmental Release Categories	ERC8A, ERC8D
Specific Environmental Release Category	ESVOC 8.3c.v1
Processes, tasks, activities covered	
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	
Section 2.1 Control of consumer exposure	
Product Characteristic	
Liquid	
Duration, frequency and amount	
Not applicable	
Other given operational conditions affecting consumer exposure	
Not applicable	
Contributing Scenarios/Specific Risk Management Measures and Operating Conditions (only required controls to demonstrate safe use listed)	
Adhesives, sealants Glues, hobby use PC01	
Covers concentrations up to 30 %	
Covers daily use up to 1 times per day	
Covers annual use up to 365 days/yr	
Covers skin contact area up to 35.73 cm ²	
For each use event, covers use amounts up to 9 grams	
Covers use under typical household ventilation. 0.6 Air changes per hour	
Covers use in room size of 20 m ³	
Covers exposure up to 4 hour(s)	
Liquid, vapour pressure 0.5 - 10 kPa [OC4]	
Covers use at ambient temperatures.	
Adhesives, sealants Glues, DIY-use (carpet glue, tile glue, wood parquet glue) PC01	
Covers concentrations up to 30 %	
Covers daily use up to 1 times per day	
Covers annual use up to 1 days/yr	
Covers skin contact area up to 110 cm ²	
For each use event, covers use amounts up to 6390 grams	
Covers use under typical household ventilation. 0.6 Air changes per hour	
Covers exposure up to 6 hour(s)	
Covers use in room size of 20 m ³	
Liquid, vapour pressure 0.5 - 10 kPa [OC4]	
Covers use at ambient temperatures.	
Adhesives, sealants Glue from spray PC01	
Covers concentrations up to 30 %	
Covers daily use up to 1 times per day	
Covers annual use up to 6 days/yr	
Covers skin contact area up to 35.73 cm ²	

<p>For each use event, covers use amounts up to 85.05 grams Covers use under typical household ventilation. 0.6 Air changes per hour Covers exposure up to 4 hour(s) Covers use in room size of 20 m³ Liquid, vapour pressure 0.5 - 10 kPa [OC4] Covers use at ambient temperatures.</p> <p>Adhesives, sealants Sealants PC01 Covers concentrations up to 30 % Covers daily use up to 1 times per day Covers annual use up to 365 days/yr Covers skin contact area up to 35.73 cm² For each use event, covers use amounts up to 75 grams Covers use under typical household ventilation. 0.6 Air changes per hour Covers use in room size of 20 m³ Covers exposure up to 1 hour(s) Liquid, vapour pressure 0.5 - 10 kPa [OC4] Covers use at ambient temperatures.</p> <p>Anti-freeze and de-icing products Washing car window PC04 Covers concentrations up to 50 % Covers daily use up to 1 times per day Covers annual use up to 365 days/yr For each use event, covers use amounts up to 0.5 grams Covers use in a one car garage (34 m³) under typical ventilation. 1.5 Air changes per hour Covers exposure up to 0.02 hour(s) Covers use in room size of 34 m³ Liquid, vapour pressure 0.5 - 10 kPa [OC4] Covers use at ambient temperatures. Covers skin contact area up to 857.5 cm²</p> <p>Anti-freeze and de-icing products Pouring into radiator PC04 Covers concentrations up to 50 % Covers daily use up to 1 times per day Covers annual use up to 365 days/yr Covers skin contact area up to 428 cm² For each use event, covers use amounts up to 2000 grams Covers use in a one car garage (34 m³) under typical ventilation. 1.5 Air changes per hour Covers exposure up to 0.17 hour(s) Covers use in room size of 34 m³ Liquid, vapour pressure 0.5 - 10 kPa [OC4] Covers use at ambient temperatures.</p> <p>Anti-freeze and de-icing products Lock de-icer PC04 Covers concentrations up to 50 % Covers daily use up to 1 times per day Covers annual use up to 365 days/yr Covers skin contact area up to 214.4 cm² For each use event, covers use amounts up to 4 grams Covers use in a one car garage (34 m³) under typical ventilation. 1.5 Air changes per hour Covers use in room size of 34 m³ Covers exposure up to 0.25 hour(s)</p> <p>Biocidal products (e.g. disinfectants, pest control) Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners) PC08 Covers concentrations up to 5 % Covers daily use up to 1 times per day</p>
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Covers annual use up to 128 days/yr

Covers skin contact area up to 857.5 cm²

For each use event, covers use amounts up to 27 grams

Covers use under typical household ventilation. 0.6 Air changes per hour

Covers use in room size of 20 m³

Covers exposure up to 0.33 hour(s)

Liquid, vapour pressure 0.5 - 10 kPa [OC4]

Covers use at ambient temperatures.

Biocidal products (e.g. disinfectants, pest control) Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners) PC08

Covers concentrations up to 15 %

Covers daily use up to 1 times per day

Covers annual use up to 128 days/yr

Covers skin contact area up to 428 cm²

For each use event, covers use amounts up to 35 grams

Covers use under typical household ventilation. 0.6 Air changes per hour

Covers use in room size of 20 m³

Covers exposure up to 0.17 hour(s)

Liquid, vapour pressure 0.5 - 10 kPa [OC4]

Covers use at ambient temperatures.

Coatings and paints, thinners, paint removers Solvent rich, high solid, water borne paint PC09A

Covers concentrations up to 27.5 %

Covers daily use up to 1 times per day

Covers annual use up to 6 days/yr

Covers skin contact area up to 428.75 cm²

For each use event, covers use amounts up to 744 grams

Covers use under typical household ventilation. 0.6 Air changes per hour

Covers use in room size of 20 m³

Covers exposure up to 2.2 hour(s)

Liquid, vapour pressure 0.5 - 10 kPa [OC4]

Covers use at ambient temperatures.

Coatings and paints, thinners, paint removers Aerosol spray can PC09A

Covers concentrations up to 50 %

Covers daily use up to 1 times per day

Covers annual use up to 2 days/yr

For each use event, covers use amounts up to 215 grams

Covers use in a one car garage (34 m³) under typical ventilation. 1.5 Air changes per hour

Covers exposure up to 0.33 hour(s)

Covers use in room size of 34 m³

Liquid, vapour pressure 0.5 - 10 kPa [OC4]

Covers skin contact area up to 857.5 cm²

Covers use at ambient temperatures.

Coatings and paints, thinners, paint removers Removers (paint-, glue-, wall paper-, sealant-remover) PC09A

Covers concentrations up to 50 %

Covers daily use up to 1 times per day

Covers annual use up to 3 days/yr

Covers skin contact area up to 857.5 cm²

For each use event, covers use amounts up to 491 grams

Covers use under typical household ventilation. 0.6 Air changes per hour

Covers use in room size of 20 m³

Covers exposure up to 2 hour(s)

Liquid, vapour pressure 0.5 - 10 kPa [OC4]

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Covers use at ambient temperatures.

Fillers, putties, plasters, modelling clay fillers and Putty PC09B

Covers concentrations up to 2 %

Covers daily use up to 1 times per day

Covers annual use up to 12 days/yr

Covers skin contact area up to 35.73 cm²

For each use event, covers use amounts up to 85 grams

Covers use under typical household ventilation. 0.6 Air changes per hour

Covers exposure up to 4 hour(s)

Covers use in room size of 20 m³

Liquid, vapour pressure 0.5 - 10 kPa [OC4]

Covers use at ambient temperatures.

Fillers, putties, plasters, modelling clay Plasters and floor equalizers PC09B

Covers concentrations up to 2 %

Covers daily use up to 1 times per day

Covers annual use up to 12 days/yr

Covers skin contact area up to 857.5 cm²

For each use event, covers use amounts up to 13800 grams

Covers use under typical household ventilation. 0.6 Air changes per hour

Covers use in room size of 20 m³

Covers exposure up to 2 hour(s)

Fillers, putties, plasters, modelling clay Modelling clay PC09B

Covers concentrations up to 10 %

Covers daily use up to 1 times per day

Covers annual use up to 365 days/yr

For each use event, assumes swallowed amount of 1 grams

Covers skin contact area up to 254.4 cm²

For each use event, covers use amounts up to 13800

Covers exposure up to 6 hour(s)

Covers use at ambient temperatures.

Covers use under typical household ventilation.

Liquid, vapour pressure 0.5 - 10 kPa [OC4]

Covers use in room size of 20 m³

Finger paints PC09C

Covers concentrations up to 15 %

Covers daily use up to 1 times per day

Covers annual use up to 365 days/yr

For each use event, assumes swallowed amount of 1.35 grams

Covers skin contact area up to 254.4 cm²

Covers exposure up to 6 hour(s)

For each use event, covers use amounts up to 13800

Covers use at ambient temperatures.

Covers use under typical household ventilation.

Liquid, vapour pressure 0.5 - 10 kPa [OC4]

Covers use in room size of 20 m³

Non-metal-surface treatment products Solvent rich, high solid, water borne paint PC15

Covers concentrations up to 27.5 %

Covers daily use up to 1 times per day

Covers annual use up to 6 days/yr

Covers skin contact area up to 428.75 cm²

For each use event, covers use amounts up to 744 grams

Covers use under typical household ventilation. 0.6 Air changes per hour

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Covers exposure up to 2.2 hour(s)

Covers use in room size of 20 m³

Liquid, vapour pressure 0.5 - 10 kPa [OC4]

Covers use at ambient temperatures.

Non-metal-surface treatment products Aerosol spray can PC15

Covers concentrations up to 50 %

Covers daily use up to 1 times per day

Covers annual use up to 2 days/yr

For each use event, covers use amounts up to 215 grams

Covers use in a one car garage (34 m³) under typical ventilation. 1.5 Air changes per hour

Covers exposure up to 0.33 hour(s)

Covers use in room size of 34 m³

Covers skin contact area up to 857.5 cm²

Liquid, vapour pressure 0.5 - 10 kPa [OC4]

Covers use at ambient temperatures.

Non-metal-surface treatment products Removers (paint-, glue-, wall paper-, sealant-remover) PC15

Covers concentrations up to 50 %

Covers daily use up to 1 times per day

Covers annual use up to 3 days/yr

Covers skin contact area up to 857.5 cm²

For each use event, covers use amounts up to 491 grams

Covers use under typical household ventilation. 0.6 Air changes per hour

Covers use in room size of 20 m³

Covers exposure up to 2 hour(s)

Liquid, vapour pressure 0.5 - 10 kPa [OC4]

Covers use at ambient temperatures.

Ink and toners PC18

Covers concentrations up to 10 %

Covers daily use up to 365 days/yr

Covers annual use up to 1 times per day

Covers skin contact area up to 71.4 cm²

For each use event, covers use amounts up to 40 grams

Covers use under typical household ventilation. 0.6 Air changes per hour

Covers exposure up to 2.2 hour(s)

Covers use in room size of 20 m³

Liquid, vapour pressure 0.5 - 10 kPa [OC4]

Covers use at ambient temperatures.

Leather tanning, dye, finishing, impregnation and care products Polishes, wax / cream (floor, furniture, shoes)

PC23

Covers concentrations up to 50 %

Covers daily use up to 1 times per day

Covers annual use up to 29 days/yr

Covers skin contact area up to 430 cm²

For each use event, covers use amounts up to 56 grams

Covers use under typical household ventilation. 0.6 Air changes per hour

Covers use in room size of 20 m³

Covers exposure up to 1.23 hour(s)

Liquid, vapour pressure 0.5 - 10 kPa [OC4]

Covers use at ambient temperatures.

Leather tanning, dye, finishing, impregnation and care products Polishes, spray (furniture, shoes) PC23

Covers concentrations up to 50 %

Covers daily use up to 1 times per day

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Covers annual use up to 8 days/yr
Covers skin contact area up to 430 cm²
For each use event, covers use amounts up to 56 grams
Covers use under typical household ventilation. 0.6 Air changes per hour
Covers exposure up to 0.33 hour(s)
Covers use in room size of 20 m³

Lubricants, Greases and Release products Liquids PC24

Covers concentrations up to 100 %
Covers daily use up to 1 times per day
Covers annual use up to 4 days/yr
Covers skin contact area up to 468 cm²
For each use event, covers use amounts up to 2200 grams
Covers use in a one car garage (34 m³) under typical ventilation. 1.5 Air changes per hour
Covers use in room size of 34 m³
Covers exposure up to 0.17 hour(s)
Liquid, vapour pressure 0.5 - 10 kPa [OC4]
Covers use at ambient temperatures.

Lubricants, Greases and Release products Pastes PC24

Covers concentrations up to 20 %
Covers daily use up to 1 times per day
Covers annual use up to 10 days/yr
Covers skin contact area up to 468 cm²
For each use event, covers use amounts up to 34 grams
Covers use under typical household ventilation.
Covers exposure up to
Covers use at ambient temperatures.
Liquid, vapour pressure 0.5 - 10 kPa [OC4]
Covers use in room size of 20 m³

Lubricants, Greases and Release products Sprays PC24

Covers concentrations up to 50 %
Covers daily use up to 1 times per day
Covers annual use up to 6 days/yr
Covers skin contact area up to 428.75 cm²
For each use event, covers use amounts up to 73 grams
Covers use under typical household ventilation. 0.6 Air changes per hour
Covers use in room size of 20 m³
Covers exposure up to 0.17 hour(s)
Covers use at ambient temperatures.
Liquid, vapour pressure 0.5 - 10 kPa [OC4]

Polishes and wax blends Polishes, wax / cream (floor, furniture, shoes) PC31

Covers concentrations up to 50 %
Covers daily use up to 1 times per day
Covers annual use up to 29 days/yr
Covers skin contact area up to 430 cm²
For each use event, covers use amounts up to 142 grams
Covers use under typical household ventilation. 0.6 Air changes per hour
Covers exposure up to 1.23 hour(s)
Covers use in room size of 20 m³
Liquid, vapour pressure 0.5 - 10 kPa [OC4]
Covers use at ambient temperatures.

Polishes and wax blends Polishes, spray (furniture, shoes) PC31

Covers concentrations up to 50 %

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Covers daily use up to 1 times per day
Covers annual use up to 8 days/yr
Covers skin contact area up to 430 cm ²
For each use event, covers use amounts up to 35 grams
Covers use under typical household ventilation. 0.6 Air changes per hour
Covers exposure up to 0.33 hour(s)
Covers use in room size of 20 m ³
Liquid, vapour pressure 0.5 - 10 kPa [OC4]
Covers use at ambient temperatures.
Textile dyes, finishing and impregnating products; including bleaches and other processing aids PC34
Covers concentrations up to 10 %
Covers daily use up to 1 times per day
Covers annual use up to 365 days/yr
Covers skin contact area up to 857.5 cm ²
For each use event, covers use amounts up to 115 grams
Covers use under typical household ventilation. 0.6 Air changes per hour
Covers use in room size of 20 m ³
Covers exposure up to 1 hour(s)
Liquid, vapour pressure 0.5 - 10 kPa [OC4]
Covers use at ambient temperatures.
Section 2.2 Control of environmental exposure
Product characteristics
Not applicable
Duration, frequency and amount
Not applicable
Environmental factors not influenced by risk management
Not applicable
Other given operational conditions affecting environmental exposure
No exposure assessment presented for the environment [G40]
Conditions and measures related to municipal sewage treatment plant
Not applicable
Conditions and measures related to external treatment of waste for disposal
Not applicable
Conditions and measures related to external recovery of waste
Not applicable
Section 3 Exposure Estimation
3.1. Health
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated [G21]
3.2. Environment
Not applicable
Section 4 Guidance to check compliance with the Exposure Scenario
4.1. Health
Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. [G22]
Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.[G23]
4.2. Environment
Not applicable

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Section 1 Exposure Scenario Title	
Title:	
Use in Cleaning Agents - Consumer	
Use Descriptor	
Sector(s) of Use	SU21
Product Categories	PC03, PC04, PC08, PC09A, PC09B, PC09C, PC24, PC35, PC38
Environmental Release Categories	ERC8A, ERC8D
Specific Environmental Release Category	
Processes, tasks, activities covered	
Covers general exposures to consumers arising from the use of household products sold as washing and cleaning products, aerosols, coatings, de-icers, lubricants and air care products.	
Section 2 Operational conditions and risk management measures	
Section 2.1 Control of consumer exposure	
Product Characteristic	
Liquid	
Duration, frequency and amount	
Not applicable	
Other given operational conditions affecting consumer exposure	
Covers use at ambient temperatures.	
Contributing Scenarios/Specific Risk Management Measures and Operating Conditions (only required controls to demonstrate safe use listed)	
Air care products Air care, instant action (aerosol sprays) PC03	
Covers concentrations up to 50 %	
Covers daily use up to 4 times per day	
Covers annual use up to 365 days/yr	
For each use event, covers use amounts up to 0.1 grams	
Covers use under typical household ventilation. 0.6 Air changes per hour	
Covers use in room size of 20 m ³	
Covers exposure up to 0.25 hour(s)	
Liquid, vapour pressure 0.5 - 10 kPa [OC4]	
Covers skin contact area up to 857.5 cm ²	
Air care products Air care, continuous action (solid and liquid) PC03	
Covers concentrations up to 10 %	
Covers daily use up to 1 times per day	
Covers annual use up to 365 days/yr	
Covers skin contact area up to 35.7 cubic cm	
For each use event, covers use amounts up to 0.48 grams	
Covers use under typical household ventilation. 0.6 Air changes per hour	
Covers exposure up to 8 hour(s)	
Covers use in room size of 20 m ³	
Liquid, vapour pressure 0.5 - 10 kPa [OC4]	
Anti-freeze and de-icing products Washing car window PC04	
Covers concentrations up to 1 %	
Covers daily use up to 1 times per day	
Covers annual use up to 365 days/yr	
For each use event, covers use amounts up to 0.5 grams	
Covers use in a one car garage (34 m ³) under typical ventilation. 1.5 Air changes per hour	
Covers exposure up to 0.02 hour(s)	
Covers use in room size of 34 m ³	

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Covers skin contact area up to 857.5 cm²

Liquid, vapour pressure 0.5 - 10 kPa [OC4]

Anti-freeze and de-icing products Pouring into radiator PC04

Covers concentrations up to 50 %

Covers daily use up to 1 times per day

Covers annual use up to 365 days/yr

Covers skin contact area up to 428 cm²

For each use event, covers use amounts up to 2000 grams

Covers use in a one car garage (34 m³) under typical ventilation. 1.5 Air changes per hour

Covers use in room size of 34 m³

Covers exposure up to 0.17 hour(s)

Covers use under typical household ventilation.

Anti-freeze and de-icing products Lock de-icer PC04

Covers concentrations up to 50 %

Covers daily use up to 1 times per day

Covers annual use up to 365 days/yr

Covers skin contact area up to 214.4 cm²

For each use event, covers use amounts up to 4 grams

Covers use in a one car garage (34 m³) under typical ventilation. 1.5 Air changes per hour

Covers exposure up to 0.25 hour(s)

Covers use in room size of 34 m³

Covers use under typical household ventilation.

Biocidal products (e.g. disinfectants, pest control) Laundry and dish washing products PC08

Covers concentrations up to 50 %

Covers daily use up to 1 times per day

Covers annual use up to 365 days/yr

Covers skin contact area up to 857.5 cm²

For each use event, covers use amounts up to 15 grams

Covers use under typical household ventilation. 0.6 Air changes per hour

Covers exposure up to 0.5 hour(s)

Covers use in room size of 20 m³

Liquid, vapour pressure 0.5 - 10 kPa [OC4]

Biocidal products (e.g. disinfectants, pest control) Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners) PC08

Covers concentrations up to 50 %

Covers daily use up to 1 times per day

Covers annual use up to 128 days/yr

Covers skin contact area up to 857.5 cm²

For each use event, covers use amounts up to 27 grams

Covers use under typical household ventilation. 0.6 Air changes per hour

Covers exposure up to 0.33 hour(s)

Covers use in room size of 20 m³

Liquid, vapour pressure 0.5 - 10 kPa [OC4]

Biocidal products (e.g. disinfectants, pest control) Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners) PC08

Covers concentrations up to 50 %

Covers daily use up to 1 times per day

Covers annual use up to 128 days/yr

Covers skin contact area up to 428 cm²

For each use event, covers use amounts up to 35 grams

Covers use under typical household ventilation. 0.6 Air changes per hour

Covers exposure up to 0.17 hour(s)

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Covers use in room size of 20 m³

Liquid, vapour pressure 0.5 - 10 kPa [OC4]

Coatings and paints, thinners, paint removers Solvent rich, high solid, water borne paint PC09A

Covers concentrations up to 27.5 %

Covers daily use up to 1 times per day

Covers annual use up to 6 days/yr

Covers skin contact area up to 428.75 cm²

For each use event, covers use amounts up to 744 grams

Covers use under typical household ventilation. 0.6 Air changes per hour

Covers use in room size of 20 m³

Covers exposure up to 2.2 hour(s)

Liquid, vapour pressure 0.5 - 10 kPa [OC4]

Coatings and paints, thinners, paint removers Aerosol spray can PC09A

Covers concentrations up to 50 %

Covers daily use up to 1 times per day

Covers annual use up to 2 days/yr

For each use event, covers use amounts up to 215 grams

Covers use in a one car garage (34 m³) under typical ventilation. 1.5 Air changes per hour

Covers use in room size of 34 m³

Covers exposure up to 0.33 hour(s)

Covers use under typical household ventilation.

Liquid, vapour pressure 0.5 - 10 kPa [OC4]

Coatings and paints, thinners, paint removers Removers (paint-, glue-, wall paper-, sealant-remover) PC09A

Covers concentrations up to 50 %

Covers daily use up to 1 times per day

Covers annual use up to 3 days/yr

Covers skin contact area up to 857.5 cm²

For each use event, covers use amounts up to 491 grams

Covers use under typical household ventilation. 0.6 Air changes per hour

Covers use in room size of 20 m³

Covers exposure up to 2 hour(s)

Liquid, vapour pressure 0.5 - 10 kPa [OC4]

Fillers, putties, plasters, modelling clay fillers and Putty PC09B

Covers concentrations up to 2 %

Covers daily use up to 1 times per day

Covers annual use up to 12 days/yr

Covers skin contact area up to 35.73 cm²

For each use event, covers use amounts up to 85 grams

Covers use under typical household ventilation. 0.6 Air changes per hour

Covers exposure up to 4 hour(s)

Covers use in room size of 20 m³

Liquid, vapour pressure 0.5 - 10 kPa [OC4]

Fillers, putties, plasters, modelling clay Plasters and floor equalizers PC09B

Covers concentrations up to 2 %

Covers skin contact area up to 857.5 cm²

For each use event, covers use amounts up to 13800 grams

Covers use under typical household ventilation. 0.6 Air changes per hour

Covers use in room size of 20 m³

Covers exposure up to 2 hour(s)

Liquid, vapour pressure 0.5 - 10 kPa [OC4]

Covers annual use up to 12 days/yr

Covers daily use up to 1 times per day

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Fillers, putties, plasters, modelling clay Modelling clay PC09B

Covers concentrations up to 1 %
Covers daily use up to 1 times per day
Covers annual use up to 365 days/yr
For each use event, assumes swallowed amount of 1 grams
Covers skin contact area up to 254.4 cm²
Covers use under typical household ventilation.
Covers use in room size of 20 m³
Covers exposure up to 4 hour(s)
Liquid, vapour pressure 0.5 - 10 kPa [OC4]
For each use event, covers use amounts up to 13800 grams

Finger paints PC09C

Covers concentrations up to 15 %
Covers daily use up to 1 times per day
Covers annual use up to 1365 days/yr
For each use event, assumes swallowed amount of 1.35 grams
Covers skin contact area up to 254.4 cm²
Covers use under typical household ventilation.
Covers exposure up to 4 hour(s)
Liquid, vapour pressure 0.5 - 10 kPa [OC4]
Covers use in room size of 20 m³

Lubricants, Greases and Release products Liquids PC24

Covers concentrations up to 100 %
Covers daily use up to 1 times per day
Covers annual use up to 4 days/yr
Covers skin contact area up to 468 cm²
For each use event, covers use amounts up to 2200 grams
Covers use in a one car garage (34 m³) under typical ventilation. 1.5 Air changes per hour
Covers use in room size of 34 m³
Covers exposure up to 0.17 hour(s)
Covers use under typical household ventilation.
Liquid, vapour pressure 0.5 - 10 kPa [OC4]

Lubricants, Greases and Release products Pastes PC24

Covers concentrations up to 20 %
Covers daily use up to 1 times per day
Covers annual use up to 10 days/yr
Covers skin contact area up to 468 cm²
Covers use in room size of 20 hour(s)
For each use event, covers use amounts up to 34 grams
Covers use under typical household ventilation.
Liquid, vapour pressure 0.5 - 10 kPa [OC4]
Covers exposure up to 4 hour(s)

Lubricants, Greases and Release products Sprays PC24

Covers concentrations up to 50 %
Covers daily use up to 1 times per day
Covers annual use up to 6 days/yr
Covers skin contact area up to 428.75 cm²
For each use event, covers use amounts up to 73 grams
Covers use under typical household ventilation. 0.6 Air changes per hour
Covers exposure up to 0.17 hour(s)
Covers use in room size of 20 m³
Liquid, vapour pressure 0.5 - 10 kPa [OC4]

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Washing and cleaning products (including solvent based products) Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners) PC35

Covers concentrations up to 5 %

Covers daily use up to 1 times per day

Covers annual use up to 128 days/yr

Covers skin contact area up to 857.5 cm²

For each use event, covers use amounts up to 27 grams

Covers use under typical household ventilation. 0.6 Air changes per hour

Covers use in room size of 20 m³

Covers exposure up to 0.33 hour(s)

Liquid, vapour pressure 0.5 - 10 kPa [OC4]

Washing and cleaning products (including solvent based products) Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners) PC35

Covers concentrations up to 15 %

Covers daily use up to 1 times per day

Covers annual use up to 128 days/yr

Covers skin contact area up to 428 cm²

For each use event, covers use amounts up to 35 grams

Covers use under typical household ventilation. 0.6 Air changes per hour

Covers exposure up to 0.17 hour(s)

Covers use in room size of 20 m³

Liquid, vapour pressure 0.5 - 10 kPa [OC4]

Welding and soldering products (with flux coatings or flux cores), flux products PC38

Covers concentrations up to 20 %

Covers daily use up to 1 times per day

Covers annual use up to 365 days/yr

For each use event, covers use amounts up to 12 grams

Covers use under typical household ventilation. 0.6 Air changes per hour

Covers use in room size of 20 m³

Covers exposure up to 1 hour(s)

Covers skin contact area up to 857.5 cm²

Liquid, vapour pressure 0.5 - 10 kPa [OC4]

Air care products Air care, instant action (aerosol sprays) PC03

Covers concentrations up to 50 %

Covers daily use up to 365 days/yr

Covers annual use up to 4 times per day

For each use event, covers use amounts up to 5 grams

Covers use under typical household ventilation.

Covers exposure up to 0.25 hour(s)

Covers use in room size of 20 m³

Liquid, vapour pressure 0.5 - 10 kPa [OC4]

Covers skin contact area up to 428 cm²

Air care products Air care, continuous action (solid and liquid) PC03

Covers concentrations up to 50 %

Covers daily use up to 1 times per day

Covers annual use up to 365 days/yr

Covers skin contact area up to 35.7 cm²

For each use event, covers use amounts up to 0.48 grams

Covers use under typical household ventilation.

Covers use in room size of 20 m³

Covers exposure up to 8 hour(s)

Liquid, vapour pressure 0.5 - 10 kPa [OC4]

Section 2.2 Control of environmental exposure
Product characteristics
Not applicable
Duration, frequency and amount
Not applicable
Environmental factors not influenced by risk management
Not applicable
Other given operational conditions affecting environmental exposure
No exposure assessment presented for the environment [G40]
Conditions and measures related to municipal sewage treatment plant
Not applicable
Conditions and measures related to external treatment of waste for disposal
Not applicable
Conditions and measures related to external recovery of waste
Not applicable
Section 3 Exposure Estimation
3.1. Health
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated [G21]
3.2. Environment
Not applicable
Section 4 Guidance to check compliance with the Exposure Scenario
4.1. Health
Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. [G22] Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.[G23]
4.2. Environment
Not applicable

Section 1 Exposure Scenario Title	
Title:	
Lubricants - Consumer (Low Release)	
Use Descriptor	
Sector(s) of Use	SU21
Product Categories	PC01, PC24, PC31
Environmental Release Categories	ERC9A, ERC9B
Specific Environmental Release Category	
Processes, tasks, activities covered	
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	
Section 2.1 Control of consumer exposure	
Product Characteristic	
Liquid	
Duration, frequency and amount	
Covers daily use up to 1 times per day	
Other given operational conditions affecting consumer exposure	
Covers use at ambient temperatures.	
Contributing Scenarios/Specific Risk Management Measures and Operating Conditions (only required controls to demonstrate safe use listed)	
Adhesives, sealants Glues, hobby use PC01	
Covers concentrations up to 30 %	
Covers annual use up to 365 days/yr	
Covers skin contact area up to 35.73 cm ²	
For each use event, covers use amounts up to 9 grams	
Covers use under typical household ventilation. 0.6 Air changes per hour	
Covers use in room size of 20 m ³	
Covers exposure up to 4 hour(s)	
Adhesives, sealants Glues, DIY-use (carpet glue, tile glue, wood parquet glue) PC01	
Covers concentrations up to 30 %	
Covers annual use up to 1 days/yr	
Covers skin contact area up to 110 cm ²	
For each use event, covers use amounts up to 6390 grams	
Covers use under typical household ventilation. 0.6 Air changes per hour	
Covers exposure up to 6 hour(s)	
Covers use in room size of 20 m ³	
Adhesives, sealants Glue from spray PC01	
Covers concentrations up to 30 %	
Covers annual use up to 6 days/yr	
Covers skin contact area up to 35.73 cm ²	
For each use event, covers use amounts up to 85.05 grams	
Covers use under typical household ventilation. 0.6 Air changes per hour	
Covers use in room size of 20 m ³	
Covers exposure up to 4 hour(s)	
Adhesives, sealants Sealants PC01	
Covers concentrations up to 30 %	
Covers annual use up to 365 days/yr	
Covers skin contact area up to 35.73 cm ²	
For each use event, covers use amounts up to 75 grams	

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<p>Covers use under typical household ventilation. 0.6 Air changes per hour Covers exposure up to 1 hour(s) Covers use in room size of 20 m³</p> <p>Lubricants, Greases and Release products Liquids PC24 Covers concentrations up to 100 % Covers annual use up to 4 days/yr Covers skin contact area up to 468 cm² For each use event, covers use amounts up to 2200 grams Covers use in a one car garage (34 m³) under typical ventilation. 1.5 Air changes per hour Covers exposure up to 0.17 hour(s) Covers use in room size of 34 m³</p> <p>Lubricants, Greases and Release products Pastes PC24 Covers concentrations up to 20 % Covers annual use up to 10 days/yr For each use event, covers use amounts up to 34 grams Covers skin contact area up to 468 cm² Covers exposure up to 6 hour(s) Covers use in room size of 20 m³ Covers use under typical household ventilation.</p> <p>Lubricants, Greases and Release products Sprays PC24 Covers concentrations up to 50 % Covers annual use up to 6 days/yr Covers skin contact area up to 428.75 cm² For each use event, covers use amounts up to 73 grams Covers use under typical household ventilation. 0.6 Air changes per hour Covers exposure up to 0.17 hour(s) Covers use in room size of 20 m³</p> <p>Polishes and wax blends Polishes, wax / cream (floor, furniture, shoes) PC31 Covers concentrations up to 50 % Covers annual use up to 29 days/yr Covers skin contact area up to 430 cm² For each use event, covers use amounts up to 142 grams Covers use under typical household ventilation. 0.6 Air changes per hour Covers exposure up to 1.23 hour(s) Covers use in room size of 20 m³</p> <p>Polishes and wax blends Polishes, spray (furniture, shoes) PC31 Covers concentrations up to 50 % Covers annual use up to 8 days/yr Covers skin contact area up to 430 cm² For each use event, covers use amounts up to 35 grams Covers use under typical household ventilation. 0.6 Air changes per hour Covers exposure up to 0.33 hour(s) Covers use in room size of 20 m³</p>
Section 2.2 Control of environmental exposure
Product characteristics
Not applicable
Duration, frequency and amount
Not applicable
Environmental factors not influenced by risk management
Not applicable
Other given operational conditions affecting environmental exposure
No exposure assessment presented for the environment [G40]

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Conditions and measures related to municipal sewage treatment plant
Not applicable
Conditions and measures related to external treatment of waste for disposal
Not applicable
Conditions and measures related to external recovery of waste
Not applicable
Section 3 Exposure Estimation
3.1. Health
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated [G21]
3.2. Environment
Not applicable
Section 4 Guidance to check compliance with the Exposure Scenario
4.1. Health
Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. [G22] Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.[G23]
4.2. Environment
Not applicable

Section 1 Exposure Scenario Title	
Title:	
Agrochemical uses - Consumer	
Use Descriptor	
Sector(s) of Use	SU21
Product Categories	PC12, PC27
Environmental Release Categories	ERC8A, ERC8D
Specific Environmental Release Category	
Processes, tasks, activities covered	
Covers the consumer use of agrochemicals in liquid and solid forms.	
Section 2 Operational conditions and risk management measures	
Section 2.1 Control of consumer exposure	
Product Characteristic	
Liquid	
Duration, frequency and amount	
Covers annual use up to 365 days/yr	
Covers concentrations up to 50 %	
Covers daily use up to 1 times per day	
Covers skin contact area up to 857.5 cm ²	
For each use event, covers use amounts up to 50 gram(s)	
Other given operational conditions affecting consumer exposure	
Covers use at ambient temperatures.	
Covers use in room size of 20 m ³	
Covers use under typical household ventilation.	
For each use event, assumes swallowed amount of 0.3 grams	
Contributing Scenarios/Specific Risk Management Measures and Operating Conditions (only required controls to demonstrate safe use listed)	
Section 2.2 Control of environmental exposure	
Product characteristics	
Not applicable	
Duration, frequency and amount	
Not applicable	
Environmental factors not influenced by risk management	
Not applicable	
Other given operational conditions affecting environmental exposure	
No exposure assessment presented for the environment [G40]	
Conditions and measures related to municipal sewage treatment plant	
Not applicable	
Conditions and measures related to external treatment of waste for disposal	
Not applicable	
Conditions and measures related to external recovery of waste	
Not applicable	
Section 3 Exposure Estimation	
3.1. Health	
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated [G21]	
3.2. Environment	
Not applicable	

Section 4 Guidance to check compliance with the Exposure Scenario
4.1. Health
Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. [G22] Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.[G23]
4.2. Environment
Not applicable

Section 1 Exposure Scenario Title	
Title:	
Use as a fuel - Consumer	
Use Descriptor	
Sector(s) of Use	SU21
Product Categories	PC13
Environmental Release Categories	ERC9A, ERC9B
Specific Environmental Release Category	
Processes, tasks, activities covered	
Covers consumer uses in liquid fuels.	
Section 2 Operational conditions and risk management measures	
Section 2.1 Control of consumer exposure	
Product Characteristic	
Liquid	
Duration, frequency and amount	
Covers concentrations up to 100 %	
Covers daily use up to 1 times per day	
Other given operational conditions affecting consumer exposure	
Covers use at ambient temperatures.	
Contributing Scenarios/Specific Risk Management Measures and Operating Conditions (only required controls to demonstrate safe use listed)	
<p>Liquid: Automotive Refuelling PC13 Covers annual use up to 52 days/yr Covers skin contact area up to 210 cm² For each use event, covers use amounts up to 37500 grams Covers outdoor use. 0.6 Air changes per hour Covers use in room size of 100 m³ Covers exposure up to 0.05 hour(s)</p> <p>Liquid Scooter Refuelling PC13 Covers annual use up to 52 days/yr Covers skin contact area up to 210 cm² For each use event, covers use amounts up to 3750 grams Covers outdoor use. 0.6 Air changes per hour Covers use in room size of 100 m³ Covers exposure up to 0.03 hour(s)</p> <p>Liquid, Garden Equipment - Use PC13 Covers annual use up to 26 days/yr For each use event, covers use amounts up to 750 grams Covers outdoor use. 0.6 Air changes per hour Covers exposure up to 2 hour(s) Covers use in room size of 100 m³</p> <p>Liquid: Garden Equipment - Refueling PC13 Covers annual use up to 26 days/yr Covers skin contact area up to 420 cm² For each use event, covers use amounts up to 750 grams Covers use in a one car garage (34 m³) under typical ventilation. 1.5 Air changes per hour Covers exposure up to 0.03 hour(s) Covers use in room size of 34 m³</p> <p>Liquid: Lamp oil PC13 Covers annual use up to 52 days/yr</p>	

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Covers skin contact area up to 210 cm ² For each use event, covers use amounts up to 100 grams Covers use in room size of 20 m ³ Covers exposure up to 0.01 hour(s) Covers use in a one car garage (34 m ³) under typical ventilation.
Liquid: Home space heater fuel PC13
Covers annual use up to 52 days/yr Covers skin contact area up to 210 cm ² For each use event, covers use amounts up to 3000 grams Covers exposure up to 0.03 hour(s) Covers use in room size of 20 m ³ Covers use in a one car garage (34 m ³) under typical ventilation.
Section 2.2 Control of environmental exposure
Product characteristics
Not applicable
Duration, frequency and amount
Not applicable
Environmental factors not influenced by risk management
Not applicable
Other given operational conditions affecting environmental exposure
No exposure assessment presented for the environment [G40]
Conditions and measures related to municipal sewage treatment plant
Not applicable
Conditions and measures related to external treatment of waste for disposal
Not applicable
Conditions and measures related to external recovery of waste
Not applicable
Section 3 Exposure Estimation
3.1. Health
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated [G21]
3.2. Environment
Not applicable
Section 4 Guidance to check compliance with the Exposure Scenario
4.1. Health
Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. [G22] Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.[G23]
4.2. Environment
Not applicable

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Section 1 Exposure Scenario Title	
Title:	
Functional Fluids - Consumer	
Use Descriptor	
Sector(s) of Use	SU21
Product Categories	PC16, PC17
Environmental Release Categories	ERC9A, ERC9B
Specific Environmental Release Category	
Processes, tasks, activities covered	
Use of sealed items containing functional fluids e.g. transfer oils, hydraulic fluids, refrigerants.	
Section 2 Operational conditions and risk management measures	
Section 2.1 Control of consumer exposure	
Product Characteristic	
Liquid	
Duration, frequency and amount	
Covers annual use up to 4 days/yr Covers concentrations up to 100 % Covers daily use up to 1 times per day Covers exposure up to 0.17 hour(s) Covers skin contact area up to 468 cm ² For each use event, covers use amounts up to 2200 grams	
Other given operational conditions affecting consumer exposure	
Covers use at ambient temperatures. Covers use in a one car garage (34 m ³) under typical ventilation. 1.5 Air changes per hour Covers use in room size of 34 m ³	
Contributing Scenarios/Specific Risk Management Measures and Operating Conditions (only required controls to demonstrate safe use listed)	
Section 2.2 Control of environmental exposure	
Product characteristics	
Not applicable	
Duration, frequency and amount	
Not applicable	
Environmental factors not influenced by risk management	
Not applicable	
Other given operational conditions affecting environmental exposure	
No exposure assessment presented for the environment [G40]	
Conditions and measures related to municipal sewage treatment plant	
Not applicable	
Conditions and measures related to external treatment of waste for disposal	
Not applicable	
Conditions and measures related to external recovery of waste	
Not applicable	
Section 3 Exposure Estimation	
3.1. Health	
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated [G21]	
3.2. Environment	
Not applicable	

Section 4 Guidance to check compliance with the Exposure Scenario
4.1. Health
Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. [G22] Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.[G23]
4.2. Environment
Not applicable

Section 1 Exposure Scenario Title	
Title:	
De-icing and anti-icing applications - Consumer	
Use Descriptor	
Sector(s) of Use	SU21
Product Categories	PC04
Environmental Release Categories	ERC8D
Specific Environmental Release Category	
Processes, tasks, activities covered	
De-icing of vehicles and similar equipment by spraying.	
Section 2 Operational conditions and risk management measures	
Section 2.1 Control of consumer exposure	
Product Characteristic	
Liquid	
Duration, frequency and amount	
Covers annual use up to 365 days/yr	
Covers daily use up to 1 times per day	
Other given operational conditions affecting consumer exposure	
Covers use at ambient temperatures.	
Covers use in a one car garage (34 m ³) under typical ventilation. 1.5 Air changes per hour	
Covers use in room size of 34 m ³	
Contributing Scenarios/Specific Risk Management Measures and Operating Conditions (only required controls to demonstrate safe use listed)	
Anti-freeze and de-icing products Washing car window PC04	
Covers concentrations up to 1 %	
For each use event, covers use amounts up to 0.5 grams	
Covers exposure up to 0.02 hour(s)	
Covers skin contact area up to 428 cm ²	
Anti-freeze and de-icing products Pouring into radiator PC04	
Covers concentrations up to 10 %	
Covers skin contact area up to 428 cm ²	
For each use event, covers use amounts up to 2000 grams	
Covers exposure up to 0.17 hour(s)	
Anti-freeze and de-icing products Lock de-icer PC04	
Covers concentrations up to 40 %	
Covers skin contact area up to 214.4 cm ²	
For each use event, covers use amounts up to 4 grams	
Covers exposure up to 0.25 hour(s)	
Section 2.2 Control of environmental exposure	
Product characteristics	
Not applicable	
Duration, frequency and amount	
Not applicable	
Environmental factors not influenced by risk management	
Not applicable	
Other given operational conditions affecting environmental exposure	
No exposure assessment presented for the environment [G40]	
Conditions and measures related to municipal sewage treatment plant	
Not applicable	

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Conditions and measures related to external treatment of waste for disposal
Not applicable
Conditions and measures related to external recovery of waste
Not applicable
Section 3 Exposure Estimation
3.1. Health
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated [G21]
3.2. Environment
Not applicable
Section 4 Guidance to check compliance with the Exposure Scenario
4.1. Health
Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. [G22] Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.[G23]
4.2. Environment
Not applicable

Section 1 Exposure Scenario Title	
Title:	
Other Consumer Uses	
Use Descriptor	
Sector(s) of Use	
Product Categories	PC28, PC39
Environmental Release Categories	ERC8A, ERC8D
Specific Environmental Release Category	
Processes, tasks, activities covered	
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	
Section 2.1 Control of consumer exposure	
Product Characteristic	
Liquid	
Duration, frequency and amount	
Not applicable	
Other given operational conditions affecting consumer exposure	
Not applicable	
Contributing Scenarios/Specific Risk Management Measures and Operating Conditions (only required controls to demonstrate safe use listed)	
Section 2.2 Control of environmental exposure	
Product characteristics	
Not applicable	
Duration, frequency and amount	
Not applicable	
Environmental factors not influenced by risk management	
Not applicable	
Other given operational conditions affecting environmental exposure	
No exposure assessment presented for the environment [G40]	
Conditions and measures related to municipal sewage treatment plant	
Not applicable	
Conditions and measures related to external treatment of waste for disposal	
Not applicable	
Conditions and measures related to external recovery of waste	
Not applicable	
Section 3 Exposure Estimation	
3.1. Health	
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated [G21]	
3.2. Environment	
Not applicable	
Section 4 Guidance to check compliance with the Exposure Scenario	
4.1. Health	
Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. [G22]	
Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are	



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managed to at least equivalent levels.[G23]
4.2. Environment
Not applicable

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Section 1 Exposure Scenario Title	
Title:	
Water treatment chemicals - Consumer	
Use Descriptor	
Sector(s) of Use	SU21
Product Categories	PC36, PC37
Environmental Release Categories	ERC8F
Specific Environmental Release Category	
Processes, tasks, activities covered	
Covers the use of the substance for the treatment of water in open and closed systems.	
Section 2 Operational conditions and risk management measures	
Section 2.1 Control of consumer exposure	
Product Characteristic	
Liquid	
Duration, frequency and amount	
Covers annual use up to 365 days/yr Covers concentrations up to 20 % Covers daily use up to 1 times per day Covers skin contact area up to 6600 cm ² For each use event, covers use amounts up to 10 grams	
Other given operational conditions affecting consumer exposure	
Covers use at ambient temperatures. Covers use in room size of 20 m ³ Covers use under typical household ventilation.	
Contributing Scenarios/Specific Risk Management Measures and Operating Conditions (only required controls to demonstrate safe use listed)	
Water softeners PC36 For each use event, assumes swallowed amount of 1.5e-005 grams	
Water treatment chemicals PC37 For each use event, assumes swallowed amount of 0.000154 grams	
Section 2.2 Control of environmental exposure	
Product characteristics	
Not applicable	
Duration, frequency and amount	
Not applicable	
Environmental factors not influenced by risk management	
Not applicable	
Other given operational conditions affecting environmental exposure	
No exposure assessment presented for the environment [G40]	
Conditions and measures related to municipal sewage treatment plant	
Not applicable	
Conditions and measures related to external treatment of waste for disposal	
Not applicable	
Conditions and measures related to external recovery of waste	
Not applicable	
Section 3 Exposure Estimation	
3.1. Health	
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated [G21]	
3.2. Environment	

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Not applicable
Section 4 Guidance to check compliance with the Exposure Scenario
4.1. Health
Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. [G22] Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.[G23]
4.2. Environment
Not applicable



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