Banner Chemicals Group UK
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SAFETY DATA SHEET
METHYL ETHYL KETONE

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1. Product identifier

Product name	METHYL ETHYL KETONE
Product No.	0368
Synonyms, Trade Names	Butanone
REACH Registration number	01-2119457290-43-xxxx
CAS-No.	78-93-3
EU Index No.	606-002-00-3
EC No.	201-159-0

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

Identified uses

Solvent for Industrial Use
raw material for photochemicals
Agrochemical uses
Raw material for printing inks and printing ink additives.

1.3. Details of the supplier of the safety data sheet

Supplier

Samuel Banner & Co Ltd
Hampton Court
Manor Park
Runcorn
Cheshire
WA7 1TU, UK
+44 (0)1928 597 000 (General Enquiries)
+44 (0)1928 597 001 (Fax)
www.bannerchemicals.com

1.4. Emergency telephone number

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

SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

Classification (EC 1272/2008)

Physical and Chemical Hazards	Flam. Liq. 2 - H225
Human health	EUH066;Eye Irrit. 2 - H319;STOT SE 3 - H336
Environment	Not classified.

Classification (67/548/EEC) Xi;R36. F;R11. R66, R67.

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

2.2. Label elements

EC No. 201-159-0

Label In Accordance With (EC) No. 1272/2008

Signal Word Danger

METHYL ETHYL KETONE

Hazard Statements

H225	Highly flammable liquid and vapour.
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.
P261	Avoid breathing vapours.
P243	Take precautionary measures against static discharge.
P304+340	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P305+351+338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P403+233	Store in a well-ventilated place. Keep container tightly closed.

Supplemental label information

EUH066	Repeated exposure may cause skin dryness or cracking.

2.3. Other hazards

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substances

Product name	METHYL ETHYL KETONE
REACH Registration number	01-2119457290-43-xxxx
CAS-No.	78-93-3
EU Index No.	606-002-00-3
EC No.	201-159-0

SECTION 4: FIRST AID MEASURES

4.1. Description of first aid measures

General information

Remove victim immediately from source of exposure. Provide fresh air, warmth and rest, preferably in comfortable upright sitting position. Perform artificial respiration if breathing has stopped. Do not give victim anything to drink if they are unconscious.

Inhalation

Remove victim immediately from source of exposure. Move into fresh air and keep at rest. Perform artificial respiration if breathing has stopped. Get medical attention if any discomfort continues.

Ingestion

Immediately rinse mouth and provide fresh air. DO NOT induce vomiting if swallowed chemical is dissolved in petroleum-based material. Danger of aspiration and development of chemical pneumonia. Get medical attention immediately!

Skin contact

Remove contaminated clothes and rinse skin thoroughly with water. Get medical attention if any discomfort continues.

Eye contact

Immediately flush with plenty of water for up to 15 minutes. Remove any contact lenses and open eyes wide apart. Get medical attention if any discomfort continues.

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

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

SECTION 5: FIREFIGHTING MEASURES

5.1. Extinguishing media

Extinguishing media

Extinguish with foam, carbon dioxide, dry powder or water fog. Water spray, fog or mist.

Unsuitable extinguishing media

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

5.2. Special hazards arising from the substance or mixture

Hazardous combustion products

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

Unusual Fire & Explosion Hazards

HIGHLY FLAMMABLE! Forms explosive mixtures with air. Vapours are heavier than air and may spread near ground to sources of ignition. May travel considerable distance to source of ignition and flash back.

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Specific hazards

The product is flammable, and heating may generate vapours which may form explosive vapour/air mixtures. Vapours may form explosive air mixtures even at room temperature. Vapours may be ignited by a spark, a hot surface or an ember.

5.3. Advice for firefighters

Special Fire Fighting Procedures

Keep up-wind to avoid fumes. If possible, fight fire from protected position. Move container from fire area if it can be done without risk. Use supplied air respirator if product is involved in a fire. Cool containers exposed to flames with water until well after the fire is out. Keep run-off water out of sewers and water sources. Dike for water control. Avoid water in straight hose stream; will scatter and spread fire. Ventilate closed spaces before entering them. Be aware of danger for fire to re-start.

Protective equipment for fire-fighters

Self contained breathing apparatus and full protective clothing must be worn in case of fire.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

Wear protective clothing as described in Section 8 of this safety data sheet. Ensure suitable personal protection (including respiratory protection) during removal of spillages in a confined area. Take precautionary measures against static discharges. Do not smoke, use open fire or other sources of ignition. Eye contact MUST be prevented by means of suitable personal protection equipment. Avoid inhalation of vapours and contact with skin and eyes. Provide adequate ventilation.

6.2. Environmental precautions

Do not discharge onto the ground or into water courses. Do not allow ANY environmental contamination. Never use water by itself on spillage; this will spread the spill and cause further contamination. Contain spillages with sand, earth or any suitable adsorbent material.

6.3. Methods and material for containment and cleaning up

If leakage cannot be stopped, evacuate area. Clean-up personnel should use respiratory and/or liquid contact protection. Wash thoroughly after dealing with a spillage. Extinguish all ignition sources. Avoid sparks, flames, heat and smoking. Ventilate. Absorb spillage with non-combustible, absorbent material. Cover large spillage with alcohol-resistant foam. Dam and absorb spillage with sand, earth or other non-combustible material. Runoff or release to sewer, waterway or ground is forbidden. Inform Authorities if large amounts are involved. Spillage may be stored as chemical waste in approved area. When dealing with a spillage, please consult the section relating to suitable protective measures. Do not contaminate water sources or sewer.

6.4. Reference to other sections

SECTION 7: HANDLING AND STORAGE

7.1. Precautions for safe handling

Avoid spilling, skin and eye contact. Keep away from heat, sparks and open flame. Eliminate all sources of ignition. Static electricity and formation of sparks must be prevented. Storage tanks and other containers must be grounded. Protect electric equipment against sparking in case of risk of explosion. Wear full protective clothing for prolonged exposure and/or high concentrations. Contaminated rags and cloths must be put in fireproof containers for disposal. Always remove grease with soap and water or skin cleaning agent, never use organic solvents. Do not eat, drink or smoke when using the product. Container must be kept tightly closed. Do not use in confined spaces without adequate ventilation and/or respirator. Protect against direct sunlight.

7.2. Conditions for safe storage, including any incompatibilities

Keep containers tightly closed. Keep away from food, drink and animal feeding stuffs. Flammable/combustible - Keep away from oxidisers, heat and flames. Ground container and transfer equipment to eliminate static electric sparks. Keep in original container.

Storage Class

Flammable liquid storage.

7.3. Specific end use(s)

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

Name	STD	TWA - 8 Hrs		STEL - 15 Min		Notes
METHYL ETHYL KETONE	WEL	200 ppm(Sk)	600 mg/m3(Sk)	300 ppm(Sk)	899 mg/m3(Sk)	

WEL = Workplace Exposure Limit.

DNEL

Industry	Dermal	1161	mg/kg/day
Industry	Inhalation.	600	mg/m3
Consumer	Dermal	412	mg/kg/day
Consumer	Inhalation.	106	mg/m3

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PNEC

Freshwater	55.8	mg/l
Marinewater	55.8	mg/l
Sediment	284.74	mg/kg
Soil	22.5	mg/kg

8.2. Exposure controls

Protective equipment


Process conditions

Provide eyewash, quick drench. Use engineering controls to reduce air contamination to permissible exposure level.

Engineering measures

Provide adequate ventilation, including appropriate local extraction, to ensure that the defined occupational exposure limit is not exceeded. Explosion-proof general and local exhaust ventilation.

Respiratory equipment

If ventilation is insufficient, suitable respiratory protection must be provided. Check that mask fits tight and change filter regularly. It is recommended to use respiratory equipment with combination filter, type A2/P2.

Hand protection

Protective gloves should be used if there is a risk of direct contact or splash. Be aware that the liquid may penetrate the gloves. Frequent change is advisable.

Eye protection

Wear splash-proof eye goggles to prevent any possibility of eye contact. If risk of splashing, wear safety goggles or face shield.

Other Protection

Use barrier creams to prevent skin contact. Provide eyewash station and safety shower. Wear appropriate clothing to prevent repeated or prolonged skin contact.

Hygiene measures

Wash hands at the end of each work shift and before eating, smoking and using the toilet. Wash promptly if skin becomes wet or contaminated. Promptly remove any clothing that becomes wet or contaminated. Eating, smoking and water fountains prohibited in immediate work area. DO NOT SMOKE IN WORK AREA!

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Appearance	Liquid
Colour	Colourless.
Odour	Characteristic.
Solubility	Soluble in water. Miscible with: Organic solvents.
Initial boiling point and boiling range	79.6 1013 hPa
Melting point (°C)	-86
Relative density	0.8054 20
Vapour density (air=1)	2.42
Vapour pressure	9.99 kPa 20
Evaporation rate	6
Solubility Value (G/100G H2O@20°C)	27
Flash point	-6 CC (Closed cup).
Auto Ignition Temperature (°C)	404
Flammability Limit - Lower(%)	1.8
Flammability Limit - Upper(%)	11.5

9.2. Other information

Mol. Weight	72.12

SECTION 10: STABILITY AND REACTIVITY

10.1. Reactivity

10.2. Chemical stability

Stable under normal temperature conditions and recommended use.

10.3. Possibility of hazardous reactions

Hazardous Polymerisation

Will not polymerise.

10.4. Conditions to avoid

Avoid heat, flames and other sources of ignition.

10.5. Incompatible materials

Materials To Avoid

Strong oxidising substances.

10.6. Hazardous decomposition products

None at ambient temperatures. Thermal decomposition or combustion may liberate carbon oxides and other toxic gases or vapours.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1. Information on toxicological effects

Acute toxicity:

Acute Toxicity (Oral LD50)

> 2000 mg/kg Rat

Acute Toxicity (Dermal LD50)

> 2000 mg/kg Rabbit

Skin Corrosion/Irritation:

Moderately Irritating.

Respiratory or skin sensitisation:

Respiratory sensitisation

Guinea Pig

There is no evidence that the material can lead to respiratory hypersensitivity.

Germ cell mutagenicity:

Negative.

General information

Prolonged and repeated contact with solvents over a long period may lead to permanent health problems. Contains small amounts of organic solvents. Extensive use of the product in areas with inadequate ventilation may result in hazardous vapour concentrations.

Inhalation

Droplets of the product aspirated into the lungs through ingestion or vomiting may cause a serious chemical pneumonia. Contains organic solvents which in case of overexposure may depress the central nervous system causing dizziness and intoxication.

Ingestion

Harmful: may cause lung damage if swallowed. Pneumonia may be the result if vomited material containing solvents reaches the lungs.

Skin contact

Repeated exposure may cause skin dryness or cracking.

Eye contact

Irritation of eyes and mucous membranes.

Health Warnings

Prolonged or repeated contact leads to drying of skin. Prolonged and repeated contact with solvents over a long period may lead to permanent health problems.

Route of entry

Ingestion. Inhalation.

Target Organs

Brain Respiratory system, lungs Mucous membranes

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Medical Symptoms

Skin irritation. Irritation of eyes and mucous membranes. High concentrations of vapours may irritate respiratory system and lead to headache, fatigue, nausea and vomiting.

Medical Considerations

Skin disorders and allergies. Convulsive disorders, CNS problems. Risk of chemical pneumonia after aspiration.

SECTION 12: ECOLOGICAL INFORMATION

12.1. Toxicity

Acute Toxicity - Fish

LC50 48 hours > 100 mg/l Leuciscus idus (Golden orfe)

EC 50, 48 Hrs, Daphnia, mg/l >100

12.2. Persistence and degradability

Degradability

The product is biodegradable.

12.3. Bioaccumulative potential

Bioaccumulative potential

The product is not bioaccumulating.

12.4. Mobility in soil

12.5. Results of PBT and vPvB assessment

This product does not contain any PBT or vPvB substances.

12.6. Other adverse effects

SECTION 13: DISPOSAL CONSIDERATIONS

General information

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

13.1. Waste treatment methods

Dispose of waste and residues in accordance with local authority requirements.

Waste Class

Hazardous Waste

SECTION 14: TRANSPORT INFORMATION

14.1. UN number

UN No. (ADR/RID/ADN)	1193
UN No. (IMDG)	1193
UN No. (ICAO)	1193

14.2. UN proper shipping name

Proper Shipping Name	METHYL ETHYL KETONE

14.3. Transport hazard class(es)

ADR/RID/ADN Class	3
ADR/RID/ADN Class	Class 3: Flammable liquids.
IMDG Class	3
ICAO Class/Division	3

Transport Labels

14.4. Packing group

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

14.5. Environmental hazards

Environmentally Hazardous Substance/Marine Pollutant

No.

14.6. Special precautions for user

EMS	F-E, S-D
Emergency Action Code	2YE
Hazard No. (ADR)	33
Tunnel Restriction Code	(D/E)

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

Cat Z

SECTION 15: REGULATORY INFORMATION

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

Guidance Notes

Workplace Exposure Limits EH40.

EU Legislation

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

Water hazard classification

This substance is relatively volatile and will evaporate from water and soil over the course of a few days.

15.2. Chemical Safety Assessment

A chemical safety assessment has been carried out.

SECTION 16: OTHER INFORMATION

General information

Only trained personnel should use this material.

Information Sources

Manufacturer's Material Safety Data Sheet Approved Supply List

Revision Comments

Inclusion of Exposure Scenarios

Issued By	Compliance Department
Revision Date	12/03/2012
Revision	6
Supersedes date	11/03/2011
SDS No.	0368
Safety Data Sheet Status	Approved.
Date	12-Mar-12

Risk Phrases In Full

R11	Highly flammable
R36	Irritating to eyes.
R66	Repeated exposure may cause skin dryness or cracking.
R67	Vapours may cause drowsiness and dizziness.

Hazard Statements In Full

H319	Causes serious eye irritation.
H225	Highly flammable liquid and vapour.
H336	May cause drowsiness or dizziness.
EUH066	Repeated exposure may cause skin dryness or cracking.

METHYL ETHYL KETONE

Section 1	Exposure Scenario: Worker
Title	**Manufacture of substance – Industrial**
Sector of Use	SU3, SU8, SU9
Process Category	PROC1, PROC15, PROC2, PROC3, PROC4, PROC8a, PROC8b
Product Category	n/a
Article Category	n/a
Environmental release Category	ERC1, ERC4
Specific environmental release category	
Processes, tasks, activities covered	Manufacture of the substance or use as a process chemical or extraction agent within closed or contained systems. Includes incidental exposures during recycling/ recovery, material transfers, storage, sampling, associated laboratory activities, maintenance and loading (including marine vessel/barge, road/rail car and bulk container).
Section 2	**Operational conditions and risk management measures**
Product characteristics	
Physical form of product	Liquid
Volatility	Vapour pressure 12600 Pa
Concentration of substance in product	Covers percentage substance in the product up to 100 % (unless stated differently)
Section 2.1	**Control of worker exposure**
Operational conditions	
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently)
Human factors not influenced by risk management	not applicable
Other Operational Conditions affecting worker exposure	

Risk Management Measures	
Contributing Scenarios	**Risk Management Measures**
General exposures (closed systems)	No specific measures identified
General exposures (open systems)	No specific measures identified
Process sampling	No specific measures identified
Laboratory activities	No specific measures identified
Bulk transfers, (open systems)	No specific measures identified
Bulk transfers, (closed systems)	No specific measures identified
Equipment cleaning and maintenance	Drain down system prior to equipment break-in or maintenance
Storage	Store substance within a closed system.

Section 2.2	Control of environmental exposure
Operational conditions	
Contributing scenario	**Manufacture of substance**
No exposure assessment presented for the environment.	

Section 3	Exposure estimation
3.1 Health	Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented.

Section 4	Guidance to check compliance with the Exposure Scenario
4.1 Health	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Section 1	Exposure Scenario Title
Title	**Use of substance as intermediate – Industrial**
Sector of Use	SU3, SU8, SU9
Process Category	PROC1, PROC2, PROC3, PROC4, PROC8A, PROC8B, PROC15
Product Category	n/a
Article Category	n/a
Environmental release Category	ERC6a
Specific environmental release category	n/a
Processes, tasks, activities covered	Use of substance as an intermediate (not related to Strictly Controlled Conditions). Includes recycling/ recovery, material transfers, storage, sampling, associated laboratory activities, maintenance and loading (including marine vessel/barge, road/rail car and bulk container)

Section 2	Operational conditions and risk management measures
Product characteristics	
Physical form of product	Liquid
Volatility	Vapour pressure 12600 Pa
Concentration of substance in product	Covers percentage substance in the product up to 100 % (unless stated differently)
Section 2.1	**Control of worker exposure**
Operational conditions	
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently)
Human factors not influenced by risk management	not applicable
Other Operational Conditions affecting worker exposure	

Risk Management Measures	
Contributing Scenarios	**Risk Management Measures**
General exposures (closed systems)	No specific measures identified
General exposures (open systems)	No specific measures identified
Process sampling	No specific measures identified
Laboratory activities	No specific measures identified
Bulk transfers, (open systems)	No specific measures identified
Bulk transfers, (closed systems)	No specific measures identified
Equipment cleaning and maintenance	Drain down system prior to equipment break-in or maintenance
Storage	Store substance within a closed system.

Section 2.2	Control of environmental exposure
Operational conditions	
Contributing scenario	**Use of substance as intermediate**
No exposure assessment presented for the environment.	

Section 3	Exposure estimation
3.1 Health	Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented.

Section 4	Guidance to check compliance with the Exposure Scenario
4.1 Health	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Section 1	Exposure Scenario Title
Title	**Distribution of Substance – Industrial**
Sector of Use	SU3, SU8, SU9
Process Category	PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC 9, PROC15
Product Category	n/a
Article Category	n/a
Environmental release Category	ERC1, ERC2, ERC3, ERC4, ERC5, ERC6a, ERC7
Specific environmental release category	n/a
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**
Product characteristics	
Physical form of product	Liquid
Volatility	Vapour pressure 12600 Pa
Concentration of substance in product	Covers percentage substance in the product up to 100 %
Section 2.1	**Control of worker exposure**
Operational conditions	
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently)
Human factors not influenced by risk management	not applicable
Other Operational Conditions affecting worker exposure	

Risk Management Measures	
Contributing Scenarios	**Risk Management Measures**
General exposures (closed systems)	Handle substance within a closed system No other specific measures identified
General exposures (open systems)	Clear transfer lines prior to de-coupling No other specific measures identified
Process sampling	No specific measures identified
Laboratory activities	No specific measures identified
Bulk transfers, (open systems)	No specific measures identified
Bulk transfers, (closed systems)	Handle substance within a closed system No other specific measures identified
Drum and small package filling	Fill containers/cans at dedicated fill points supplied with local extract ventilation No other specific measures identified
Equipment cleaning and maintenance	Apply vessel entry procedures including use of forced supplied air No other specific measures identified
Storage	No other specific measures identified

Section 2.2	**Control of environmental exposure**
Operational conditions	
Contributing scenario	**Distribution of Substance**
No exposure assessment presented for the environment.	

Section 3	**Exposure estimation**
3.1 Health	Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented.

Section 4	**Guidance to check compliance with the Exposure Scenario**
4.1 Health	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Section 1	**Exposure Scenario Title**
Title	**Formulation & (Re)packing of Substances and Mixtures – Industrial**
Sector of Use	SU3, SU10
Process Category	PROC1, PROC2, PROC3, PROC4, PROC 5, PROC8a, PROC8b, PROC9, PROC 14, PROC15
Product Category	n/a
Article Category	n/a
Environmental release Category	ERC2
Specific environmental release category	n/a
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, tabletting, compression, pelletisation, extrusion, large and small scale packing, sampling, maintenance and associated laboratory activities
Section 2	**Operational conditions and risk management measures**
Product characteristics	
Physical form of product	Liquid
Volatility	Vapour pressure 12600 Pa
Concentration of substance in product	Covers percentage substance in the product up to 100 %
Section 2.1	**Control of worker exposure**
Operational conditions	
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently)
Human factors not influenced by risk management	not applicable
Other Operational Conditions affecting worker exposure	

Risk Management Measures	
Contributing Scenarios	**Risk Management Measures**
General exposures (closed systems)	Handle substance within a closed system No other specific measures identified
General exposures (open systems)	No specific measures identified
Batch processes at elevated temperatures	No specific measures identified
Process sampling	No specific measures identified
Laboratory activities	No specific measures identified
Bulk transfers	No specific measures identified
Mixing operations (open systems)	Wear a respirator conforming to EN140 with Type A filter or better
Manual. Transfer from/pouring from containers	Use drum pumps or carefully pour from container No other specific measures identified
Drum/batch transfers	Use drum pumps or carefully pour from container. No other specific measures identified
Production or preparation or articles	Wear a respirator conforming to EN140 with Type A filter or

by tabletting, compression, extrusion or pelletisation	better. No other specific measures identified
Drum and small package filling	Fill containers/cans at dedicated fill points supplied with local extract ventilation
Equipment cleaning and maintenance	Apply vessel entry procedures including use of forced supplied air Drain down and flush system prior to equipment break-in or maintenance.
Storage	Store substance within a closed system. Transfer via enclosed lines. Locate bulk storage outdoors

Section 2.2	**Control of environmental exposure**
Operational conditions	
Contributing scenario	**Formulation & (Re)packing of Substances and Mixtures**
No exposure assessment presented for the environment.	

Section 3	**Exposure estimation**
3.1 Health	Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented.

Section 4	**Guidance to check compliance with the Exposure Scenario**
4.1 Health	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Section 1	Exposure Scenario Title
Title	**Uses in Coatings – Industrial**
Sector of Use	SU3
Process Category	PROC1, PROC2, PROC3, PROC4, PROC5, PROC7, PROC8a, PROC8b, PROC9, PROC10, PROC13, PROC14, PROC15
Product Category	n/a
Article Category	n/a
Environmental release Category	ERC4
Specific environmental release category	n/a
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**
Product characteristics	
Physical form of product	Liquid, vapour pressure > 10 kPa
Volatility	Vapour pressure 12600 Pa
Concentration of substance in product	Covers percentage substance in the product up to 100 %
Section 2.1	**Control of worker exposure**
Operational conditions	
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently)
Human factors not influenced by risk management	not applicable
Other Operational Conditions affecting worker exposure	Assumes use at not more than 20 deg above ambient temperature Assumes a good basic standard of occupational hygiene is implemented

Risk Management Measures	
Contributing Scenarios	**Risk Management Measures**
General exposures (closed systems)	Handle substance within a closed system
General exposures (closed systems), with sample collection. Use in contained systems	Handle substance within a closed system Ensure material transfers are under containment or extract ventilation
Film formation - air drying	Handle substance within a closed system Ensure material transfers are under containment or extract ventilation
Film formation - air drying	Provide extract ventilation to points where emissions occur
Mixing operations (closed systems). General exposures (closed systems)	Handle substance within a closed system Ensure material transfers are under containment or extract ventilation
Preparation of material for application. Mixing operations (open systems)	Provide extract ventilation to points where emissions occur
Spraying (automatic/robotic)	Carry out in a vented booth provided with laminar airflow

Manual. Spraying	Provide a good standard of general or controlled ventilation (5 to 10 air changes per hour). Wear a respirator conforming to EN140 with Type A filter or better
Material transfers	Clear transfer lines prior to de-coupling
Roller, spreader, flow application	Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings
Dipping, immersion and pouring	Provide extract ventilation to points where emissions occur Avoid manual contact with wet work pieces
Laboratory activities	Provide extract ventilation to points where emissions occur
Drum/batch transfers. Transfer from/pouring from containers	Ensure transfer points are supplied with extract ventilation
Bulk transfers	No specific measures identified
Production or preparation or articles by tabletting, compression, extrusion or pelletisation	Provide extract ventilation to points where emissions occur

Section 2.2	**Control of environmental exposure**
Operational conditions	
Contributing scenario	**Uses in Coatings**
No exposure assessment presented for the environment.	

Section 3	**Exposure estimation**
3.1 Health	Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented.

Section 4	**Guidance to check compliance with the Exposure Scenario**
4.1 Health	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Section 1	Exposure Scenario Title
Title	**Uses in Coatings – Professional**
Sector of Use	SU22
Process Category	PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC10, PROC11, PROC13, PROC15, PROC19
Product Category	n/a
Article Category	n/a
Environmental release Category	ERC8a, ERC8d
Specific environmental release category	n/a
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**
Product characteristics	
Physical form of product	Liquid, vapour pressure > 10 kPa
Volatility	Vapour pressure 12600 Pa
Concentration of substance in product	Covers percentage substance in the product up to 100 %
Section 2.1	**Control of worker exposure**
Operational conditions	
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently)
Human factors not influenced by risk management	not applicable
Other Operational Conditions affecting worker exposure	Assumes use at not more than 20 deg above ambient temperature Assumes a good basic standard of occupational hygiene is implemented

Risk Management Measures	
Contributing Scenarios	**Risk Management Measures**
General exposures (closed systems)	Handle substance within a closed system
Filling / preparation of equipment from drums or containers.	Handle substance within a closed system Ensure material transfers are under containment or extract ventilation
General exposures (closed systems), Use in contained systems	Handle substance within a closed system Ensure material transfers are under containment or extract ventilation
Preparation of material for application.	Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings
Film formation - air drying. Outdoor	Avoid carrying out operation for more than 1 hour, or: Wear a respirator conforming to EN140 with Type A filter or better
Film formation - air drying. Indoor	Provide a good standard of general or controlled ventilation (5 to 10 air changes per hour). Provide extract ventilation to points where emissions occur

Preparation of material for application. Indoor	Provide a good standard of general or controlled ventilation (5 to 10 air changes per hour). Avoid carrying out operation for more than 1 hour. , or: Wear a respirator conforming to EN140 with Type A filter or better. Or: TIER-2 assessments are needed for risk characterization
Preparation of material for application. Outdoor	Wear a respirator conforming to EN140 with Type A filter or better. Or: TIER-2 assessments are needed for risk characterization.
Material transfers. Drum/batch transfers	Provide a good standard of general ventilation. Natural ventilation is from windows and doors etc. Controlled ventilation means air is supplied or removed by a powered fan. Avoid carrying out operation for more than 1 hour, or: Wear a respirator conforming to EN140 with Type A filter or better
Material transfers. Drum/batch transfers	Ensure transfer points are supplied with extract ventilation
Roller, spreader, flow application. Indoor	Provide a good standard of general ventilation. Natural ventilation is from windows and doors etc. Controlled ventilation means air is supplied or removed by a powered fan. Or: TIER-2 assessments are needed for risk characterization.
Roller, spreader, flow application. Outdoor	Wear a respirator conforming to EN140 with Type A filter or better. Or: TIER-2 assessments are needed for risk characterization.
Manual. Spraying. Indoor	Carry out in a vented booth. Wear a respirator conforming to EN140 with Type A filter or better
Manual. Spraying. Outdoor	Avoid carrying out operation for more than 4 hours. Wear a respirator conforming to EN140 with Type A filter or better
Dipping, immersion and pouring. Indoor	Provide extract ventilation to points where emissions occur Avoid manual contact with wet work pieces
Dipping, immersion and pouring. Outdoor	Ensure operation is undertaken outdoors. Avoid manual contact with wet work pieces
Laboratory activities	Provide a good standard of general or controlled ventilation (5 to 10 air changes per hour)
Hand application - fingerpaints, pastels, adhesives. Indoor	Provide a good standard of general ventilation. Natural ventilation is from windows and doors etc. Controlled ventilation means air is supplied or removed by a powered fan. Wear a respirator conforming to EN140 with Type A filter or better
Hand application - fingerpaints, pastels, adhesives. Outdoor	Ensure operation is undertaken outdoors. Wear a respirator conforming to EN140 with Type A filter or better

Section 2.2	**Control of environmental exposure**
Operational conditions	
Contributing scenario	**Uses in Coatings**
No exposure assessment presented for the environment.	

Section 3	Exposure estimation
3.1 Health	Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented.

Section 4	Guidance to check compliance with the Exposure Scenario
4.1 Health	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Section 1	Exposure Scenario: Consumers
Title	**Use in coatings, Consumers**
Sector of Use	SU21
Process Category	n/a
Product Category	PC1, PC4, PC8 (excipient only), PC9, PC15, PC18, PC23, PC24, PC31, PC34
Article Category	n/a
Environmental release Category	ERC8a, ERC8d
Specific environmental release category	n/a
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
Product characteristics	
Physical form of product	Liquid
Volatility	Vapour pressure 12600 Pa
Concentration of substance in product	Covers concentration up to 100%
Amounts used	Unless otherwise stated, covers use amounts up to 13800g covers skin contact area up to 857.5cm2
Section 2.1	**Control of Consumer exposure**
Operational conditions	
Frequency and duration of use	Covers use frequency up to 1 times per day; Covers exposure up to 6 hours per event
Other Operational Conditions affecting worker exposure	Unless otherwise stated, assumes use at ambient temperature Assumes use in rooms up to 20m3 Assumes use with typical ventilation

Risk Management Measures		
Contributing Scenarios	**Operational conditions**	**Risk Management Measures**
Adhesives, sealants - Glues, hobby use	Unless otherwise stated, covers concentrations up to 30%; covers use up to 365 days/year; covers use up to 1 time/on day of use; covers skin contact area up to 35.73 cm2; for each use event, covers use amounts up to 9g; covers use in room size of 20m3; for each use event, covers exposure up to 4.00hr/event	No specific RMMs identified beyond those OCs stated
Adhesives, sealants - Glues DIY-use (carpet glue, tile glue, wood parquet glue)	Unless otherwise stated, covers concentrations up to 30%; covers use up to 1 days/year; covers use up to 1 time/on day of use; covers skin contact area up to 110.00 cm2; for each use event, covers use amounts up to 6390g; covers use in room size of 20m3; for each use event, covers exposure up to 6.00hr/event	No specific RMMs identified beyond those OCs stated
Adhesives, sealants - Glue from spray	Unless otherwise stated, covers concentrations up to 30%; covers use up to 365 days/year; covers use up to 1 time/on day of use; covers skin contact area up to 35.73 cm2; for each use event, covers use amounts up to 85.05g; covers use in room size of 20m3; for each use event, covers exposure up to 4.00hr/event	No specific RMMs identified beyond those OCs stated
Adhesives, sealants - Sealants	Unless otherwise stated, covers concentrations up to 20%; covers use up to 365 days/year; covers use up to 1 time/on day of use; covers skin contact area up to 35.73 cm2; for each use event, covers use amounts up to 75g; covers use in room size of 34m3; for each use event, covers exposure up to	No specific RMMs identified beyond those OCs stated

	4.00hr/event	
Anti-freeze and de-icing products - Washing car window	Unless otherwise stated, covers concentrations up to 1% ; covers use up to 365 days/year; covers use up to 1 time/on day of use; for each use event, covers use amounts up to 0.5g; Covers use in a one car garage (34m3) under typical ventilation; covers use in room size of 34m3; for each use event, covers exposure up to 0.02hr/event	No specific RMMs identified beyond those OCs stated
Anti-freeze and de-icing products - Pouring into radiator	Unless otherwise stated, covers concentrations up to 10%; covers use up to 365 days/year; covers use up to 1 time/on day of use; covers skin contact area up to 428.00 cm2; for each use event, covers use amounts up to 2000g; Covers use in a one car garage (34m3) under typical ventilation; covers use in room size of 34m3; for each use event, covers exposure up to 0.17hr/event	No specific RMMs identified beyond those OCs stated
Biocidal products (excipient use only for solvent products) - Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners)	Unless otherwise stated, covers concentrations up to 5%; covers use up to 128 days/year; covers use up to 1 time/on day of use; covers skin contact area up to 857.50 cm2; for each use event, covers use amounts up to 27g; covers use in room size of 20m3; for each use event, covers exposure up to 0.33hr/event	No specific RMMs identified beyond those OCs stated
Biocidal products (excipient use only for solvent products) - Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners)	Unless otherwise stated, covers concentrations up to 15%; covers use up to 128 days/year; covers use up to 1 time/on day of use; covers skin contact area up to 428.00 cm2; for each use event, covers use amounts up to 35g; covers use in room size of 20m3; for each use event, covers exposure up to 0.17hr/event	No specific RMMs identified beyond those OCs stated
Coatings and paints, fillers putties, thinners - Solvent rich, high solid, water borne paint	Unless otherwise stated, covers concentrations up to 27.5%; covers use up to 6 days/year; covers use up to 1 time/on day of use; covers skin contact area up to 428.75 cm2; for each use event, covers use amounts up to 744g; covers use in room size of 20m3; for each use event, covers exposure up to 2.20hr/event	No specific RMMs identified beyond those OCs stated
Coatings and paints, fillers putties, thinners - Aerosol spray can	Unless otherwise stated, covers concentrations up to 50%; covers use up to 2 days/year; covers use up to 1 time/on day of use; for each use event, covers use amounts up to 215g; Covers use in a one car garage (34m3) under typical ventilation; covers use in room size of 34m3; for each use event, covers	No specific RMMs identified beyond those OCs stated

	exposure up to 0.33hr/event	
Coatings and paints, fillers putties, thinners-Removers (paint, glue, wall paper, sealant remover)	Unless otherwise stated, covers concentrations up to 50%; covers use up to 3 days/year; covers use up to 1 time/on day of use; covers skin contact area up to 857.50 cm2; for each use event, covers use amounts up to 491g; covers use in room size of 20m3; for each use event, covers exposure up to 2.00hr/event	No specific RMMs identified beyond those OCs stated
Fillers, putties, plasters, modeling clay - Plasters and floor equalizers	Unless otherwise stated, covers concentrations up to 2%; covers use up to 12 days/year; covers use up to 1 time/on day of use; covers skin contact area up to 857.50 cm2; for each use event, covers use amounts up to 13800g; covers use in room size of 20m3; for each use event, covers exposure up to 2.00hr/event	No specific RMMs identified beyond those OCs stated
Non-metal surface treatment products - Solvent rich, high solid, water borne paint	Unless otherwise stated, covers concentrations up to 27.5%; covers use up to 6 days/year; covers use up to 1 time/on day of use; covers skin contact area up to 428.75 cm2; for each use event, covers use amounts up to 744g; covers use in room size of 20m3; for each use event, covers exposure up to 2.20hr/event	No specific RMMs identified beyond those OCs stated
Non-metal surface treatment products - Aerosol spray can	Unless otherwise stated, covers concentrations up to 50%; covers use up to 2 days/year; covers use up to 1 time/on day of use; for each use event, covers use amounts up to 215g; Covers use in a one car garage (34m3) under typical ventilation; covers use in room size of 34m3; for each use event, covers exposure up to 0.33hr/event	No specific RMMs identified beyond those OCs stated
Non-metal surface treatment products - Removers (paint, glue, wall paper, sealant remover)	Unless otherwise stated, covers concentrations up to 50%; covers use up to 3 days/year; covers use up to 1 time/on day of use; covers skin contact area up to 857.50 cm2; for each use event, covers use amounts up to 491g; covers use in room size of 20m3; for each use event, covers exposure up to 2.00hr/event	No specific RMMs identified beyond those OCs stated
Ink and toners - Inks and toners.	Unless otherwise stated, covers concentrations up to 10%; covers use up to 365 days/year; covers use up to 1 time/on day of use; covers skin contact area up to 71.40 cm2; for each use event, covers use amounts up to 40g; covers use in room size of 20m3; for each use event, covers exposure up to 2.20hr/event	No specific RMMs identified beyond those OCs stated
Leather tanning, dye, finishing, impregnation and care products - Polishes, wax / cream	Unless otherwise stated, covers concentrations up to 50%; covers use up to 29 days/year; covers use up to 1 time/on day of use; covers skin contact	No specific RMMs identified beyond those OCs stated

(floor, furniture, shoes)	area up to 430.00 cm2; for each use event, covers use amounts up to 56g; covers use in room size of 20m3; for each use event, covers exposure up to 1.23hr/event	
Leather tanning, dye, finishing, impregnation and care products - Polishes, spray (furniture, shoes)	Unless otherwise stated, covers concentrations up to 50%; covers use up to 8 days/year; covers use up to 1 time/on day of use; covers skin contact area up to 430.00 cm2; for each use event, covers use amounts up to 56g; covers use in room size of 20m3; for each use event, covers exposure up to 0.33hr/event	No specific RMMs identified beyond those OCs stated
Lubricants, greases, and release products - Liquids	Unless otherwise stated, covers concentrations up to 100%; covers use up to 4 days/year; covers use up to 1 time/on day of use; covers skin contact area up to 468.00 cm2; for each use event, covers use amounts up to 2200g; Covers use in a one car garage (34m3) under typical ventilation; covers use in room size of 34m3; for each use event, covers exposure up to 0.17hr/event	No specific RMMs identified beyond those OCs stated
Lubricants, greases, and release products - Pastes	Unless otherwise stated, covers concentrations up to 20%; covers use up to 10 days/year; covers use up to 1 time/on day of use; covers skin contact area up to 468.00 cm2; for each use event, covers use amounts up to 34g; covers use in room size of 20m3	No specific RMMs identified beyond those OCs stated
Lubricants, greases, and release products - Sprays	Unless otherwise stated, covers concentrations up to 50%; covers use up to 6 days/year; covers use up to 1 time/on day of use; covers skin contact area up to 428.75 cm2; for each use event, covers use amounts up to 73g; covers use in room size of 20m3; for each use event, covers exposure up to 0.17hr/event	No specific RMMs identified beyond those OCs stated
Polishes and wax blends-Polishes, wax / cream (floor, furniture, shoes)	Unless otherwise stated, covers concentrations up to 50%; covers use up to 29 days/year; covers use up to 1 time/on day of use; covers skin contact area up to 430.00 cm2; for each use event, covers use amounts up to 142g; covers use in room size of 20m3; for each use event, covers exposure up to 1.23hr/event	No specific RMMs identified beyond those OCs stated
Polishes and wax blends-Polishes, spray (furniture, shoes)	Unless otherwise stated, covers concentrations up to 50%; covers use up to 8 days/year; covers use up to 1 time/on day of use; covers skin contact area up to 430.00 cm2; for each use event, covers use amounts up to 35g; covers use in room size of 20m3; for each use event, covers exposure up to 0.33hr/event	No specific RMMs identified beyond those OCs stated

Textile dyes, finishing and impregnating products	Unless otherwise stated, covers concentrations up to 10%; covers use up to 365 days/year; covers use up to 1 time/on day of use; covers skin contact area up to 857.50 cm2; for each use event, covers use amounts up to 115g; covers use in room size of 20m3; for each use event, covers exposure up to 1.00hr/event	No specific RMMs identified beyond those OCs stated

Section 2.2	**Control of environmental exposure**
Operational conditions	
Contributing scenario	**Uses in Coatings**
No exposure assessment presented for the environment.	

Section 3	**Exposure estimation**
3.1 Health	Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented.

Section 4	**Guidance to check compliance with the Exposure Scenario**
4.1 Health	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Section 1	Exposure Scenario Title
Title	**Uses in Cleaning Agents – Industrial**
Sector of Use	SU3
Process Category	PROC2, PROC3, PROC4, PROC7, PROC8a, PROC8b, PROC10, PROC13
Product Category	n/a
Article Category	n/a
Environmental release Category	ERC4
Specific environmental release category	n/a
Processes, tasks, activities covered	Covers the industrial 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**
Product characteristics	
Physical form of product	Liquid, vapour pressure > 10 kPa
Volatility	Vapour pressure 12600 Pa
Concentration of substance in product	Covers percentage substance in the product up to 100 %
Section 2.1	**Control of worker exposure**
Operational conditions	
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently)
Human factors not influenced by risk management	not applicable
Other Operational Conditions affecting worker exposure	Assumes use at not more than 20 deg above ambient temperature Assumes a good basic standard of occupational hygiene is implemented

Risk Management Measures	
Contributing Scenarios	**Risk Management Measures**
Bulk transfers	Ensure material transfers are under containment or extract ventilation
Automated process with (semi) closed systems. Use in contained systems	Avoid carrying out operation for more than 4 hours. Wear a respirator conforming to EN140 with Type A filter or better
Automated process with (semi) closed systems. Drum/batch transfers. Use in contained systems	Avoid carrying out operation for more than 1 hour, or: Wear a respirator conforming to EN140 with Type A filter or better
Application of cleaning products in closed systems	Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings
Filling/preparation of equipment from drums or containers.	Ensure material transfers are under containment or extract ventilation
Use in contained batch processes	Provide extract ventilation to points where emissions occur
Degreasing small objects in cleaning station	Provide extract ventilation to points where emissions occur

Cleaning with low-pressure washers	Provide a good standard of general or controlled ventilation (5 to 10 air changes per hour) Avoid carrying out operation for more than 1 hour, or: Wear a respirator conforming to EN140 with Type A filter or better
Cleaning with high pressure washers	Provide a good standard of general or controlled ventilation (5 to 10 air changes per hour) Avoid carrying out operation for more than 1 hour, or: Wear a respirator conforming to EN140 with Type A filter or better
Manual. Surfaces. Cleaning. no spraying	Provide a good standard of general or controlled ventilation (5 to 10 air changes per hour) Avoid carrying out operation for more than 1 hour, or: Wear a respirator conforming to EN140 with Type A filter or better

Section 2.2	**Control of environmental exposure**
Operational conditions	
Contributing scenario	**Uses in Cleaning Agents**
No exposure assessment presented for the environment.	

Section 3	**Exposure estimation**
3.1 Health	Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented.

Section 4	**Guidance to check compliance with the Exposure Scenario**
4.1 Health	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Section 1	Exposure Scenario Title
Title	**Uses in Cleaning Agents – Professional**
Sector of Use	SU22
Process Category	PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC10, PROC11, PROC13
Product Category	n/a
Article Category	n/a
Environmental release Category	ERC8a, ERC8b
Specific environmental release category	n/a
Processes, tasks, activities covered	Covers the professional 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**
Product characteristics	
Physical form of product	Liquid, vapour pressure > 10 kPa
Volatility	Vapour pressure 12600 Pa
Concentration of substance in product	Covers percentage substance in the product up to 100 %
Section 2.1	**Control of worker exposure**
Operational conditions	
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently)
Human factors not influenced by risk management	not applicable
Other Operational Conditions affecting worker exposure	Assumes use at not more than 20 deg above ambient temperature Assumes a good basic standard of occupational hygiene is implemented

Risk Management Measures	
Contributing Scenarios	**Risk Management Measures**
Filling/preparation of equipment from drums or containers.	Provide a good standard of general ventilation. Natural ventilation is from windows and doors etc. Controlled ventilation means air is supplied or removed by a powered fan. Avoid carrying out operation for more than 1 hour, or: Wear a respirator conforming to EN140 with Type A filter or better
Automated process with (semi) closed systems. Use in contained systems	Avoid carrying out operation for more than 4 hours. Wear a respirator conforming to EN140 with Type A filter or better
Automated process with (semi) closed systems. Drum/batch transfers. Use in contained systems	Avoid carrying out operation for more than 1 hour, or: Wear a respirator conforming to EN140 with Type A filter or better
Semi Automated process. (e.g.: Semi automatic application of floor care and maintenance products)	Provide a good standard of general ventilation. Natural ventilation is from windows and doors etc. Controlled ventilation means air is supplied or removed by a powered fan. Avoid carrying out operation for more than 4 hours, or: Wear a respirator conforming to EN140 with Type A filter or

	better
Filling / preparation of equipment from drums or containers.	Ensure operation is undertaken outdoors. Wear a respirator conforming to EN140 with Type A filter or better
Application of cleaning products in closed systems	Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings
Manual. Surfaces. Cleaning. Dipping, immersion and pouring	Provide a good standard of general ventilation. Natural ventilation is from windows and doors etc. Controlled ventilation means air is supplied or removed by a powered fan. Avoid carrying out operation for more than 4 hours, or: Wear a respirator conforming to EN140 with Type A filter or better
Cleaning with low-pressure washers. Rolling, Brushing, no spraying	Limit the substance content in the product to 5 %. Provide a good standard of general ventilation. Natural ventilation is from windows and doors etc. Controlled ventilation means air is supplied or removed by a powered fan.
Cleaning with high pressure washers. Spraying, Indoor	Limit the substance content in the product to 1 %. Provide a good standard of general ventilation. Natural ventilation is from windows and doors etc. Controlled ventilation means air is supplied or removed by a powered fan.
Cleaning with high pressure washers. Spraying, Outdoor	Limit the substance content in the product to 1 %. Avoid carrying out operation for more than 4 hours. Or, Wear a respirator conforming to EN140 with Type A filter or better
Manual. Surfaces. Cleaning. Spraying	Ensure doors and windows are opened. Avoid carrying out operation for more than 1 hour, or: Wear a respirator conforming to EN140 with Type A filter or better
Ad hoc manual application via trigger sprays, dipping, etc. Rolling, Brushing.	Limit the substance content in the product to 25 %. Provide extract ventilation to points where emissions occur. Avoid carrying out operation for more than 4 hours, or: Wear a respirator conforming to EN140 with Type A filter or better. {Wear suitable gloves tested to EN374}
Ad hoc manual application via trigger sprays, dipping, etc. Rolling, Brushing.	Limit the substance content in the product to 25 %. Wear a respirator conforming to EN140 with Type A filter or better.
Application of cleaning products in closed systems. Outdoors	Avoid carrying out operation for more than 1 hour, or: Wear a respirator conforming to EN140 with Type A filter or better
Cleaning of medical devices	Provide extract ventilation to points where emissions occur. Avoid carrying out operation for more than 4 hours, or: Wear a respirator conforming to EN140 with Type A filter or better.

Section 2.2	**Control of environmental exposure**
Operational conditions	
Contributing scenario	**Uses in Cleaning Agents**
No exposure assessment presented for the environment.	

Section 3	Exposure estimation
3.1 Health	Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented.

Section 4	Guidance to check compliance with the Exposure Scenario
4.1 Health	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Section 1	Exposure Scenario: Consumers
Title	**Uses in Cleaning Agents, Consumers**
Sector of Use	SU21
Process Category	n/a
Product Category	PC3, PC4, PC8, PC9, PC24, PC35, PC38. Note PC8 included based upon indication this will be changed from Coatings to Cleanings in future.
Article Category	n/a
Environmental release Category	ERC8a, ERC8d
Specific environmental release category	n/a
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**
Product characteristics	
Physical form of product	Liquid
Volatility	Vapour pressure 12600 Pa
Concentration of substance in product	Covers concentration up to 50%
Amounts used	Unless otherwise stated, covers use amounts up to 13800g covers skin contact area up to 857.5cm2

Section 2.1	Control of Consumer exposure
Operational conditions	
Frequency and duration of use	Unless otherwise stated, covers use frequency up to 0.35 times per day; covers exposure up to 2.2 hours per event
Other Operational Conditions affecting worker exposure	Unless otherwise stated, assumes use at ambient temperature Assumes use in rooms up to 20m3 Assumes use with typical ventilation

Risk Management Measures		
Contributing Scenarios	**Operational conditions**	**Risk Management Measures**
Coatings and paints, fillers putties, thinners - Solvent rich, high solid, water borne paint	Unless otherwise stated, covers concentrations up to 27.5%; covers use up to 6 days/year; covers use up to 1 time/on day of use; covers skin contact area up to 428.75 cm2; for each use event, covers use amounts up to 744g; covers use in room size of 20m3; for each use event, covers exposure up to 2.20hr/event	No specific RMMs identified beyond those OCs stated
Coatings and paints, fillers putties, thinners - Aerosol spray can	Unless otherwise stated, covers concentrations up to 50%; covers use up to 2 days/year; covers use up to 1 time/on day of use; for each use event, covers use amounts up to 215g; Covers use in a one car garage (34m3) under typical ventilation; covers use in room size of 34m3; for each use event, covers exposure up to 0.33hr/event	No specific RMMs identified beyond those OCs stated
Coatings and paints, fillers putties, thinners-Removers (paint, glue, wall paper, sealant remover)	Unless otherwise stated, covers concentrations up to 50%; covers use up to 3 days/year; covers use up to 1 time/on day of use; covers skin contact area up to 857.50 cm2; for each use event, covers use amounts up to 491g; covers use in room size of 20m3; for each use event, covers exposure up to 2.00hr/event	No specific RMMs identified beyond those OCs stated
Fillers, putties, plasters, modeling clay - Plasters and floor equalizers	Unless otherwise stated, covers concentrations up to 2%; covers use up to 12 days/year; covers use up to 1 time/on day of use; covers skin contact area up to 857.50 cm2; for each use event, covers use amounts up to 13800g; covers use in room size of 20m3; for each use event, covers exposure up to 2.00hr/event	No specific RMMs identified beyond those OCs stated
Lubricants, greases, and release products - Liquids	Unless otherwise stated, covers concentrations up to 50%; covers use up to 4 days/year; covers use up to 1 time/on day of use; covers skin contact area up to 468.00 cm2; for each use event, covers use amounts up to 2200g; Covers use in a one car garage (34m3) under typical ventilation; covers use in room size of 34m3; for each use event, covers exposure up to 0.17hr/event	No specific RMMs identified beyond those OCs stated

Lubricants, greases, and release products - Pastes	Unless otherwise stated, covers concentrations up to 20%; covers use up to 10 days/year; covers use up to 1 time/on day of use; covers skin contact area up to 468.00 cm2; for each use event, covers use amounts up to 34g; covers use in room size of 20m3	No specific RMMs identified beyond those OCs stated
Lubricants, greases, and release products - Sprays	Unless otherwise stated, covers concentrations up to 20%; covers use up to 6 days/year; covers use up to 1 time/on day of use; covers skin contact area up to 428.75 cm2; for each use event, covers use amounts up to 73g; covers use in room size of 20m3; for each use event, covers exposure up to 0.17hr/event	No specific RMMs identified beyond those OCs stated
Washing and cleaning products (including solvent based products) - Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners)	Unless otherwise stated, covers concentrations up to 5%; covers use up to 128 days/year; covers use up to 1 time/on day of use; covers skin contact area up to 857.50 cm2; for each use event, covers use amounts up to 27g; covers use in room size of 20m3; for each use event, covers exposure up to 0.33hr/event	No specific RMMs identified beyond those OCs stated
Washing and cleaning products (including solvent based products) - Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners)	Unless otherwise stated, covers concentrations up to 15%; covers use up to 128 days/year; covers use up to 1 time/on day of use; covers skin contact area up to 428.00 cm2; for each use event, covers use amounts up to 35g; covers use in room size of 20m3; for each use event, covers exposure up to 0.17hr/event	No specific RMMs identified beyond those OCs stated

Section 2.2	**Control of environmental exposure**
Operational conditions	
Contributing scenario	**Uses in Cleaning Agents**
No exposure assessment presented for the environment.	

Section 3	**Exposure estimation**
3.1 Health	Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented.

Section 4	Guidance to check compliance with the Exposure Scenario
4.1 Health	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Section 1	Exposure Scenario Title
Title	**Uses in Lubricants – Industrial**
Sector of Use	SU3
Process Category	PROC1, PROC2, PROC3, PROC4, PROC7, PROC8a, PROC8b, PROC9, PROC10, PROC13, PROC17, PROC18
Product Category	n/a
Article Category	n/a
Environmental release Category	ERC7, ERC4
Specific environmental release category	n/a
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**
Product characteristics	
Physical form of product	Liquid
Volatility	Vapour pressure 12600 Pa
Concentration of substance in product	Covers percentage substance in the product up to 100 %
Section 2.1	**Control of worker exposure**
Operational conditions	
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently)
Human factors not influenced by risk management	not applicable
Other Operational Conditions affecting worker exposure	

Risk Management Measures	
Contributing Scenarios	**Risk Management Measures**
General exposures (closed systems)	Handle substance within a closed system. No other specific measures identified.
General exposures (open systems)	Handle substance within a closed system. No other specific measures identified.
Bulk Transfers	No specific measures identified
Filling / preparation of equipment from drums or containers.	Transfer via enclosed lines. Use drum pumps or carefully pour from container
Initial factory fill of equipment	Ensure material transfers are under containment or extract ventilation.
Operation and lubrication of high energy open equipment	Restrict area of openings to equipment
Manual roller application or brushing	Provide a good standard of controlled ventilation (10 to 15 air changes per hour).
Treatment by dipping and pouring	Restrict area of openings to equipment
Spraying	Minimise exposure by enclosing the operation or equipment and provide extract ventilation at openings
Maintenance (of larger plant items) and machine set up	Provide extract ventilation to emission points when contact with warm (>50oC) lubricant is likely) Wear suitable gloves (tested to EN374)
Maintenance of small items	Avoid carrying out operation for more than 4 hours No other specific measures identified
Remanufacture of reject articles	Avoid carrying out operation for more than 4 hours No other specific measures identified
Storage	No specific measures identified

Section 2.2	**Control of environmental exposure**
Operational conditions	
Contributing scenario	**Uses in Lubricants**
No exposure assessment presented for the environment.	

Section 3	**Exposure estimation**
3.1 Health	Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented.

Section 4	Guidance to check compliance with the Exposure Scenario
4.1 Health	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Section 1	Exposure Scenario: Consumers
Title	**Uses in Lubricants, Consumers**
Sector of Use	SU21
Process Category	n/a
Product Category	PC1, PC24, PC31
Article Category	n/a
Environmental release Category	ERC8a, ERC8d, ERC9a, ERC9d
Specific environmental release category	n/a
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**
Product characteristics	
Physical form of product	Liquid
Volatility	Vapour pressure 12600 Pa
Concentration of substance in product	Covers concentration up to 100%
Amounts used	Unless otherwise stated, covers use amounts up to 6390g covers skin contact area up to 468cm2
Section 2.1	**Control of Consumer exposure**
Operational conditions	
Frequency and duration of use	Unless otherwise stated, covers use frequency up to 1 times per day; covers exposure up to 6 hours per event
Other Operational Conditions affecting worker exposure	Unless otherwise stated, assumes use at ambient temperature Assumes use in rooms up to 20m3 Assumes use with typical ventilation

Risk Management Measures		
Contributing Scenarios	**Operational conditions**	**Risk Management Measures**
Adhesives, sealants - Glues, hobby use	Unless otherwise stated, covers concentrations up to 30%; covers use up to 365 days/year; covers use up to 1 time/on day of use; covers skin contact area up to 35.73 cm2; for each use event, covers use amounts up to 9g; covers use in room size of 20m3; for each use event, covers exposure up to 4.00hr/event	No specific RMMs identified beyond those OCs stated
Adhesives, sealants – Glues. DIY-use (carpet glue, tile glue, wood parquet glue)	Unless otherwise stated, covers concentrations up to 30%; covers use up to 1 days/year; covers use up to 1 time/on day of use; covers skin contact area up to 110.00 cm2; for each use event, covers use amounts up to 6390g; covers use in room size of 20m3; for each use event, covers exposure up to 6.00hr/event	No specific RMMs identified beyond those OCs stated
Adhesives, sealants - Glue from spray	Unless otherwise stated, covers concentrations up to 30%; covers use up to 6 days/year; covers use up to 1 time/on day of use; covers skin contact area up to 35.73 cm2; for each use event, covers use amounts up to 85.05g; covers use in room size of 20m3; for each use event, covers exposure up to 4.00hr/event	No specific RMMs identified beyond those OCs stated
Adhesives, sealants - Sealants	Unless otherwise stated, covers concentrations up to 30%; covers use up to 365 days/year; covers use up to 1 time/on day of use; covers skin contact area up to 35.73 cm2; for each use event, covers use amounts up to 75g; covers use in room size of 20m3; for each use event, covers exposure up to 1.00hr/event	Avoid using at a product concentration greater than 25% Avoid using when windows closed
Lubricants, greases, and release products - Liquids	Unless otherwise stated, covers concentrations up to 100%; covers use up to 4 days/year; covers use up to 1 time/on day of use; covers skin contact area up to 468.00 cm2; for each use event, covers use amounts up to 2200g; Covers use in a one car garage (34m3) under typical ventilation; covers use in room size of 34m3; for each use event, covers exposure up to 0.17hr/event	No specific RMMs identified beyond those OCs stated
Lubricants, greases, and release products - Pastes	Unless otherwise stated, covers concentrations up to 20%; covers use up to 10 days/year; covers use up to 1 time/on day of use; covers skin contact area up to 468.00 cm2; for each use event, covers use amounts up to 34g; covers use in room size of 20m3	No specific RMMs identified beyond those OCs stated

Lubricants, greases, and release products - Sprays	Unless otherwise stated, covers concentrations up to 50%; covers use up to 10 days/year; covers use up to 1 time/on day of use; covers skin contact area up to 428.75 cm2; for each use event, covers use amounts up to 73g; covers use in room size of 20m3; for each use event, covers exposure up to 0.17hr/event	No specific RMMs identified beyond those OCs stated
Polishes and wax blends - Polishes, wax / cream (floor, furniture, shoes)	Unless otherwise stated, covers concentrations up to 50%; covers use up to 29 days/year; covers use up to 1 time/on day of use; covers skin contact area up to 430.00 cm2; for each use event, covers use amounts up to 142g; covers use in room size of 20m3; for each use event, covers exposure up to 1.23hr/event	No specific RMMs identified beyond those OCs stated
Polishes and wax blends - Polishes, spray (furniture, shoes)	Unless otherwise stated, covers concentrations up to 50%; covers use up to 8 days/year; covers use up to 1 time/on day of use; covers skin contact area up to 430.00 cm2; for each use event, covers use amounts up to 35g; covers use in room size of 20m3; for each use event, covers exposure up to 0.33hr/event	No specific RMMs identified beyond those OCs stated

Section 2.2	**Control of environmental exposure**
Operational conditions	
Contributing scenario	**Uses in Lubricants**
No exposure assessment presented for the environment.	

Section 3	**Exposure estimation**
3.1 Health	Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented.

Section 4	**Guidance to check compliance with the Exposure Scenario**
4.1 Health	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Section 1	**Exposure Scenario Title**
Title	**Uses in Metal Woking Fluids – Industrial**
Sector of Use	SU3
Process Category	PROC1, PROC2, PROC3, PROC4, PROC5, PROC7, PROC8a, PROC8b, PROC9, PROC10, PROC13, PROC17
Product Category	n/a
Article Category	n/a
Environmental release Category	ERC4
Specific environmental release category	n/a
Processes, tasks, activities covered	Covers the use in formulated MWFs/rolling oils including transfer operations, rolling and annealing activities, cutting/machining activities, automated and manual application of corrosion protections (including brushing, dipping and spraying), equipment maintenance, draining and disposal of waste oils.
Section 2	**Operational conditions and risk management measures**
Product characteristics	
Physical form of product	Liquid
Volatility	Vapour pressure 12600 Pa
Concentration of substance in product	Covers percentage substance in the product up to 100 %
Section 2.1	**Control of worker exposure**
Operational conditions	
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently)
Human factors not influenced by risk management	not applicable
Other Operational Conditions affecting worker exposure	

Risk Management Measures	
Contributing Scenarios	**Risk Management Measures**
General exposures (closed systems)	Handle substance within a closed system.
General exposures (open systems)	No other specific measures identified.
Bulk Transfers	Provide enhanced general ventilation by mechanical means. Ensure operation is undertaken outdoors. Avoid carrying out operation for more than 1 hour. Clear transfer lines prior to decoupling
Filling / preparation of equipment from drums or containers.	Use drum pumps or carefully pour from container
Process sampling	Use dedicated equipment
Metal Machining Operations	Provide extract ventilation to points where emissions occur Restrict area of openings to equipment
Treatment of articles by dipping and pouring	Provide enhanced general ventilation by mechanical means.
Spraying	Minimise exposure by enclosing the operation or equipment

	and provide extract ventilation at openings
Manual roller application or brushing	Provide enhanced general ventilation by mechanical means.
Automated metal rolling/forming	Handle substance within a predominantly closed system provided with extract ventilation Provide extract ventilation to points where emissions occur
Semi-automated metal rolling/forming	Minimise exposure by enclosing the operation or equipment and provide extract ventilation at openings
Equipment cleaning and maintenance dedicated facility	No specific measures identified
Equipment cleaning and maintenance non-dedicated facility	Provide enhanced general ventilation by mechanical means. Drain down system prior to equipment break-in or maintenance
Storage	Store substance within a closed system. Transfer via enclosed lines.

Section 2.2	**Control of environmental exposure**
Operational conditions	
Contributing scenario	**Uses in Metal Woking Fluids**
No exposure assessment presented for the environment.	

Section 3	**Exposure estimation**
3.1 Health	Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented.

Section 4	**Guidance to check compliance with the Exposure Scenario**
4.1 Health	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Section 1	Exposure Scenario Title
Title	**Uses in Binders and Release Agents – Industrial**
Sector of Use	SU3
Process Category	PROC1, PROC2, PROC3, PROC4, PROC6, PROC7, PROC8b, PROC 10, PROC 13, PROC14
Product Category	n/a
Article Category	n/a
Environmental release Category	ERC4
Specific environmental release category	n/a
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**
Product characteristics	
Physical form of product	Liquid
Volatility	Vapour pressure 12600 Pa
Concentration of substance in product	Covers percentage substance in the product up to 100 %
Section 2.1	**Control of worker exposure**
Operational conditions	
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently)
Human factors not influenced by risk management	not applicable
Other Operational Conditions affecting worker exposure	

Risk Management Measures	
Contributing Scenarios	**Risk Management Measures**
Material transfers	Handle substance within a closed system. Enclosed transfers.
Drum/batch transfers	Direct transfers. No other specific measures identified.
Mixing operations (closed systems)	Handle substance within a closed system No other specific measures identified
Mixing operations (open systems)	No specific measures identified
Mold forming	Provide extract ventilation to points where emissions occur
Casting operations, (open systems)	Provide extract ventilation to points where emissions occur Use PPE when casting
Spraying, Machine	Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings
Rolling, Brushing	Provide extract ventilation to points where emissions occur
Spraying, Manual	Carry out in a vented booth or extracted enclosure
Storage	Store substance within a closed system.

Section 2.2	Control of environmental exposure
Operational conditions	
Contributing scenario	**Uses in Binders and Release Agents**
No exposure assessment presented for the environment.	

Section 3	Exposure estimation
3.1 Health	Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented.

Section 4	Guidance to check compliance with the Exposure Scenario
4.1 Health	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Section 1	Exposure Scenario Title
Title	**Uses in Binders and Release Agents – Professional**
Sector of Use	SU3
Process Category	PROC1, PROC2, PROC3, PROC4, PROC6, PROC8a, PROC8b, PROC 10, PROC 11, PROC14
Product Category	n/a
Article Category	n/a
Environmental release Category	ERC8a, ERC8d
Specific environmental release category	n/a
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
Product characteristics	
Physical form of product	Liquid
Volatility	Vapour pressure 12600 Pa
Concentration of substance in product	Covers percentage substance in the product up to 100 %
Section 2.1	**Control of worker exposure**
Operational conditions	
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently)
Human factors not influenced by risk management	not applicable
Other Operational Conditions affecting worker exposure	

Risk Management Measures	
Contributing Scenarios	**Risk Management Measures**
Material transfers (closed systems)	Transfer via enclosed lines
Drum/batch transfers	Use drum pumps No other specific measures identified.
Mixing operations (closed systems)	Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings
Mixing operations (open systems)	Handle substance within a closed system No specific measures identified
Mold forming	Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings
Casting operations, (open systems)	Apply extract ventilation to emissions
Spraying, Machine	Minimise exposure by extracted full enclosure for the operation or Equipment Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings
Spraying, Manual	Carry out in a vented booth or extracted enclosure
Batch process	Store substance within a closed system.

Section 2.2	Control of environmental exposure
Operational conditions	
Contributing scenario	**Uses in Binders and Release Agents**
No exposure assessment presented for the environment.	

Section 3	Exposure estimation
3.1 Health	Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented.

Section 4	Guidance to check compliance with the Exposure Scenario
4.1 Health	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Section 1	Exposure Scenario Title
Title	**Uses in Agrochemicals – Professional**
Sector of Use	SU22
Process Category	PROC1, PROC2, PROC4, PROC8a, PROC8b, PROC 11, PROC 13
Product Category	n/a
Article Category	n/a
Environmental release Category	ERC8a, ERC8d
Specific environmental release category	n/a
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**
Product characteristics	
Physical form of product	Liquid
Volatility	Vapour pressure 12600 Pa
Concentration of substance in product	Covers percentage substance in the product up to 100 %

Section 2.1	Control of worker exposure
Operational conditions	
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently)
Human factors not influenced by risk management	not applicable
Other Operational Conditions affecting worker exposure	

Risk Management Measures	
Contributing Scenarios	**Risk Management Measures**
Transfer from/pouring from containers	Ensure operation is undertaken outdoors
Spraying/fogging by manual application	Wear a full face respirator conforming to EN140 with Type A filter or better
Spraying/fogging by machine application	Apply within a vented cab supplied with filtered air under positive pressure and with a protection factor of >20
Ad hoc manual application via trigger sprays, dipping, etc.	Ensure operation is undertaken outdoors. Wear chemically resistant gloves (tested to EN374) Wear a respirator conforming to EN140 with Type A filter or better.
Operation of equipment containing engine oils and similar	Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Avoid carrying out operation for more than 1 hour Limit the substance content in the product to 25 %
Disposal of wastes	Ensure operation is undertaken outdoors Wear chemically resistant gloves (tested to EN374) Avoid carrying out operation for more than 1 hour Limit the substance content in the product to 25 %
Storage	Store substance within a closed system

Section 2.2	Control of environmental exposure
Operational conditions	
Contributing scenario	**Uses in Agrochemicals**
No exposure assessment presented for the environment.	

Section 3	Exposure estimation
3.1 Health	Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented.

Section 4	Guidance to check compliance with the Exposure Scenario
4.1 Health	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Section 1	Exposure Scenario: Consumers
Title	**Uses in Agrochemicals, Consumers**
Sector of Use	SU21
Process Category	n/a
Product Category	PC12, PC27
Article Category	n/a
Environmental release Category	ERC8a, ERC8d
Specific environmental release category	n/a
Processes, tasks, activities covered	Covers the consumer use in agrochemicals in liquid and solid forms.
Section 2	**Operational conditions and risk management measures**
Product characteristics	
Physical form of product	Liquid
Volatility	Vapour pressure 12600 Pa
Concentration of substance in product	Covers concentration up to 4%
Amounts used	Unless otherwise stated, covers use amounts up to50g; covers skin contact area up to 857.5cm2
Section 2.1	**Control of Consumer exposure**
Operational conditions	
Frequency and duration of use	Unless otherwise stated, covers use frequency up to 1 times per day; covers exposure up to 0.5 hours per event
Other Operational Conditions affecting worker exposure	Unless otherwise stated, assumes use at ambient temperature Assumes use in rooms up to 20m3 Assumes use with typical ventilation

Risk Management Measures		
Contributing Scenarios	**Operational conditions**	**Risk Management Measures**
Fertilizers - Lawn and garden preparations	Unless otherwise stated, covers concentrations up to 4%; covers use up to 365 days/year; covers use up to 1 time/on day of use; covers skin contact area up to	No specific RMMs identified beyond those OCs stated

	857.50 cm2; for each use event, assumes swallowed amount of 0.3g; for each use event, covers use amounts up to 50g; covers use in room size of 20m3; for each use event, covers exposure up to 0.50hr/event	
Plant protection products	concentrations up to 4%; covers use up to 365 days/year; covers use up to 1 time/on day of use; covers skin contact area up to 857.50 cm2; for each use event, assumes swallowed amount of 0.3g; for each use event, covers use amounts up to 50g; covers use in room size of 20m3; for each use event, covers exposure up to 0.50hr/event	Avoid using at a product concentration greater than 2.5%

Section 2.2	**Control of environmental exposure**
Operational conditions	
Contributing scenario	**Uses in Agrochemicals**
No exposure assessment presented for the environment.	

Section 3	**Exposure estimation**
3.1 Health	Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented.

Section 4	**Guidance to check compliance with the Exposure Scenario**
4.1 Health	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Section 1	Exposure Scenario Title
Title	**Uses as a Fuel – Industrial**
Sector of Use	SU3
Process Category	PROC1, PROC2, PROC3, PROC8a, PROC8b, PROC16
Product Category	n/a
Article Category	n/a
Environmental release Category	ERC7
Specific environmental release category	n/a
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**
Product characteristics	
Physical form of product	Liquid
Volatility	Vapour pressure 12600 Pa
Concentration of substance in product	Covers percentage substance in the product up to 100 %
Section 2.1	**Control of worker exposure**
Operational conditions	
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently)
Human factors not influenced by risk management	not applicable
Other Operational Conditions affecting worker exposure	

Risk Management Measures	
Contributing Scenarios	**Risk Management Measures**
Bulk transfers	Handle substance within a closed system Clear lines prior to decoupling
Drum/batch transfers	Use drum pumps or carefully pour from container
General exposures (closed systems)	Handle substance within a closed system No other specific measures identified
General exposures (open systems), (closed systems)	Handle substance within a closed system No other specific measures identified
Equipment cleaning and maintenance	Apply vessel entry procedures including use of forced supplied air. Drain down and flush system prior to equipment break-in or maintenance.
Vessel and container cleaning	Apply vessel entry procedures including use of forced supplied air. Drain down system prior to equipment break-in or maintenance.
Storage	Store substance within a closed system Transfer via enclosed lines. Ensure operation is undertaken outdoors

Section 2.2	Control of environmental exposure
Operational conditions	
Contributing scenario	**Uses in as a Fuel**
No exposure assessment presented for the environment.	

Section 3	Exposure estimation
3.1 Health	Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented.

Section 4	Guidance to check compliance with the Exposure Scenario
4.1 Health	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Section 1	Exposure Scenario Title
Title	**Uses as a Fuel – Professional**
Sector of Use	SU22
Process Category	PROC1, PROC2, PROC3, PROC8a, PROC8b, PROC16
Product Category	n/a
Article Category	n/a
Environmental release Category	ERC9a, ERC9b
Specific environmental release category	n/a
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
Product characteristics	
Physical form of product	Liquid
Volatility	Vapour pressure 12600 Pa
Concentration of substance in product	Covers percentage substance in the product up to 100 %
Section 2.1	**Control of worker exposure**
Operational conditions	
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently)
Human factors not influenced by risk management	not applicable
Other Operational Conditions affecting worker exposure	

Risk Management Measures	
Contributing Scenarios	**Risk Management Measures**
Bulk transfers	Handle substance within a closed system Clear lines prior to decoupling
Drum/batch transfers	Use drum pumps or carefully pour from container Avoid spillage when withdrawing pump
General exposures (closed systems)	Handle substance within a closed system No other specific measures identified
General exposures (open systems), (closed systems)	Handle substance within a closed system No other specific measures identified
Equipment cleaning and maintenance	Drain down and flush system prior to equipment break-in or maintenance. Retain drain downs in sealed storage pending disposal or for subsequent recycle.
Vessel and container cleaning	Apply vessel entry procedures including use of forced supplied air. Drain down system prior to equipment break-in or maintenance. Retain drain downs in sealed storage pending disposal or for subsequent recycle.
Storage	Store substance within a closed system Transfer via enclosed lines. Ensure operation is undertaken outdoors

Section 2.2	Control of environmental exposure
Operational conditions	
Contributing scenario	**Uses in as a Fuel**
No exposure assessment presented for the environment.	

Section 3	Exposure estimation
3.1 Health	Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented.

Section 4	Guidance to check compliance with the Exposure Scenario
4.1 Health	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Section 1	Exposure Scenario: Consumers
Title	**Uses as a Fuel, Consumers**
Sector of Use	SU21
Process Category	n/a
Product Category	PC13
Article Category	n/a
Environmental release Category	ERC9a, ERC9d
Specific environmental release category	n/a
Processes, tasks, activities covered	Covers consumer uses in liquid fuels
Section 2	**Operational conditions and risk management measures**
Product characteristics	
Physical form of product	Liquid
Volatility	Vapour pressure 12600 Pa
Concentration of substance in product	Covers concentration up to 4%
Amounts used	Unless otherwise stated, covers use amounts up to37500g; covers skin contact area up to 420cm2
Section 2.1	**Control of Consumer exposure**
Operational conditions	
Frequency and duration of use	Unless otherwise stated, covers use frequency up to 0.143 times per day; covers exposure up to 2 hours per

	event
Other Operational Conditions affecting worker exposure	Unless otherwise stated, assumes use at ambient temperature Assumes use in rooms up to 20m3 Assumes use with typical ventilation

Risk Management Measures		
Contributing Scenarios	**Operational conditions**	**Risk Management Measures**
Fuels - Liquid subcategories added: Automotive Refueling	Unless otherwise stated, covers concentrations up to 100%; covers use up to 52 days/year; covers use up to 1 time/on day of use; covers skin contact area up to 210.00 cm2; for each use event, covers use amounts up to 37500g; covers outdoor use; covers use in room size of 100m3; for each use event, covers exposure up to 0.05hr/event	No specific RMMs developed beyond those OCs stated
Fuels - Liquid subcategories added: Scooter Refueling	Unless otherwise stated, covers concentrations up to 100%; covers use up to 52 days/year; covers use up to 1 time/on day of use; covers skin contact area up to 210.00 cm2; for each use event, covers use amounts up to 37500g; covers outdoor use; covers use in room size of 100m3; for each use event, covers exposure up to 0.03hr/event	No specific RMMs developed beyond those OCs stated
Fuels - Liquid subcategories added: Garden Equipment - Use	Unless otherwise stated, covers concentrations up to 100%; covers use up to 26 days/year; covers use up to 1 time/on day of use; for each use event, covers use amounts up to 750g; covers outdoor use; covers use in room size of 100m3; for each use event, covers exposure up to 2.00hr/event	No specific RMMs developed beyond those OCs stated
Fuels - Liquid (subcategories added): Garden Equipment - Refueling	Unless otherwise stated, covers concentrations up to 100%; covers use up to 26 days/year; covers use up to 1 time/on day of use; covers skin contact area up to 420.00 cm2; for each use event, covers use amounts up to 750g; Covers use in a one car garage (34m3) under typical ventilation; covers use in room size of 34m3; for each use event, covers exposure up to 0.03hr/event	No specific RMMs developed beyond those OCs stated
Fuels - Liquid subcategories added: Lamp oil	Unless otherwise stated, covers concentrations up to 100%; covers use up to 52 days/year; covers use up to 1 time/on day of use; covers skin contact area up to 210.00 cm2; for each use event, covers use amounts up to 100g; covers use in room size of 20m3; for each use event, covers exposure up to 0.01hr/event	No specific RMMs developed beyond those OCs stated

Section 2.2	Control of environmental exposure
Operational conditions	
Contributing scenario	**Uses as a Fuel**
No exposure assessment presented for the environment.	

Section 3	Exposure estimation
3.1 Health	Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented.

Section 4	Guidance to check compliance with the Exposure Scenario
4.1 Health	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Section 1	Exposure Scenario: Consumers
Title	**Functional Fluids, Consumers**
Sector of Use	SU21
Process Category	n/a
Product Category	PC16, PC17
Article Category	n/a
Environmental release Category	ERC9a, ERC9d
Specific environmental release category	n/a
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
Product characteristics	
Physical form of product	Liquid
Volatility	Vapour pressure 12600 Pa
Concentration of substance in product	Covers concentration up to 4%
Amounts used	Unless otherwise stated, covers use amounts up to2200g; covers skin contact area up to 468cm2
Section 2.1	**Control of Consumer exposure**
Operational conditions	
Frequency and duration of use	Unless otherwise stated, covers use frequency up to 0.010958904109589 times per day; covers exposure up to 0.16 hours per event
Other Operational Conditions affecting worker exposure	Unless otherwise stated, assumes use at ambient temperature Assumes use in rooms up to 20m3 Assumes use with typical ventilation

Risk Management Measures		
Contributing Scenarios	**Operational conditions**	**Risk Management Measures**
Heat transfer fluids - Liquids	Unless otherwise stated, covers concentrations up to 100%; covers use up to 4 days/year; covers use up to 1 time/on day of use; covers skin contact area up to 468.00 cm2; for each use event, covers use amounts up to 2200g; Covers use in a one car garage (34m3) under typical ventilation; covers use in room size of 34m3; for each use event, covers exposure up to 0.17hr/event	No specific RMMs developed beyond those OCs stated
Hydraulic fluids - Liquids	Unless otherwise stated, covers concentrations up to 100%; covers use up to 4 days/year; covers use up to 1 time/on day of use; covers skin contact area up to 468.00 cm2; for each use event, covers use amounts up to 2200g; Covers use in a one car garage (34m3) under typical ventilation; covers use in room size of 34m3; for each use event, covers exposure up to 0.17hr/event	No specific RMMs developed beyond those OCs stated

Section 2.2	Control of environmental exposure
Operational conditions	
Contributing scenario	**Functional Fluids**
No exposure assessment presented for the environment.	

Section 3	Exposure estimation
3.1 Health	Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented.

Section 4	Guidance to check compliance with the Exposure Scenario
4.1 Health	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Section 1	Exposure Scenario Title
Title	**Road and Construction Applications – Professional**
Sector of Use	SU22
Process Category	PROC8a, PROC8b, PROC9, PROC10, PROC11, PROC13
Product Category	n/a
Article Category	n/a
Environmental release Category	ERC8d, ERC8f
Specific environmental release category	n/a
Processes, tasks, activities covered	Application of surface coatings and binders in road and construction activities, including paving uses, manual mastic and in the application of roofing and water-proofing membranes
Section 2	**Operational conditions and risk management measures**
Product characteristics	
Physical form of product	Liquid
Volatility	Vapour pressure 12600 Pa
Concentration of substance in product	Covers percentage substance in the product up to 100 %

Section 2.1	Control of worker exposure
Operational conditions	
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently)
Human factors not influenced by risk management	not applicable
Other Operational Conditions affecting worker exposure	

Risk Management Measures	
Contributing Scenarios	**Risk Management Measures**
Drum/batch transfers, Dedicated facility	Use dedicated equipment. Clear transfer lines prior to de-coupling Wear suitable respiratory protection (conforming to EN140 with Type A filter or better) and gloves (type EN374) if regular skin contact likely
Rolling, Brushing	Ensure operation is undertaken outdoors Wear suitable respiratory protection (conforming to EN140 with Type A filter or better) and gloves (type EN374) if regular skin contact likely
Spraying/fogging by machine application	Ensure operation is undertaken outdoors Wear suitable respiratory protection (conforming to EN140 with Type A filter or better) and gloves (type EN374) if regular skin contact likely
Dipping, immersion and pouring	Ensure operation is undertaken outdoors Wear suitable respiratory protection (conforming to EN140 with Type A filter or better) and gloves (type EN374) if regular skin contact likely Wear suitable gloves tested to EN374.
Equipment cleaning and maintenance	Ensure operation is undertaken outdoors Wear suitable gloves tested to EN374 Avoid carrying out operation for more than 1 hour Retain drain downs in sealed storage pending disposal or for subsequent recycle

Section 2.2	Control of environmental exposure
Operational conditions	
Contributing scenario	**Road and Construction Applications**
No exposure assessment presented for the environment.	

Section 3	Exposure estimation
3.1 Health	Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented.

Section 4	Guidance to check compliance with the Exposure Scenario
4.1 Health	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Section 1	Exposure Scenario Title
Title	**Use in Laboratories – Industrial**
Sector of Use	SU3
Process Category	PROC10, PROC15
Product Category	n/a
Article Category	n/a
Environmental release Category	ERC2, ERC4
Specific environmental release category	n/a
Processes, tasks, activities covered	Use of the substance within laboratory settings, including material transfers and equipment cleaning
Section 2	**Operational conditions and risk management measures**
Product characteristics	
Physical form of product	Liquid
Volatility	Vapour pressure 12600 Pa
Concentration of substance in product	Covers percentage substance in the product up to 100 %
Section 2.1	**Control of worker exposure**
Operational conditions	
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently)
Human factors not influenced by risk management	not applicable
Other Operational Conditions affecting worker exposure	

Risk Management Measures	
Contributing Scenarios	**Risk Management Measures**
Laboratory activities	No specific measures identified Ensure ventilation system is regularly maintained and tested
Cleaning	Provide a good standard of controlled ventilation (10 to 15 air changes per hour) Ensure ventilation system is regularly maintained and tested

Section 2.2	**Control of environmental exposure**
Operational conditions	
Contributing scenario	**Use in Laboratories**
No exposure assessment presented for the environment.	

Section 3	**Exposure estimation**
3.1 Health	Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented.

Section 4	**Guidance to check compliance with the Exposure Scenario**
4.1 Health	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Section 1	Exposure Scenario Title
Title	**Use in Laboratories – Professional**
Sector of Use	SU22
Process Category	PROC10, PROC15
Product Category	n/a
Article Category	n/a
Environmental release Category	ERC8a
Specific environmental release category	n/a
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**
Product characteristics	
Physical form of product	Liquid
Volatility	Vapour pressure 12600 Pa
Concentration of substance in product	Covers percentage substance in the product up to 100 %
Section 2.1	**Control of worker exposure**
Operational conditions	
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently)
Human factors not influenced by risk management	not applicable
Other Operational Conditions affecting worker exposure	

Risk Management Measures	
Contributing Scenarios	**Risk Management Measures**
Laboratory activities	No specific measures identified Ensure ventilation system is regularly maintained and tested
Cleaning	Provide a good standard of controlled ventilation (10 to 15 air changes per hour) Avoid carrying out operation for more than 1 hour Ensure ventilation system is regularly maintained and tested

Section 2.2	**Control of environmental exposure**
Operational conditions	
Contributing scenario	**Use in Laboratories**
No exposure assessment presented for the environment.	

Section 3	Exposure estimation
3.1 Health	Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented.

Section 4	Guidance to check compliance with the Exposure Scenario
4.1 Health	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Section 1	Exposure Scenario Title
Title	**Explosives Manufacture and Use – Professional**
Sector of Use	SU22
Process Category	PROC1, PROC3, PROC5, PROC8a, PROC8b
Product Category	n/a
Article Category	n/a
Environmental release Category	ERC8e
Specific environmental release category	n/a
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**
Product characteristics	
Physical form of product	Liquid
Volatility	Vapour pressure 12600 Pa
Concentration of substance in product	Covers percentage substance in the product up to 100 %

Section 2.1	Control of worker exposure
Operational conditions	
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently)
Human factors not influenced by risk management	not applicable
Other Operational Conditions affecting worker exposure	

Risk Management Measures	
Contributing Scenarios	**Risk Management Measures**
Bulk transfers	Handle substance within a closed system.
Drum/batch transfers	Use drum pumps No other specific measures identified
Mixing operations (closed systems)	No specific measures identified
Mixing operations (open systems)	Provide enhanced general ventilation by mechanical means
Material transfers	Avoid carrying out operation for more than 1 hour
Transfer from/pouring from containers, Non-dedicated facility	Use drum pumps
Operation of equipment containing engine oils and similar	Drain down system prior to equipment break-in or maintenance
Equipment maintenance	Drain down system prior to equipment break-in or maintenance
Storage	Store substance within a closed system. Ensure operation is undertaken outdoors

Section 2.2	Control of environmental exposure
Operational conditions	
Contributing scenario	**Explosives Manufacture and Use**
No exposure assessment presented for the environment.	

Section 3	Exposure estimation
3.1 Health	Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented.

Section 4	Guidance to check compliance with the Exposure Scenario
4.1 Health	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Section 1	Exposure Scenario Title
Title	**Polymer Processing - Industrial**
Sector of Use	SU3
Process Category	PROC1, PROC2, PROC3, PROC4, PROC5, PROC6, PROC8a, PROC8b, PROC9, PROC13, PROC14, PROC21
Product Category	n/a
Article Category	n/a
Environmental release Category	ERC4
Specific environmental release category	n/a
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**
Product characteristics	
Physical form of product	Liquid
Volatility	Vapour pressure 12600 Pa
Concentration of substance in product	Covers percentage substance in the product up to 100 %
Section 2.1	**Control of worker exposure**
Operational conditions	
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently)
Human factors not influenced by risk management	not applicable
Other Operational Conditions affecting worker exposure	

Risk Management Measures	
Contributing Scenarios	**Risk Management Measures**
Bulk transfers, (closed systems)	No specific measures identified
Bulk weighing	No specific measures identified
Small scale weighing	Ensure material transfers are under containment or extract ventilation
Additive premixing	Ensure material transfers are under containment or extract ventilation No other specific measures identified
Calendaring (including Banburys)	Provide a good standard of controlled ventilation (10 to 15 air changes per hour)
Production of articles by dipping and pouring	Provide a good standard of controlled ventilation (10 to 15 air changes per hour)
Extrusion and masterbatching	Provide a good standard of controlled ventilation (10 to 15 air changes per hour)
Injection moulding of articles	Provide a good standard of controlled ventilation (10 to 15 air changes per hour)
Finishing operations	No specific measures identified
Equipment maintenance	Provide a good standard of controlled ventilation (10 to 15 air changes per hour)
Storage	Store substance within a closed system.

Section 2.2	**Control of environmental exposure**
Operational conditions	
Contributing scenario	**Polymer Processing**
No exposure assessment presented for the environment.	

Section 3	**Exposure estimation**
3.1 Health	Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented.

Section 4	**Guidance to check compliance with the Exposure Scenario**
4.1 Health	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Section 1	Exposure Scenario Title
Title	**Water Treatment - Industrial**
Sector of Use	SU3
Process Category	PROC1, PROC2, PROC3, PROC4, PROC8A, PROC8B, PROC13
Product Category	n/a
Article Category	n/a
Environmental release Category	ERC3
Specific environmental release category	n/a
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**
Product characteristics	
Physical form of product	Liquid
Volatility	Vapour pressure 12600 Pa
Concentration of substance in product	Covers percentage substance in the product up to 100 %
Section 2.1	**Control of worker exposure**
Operational conditions	
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently)
Human factors not influenced by risk management	not applicable
Other Operational Conditions affecting worker exposure	

Risk Management Measures	
Contributing Scenarios	**Risk Management Measures**
Bulk transfers	No specific measures identified
Drum/batch transfers	Use drum pumps No other specific measures identified
General exposures (closed systems)	No specific measures identified
General exposures (open systems)	Transfer via enclosed lines No other specific measures identified
Pouring from small containers	Provide extract ventilation to points where emissions occur
Equipment maintenance	Drain down system prior to equipment break-in or maintenance.
Storage	Store substance within a closed system.

Section 2.2	**Control of environmental exposure**
Operational conditions	
Contributing scenario	**Water Treatment**
No exposure assessment presented for the environment.	

Section 3	Exposure estimation
3.1 Health	Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented.

Section 4	Guidance to check compliance with the Exposure Scenario
4.1 Health	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Section 1	Exposure Scenario Title
Title	**Water Treatment - Professional**
Sector of Use	SU22
Process Category	PROC1, PROC2, PROC3, PROC4, PROC8A, PROC8B, PROC13
Product Category	n/a
Article Category	n/a
Environmental release Category	ERC8f
Specific environmental release category	n/a
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**
Product characteristics	
Physical form of product	Liquid
Volatility	Vapour pressure 12600 Pa
Concentration of substance in product	Covers percentage substance in the product up to 100 %

Section 2.1	Control of worker exposure
Operational conditions	
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently)
Human factors not influenced by risk management	not applicable
Other Operational Conditions affecting worker exposure	

Risk Management Measures	
Contributing Scenarios	**Risk Management Measures**
Drum/batch transfers	Use drum pumps Avoid spillage when withdrawing pump
General exposures (closed systems)	No specific measures identified
General exposures (open systems)	Transfer via enclosed lines Provide a good standard of controlled ventilation (10 to 15 air changes per hour)
Pouring from small containers	Avoid carrying out operation for more than 1 hour Provide extract ventilation to points where emissions occur
Equipment maintenance	Drain or remove substance from equipment prior to break-in or maintenance
Storage	Store substance within a closed system. No other specific measures identified

Section 2.2	Control of environmental exposure
Operational conditions	
Contributing scenario	**Water Treatment**
No exposure assessment presented for the environment.	

Section 3	Exposure estimation
3.1 Health	Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented.

Section 4	Guidance to check compliance with the Exposure Scenario
4.1 Health	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Section 1	Exposure Scenario Title
Title	**De-icing and Anti-icing Applications - Professional**
Sector of Use	SU22
Process Category	PROC8b, PROC10, PROC11
Product Category	n/a
Article Category	n/a
Environmental release Category	ERC8d
Specific environmental release category	n/a
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**
Product characteristics	
Physical form of product	Liquid
Volatility	Vapour pressure 12600 Pa
Concentration of substance in product	Covers percentage substance in the product up to 100 %
Section 2.1	**Control of worker exposure**
Operational conditions	
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently)
Human factors not influenced by risk management	not applicable
Other Operational Conditions affecting worker exposure	

Risk Management Measures	
Contributing Scenarios	**Risk Management Measures**
Bulk transfers	Avoid carrying out operation for more than 1 hour Ensure operation is undertaken outdoors Wear suitable gloves tested to EN374
Material transfers	Avoid carrying out operation for more than 1 hour Ensure operation is undertaken outdoors Wear suitable gloves tested to EN374
Spraying/fogging by machine application	Avoid carrying out operation for more than 1 hour Ensure operation is undertaken outdoors Wear suitable gloves tested to EN374 Limit the substance content in the product to 5 %
Pouring from small containers	Avoid carrying out operation for more than 1 hour Provide extract ventilation to points where emissions occur
Equipment cleaning and maintenance	Limit the substance content in the product to 1% Avoid carrying out operation for more than 4 hours Wear suitable gloves tested to EN374

Section 2.2	Control of environmental exposure
Operational conditions	
Contributing scenario	**De-icing and Anti-icing Applications**
No exposure assessment presented for the environment.	

Section 3	Exposure estimation
3.1 Health	Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented.

Section 4	Guidance to check compliance with the Exposure Scenario
4.1 Health	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.