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SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Trade name : ShellSol A100 High Cumene

Product code : Q7291, Q7391

Registration number EU : 01-2119455851-35-0000 Synonyms : Hydrocarbons, C9, aromatics

EC-No. : 918-668-5

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

Use of the Sub- : Industrial Solvent.

stance/Mixture Please refer to section 16 and/or the annexes for the regis-

tered uses under REACH.

Uses advised against : This product must not be used in applications other than the

above without first seeking the advice of the supplier., Re-

stricted to professional users.

1.3 Details of the supplier of the safety data sheet

Manufacturer/Supplier : Shell Chemicals Europe B.V.

PO Box 2334

3000 CH Rotterdam

Netherlands

Telephone

Telefax

Contact for Safety Data : sccmsds@shell.com

Sheet

1.4 Emergency telephone number

+44 (0) 1235 239 670 (This telephone number is available 24 hours per day, 7 days per

week)

Poison Information Centre: Citizen:16662 / International: +372 626 93 90

Monday 9am Saturday 9am (closed Sunday and public holidays)

Other information : SHELLSOL is a trademark owned by Shell Trademark Man-

agement B.V. and Shell Brands Inc. and used by affiliates of

Shell plc.

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)

Flammable liquids, Category 3 H226: Flammable liquid and vapour.

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Aspiration hazard, Category 1 H304: May be fatal if swallowed and enters air-

ways.

Carcinogenicity, Category 1B H350: May cause cancer.

Specific target organ toxicity - single exposure, Category 3, Respiratory Tract

H335: May cause respiratory irritation.

Specific target organ toxicity - single exposure, Category 3, Narcotic effects

H336: May cause drowsiness or dizziness.

Long-term (chronic) aquatic hazard, Cat-

egory 2

H411: Toxic to aquatic life with long lasting effects.

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)

Hazard pictograms :









Signal word : Danger

Hazard statements : PHYSICAL HAZARDS:

H226 Flammable liquid and vapour.

HEALTH HAZARDS:

H304 May be fatal if swallowed and enters airways.

H350 May cause cancer.

H335 May cause respiratory irritation.H336 May cause drowsiness or dizziness.

ENVIRONMENTAL HAZARDS:

H411 Toxic to aquatic life with long lasting effects.

Supplemental Hazard

Statements

EUH066

Repeated exposure may cause skin dryness or

cracking.

Precautionary statements : Prevention:

P210 Keep away from heat, hot surfaces, sparks, open

flames and other ignition sources. No smoking. P243 Take action to prevent static discharges.

P261 Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.

Response:

P301 + P310 IF SWALLOWED: Immediately call a POISON

CENTER/ doctor.

P308 + P313 IF exposed or concerned: Get medical advice/

attention. Storage:

No precautionary phrases.

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Disposal:

P501 Dispose of contents/ container to an approved waste disposal plant.

2.3 Other hazards

Ecological information: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

Toxicological information: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

May form flammable/explosive vapour-air mixture.

This material is a static accumulator.

Even with proper grounding and bonding, this material can still accumulate an electrostatic charge.

If sufficient charge is allowed to accumulate, electrostatic discharge and ignition of flammable air-vapour mixtures can occur.

Possibility of organ or organ system damage from prolonged exposure; see Section 11 for details. Target organ(s):

Auditory system

SECTION 3: Composition/information on ingredients

3.1 Substances

Components

Chemical name	CAS-No.	Concentration (% w/w)
	EC-No.	
Hydrocarbons, C9, aromat-	Not Assigned	<= 100
ics	918-668-5	

Further information

Contains:

Chemical	Identification number	Classification	Concentration (% w/w)
name			
Cumene	98-82-8, 202-704-5	Flam. Liq.3; H226 Asp. Tox.1; H304 STOT SE3; H335 Carc.1B; H350 Aquatic Chronic2; H411	>= 0 - <= 2
Benzene	71-43-2, 200-753-7	Flam. Liq.2; H225 Asp. Tox.1; H304 Skin Irrit.2; H315 Eye Irrit.2; H319 Muta.1B; H340 Carc.1A; H350	>= 0 - < 0,1

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STOT RE1; H372	
Aquatic Chronic3; H412	

SECTION 4: First aid measures

4.1 Description of first aid measures

General advice : Not expected to be a health hazard when used under normal

conditions.

Protection of first-aiders : When administering first aid, ensure that you are wearing the

appropriate personal protective equipment according to the

incident, injury and surroundings.

If inhaled : Remove to fresh air. If rapid recovery does not occur,

transport to nearest medical facility for additional treatment.

In case of skin contact : Remove contaminated clothing. Immediately flush skin with

large amounts of water for at least 15 minutes, and follow by washing with soap and water if available. If redness, swelling, pain and/or blisters occur, transport to the nearest medical

facility for additional treatment.

In case of eye contact : Flush eye with copious quantities of water.

Remove contact lenses, if present and easy to do. Continue

insing.

If persistent irritation occurs, obtain medical attention.

If swallowed : Call emergency number for your location / facility.

If swallowed, do not induce vomiting: transport to nearest medical facility for additional treatment. If vomiting occurs spontaneously, keep head below hips to prevent aspiration. If any of the following delayed signs and symptoms appear within the next 6 hours, transport to the nearest medical facility: fever greater than 101° F (38.3°C), shortness of breath, chest congestion or continued coughing or wheezing.

4.2 Most important symptoms and effects, both acute and delayed

Symptoms : Respiratory irritation signs and symptoms may include a tem-

porary burning sensation of the nose and throat, coughing,

and/or difficulty breathing.

Breathing of high vapour concentrations may cause central nervous system (CNS) depression resulting in dizziness, lightheadedness, headache, nausea and loss of coordination. Continued inhalation may result in unconsciousness and

death.

Skin irritation signs and symptoms may include a burning sen-

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sation, redness, or swelling.

No specific hazards under normal use conditions.

Eye irritation signs and symptoms may include a burning sen-

sation, redness, swelling, and/or blurred vision.

If material enters lungs, signs and symptoms may include coughing, choking, wheezing, difficulty in breathing, chest

congestion, shortness of breath, and/or fever.

If any of the following delayed signs and symptoms appear within the next 6 hours, transport to the nearest medical facility: fever greater than 101° F (38.3°C), shortness of breath, chest congestion or continued coughing or wheezing.

Defatting dermatitis signs and symptoms may include a burn-

ing sensation and/or a dried/cracked appearance.

Auditory system effects may include temporary hearing loss

and/or ringing in the ears.

4.3 Indication of any immediate medical attention and special treatment needed

Treatment : Call a doctor or poison control center for guidance.

Potential for chemical pneumonitis.

Treat symptomatically.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media : Foam, water spray or fog. Dry chemical powder, carbon diox-

ide, sand or earth may be used for small fires only.

Unsuitable extinguishing

media

Do not use water in a jet.

5.2 Special hazards arising from the substance or mixture

Specific hazards during fire-

fighting

Clear fire area of all non-emergency personnel. Hazardous combustion products may include:

A complex mixture of airborne solid and liquid particulates and

gases (smoke). Carbon monoxide.

Unidentified organic and inorganic compounds.

Flammable vapours may be present even at temperatures

below the flash point.

The vapour is heavier than air, spreads along the ground and

distant ignition is possible.

Will float and can be reignited on surface water.

5.3 Advice for firefighters

Special protective equipment :

for firefighters

Proper protective equipment including chemical resistant gloves are to be worn; chemical resistant suit is indicated if

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large contact with spilled product is expected. Self-Contained Breathing Apparatus must be worn when approaching a fire in a confined space. Select fire fighter's clothing approved to

relevant Standards (e.g. Europe: EN469).

Specific extinguishing meth-

ods

Standard procedure for chemical fires.

Further information : Keep adjacent containers cool by spraying with water.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions

Observe all relevant local and international regulations. Notify authorities if any exposure to the general public or the

environment occurs or is likely to occur.

Local authorities should be advised if significant spillages

cannot be contained.

6.1.1 For non emergency personnel: Avoid contact with skin, eyes and clothing.

Isolate hazard area and deny entry to unnecessary or unpro-

tected personnel.

Do not breathe fumes, vapour. Do not operate electrical equipment. 6.1.2 For emergency responders:

Avoid contact with skin, eyes and clothing.

Isolate hazard area and deny entry to unnecessary or unpro-

tected personnel.

Do not breathe fumes, vapour. Do not operate electrical equipment.

6.2 Environmental precautions

Environmental precautions

Shut off leaks, if possible without personal risks. Remove all possible sources of ignition in the surrounding area. Use appropriate containment to avoid environmental contamination. Prevent from spreading or entering drains, ditches or rivers by using sand, earth, or other appropriate barriers. Attempt to disperse the vapour or to direct its flow to a safe location for example by using fog sprays. Take precautionary measures against static discharge. Ensure electrical continuity by bond-

ing and grounding (earthing) all equipment. Monitor area with combustible gas indicator.

6.3 Methods and material for containment and cleaning up

Methods for cleaning up : For small liquid spills (< 1 drum), transfer by mechanical

means to a labeled, sealable container for product recovery or safe disposal. Allow residues to evaporate or soak up with an appropriate absorbent material and dispose of safely. Remove

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contaminated soil and dispose of safely.

For large liquid spills (> 1 drum), transfer by mechanical means such as vacuum truck to a salvage tank for recovery or safe disposal. Do not flush away residues with water. Retain as contaminated waste. Allow residues to evaporate or soak up with an appropriate absorbent material and dispose of safely. Remove contaminated soil and dispose of safely

Ventilate contaminated area thoroughly.

If contamination of site occurs remediation may require spe-

cialist advice.

6.4 Reference to other sections

For guidance on selection of personal protective equipment see Section 8 of this Safety Data Sheet., For guidance on disposal of spilled material see Section 13 of this Safety Data Sheet.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Technical measures : Avoid breathing of or direct contact with material. Only use in

well ventilated areas. Wash thoroughly after handling. For guidance on selection of personal protective equipment see

Section 8 of this Safety Data Sheet.

Use the information in this data sheet as input to a risk assessment of local circumstances to help determine appropriate controls for safe handling, storage and disposal of this

material

Ensure that all local regulations regarding handling and stor-

age facilities are followed.

Advice on safe handling : Avoid inhaling vapour and/or mists.

Avoid contact with skin, eyes and clothing.

Extinguish any naked flames. Do not smoke. Remove ignition

sources. Avoid sparks.

Use local exhaust ventilation if there is risk of inhalation of

vapours, mists or aerosols.

Bulk storage tanks should be diked (bunded).

When using do not eat or drink.

The vapour is heavier than air, spreads along the ground and

distant ignition is possible.

Product Transfer : Even with proper grounding and bonding, this material can still

accumulate an electrostatic charge. If sufficient charge is allowed to accumulate, electrostatic discharge and ignition of flammable air-vapour mixtures can occur. Be aware of handling operations that may give rise to additional hazards that result from the accumulation of static charges. These include but are not limited to pumping (especially turbulent flow), mixing, filtering, splash filling, cleaning and filling of tanks and containers, sampling, switch loading, gauging, vacuum truck

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operations, and mechanical movements. These activities may lead to static discharge e.g. spark formation. Restrict line velocity during pumping in order to avoid generation of electrostatic discharge (≤ 1 m/s until fill pipe submerged to twice its diameter, then ≤ 7 m/s). Avoid splash filling. Do NOT use compressed air for filling, discharging, or handling operations.

Refer to guidance under Handling section.

Hygiene measures : Wash hands before eating, drinking, smoking and using the

toilet. Launder contaminated clothing before re-use. Do not ingest. If swallowed, then seek immediate medical assistance.

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers

Refer to section 15 for any additional specific legislation cov-

ering the packaging and storage of this product.

Further information on storage stability

Storage Temperature:

Ambient.

Bulk storage tanks should be diked (bunded).

Locate tanks away from heat and other sources of ignition. Cleaning, inspection and maintenance of storage tanks is a specialist operation, which requires the implementation of

strict procedures and precautions.

Must be stored in a diked (bunded) well- ventilated area, away from sunlight, ignition sources and other sources of heat. Keep away from aerosols, flammables, oxidizing agents, corrosives and from other flammable products which are not

harmful or toxic to man or to the environment.

Electrostatic charges will be generated during pumping. Electrostatic discharge may cause fire. Ensure electrical continuity by bonding and grounding (earthing) all equipment to reduce the risk.

The vapours in the head space of the storage vessel may lie in the flammable/explosive range and hence may be flamma-

ble.

Packaging material : Suitable material: For containers, or container linings use mild

steel, stainless steel., For container paints, use epoxy paint,

zinc silicate paint.

Unsuitable material: Avoid prolonged contact with natural,

butyl or nitrile rubbers.

Container Advice : Do not cut, drill, grind, weld or perform similar operations on or

near containers.

7.3 Specific end use(s)

Specific use(s) : Please refer to section 16 and/or the annexes for the regis-

tered uses under REACH.

See additional references that provide safe handling practices

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for liquids that are determined to be static accumulators: American Petroleum Institute 2003 (Protection Against Ignitions Arising out of Static, Lightning and Stray Currents) or National Fire Protection Agency 77 (Recommended Practices

on Static Electricity).

IEC/TS 60079-32-1: Electrostatic hazards, guidance

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational Exposure Limits

Components	CAS-No.	Value type (Form of exposure)	Control parameters	Basis
Cumene	98-82-8	Piirnorm	10 ppm 50 mg/m3	EE OEL
	Further infor		hat can be easily absorbed p	
Cumene		Lühiajalise kok- kupuute piirnorm	50 ppm 250 mg/m3	EE OEL
	Further infor	mation: Substances t	hat can be easily absorbed p	percutaneously
Cumene		TWA	10 ppm 50 mg/m3	2019/1831/E U
		dicates the possibility	on assigned to the occupation of significant uptake through	h the skin., In-
Cumene		STEL	50 ppm 250 mg/m3	2019/1831/E U
			on assigned to the occupation of significant uptake through	
Benzene	71-43-2	Piirnorm	0,5 ppm 1,5 mg/m3	EE OEL
		mation: Substances to substances to	hat can be easily absorbed p	percutaneously,
Benzene		Lühiajalise kok- kupuute piirnorm	3 ppm 9 mg/m3	EE OEL
			hat can be easily absorbed p	percutaneously,
Benzene		TWA	0,25 ppm 0,8 mg/m3	Shell Internal Standard (SIS) for 8-12 hour TWA.
Benzene		STEL	2,5 ppm 8 mg/m3	Shell Internal Standard (SIS) for 15 min (STEL)

Biological occupational exposure limits

No biological limit allocated.

Derived No Effect Level (DNEL) according to Regulation (EC) No. 1907/2006:

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Substance name	End Use	Exposure routes	Potential health effects	Value
ShellSol A100	Workers	Dermal	Long-term systemic effects	25 mg/kg bw/day
ShellSol A100	Workers	Inhalation	Long-term systemic effects	150 mg/m3
ShellSol A100	Consumers	Inhalation	Long-term systemic effects	32 mg/m3
ShellSol A100	Consumers	Dermal	Long-term systemic effects	11 mg/kg
ShellSol A100	Consumers	Oral	Long-term systemic effects	11 mg/kg

Predicted No Effect Concentration (PNEC) according to Regulation (EC) No. 1907/2006:

Substance name		Environmental Compartment	Value
Remarks:	tion. Conv	e is a hydrocarbon with a complex, unknown or rentional methods of deriving PNECs are not a ple to identify a single representative PNEC for	ppropriate and it is

8.2 Exposure controls

Engineering measures

Read in conjunction with the Exposure Scenario for your specific use contained in the Annex. The level of protection and types of controls necessary will vary depending upon potential exposure conditions. Select controls based on a risk assessment of local circumstances. Appropriate measures include:

Use sealed systems as far as possible.

Adequate explosion-proof ventilation to control airborne concentrations below the exposure guidelines/limits.

Local exhaust ventilation is recommended.

Firewater monitors and deluge systems are recommended.

Eye washes and showers for emergency use.

Where material is heated, sprayed or mist formed, there is greater potential for airborne concentrations to be generated.

General Information:

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

Define procedures for safe handling and maintenance of controls.

Educate and train workers in the hazards and control measures relevant to normal activities associated with this product.

Ensure appropriate selection, testing and maintenance of equipment used to control exposure, e.g. personal protective equipment, local exhaust ventilation.

Drain down system prior to equipment break-in or maintenance.

Retain drain downs in sealed storage pending disposal or subsequent recycle.

Personal protective equipment

Read in conjunction with the Exposure Scenario for your specific use contained in the Annex. The provided information is made in consideration of the PPE directive (Council Directive 89/686/EEC) and the CEN European Committee for Standardisation (CEN) standards.

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

Eye protection If material is handled such that it could be splashed into eyes,

> protective eyewear is recommended. Approved to EU Standard EN166.

Hand protection

Remarks Where hand contact with the product may occur the use of

gloves approved to relevant standards (e.g. Europe: EN374, US: F739) made from the following materials may provide suitable chemical protection. Longer term protection: butyl-

rubber Nitrile rubber gloves.

Incidental contact/Splash protection: Nitrile rubber gloves. For continuous contact we recommend gloves with breakthrough time of more than 240 minutes with preference for > 480 minutes where suitable gloves can be identified. For short-term/splash protection we recommend the same but recognize that suitable gloves offering this level of protection may not be available and in this case a lower breakthrough time maybe acceptable so long as appropriate maintenance and replacement regimes are followed. Glove thickness is not a good predictor of glove resistance to a chemical as it is dependent on the exact composition of the glove material. Glove thickness should be typically greater than 0.35 mm depending on the glove make and model. Suitability and durability of a glove is dependent on usage, e.g. frequency and duration of contact, chemical resistance of glove material, dexterity. Always seek advice from glove suppliers. Contaminated gloves should be replaced. Personal hygiene is a key element of effective hand care. Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moistur-

izer is recommended.

Skin and body protection Skin protection is not required under normal conditions of

For prolonged or repeated exposures use impervious clothing over parts of the body subject to exposure.

If repeated and/or prolonged skin exposure to the substance is likely, then wear suitable gloves tested to relevant Standard, and provide employee skin care programmes.

Protective clothing approved to EU Standard EN14605.

Wear antistatic and flame-retardant clothing, if a local risk assessment deems it so.

Respiratory protection If engineering controls do not maintain airborne concentra-

> tions to a level which is adequate to protect worker health, select respiratory protection equipment suitable for the spe-

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cific conditions of use and meeting relevant legislation. Check with respiratory protective equipment suppliers. Where air-filtering respirators are unsuitable (e.g. airborne concentrations are high, risk of oxygen deficiency, confined space) use appropriate positive pressure breathing apparatus

Where air-filtering respirators are suitable, select an appro-

priate combination of mask and filter.

If air-filtering respirators are suitable for conditions of use: Select a filter suitable for organic gases and vapours [Type A

boiling point > 65°C (149°F)] meeting EN14387.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state : Liquid.

Colour : colourless

Odour : aromatic

Odour Threshold : Data not available

Melting point/freezing point : Data not available

Boiling point/boiling range : 150 - 185 °C

Flammability

Flammability (solid, gas) : Not applicable

Flammability (liquids) : Flammable liquid and vapour.

Lower explosion limit and upper explosion limit / flammability limit

Upper explosion limit / upper flammability limit

7 %(V)

Lower explosion limit /

0,6 %(V)

Lower flammability limit

38 - 50 °C Method: IP 170

Auto-ignition temperature : 507 °C

Decomposition temperature

Decomposition tempera-

Data not available

ture

Flash point

pH : Data not available

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Viscosity

Viscosity, dynamic : Data not available

Viscosity, kinematic : Typical 0,9 mm2/s (25 °C)

Method: ASTM D445

Solubility(ies)

Water solubility : insoluble

Partition coefficient: n-

octanol/water

log Pow: 3,7 - 4,5

Vapour pressure : 210 - 1.300 Pa (20 °C)

Relative density : 0,87 - 0,88 (20 °C)

Method: ASTM D4052

Density : Typical 876 kg/m3 (15 °C)

Method: ASTM D4052

Relative vapour density : 4,3

Particle characteristics

Particle size : Data not available

9.2 Other information

Explosive properties : Not applicable

Oxidizing properties : Data not available

Flammability (liquids) : Flammable liquid and vapour.

Evaporation rate : < 1

Method: ASTM D 3539, nBuAc=1

Conductivity: < 100 pS/m

The conductivity of this material makes it a static accumulator., A liquid is typically considered nonconductive if its conductivity is below 100 pS/m and is considered somi

ductivity is below 100 pS/m and is considered semi-

conductive if its conductivity is below 10,000 pS/m., Whether a liquid is nonconductive or semi-conductive, the precautions are the same., A number of factors, for example liquid temperature, presence of contaminants, and anti-static additives

can greatly influence the conductivity of a liquid

Surface tension : Data not available

Molecular weight : Data not available

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SECTION 10: Stability and reactivity

10.1 Reactivity

The product does not pose any further reactivity hazards in addition to those listed in the following sub-paragraph.

10.2 Chemical stability

No hazardous reaction is expected when handled and stored according to provisions Stable under normal conditions of use.

10.3 Possibility of hazardous reactions

Hazardous reactions : Reacts with strong oxidising agents.

10.4 Conditions to avoid

Conditions to avoid : Avoid heat, sparks, open flames and other ignition sources.

In certain circumstances product can ignite due to static elec-

tricity.

10.5 Incompatible materials

Materials to avoid : Strong oxidising agents.

10.6 Hazardous decomposition products

Hazardous decomposition products are not expected to form during normal storage.

Thermal decomposition is highly dependent on conditions. A complex mixture of airborne solids, liquids and gases including carbon monoxide, carbon dioxide, sulphur oxides and unidentified organic compounds will be evolved when this material undergoes combustion or thermal or oxidative degradation.

SECTION 11: Toxicological information

11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008

Information on likely routes of : Exposure may occur via inhalation, ingestion, skin absorption,

exposure skin or eye contact, and accidental ingestion.

Acute toxicity

Components:

Hydrocarbons, C9, aromatics:

Acute oral toxicity : LD 50 (Rat, male and female): > 2000 - <= 5000

Method: Acceptable non-standard method. Remarks: May be harmful if swallowed.

Acute inhalation toxicity : LC 50 (Rat, male and female): > 2 -<= 10 mg/l

Exposure time: 4 h

Test atmosphere: vapour

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Method: Test(s) equivalent or similar to OECD Test Guideline

403

Remarks: LC50 greater than near-saturated vapour concen-

tration.

Based on available data, the classification criteria are not met.

Acute dermal toxicity : LD 50 (Rabbit, male and female): > 2.000 mg/kg

Method: Test(s) equivalent or similar to OECD Test Guideline

402

Remarks: Based on available data, the classification criteria

are not met.

Skin corrosion/irritation

Components:

Hydrocarbons, C9, aromatics:

Species : Rabbit

Method : OECD Test Guideline 404

Remarks : Moderately irritating to skin (but insufficient to classify).

Repeated exposure may cause skin dryness or cracking.

Serious eye damage/eye irritation

Components:

Hydrocarbons, C9, aromatics:

Species : Rabbit

Method : Test(s) equivalent or similar to OECD Test Guideline 405

Remarks : Slightly irritating.

Insufficient to classify.

Respiratory or skin sensitisation

Components:

Hydrocarbons, C9, aromatics:

Species : Guinea pig

Method : OECD Test Guideline 406

Remarks : Based on available data, the classification criteria are not met.

Germ cell mutagenicity

Components:

Hydrocarbons, C9, aromatics:

Genotoxicity in vitro : Method: Test(s) equivalent or similar to OECD Guideline 471

Remarks: Based on available data, the classification criteria

are not met.

Method: Test(s) equivalent or similar to OECD Test Guideline

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473

Remarks: Based on available data, the classification criteria

are not met.

Method: Test(s) equivalent or similar to OECD Test Guideline

476

Remarks: Based on available data, the classification criteria

are not met.

Genotoxicity in vivo : Species: Rat

Method: Test(s) equivalent or similar to OECD Test Guideline

475

Remarks: Based on available data, the classification criteria

are not met.

Germ cell mutagenicity- As-

sessment

This product does not meet the criteria for classification in

categories 1A/1B.

Carcinogenicity

Product:

Remarks : Contains Cumene, CAS# 98-82-8.

An increased tumour incidence has been observed in experimental animals; the significance of this finding to man is un-

known.

Components:

Hydrocarbons, C9, aromatics:

Remarks : Tumours produced in animals are not considered relevant to

humans.

Not a carcinogen.

Based on available data, the classification criteria are not met.

Carcinogenicity - Assess-

ment

This product does not meet the criteria for classification in

categories 1A/1B.

Material	GHS/CLP Carcinogenicity Classification
Hydrocarbons, C9, aromatics	No carcinogenicity classification.
Cumene	Carcinogenicity Category 1B
Benzene	Carcinogenicity Category 1A

Material	Other Carcinogenicity Classification
Cumene	IARC: Group 2B: Possibly carcinogenic to humans
Benzene	IARC: Group 1: Carcinogenic to humans

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Reproductive toxicity

Components:

Hydrocarbons, C9, aromatics:

Effects on fertility : Species: Rat

Sex: male and female Application Route: Inhalation

Method: Other guideline method.

Remarks: Based on available data, the classification criteria

are not met.

Reproductive toxicity - As-

sessment

This product does not meet the criteria for classification in

categories 1A/1B.

STOT - single exposure

Components:

Hydrocarbons, C9, aromatics:

Exposure routes : Inhalation

Target Organs : Lungs, Central nervous system Remarks : May cause drowsiness and dizziness.

May cause respiratory irritation.

STOT - repeated exposure

Components:

Hydrocarbons, C9, aromatics:

Remarks : Based on available data, the classification criteria are not met.

Auditory system: prolonged and repeated exposures to high

concentrations have resulted in hearing loss in rats.

Kidney: caused kidney effects in male rats which are not con-

sidered relevant to humans

Repeated dose toxicity

Components:

Hydrocarbons, C9, aromatics:

Species : Rat, male and female

Application Route : Oral

Method : Test(s) equivalent or similar to OECD Test Guideline 408

Target Organs : No specific target organs noted

Species : Rat, male and female

Application Route : Inhalation Test atmosphere : vapour

Method : Test(s) equivalent or similar to OECD Test Guideline 452

Target Organs : No specific target organs noted

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Aspiration toxicity

Components:

Hydrocarbons, C9, aromatics:

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

11.2 Information on other hazards

Endocrine disrupting properties

Product:

Assessment : The substance/mixture does not contain components consid-

ered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at

levels of 0.1% or higher.

Further information

Components:

Hydrocarbons, C9, aromatics:

Remarks : Classifications by other authorities under varying regulatory

frameworks may exist.

SECTION 12: Ecological information

12.1 Toxicity

Components:

Hydrocarbons, C9, aromatics:

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 9,2 mg/l

Exposure time: 96 h

Method: OECD Test Guideline 203

Remarks: Toxic

LC/EC/IC50 >1 - <=10 mg/l

Toxicity to daphnia and other :

aquatic invertebrates

EL50 (Daphnia magna (Water flea)): 3,2 mg/l

Exposure time: 48 h

Method: OECD Test Guideline 202

Remarks: Toxic

LC/EC/IC50 >1 - <=10 mg/l

Toxicity to algae/aquatic plants : ErL50 (Pseudokirchneriella subcapitata (algae)): 2,9 mg/l

Exposure time: 72 h

Method: OECD Test Guideline 201

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Remarks: Toxic

LC/EC/IC50 >1 - <=10 mg/l

Toxicity to microorganisms : NOEC (Activated sludge): > 99 mg/l

Exposure time: 0,16 h

Method: OECD Test Guideline 209 Remarks: Practically non toxic: LC/EC/IC50 > 100 mg/l

Toxicity to fish (Chronic tox-

icity)

Remarks: Data not available

Toxicity to daphnia and other :

aquatic invertebrates (Chron-

ic toxicity)

Remarks: Data not available

12.2 Persistence and degradability

Components:

Hydrocarbons, C9, aromatics:

Biodegradability : Biodegradation: 78 %

Exposure time: 28 d

Method: OECD Test Guideline 301F Remarks: Readily biodegradable.

Oxidises rapidly by photo-chemical reactions in air.

12.3 Bioaccumulative potential

Components:

Hydrocarbons, C9, aromatics:

Bioaccumulation : Remarks: Contains components with the potential to bioaccumulate.

12.4 Mobility in soil

Components:

Hydrocarbons, C9, aromatics:

Mobility : Remarks: Floats on water., If it enters soil, it will adsorb to soil

particles and will not be mobile.

12.5 Results of PBT and vPvB assessment

Components:

Hydrocarbons, C9, aromatics:

Assessment : The substance does not fulfill all screening criteria for persis-

tence, bioaccumulation and toxicity and hence is not consid-

ered to be PBT or vPvB..

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12.6 Endocrine disrupting properties

Product:

Assessment : The substance/mixture does not contain components considered to

have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

12.7 Other adverse effects

Components:

Hydrocarbons, C9, aromatics:

Additional ecological infor-

mation

: Does not have ozone depletion potential.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product

Recover or recycle if possible.

It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste classification and disposal methods in compliance with applicable regulations.

ods in compliance with applicable regulations.

Waste product should not be allowed to contaminate soil or ground water, or be disposed of into the environment. Do not dispose into the environment, in drains or in water courses.

Do not dispose of tank water bottoms by allowing them to drain into the ground. This will result in soil and groundwater contamination.

Waste arising from a spillage or tank cleaning should be disposed of in accordance with prevailing regulations, preferably to a recognised collector or contractor. The competence of the collector or contractor should be established beforehand.

Waste, spills or used product is dangerous waste.

Disposal should be in accordance with applicable regional,

national, and local laws and regulations.

Local regulations may be more stringent than regional or na-

tional requirements and must be complied with.

MARPOL - see International Convention for the Prevention of Pollution from Ships (MARPOL 73/78) which provides technical aspects at controlling pollutions from ships.

Contaminated packaging : Drain container thoroughly.

After draining, vent in a safe place away from sparks and fire. Residues may cause an explosion hazard. Do not puncture,

cut or weld uncleaned drums.

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Send to drum recoverer or metal reclaimer.

Comply with any local recovery or waste disposal regulations.

SECTION 14: Transport information

14.1 UN number or ID number

ADR : 1268
RID : 1268
IMDG : 1268
IATA : 1268

14.2 UN proper shipping name

ADR : PETROLEUM DISTILLATES, N.O.S.

RID : PETROLEUM DISTILLATES, N.O.S.

IMDG : PETROLEUM DISTILLATES, N.O.S.

(NAPHTHA)

IATA : Petroleum distillates, n.o.s.

14.3 Transport hazard class(es)

ADR : 3
RID : 3
IMDG : 3
IATA : 3

14.4 Packing group

ADR

Packing group : III
Classification Code : F1
Hazard Identification Number : 30
Labels : 3

RID

Packing group : III
Classification Code : F1
Hazard Identification Number : 30
Labels : 3

IMDG

Packing group : III Labels : 3

IATA

Packing group : III Labels : 3

14.5 Environmental hazards

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ADR

Environmentally hazardous : yes

RID

Environmentally hazardous : yes

IMDG

Marine pollutant : yes

14.6 Special precautions for user

Remarks : Special Precautions: Refer to Section 7, Handling & Storage,

for special precautions which a user needs to be aware of or

needs to comply with in connection with transport.

14.7 Maritime transport in bulk according to IMO instruments

MARPOL Annex 1 rules apply for bulk shipments by sea.

Additional Information: This product may be transported under nitrogen blanketing.

Nitrogen is an odourless and invisible gas. Exposure to nitrogen may cause asphyxiation or death. Personnel must observe strict safety precautions when involved with a confined

space entry.

SECTION 15: Regulatory information

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

REACH - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles (Annex XVII) : Conditions of restriction for the following entries should be considered: Solvent naphtha (petroleum), light arom. (Number on list 29, 28) Cumene (Number on list 28) Benzene (Number on list 72, 5, 29,

28

REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 59).

This product does not contain substances of very high concern (Regulation (EC) No 1907/2006 (REACH),

Article 57).

REACH - List of substances subject to authorisation (Annex XIV)

: Product is not subject to Authorisation under REACH.

Other regulations:

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

Product is subject to minimum dangerous level and threshold for hazardous chemicals and

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procedures for defining the hazard category and hazardous enterprise of an enterprise with a major accident hazard based on Seveso III directive (2012/18/EU).

The national inventory is based on the CAS number 64742-95-6.

The components of this product are reported in the following inventories:

DSL Listed

IECSC Listed

TSCA Listed

KECI Listed

PICCS Listed

TCSI Listed

NZIoC Listed

15.2 Chemical safety assessment

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

SECTION 16: Other information

Full text of other abbreviations

2019/1831/EU Europe. Commission Directive 2019/1831/EU establishing a

fifth list of indicative occupational exposure limit values

Maximum permitted average quantity of chemical substance

EE OEL Estonia. Limit values for chemical hazards in the working envi-

ronment

2019/1831/EU / TWA Limit Value - eight hours 2019/1831/EU / STEL Short term exposure limit

Average quantity of chemical substance in respiratory air dur-EE OEL / Piirnorm

ing one working day or one working week

EE OEL / Lühiaialise kok-

kupuute piirnorm

in respiratory air over a 15-minute period

ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways; ADR - Agreement concerning the International Carriage of Dangerous Goods by Road; AIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CLP - Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECHA -European Chemicals Agency; EC-Number - European Community number; ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships car-

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rying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NZIoC - New Zealand Inventory of Chemicals: OECD - Organization for Economic Co-operation and Development: OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RID - Regulations concerning the International Carriage of Dangerous Goods by Rail; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; SVHC - Substance of Very High Concern; TCSI - Taiwan Chemical Substance Inventory; TECI -Thailand Existing Chemicals Inventory; TRGS - Technical Rule for Hazardous Substances; TSCA - Toxic Substances Control Act (United States); UN - United Nations; vPvB - Very Persistent and Very Bioaccumulative

Further information

Training advice : Provide adequate information, instruction and training for op-

erators.

Other information : For Industry guidance and tools on REACH please visit the

CEFIC website at http://cefic.org/Industry-support.

The substance does not fulfill all screening criteria for persistence, bioaccumulation and toxicity and hence is not consid-

ered to be PBT or vPvB.

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

This product is classified as H304 (May be fatal if swallowed and enters airways). The risk relates to potential for aspiration. The risk arising from aspiration hazard is solely related to the physico-chemical properties of the substance. The risk can therefore be controlled by implementing risk management measures tailored to this specific hazard and included within Section 8 of the SDS. An exposure scenario is not presented.

This product is classified as R66 / EUH066 (Repeated exposure may cause skin dryness or cracking). The risk relates to the potential for repeated or prolonged dermal contact. The risk arising from contact is solely related to the physicochemical properties of the substance. The risk can therefore be controlled by implementing risk management measures tailored to this specific hazard and included within Section 8 of the SDS. An exposure scenario is not presented.

Sources of key data used to compile the Safety Data

The quoted data are from, but not limited to, one or more sources of information (e.g. toxicological data from Shell

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Sheet Health Services, material suppliers' data, CONCAWE, EU

IUCLID date base, EC 1272 regulation, etc).

Identified Uses according to the Use Descriptor System

Uses - Worker

Title : Manufacture of substance

- Industrial

Uses - Worker

Title : Distribution of substance

- Industrial

Uses - Worker

Title : Formulation & (re)packing of substances and mixtures

- Industrial

Uses - Worker

Title : Uses in Coatings

- Industrial

Uses - Worker

Title : Uses in Coatings

- Professional

Uses - Worker

Title : Use in Cleaning Agents

- Industrial

Uses - Worker

Title : Use in Cleaning Agents

- Professional

Uses - Worker

Title : Use in Oil and Gas field drilling and production operations

- Industrial

Uses - Worker

Title : Lubricants

- Industrial

Uses - Worker

Title : Lubricants

- Professional

Low Environmental Release

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Uses - Worker

Title : Lubricants

- Professional

High Environmental Release

Uses - Worker

Title : Metal working fluids / rolling oils

- Industrial

Uses - Worker

Title : Metal working fluids / rolling oils

- Professional

Uses - Worker

Title : Use as binders and release agents

- Industrial

Uses - Worker

Title : Use as binders and release agents

- Professional

Uses - Worker

Title : Use in Agrochemicals uses

- Professional

Uses - Worker

Title : Use as a fuel

- Industrial

Uses - Worker

Title : Use as a fuel

- Professional

Uses - Worker

Title : Functional Fluids

- Professional

Uses - Worker

Title : Functional Fluids

- Industrial

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Uses - Worker

Title : Road and construction applications

- Professional

Uses - Worker

Title : Use in laboratories

- Industrial

Uses - Worker

Title : Use in laboratories

- Professional

Uses - Worker

Title : Water treatment chemicals

- Industrial

Uses - Worker

Title : Water treatment chemicals

- Professional

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

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Exposure Scenario - Worker

20000000750	
30000000750	
SECTION 1	EXPOSURE SCENARIO TITLE
Title	Manufacture of substance- Industrial
Use Descriptor	Sector of Use: SU3, SU8, SU9 Process Categories: PROC 1, PROC 2, PROC 3, PROC 4, PROC 8a, PROC 8b, PROC 15 Environmental Release Categories: ERC1, ERC4, ESVOC SpERC 1.1.v1
Scope of process	Manufacture of the substance or use as a process chemical or extraction agent. Includes recycling/ recovery, material transfers, storage, maintenance and loading (including marine vessel/barge, road/rail car and bulk container), sampling and associated laboratory activities.

SECTION 2	OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES	
Section 2.1	Control of Worker Exposure	
Product Characteristics		
Physical form of product	Liquid, vapour pressure < 0.5 kPa at STP	
Concentration of the Substance in Mixture/Article	Covers use of substance/product up to 100% (unless stated differently).,	
Frequency and Duration of	Use	
Covers daily exposures up to	o 8 hours (unless stated differently).	
Other Operational Conditio	ns affecting Exposure	
	an 20°C above ambient temperature (unless stated differently). ard of occupational hygiene is implemented.	

Contributing Scenarios	Risk Management Measures
General exposures (closed	No other specific measures identified.
systems)PROC1PROC2PRO	
General exposures (open sys tems)PROC4	- No other specific measures identified.
Process samplingPROC8b	No other specific measures identified.
Laboratory activitiesPROC15	No other specific measures identified.
Bulk transfers(open systems)PROC8b	No other specific measures identified.
Bulk transfers(closed systems)PROC8b	No other specific measures identified.
Equipment cleaning and maintenancePROC8a	No other specific measures identified.
Storage.PROC1PROC2	Store substance within a closed system.
Section 2.2	Control of Environmental Exposure

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Substance is complex UVCB.	
Predominantly hydrophobic.	
Readily biodegradable.	
Amounts Used	
	0.4
Fraction of EU tonnage used in region:	0,1
Regional use tonnage (tonnes/year):	2,4E+04
Fraction of Regional tonnage used locally:	1
Annual site tonnage (tonnes/year):	2,4E+04
Maximum daily site tonnage (kg/day):	7,9E+04
Frequency and Duration of Use	T
Continuous release.	
Emission Days (days/year):	300
Environmental factors not influenced by risk management	1
Local freshwater dilution factor:	10
Local marine water dilution factor:	100
Other Operational Conditions affecting Environmental Exposure	
Release fraction to air from process (initial release prior to RMM):	1,0E-02
Release fraction to wastewater from process (initial release prior to RMM):	3,0E-04
Release fraction to soil from process (initial release prior to RMM):	1,0E-04
Technical conditions and measures at process level (source) to pro-	event release
Common practices vary across sites thus conservative process re-	
lease estimates used.	
Technical onsite conditions and measures to reduce or limit discharge	arges, air emis-
sions and releases to soil	•
Risk from environmental exposure is driven by freshwater sediment.	
Prevent discharge of undissolved substance to or recover from onsite	
wastewater.	
If discharging to domestic sewage treatment plant, no secondary	
wastewater treatment required.	
Treat air emission to provide a typical removal efficiency of (%)	90
Treat onsite wastewater (prior to receiving water discharge) to provide	15,9
the required removal efficiency of >= (%)	1.0,0
If discharging to domestic sewage treatment plant, no secondary	0
wastewater treatment required.	
Organisational measures to prevent/limit release from site	
Do not apply industrial sludge to natural soils.	
Sludge should be incinerated, contained or reclaimed.	
Chage should be momerated, somamed or residinged.	
Conditions and Measures related to municipal sewage treatment p	lant
Estimated substance removal from wastewater via domestic sewage	93,6
treatment (%)	00,0
Total efficiency of removal from wastewater after onsite and offsite	93,6
(domestic treatment plant) RMMs (%)	00,0
Maximum allowable site tonnage (MSafe) based on release following	1,0E+06
total wastewater treatment removal (kg/d)	1,02100
Assumed domestic sewage treatment plant flow (m3/d)	1,0E+04
Conditions and Measures related to external treatment of waste for	
	uispusal
During manufacturing no waste of the substance is generated.	
Conditions and measures related to external recovery of waste	

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During manufacturing no waste of the substance is generated.

SECTION 3 EXPOSURE ESTIMATION

Section 3.1 - Health

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

Section 3.2 - Environment

The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model.

SECTION 4 GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO

Section 4.1 - Health

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.

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

Section 4.2 - Environment

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.

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

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

Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org).

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Exposure Scenario - Worker

30000000753	
SECTION 1	EXPOSURE SCENARIO TITLE
Title	Distribution of substance- Industrial
Use Descriptor	Sector of Use: SU3, SU8, SU9 Process Categories: PROC 1, PROC 2, PROC 3, PROC 4, PROC 8a, PROC 8b, PROC 9, PROC 15 Environmental Release Categories: ERC1, ERC2, ERC3, ERC4, ERC5, ERC6a, ERC6b, ERC 6C,, ERC7, ESVOC SpERC 1.1b.v1
Scope of process	Loading (including marine vessel/barge, rail/road car and IBC loading) and repacking (including drums and small packs) of substance, including its sampling, storage, unloading distribution and associated laboratory activities.

SECTION 2	OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES
Section 2.1	Control of Worker Exposure
Product Characteristics	
Physical form of product	Liquid, vapour pressure < 0.5 kPa at STP
Concentration of the Sub- stance in Mixture/Article	Covers use of substance/product up to 100% (unless stated differently).,
Frequency and Duration of	
Covers daily exposures up to	8 hours (unless stated differently).
Other Operational Conditio	ns affecting Exposure
Assumes use at not more than 20°C above ambient temperature (unless stated differently). Assumes a good basic standard of occupational hygiene is implemented.	

0 (<u> </u>	I 34 (34	
Contributing Scenarios	KIS	k Management Measures	
General exposures (closed		No other specific measures identified.	
systems)PROC1PROC2PRO	C3		
General exposures (open sys-	-	No other specific measures identified.	
tems)PROC4			
Process samplingPROC3		No other specific measures identified.	
Laboratory activitiesPROC15		No other specific measures identified.	
Bulk transfers(closed sys-		No other specific measures identified.	
tems)PROC8b			
Bulk transfers(open sys-		No other specific measures identified.	
tems)PROC8b			
Drum and small package fill-		No other specific measures identified.	
ingPROC9			
Equipment cleaning and		No other specific measures identified.	
maintenancePROC8a			
Storage.PROC1PROC2		Store substance within a closed system.	•

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Section 2.2	Control of Environmental Exposure	
Substance is complex UVCE		
	D.	
Predominantly hydrophobic.		
Readily biodegradable.		
Amounts Used		T
Fraction of EU tonnage used		0,1
Regional use tonnage (tonnes/year):		850
Fraction of Regional tonnage		2,0E-03
Annual site tonnage (tonnes		1,7
Maximum daily site tonnage		85
Frequency and Duration o	f Use	
Continuous release.		
Emission Days (days/year):		20
Environmental factors not	influenced by risk management	
Local freshwater dilution fac		10
Local marine water dilution f	actor:	100
Other Operational Condition	ons affecting Environmental Exposure	
	process (initial release prior to RMM):	1,0E-03
	ter from process (initial release prior to	1,0E-05
RMM):	()	,
	process (initial release prior to RMM):	1,0E-05
Technical conditions and	measures at process level (source) to pr	
	oss sites thus conservative process re-	
lease estimates used.	see ones and somest valive process to	
sions and releases to soil	s and measures to reduce or limit disch	arges, air emis-
	olved substance to or recover from onsite	
wastewater.	orved substance to or recover from online	
No wastewater treatment re	ruired	
	a typical removal efficiency of (%)	90
	or to receiving water discharge) to provide	0
the required removal efficier		
	ewage treatment plant, no secondary	0
wastewater treatment requir	•	
	o prevent/limit release from site	
Do not apply industrial sludg		
Sludge should be incinerate		
Sidage should be inclinerate	a, contained of recialities.	
Conditions and Measures	related to municipal sewage treatment p	lant
	al from wastewater via domestic sewage	
	ai iroin wasiewalei via domesiic sewage	93,6
treatment (%)	om wastowator after enaite and affaits	02.6
	om wastewater after onsite and offsite	93,6
(domestic treatment plant) RMMs (%) Maximum allowable site tonnage (MSafe) based on release following		2.15.05
		2,1E+05
total wastewater treatment r	1 0 7	0.05.00
Assumed domestic sewage		2,0E+03
	related to external treatment of waste fo	
	osal of waste should comply with applicable	e local and/or regiona
regulations.		

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Conditions and measures related to external recovery of waste

External recovery and recycling of waste should comply with applicable local and/or regional regulations.

SECTION 3 EXPOSURE ESTIMATION

Section 3.1 - Health

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

Section 3.2 - Environment

The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model.

SECTION 4 GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO

Section 4.1 - Health

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.

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

Section 4.2 - Environment

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.

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

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

Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org).

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Exposure Scenario - Worker

Exposure Scenario - Worke	1
30000000754	
SECTION 1	EXPOSURE SCENARIO TITLE
Title	Formulation & (re)packing of substances and mixtures- Industrial
Use Descriptor	Sector of Use: SU3, SU10 Process Categories: PROC 1, PROC 2, PROC 3, PROC 4, PROC 5, PROC 8a, PROC 8b, PROC 9, PROC 14, PROC 15 Environmental Release Categories: ERC2, ESVOC SpERC 2.2.v1
Scope of process	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 RIS	K MANAGEMENT
Section 2.1	Control of Worker Exposure	
Product Characteristics		
Physical form of product	Liquid, vapour pressure < 0.5 kPa at STF	
Concentration of the Substance in Mixture/Article	Covers use of substance/product up to 10 differently).,	00% (unless stated
Frequency and Duration of	Use	
Covers daily exposures up to	8 hours (unless stated differently).	
Other Operational Condition	ns affecting Exposure	
Assumes use at not more that	an 20°C above ambient temperature (unles	s stated differently).
A a a una a a a a a a a la a a la a a a	and of accompational burnions is impuls as onto	الم

Assumes a good basic standard of occupational hygiene is implemented.

Contributing Scenarios	Risk Management Measures
General exposures (closed systems)PROC1PROC2PROC	No other specific measures identified.
General exposures (open systems)PROC4	No other specific measures identified.
Batch processes at elevated temperaturesOperation is carried out at elevated temperatu (> 20°C above ambient tempe ature).Use in contained batch processesPROC3	re er-
Process samplingPROC3	No other specific measures identified.
Laboratory activitiesPROC15	No other specific measures identified.
Bulk transfersPROC8b	No other specific measures identified.

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Mixing operations (open systems)PROC5	No other specific measures identified	d.
ManualTransfer from/pouring	No other specific measures identified	d.
from containersPROC8a		
Drum/batch transfersPROC8b	No other specific measures identified	d.
Production or preparation or articles by tabletting, compres sion, extrusion or pelletisationPROC14	No other specific measures identified	d.
Drum and small package fill- ingPROC9	No other specific measures identified	d.
Equipment cleaning and maintenancePROC8a	No other specific measures identified	d.
Storage.PROC1PROC2	Store substance within a closed syst	em.
Section 2.2	Control of Environmental Exposure	
Substance is complex UVCB.	•	
Predominantly hydrophobic.		
Readily biodegradable.		
Amounts Used		
Fraction of EU tonnage used	in region:	0,1
Regional use tonnage (tonnes		730
Fraction of Regional tonnage		1
Annual site tonnage (tonnes/y		730
Maximum daily site tonnage (7,3E+03
Frequency and Duration of		7,52100
Continuous release.	036	
Emission Days (days/year):		100
	nfluenced by risk management	100
Local freshwater dilution factor		10
Local marine water dilution fa		100
	ns affecting Environmental Exposure	100
	ocess (after typical onsite RMMs con-	1,0E-02
sistent with EU Solvent Emiss		1,02-02
	er from process (initial release prior to	2,0E-04
RMM):		
	process (initial release prior to RMM):	1,0E-04
	easures at process level (source) to pre	event release
	s sites thus conservative process re-	
lease estimates used.		
	and measures to reduce or limit disch	arges, air emis-
sions and releases to soil		
	sure is driven by freshwater sediment.	
_	ved substance to or recover from onsite	
wastewater.		
No wastewater treatment requ		
	a typical removal efficiency of (%)	0
Treat onsite wastewater (prior the required removal efficience	to receiving water discharge) to provide y of >= (%)	0
	vage treatment plant, no secondary	0

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wastewater treatment required.	
Organisational measures to prevent/limit release from site	
Do not apply industrial sludge to natural soils.	
Sludge should be incinerated, contained or reclaimed.	
Conditions and Measures related to municipal sewage treatment p	
Estimated substance removal from wastewater via domestic sewage	93,6
treatment (%)	
Total efficiency of removal from wastewater after onsite and offsite	93,6
(domestic treatment plant) RMMs (%)	
Maximum allowable site tonnage (MSafe) based on release following	3,1E+05
total wastewater treatment removal (kg/d)	
Assumed domestic sewage treatment plant flow (m3/d)	2,0E+03
Conditions and Measures related to external treatment of waste for	r disposal
External treatment and disposal of waste should comply with applicable	local and/or regional
regulations.	
Conditions and measures related to external recovery of waste	
External recovery and recycling of waste should comply with applicable	local and/or regional
regulations.	_

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

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

Section 3.2 - Environment

The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model.

GUIDANCE TO CHECK COMPLIANCE WITH THE
EXPOSURE SCENARIO

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.

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

Section 4.2 -Environment

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.

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

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

Further details on scaling and control technologies are provided in SpERC factsheet

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(http://cefic.org).

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Exposure Scenario - Worker

30000000755	
SECTION 1	EXPOSURE SCENARIO TITLE
Title	Uses in Coatings- Industrial
Use Descriptor	Sector of Use: SU3 Process Categories: PROC 1, PROC 2, PROC 3, PROC 4, PROC 5, PROC 7, PROC 8a, PROC 8b, PROC 9, PROC 10, PROC 13, PROC 14, PROC 15 Environmental Release Categories: ERC4, ESVOC SpERC 4.3a.v1
Scope of process	Covers the use in coatings (paints, inks, adhesives, etc) including exposures during use (including materials receipt, storage, preparation and transfer from bulk and semi-bulk, application by spray, roller, spreader, dip, flow, fluidised bed on production lines and film formation) and equipment cleaning, maintenance and associated laboratory activities.

SECTION 2	OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES	
Section 2.1	Control of Worker Exposure	
Product Characteristics		
Physical form of product	Liquid, vapour pressure < 0.5 kPa at STP	
Concentration of the Sub-	Covers use of substance/product up to 100% (unless stated	
stance in Mixture/Article	differently).,	
Frequency and Duration of		
	8 hours (unless stated differently).	
Other Operational Conditio		
	in 20°C above ambient temperature (unless stated differently).	
	ard of occupational hygiene is implemented.	
Contributing Scenarios	Risk Management Measures	
General exposures (closed systems)PROC1	No other specific measures identified.	
General exposures (closed systems) with sample collectionUse in contained systemsPROC2	No other specific measures identified.	
Film formation - force dry- ing, stoving and other tech- nologies.(closed sys- tems)Operation is carried out at elevated temperature (> 20°C above ambient temperature).PROC2	No other specific measures identified.	
Mixing operations (closed systems)General expo-	No other specific measures identified.	

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sures (closed sys-		
tems)PROC3		
Film formation - air dry- ingPROC4	No other specific measures identified.	
Preparation of material for	No other specific measures identified.	
applicationMixing opera-		
tions (open sys-		
tems)PROC5		
Spraying (automat- ic/robotic)PROC7	Carry out in a vented booth provided with	n laminar airflow.
ManualSprayingPROC7	Wear a respirator conforming to EN140 v better.	with Type A filter or
Material transfersNon- dedicated facilityPROC8a	No other specific measures identified.	
Material transfersDedicated facilityPROC8b	No other specific measures identified.	
Roller, spreader, flow applicationPROC10	No other specific measures identified.	
Dipping, immersion and pouringPROC13	No other specific measures identified.	
Laboratory activi- tiesPROC15	No other specific measures identified.	
Material trans-	No other specific measures identified.	
fersDrum/batch transfer-	•	
sTransfer from/pouring from		
containersPROC9		
Production or preparation	No other specific measures identified.	
or articles by tabletting,		
compression, extrusion or		
pelletisationPROC14		
Equipment cleaning and maintenancePROC8a	No other specific measures identified.	
Storage.PROC1	Store substance within a closed system.	
Section 2.2	Control of Environmental Exposure	
Substance is complex UVCB		
Predominantly hydrophobic.		
Readily biodegradable.		
Amounts Used		•
Fraction of EU tonnage used	in region:	0,1
Regional use tonnage (tonne		7,6E+03
Fraction of Regional tonnage	•	1
Annual site tonnage (tonnes/		7,6E+03
Maximum daily site tonnage (2,5E+04
Frequency and Duration of		
Continuous release.		
Emission Days (days/year):		300
	nfluenced by risk management	550
Local freshwater dilution factor		10
Local marine water dilution fa		100
		1.50

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Other Operational Conditions affecting Environmental Exposure	
Release fraction to air from process (initial release prior to RMM):	9,8E-01
Release fraction to wastewater from process (initial release prior to	7,0E-04
RMM):	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
Release fraction to soil from process (initial release prior to RMM):	0
Technical conditions and measures at process level (source) to pr	event release
Common practices vary across sites thus conservative process re-	
lease estimates used.	
Technical onsite conditions and measures to reduce or limit disch	arges, air emis-
sions and releases to soil	•
Risk from environmental exposure is driven by freshwater sediment.	
Prevent discharge of undissolved substance to or recover from onsite	
wastewater.	
If discharging to domestic sewage treatment plant, no secondary	
wastewater treatment required.	
Treat air emission to provide a typical removal efficiency of (%)	90
Treat onsite wastewater (prior to receiving water discharge) to provide	77,7
the required removal efficiency of >= (%)	
If discharging to domestic sewage treatment plant, no secondary	0
wastewater treatment required.	
Organisational measures to prevent/limit release from site	
Do not apply industrial sludge to natural soils.	
Sludge should be incinerated, contained or reclaimed.	
Conditions and Measures related to municipal sewage treatment p	lant
Estimated substance removal from wastewater via domestic sewage	93.6
treatment (%)	93,0
Total efficiency of removal from wastewater after onsite and offsite	93,6
(domestic treatment plant) RMMs (%)	,
Maximum allowable site tonnage (MSafe) based on release following	8,8E+04
total wastewater treatment removal (kg/d)	
Assumed domestic sewage treatment plant flow (m3/d)	2,0E+03
Conditions and Measures related to external treatment of waste for	r disposal
External treatment and disposal of waste should comply with applicable	
regulations.	-
Conditions and measures related to external recovery of waste	
External recovery and recycling of waste should comply with applicable	local and/or regional
regulations.	ioodi dila/or regional
ŭ	

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

Section 3.2 - Environment

The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model.

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

Section 4.1 - Health

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.

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

Section 4.2 - Environment

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.

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

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

Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org).

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Exposure Scenario - Worker

30000000756	
SECTION 1	EXPOSURE SCENARIO TITLE
Title	Uses in Coatings- Professional
Use Descriptor	Sector of Use: SU22 Process Categories: PROC 1, PROC 2, PROC 3, PROC 4, PROC 5, PROC 8a, PROC 8b, PROC 10, PROC 11, PROC 13, PROC 15, PROC 19 Environmental Release Categories: ERC8a, ERC8d, ESVOC SpERC 8.3b.v1
Scope of process	Covers the use in coatings (paints, inks, adhesives, etc) including exposures during use (including materials receipt, storage, preparation and transfer from bulk and semi-bulk, application by spray, roller, brush, spreader by hand or similar methods, and film formation), and equipment cleaning, maintenance and associated laboratory activities.

SECTION 2	OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES
Section 2.1	Control of Worker Exposure
Product Characteristics	
Physical form of product	Liquid, vapour pressure < 0.5 kPa at STP
Concentration of the Substance in Mixture/Article	Covers use of substance/product up to 100% (unless stated differently).,
Frequency and Duration of	Use
Covers daily exposures up to	8 hours (unless stated differently).
Other Operational Condition	ons affecting Exposure
Assumes use at not more that	an 20°C above ambient temperature (unless stated differently).

Assumes use at not more than 20°C above ambient temperature (unless stated differently). Assumes a good basic standard of occupational hygiene is implemented.

Contribution Comprise	iak Managamant Masayusa	
Contributing Scenarios	isk Management Measures	
General exposures (closed sy	No other specific measures identified.	
tems)PROC1		
Filling/ preparation of equipme		
from drums or containers.Use		
contained systemsPROC2		
General exposures (closed sy	No other specific measures identified.	
tems)Use in contained sys-		
temsPROC2		
Preparation of material for app	No other specific measures identified.	
cationUse in contained batch		
processesPROC3		
Film formation - air dry-	No other specific measures identified.	
ingOutdoorPROC4		
Film formation - air dryingln-	No other specific measures identified.	
doorPROC4		

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Preparation of material for ap	No other specific measures identified.
cationIndoorPROC5	No other engelia magazine identified
Preparation of material for ap cationOutdoorPROC5	No other specific measures identified.
Material transfersDrum/batch	No other specific measures identified.
transfersNon-dedicated facili-	No other specific measures identified.
tyPROC8a	
Material transfersDrum/batch	No other specific measures identified.
transfersDedicated facili-	TWO Other specific measures identified.
tyPROC8b	
Roller, spreader, flow applica	ion- No other specific measures identified.
IndoorPROC10	The strict opening measures lagritudes.
Roller, spreader, flow applica	No other specific measures identified.
tionOutdoorPROC10	1
ManualSprayingIndoorPROC	Carry out in a vented booth or extracted enclosure.
	, or:
	Wear a full face respirator conforming to EN136 with Type
	A/P2 filter or better.
ManualSprayingOutdoorPRO	
	Avoid carrying out activities involving exposure for more than
	4 hours
	Limit the substance content in the mixture to 50 %.
	, or: Wear a full face respirator conforming to EN136 with Type
	A/P2 filter or better.
	7VI Z IIIGI OI DOLLOI.
Dipping, immersion and	No other specific measures identified.
pouringIndoorPROC13	
Dipping, immersion and	No other specific measures identified.
pouringOutdoorPROC13	
Laboratory activitiesPROC15	No other specific measures identified.
Hand application - fingerpaint	s, No other specific measures identified.
pastels, adhesivesIn-	
doorPROC19	No of the second
Hand application - fingerpaint	No other specific measures identified.
pastels, adhesivesOut-	
doorPROC19	Ctoro substance within a closed sustant
Storage.PROC1	Store substance within a closed system.
Section 2.2	Control of Environmental Exposure

Section 2.2	Control of Environmental Exp	oosure
Substance is complex UVCB.		
Predominantly hydrophobic.		
Readily biodegradable.		
Amounts Used		
Fraction of EU tonnage used	in region:	0,1
Regional use tonnage (tonne	s/year):	2,2E+03
Fraction of Regional tonnage	used locally:	5,0E-04
Annual site tonnage (tonnes/	/ear):	1,1
Maximum daily site tonnage (kg/day):	3,0

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Continuous release. Emission Days (days/year): Environmental factors not influenced by risk management Local freshwater dilution factor: Local marine water dilution factor: Other Operational Conditions affecting Environmental Exposure Release fraction to air from wide dispersive use (regional only): Release fraction to wastewater from wide dispersive use: Release fraction to soil from wide dispersive use (regional only): Technical conditions and measures at process level (source) to pr Common practices vary across sites thus conservative process re- lease estimates used. Technical onsite conditions and measures to reduce or limit disch	
Environmental factors not influenced by risk management Local freshwater dilution factor: Local marine water dilution factor: Other Operational Conditions affecting Environmental Exposure Release fraction to air from wide dispersive use (regional only): Release fraction to wastewater from wide dispersive use: Release fraction to soil from wide dispersive use (regional only): Technical conditions and measures at process level (source) to pr Common practices vary across sites thus conservative process release estimates used. Technical onsite conditions and measures to reduce or limit disch	9,8E-01 1,0E-02 1,0E-02 event release
Local freshwater dilution factor: Local marine water dilution factor: Other Operational Conditions affecting Environmental Exposure Release fraction to air from wide dispersive use (regional only): Release fraction to wastewater from wide dispersive use: Release fraction to soil from wide dispersive use (regional only): Technical conditions and measures at process level (source) to process of the process of the process release estimates used. Technical onsite conditions and measures to reduce or limit disch	9,8E-01 1,0E-02 1,0E-02 event release
Other Operational Conditions affecting Environmental Exposure Release fraction to air from wide dispersive use (regional only): Release fraction to wastewater from wide dispersive use: Release fraction to soil from wide dispersive use (regional only): Technical conditions and measures at process level (source) to pr Common practices vary across sites thus conservative process re- lease estimates used. Technical onsite conditions and measures to reduce or limit disch	9,8E-01 1,0E-02 1,0E-02 event release
Other Operational Conditions affecting Environmental Exposure Release fraction to air from wide dispersive use (regional only): Release fraction to wastewater from wide dispersive use: Release fraction to soil from wide dispersive use (regional only): Technical conditions and measures at process level (source) to pr Common practices vary across sites thus conservative process release estimates used. Technical onsite conditions and measures to reduce or limit disch	1,0E-02 1,0E-02 event release
Release fraction to air from wide dispersive use (regional only): Release fraction to wastewater from wide dispersive use: Release fraction to soil from wide dispersive use (regional only): Technical conditions and measures at process level (source) to pr Common practices vary across sites thus conservative process re- lease estimates used. Technical onsite conditions and measures to reduce or limit disch	1,0E-02 1,0E-02 event release
Release fraction to soil from wide dispersive use (regional only): Technical conditions and measures at process level (source) to pr Common practices vary across sites thus conservative process re- lease estimates used. Technical onsite conditions and measures to reduce or limit disch	1,0E-02 event release
Technical conditions and measures at process level (source) to pr Common practices vary across sites thus conservative process re- lease estimates used. Technical onsite conditions and measures to reduce or limit disch	event release
Technical conditions and measures at process level (source) to pr Common practices vary across sites thus conservative process re- lease estimates used. Technical onsite conditions and measures to reduce or limit disch	
Common practices vary across sites thus conservative process release estimates used. Technical onsite conditions and measures to reduce or limit disch	
Technical onsite conditions and measures to reduce or limit disch	arges, air emis-
	arges, air emis-
sions and releases to soil	
Risk from environmental exposure is driven by freshwater.	
Prevent discharge of undissolved substance to or recover from onsite	
wastewater.	
No wastewater treatment required.	
Treat air emission to provide a typical removal efficiency of (%)	0
Treat onsite wastewater (prior to receiving water discharge) to provide	0
the required removal efficiency of >= (%)	
If discharging to domestic sewage treatment plant, no secondary	0
wastewater treatment required.	
Organisational measures to prevent/limit release from site	
Do not apply industrial sludge to natural soils.	
Sludge should be incinerated, contained or reclaimed.	
Conditions and Measures related to municipal sewage treatment p	
Estimated substance removal from wastewater via domestic sewage	93,6
treatment (%)	00.0
Total efficiency of removal from wastewater after onsite and offsite	93,6
(domestic treatment plant) RMMs (%)	4.75.00
Maximum allowable site tonnage (MSafe) based on release following	4,7E+03
total wastewater treatment removal (kg/d)	2.05.02
Assumed domestic sewage treatment plant flow (m3/d)	2,0E+03
Conditions and Measures related to external treatment of waste fo	
External treatment and disposal of waste should comply with applicable regulations.	local and/or region
eguiations.	
Conditions and measures related to external recovery of waste	
External recovery and recycling of waste should comply with applicable	local and/or region
	iocai ariu/or region
egulations.	

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

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Section 3.2 - Environment

The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model.

SECTION 4	GUIDANCE TO CHECK COMPLIANCE WITH THE
	EXPOSURE SCENARIO

Section 4.1 - Health

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.

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

Section 4.2 - Environment

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.

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

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

Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org).

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Exposure Scenario - Worker

30000000757	
SECTION 1	EXPOSURE SCENARIO TITLE
Title	Use in Cleaning Agents- Industrial
Use Descriptor	Sector of Use: SU3 Process Categories: PROC 1, PROC 2, PROC 3, PROC 4, PROC 7, PROC 8a, PROC 8b, PROC 10, PROC 13 Environmental Release Categories: ERC4, ESVOC SpERC 4.4a.v1
Scope of process	Covers the use as a component of cleaning products including transfer from storage, pouring/unloading from drums or containers. Exposures during mixing/diluting in the preparatory phase and cleaning activities (including spraying, brushing, dipping, wiping, automated and by hand), related equipment cleaning and maintenance.

SECTION 2	OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES
Section 2.1	Control of Worker Exposure
Product Characteristics	
Physical form of product	Liquid, vapour pressure < 0.5 kPa at STP
Concentration of the Substance in Mixture/Article	Covers use of substance/product up to 100% (unless stated differently).,
Frequency and Duration of Use	
Covers daily exposures up to 8 hours (unless stated differently).	
Other Operational Conditions affecting Exposure	
Assumes use at not more than 20°C above ambient temperature (unless stated differently).	

Assumes use at not more than 20°C above ambient temperature (unless stated differently). Assumes a good basic standard of occupational hygiene is implemented.

Contributing Scenarios R	isk Management Measures
Bulk transfersNon-dedicated facilityPROC8a	No other specific measures identified.
Automated process with (semi) closed systems.Use in containe systemsPROC2	No other specific measures identified.
Automated process with (semi) closed systems.Drum/batch trar fersUse in contained batch processesPROC3	No other specific measures identified.
Application of cleaning products closed systemsPROC2	in No other specific measures identified.
Filling/ preparation of equipmen from drums or containers.PROC8b	No other specific measures identified.
Use in contained batch processes esPROC4	No other specific measures identified.

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Degreasing small objects in	No other specific measures identifi	ed.
cleaning stationPROC13		
Cleaning with low-pressure washersPROC10	No other specific measures identifi	ed.
Cleaning with high pressure	Provide a good standard of genera	al ventilation (not less tha
washersPROC7	3 to 5 air changes per hour).	
	Limit the substance content in the	product to 5 %.
ManualSurfacesCleaningPROC10	No other specific measures identifi	ed.
Storage.PROC1	Store substance within a closed sy	rstem.
Section 2.2 Cont	rol of Environmental Exposure	
Substance is complex UVCB.		
Predominantly hydrophobic.		
Readily biodegradable.		
Amounts Used		
Fraction of EU tonnage used in regi	on:	0,1
Regional use tonnage (tonnes/year)		320
Fraction of Regional tonnage used		3,2E-01
Annual site tonnage (tonnes/year):	•	100
Maximum daily site tonnage (kg/day	<i>(</i>):	5,0E+03
Frequency and Duration of Use		
Continuous release.		
Emission Days (days/year):		20
Environmental factors not influer	nced by risk management	
Local freshwater dilution factor:		10
Local marine water dilution factor:		100
Other Operational Conditions afford	ecting Environmental Exposure	
Release fraction to air from process	(initial release prior to RMM):	1,0
Release fraction to wastewater from RMM):	n process (initial release prior to	3,0E-06
Release fraction to soil from proces		0
	es at process level (source) to pr	event release
Common practices vary across sites	s thus conservative process re-	
lease estimates used.		
Technical onsite conditions and releases to soil	measures to reduce or limit disch	arges, air emis-
Risk from environmental exposure i		
Prevent discharge of undissolved so	ubstance to or recover from onsite	
wastewater.		
No wastewater treatment required.		
Treat air emission to provide a typic		70
Treat onsite wastewater (prior to rec		0
the required removal efficiency of >		
If discharging to domestic sewage t	reatment plant, no secondary	0
wastewater treatment required.		
Organisational measures to prevent		
Do not apply industrial sludge to na		
Sludge should be incinerated, conta	anieu or reciaimeu.	

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Conditions and Measures related to municipal sewage treatment plant		
Estimated substance removal from wastewater via domestic sewage	93,6	
treatment (%)		
Total efficiency of removal from wastewater after onsite and offsite	93,6	
(domestic treatment plant) RMMs (%)		
Maximum allowable site tonnage (MSafe) based on release following	8,3E+06	
total wastewater treatment removal (kg/d)		
Assumed domestic sewage treatment plant flow (m3/d)	2,0E+03	

Conditions and Measures related to external treatment of waste for disposal

External treatment and disposal of waste should comply with applicable local and/or regional regulations.

Conditions and measures related to external recovery of waste

External recovery and recycling of waste should comply with applicable local and/or regional regulations.

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

indicated.

Section 3.2 - Environment

The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model.

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

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.

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

Section 4.2 - Environment

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.

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

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

Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org).

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Exposure Scenario - Worker

30000000758	
SECTION 1	EXPOSURE SCENARIO TITLE
Title	Use in Cleaning Agents- Professional
Use Descriptor	Sector of Use: SU22 Process Categories: PROC 1, PROC 2, PROC 3, PROC 4, PROC 8a, PROC 8b, PROC 10, PROC 11, PROC 13 Environmental Release Categories: ERC8a, ERC8d, ESVOC SpERC 8.4b.v1
Scope of process	Covers the use as a component of cleaning products including pouring/unloading from drums or containers; and exposures during mixing/diluting in the preparatory phase and cleaning activities (including spraying, brushing, dipping, wiping automated and by hand).

SECTION 2	OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES
Section 2.1	Control of Worker Exposure
Product Characteristics	
Physical form of product	Liquid, vapour pressure < 0.5 kPa at STP
Concentration of the Substance in Mixture/Article	Covers use of substance/product up to 100% (unless stated differently).,
Frequency and Duration of Use	
Covers daily exposures up to	o 8 hours (unless stated differently).
Other Operational Conditions affecting Exposure	
	an 20°C above ambient temperature (unless stated differently). lard of occupational hygiene is implemented.

Contributing Scenarios	Risk Management Measures
Filling/ preparation of equipme from drums or contain-	·
ers.Dedicated facilityPROC8b Filling/ preparation of equipme from drums or containers.Non- dedicated facilityPROC8a	ent Avoid carrying out activities involving exposure for more
Automated process with (semi closed systems.Use in contain systemsPROC2	,
Automated process with (semi closed systems.Drum/batch trafersUse in contained batch processesPROC3	ans-
Semi Automated process. (e.g Semi automatic application of care and maintenance prod- ucts)PROC4	

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ManualSurfacesCleaningDipping, immersion and pouringPROC13	No other specific measures identified.
ManualSurfacesCleaningPROC13	No other specific measures identified.
Cleaning with low-pressure washersRolling, Brushingno sprayingPROC10	No other specific measures identified.
Cleaning with high pressure washersSprayingIndoorPROC11	Limit the substance content in the product to 1 %.
Cleaning with high pressure washersSprayingOutdoorPROC11	Limit the substance content in the product to 1 %.
ManualSurfacesCleaningPROC10	Limit the substance content in the product to 25 %.
Ad hoc manual application via trigger sprays, dipping, etc.Rolling, BrushingPROC10	Limit the substance content in the product to 25 %.
Application of cleaning products in closed systemsPROC4	No other specific measures identified.
Cleaning of medical devic- esPROC4	No other specific measures identified.
Storage.PROC1	Store substance within a closed system.

Section 2.2		rol of Environmental Exposure	
Substance is complex UVCB.			
Predominantly hydrophobic.			
Readily biodegradable.			
Amounts Used			
Fraction of EU tonnage used	in regi	on:	0,1
Regional use tonnage (tonnes	s/year)):	2,0
Fraction of Regional tonnage	used I	ocally:	5,0E-04
Annual site tonnage (tonnes/y			1,0E-03
Maximum daily site tonnage (kg/day	<i>(</i>):	2,7E-03
Frequency and Duration of	Use		
Continuous release.			
Emission Days (days/year):			365
Environmental factors not i		nced by risk management	
Local freshwater dilution factor	or:		10
Local marine water dilution fa			100
		ecting Environmental Exposure	
Release fraction to air from w			2,0E-02
Release fraction to wastewate			1,0E-06
Release fraction to soil from v			0
Technical conditions and measures at process level (source) to prevent release		event release	
	ss sites	s thus conservative process re-	
lease estimates used.			
	and i	measures to reduce or limit discha	arges, air emis-
sions and releases to soil			
Risk from environmental expo		s driven by freshwater.	
No wastewater treatment requ			
Treat air emission to provide			0
Treat onsite wastewater (prior	r to red	ceiving water discharge) to provide	0

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the required removal efficiency of >= (%)	
If discharging to domestic sewage treatment plant, no secondary	0
wastewater treatment required.	
Organisational measures to prevent/limit release from site	
Do not apply industrial sludge to natural soils.	
Sludge should be incinerated, contained or reclaimed.	
Conditions and Measures related to municipal sewage treatment p	lant
Estimated substance removal from wastewater via domestic sewage	93,6
treatment (%)	
Total efficiency of removal from wastewater after onsite and offsite	93,6
(domestic treatment plant) RMMs (%)	
Maximum allowable site tonnage (MSafe) based on release following	7,1
total wastewater treatment removal (kg/d)	
Assumed domestic sewage treatment plant flow (m3/d)	2,0E+03
Conditions and Measures related to external treatment of waste fo	r disposal
External treatment and disposal of waste should comply with applicable	local and/or regional
regulations.	
Conditions and measures related to external recovery of waste	
External recovery and recycling of waste should comply with applicable	local and/or regional
regulations.	

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

indicated.

Section 3.2 - Environment

The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model.

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

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

Section 4.2 -Environment

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.

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

Required removal efficiency for air can be achieved using on-site technologies, either alone

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or in combination.

Further details on scaling and control technologies are provided in SpERC factsheet

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Exposure Scenario - Worker

Exposure Contains Tronko.	
3000000783	
SECTION 1	EXPOSURE SCENARIO TITLE
Title	Use in Oil and Gas field drilling and production operations- Industrial
Use Descriptor	Sector of Use: SU3 Process Categories: PROC 1, PROC 2, PROC 3, PROC 4, PROC 8a, PROC 8b Environmental Release Categories: ERC4
Scope of process	Oil field well drilling and production operations (including drilling muds and well cleaning) including material transfers, onsite formulation, well head operations, shaker room activities and related maintenance.

SECTION 2	OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES
Additional Information	No exposure assessment presented for the environment.
Section 2.1	Control of Worker Exposure
Product Characteristics	
Physical form of product	Liquid, vapour pressure < 0.5 kPa at STP
Concentration of the Substance in Mixture/Article differently).,	
Frequency and Duration of Use	
Covers daily exposures up t	to 8 hours (unless stated differently).
Other Operational Conditions affecting Exposure	
Assumes use at not more than 20°C above ambient temperature (unless stated differently)	

Assumes use at not more than 20°C above ambient temperature (unless stated differently). Assumes a good basic standard of occupational hygiene is implemented.

Contributing Scenarios	Risk Management Measures
Bulk transfersDedicated facilityPROC8b	No other specific measures identified.
Filling/ preparation of equipment from drums or containers. Dedicated facilityPROC8b	No other specific measures identified.
Drilling mud (re-)formulationPROC3	No other specific measures identified.
Drill floor operationsPROC4	No other specific measures identified.
Operation of solids filtering equipment - vapour exposuresPROC4	
Treatment and disposal of filtered solidsPROC3	No other specific measures identified.
Process samplingPROC3	No other specific measures identified.

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	T	
General exposures (closed	No other specific measures identified.	
systems)PROC1		
Pouring from small contain- ersPROC8a		
General exposures (open	No other specific measures identified.	
systems)PROC4		
Equipment cleaning and maintenancePROC8a	No other specific measures identified.	
Storage.PROC1PROC2	Store substance within a closed system.	
Section 2.2	Control of Environmental Expecure	
Section 2.2 Control of Environmental Exposure		
No exposure assessment presented for the environment.		

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

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

Section 3.2 - Environment

No exposure assessment presented for the environment.

Quantitative exposure and risk assessment not possible due to lack of emissions to aquatic environment.

Qualitative approach used to conclude safe use.

	SECTION 4	GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO	
Section 4.1 - Health			
	Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management		
	Measures/Operational Conditions outlined in Section 2 are implemented		

Measures/Operational Conditions outlined in Section 2 are implemented.

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

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

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Exposure Scenario - Worker

30000000784	
SECTION 1	EXPOSURE SCENARIO TITLE
Title	Lubricants- Industrial
Use Descriptor	Sector of Use: SU3 Process Categories: PROC 1, PROC 2, PROC 3, PROC 4, PROC 7, PROC 8a, PROC 8b, PROC 9, PROC 10, PROC 13, PROC 17, PROC 18 Environmental Release Categories: ERC4, ERC7, ESVOC SpERC 4.6a.v1
Scope of process	Covers the use of formulated lubricants in closed and open systems including transfer operations, operation of machinery/engines and similar articles, reworking on reject articles, equipment maintenance and disposal of wastes.

SECTION 2	OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES	
Section 2.1	Control of Worker Exposure	
Product Characteristics		
Physical form of product	Liquid, vapour pressure < 0.5 kPa at STP	
Concentration of the Substance in Mixture/Article	Covers use of substance/product up to 100% (unless stated differently).,	
Frequency and Duration of Use		
Covers daily exposures up to 8 hours (unless stated differently).		
Other Operational Conditions affecting Exposure		
Assumes use at not more than 20°C above ambient temperature (unless stated differently). Assumes a good basic standard of occupational hygiene is implemented.		

Contributing Scenarios Risk Management Measures General exposures (closed No other specific measures identified. systems)PROC1PROC2PROC3 General exposures (open sys-No other specific measures identified. tems)PROC4 Bulk transfersDedicated facili-No other specific measures identified. tyPROC8b Filling/ preparation of equipment No other specific measures identified. from drums or containers. Nondedicated facilityPROC8a Filling/ preparation of equipment No other specific measures identified. from drums or containers.Dedicated facilityPROC8b Initial factory fill of equip-No other specific measures identified. mentPROC9 Operation and lubrication of No other specific measures identified. high energy open equipmentPROC17PROC18

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ManualRolling, BrushingPROC10		No other specific measures identified	d.
Treatment by dipping and pour- ingPROC13		No other specific measures identified	d.
SprayingPROC7		Carry out in a vented booth or extract	cted enclosure.
Maintenance (of larger plant items) and machine set upDe cated facilityPROC8b	di-	No other specific measures identified	d.
Maintenance (of larger plant items) and machine set upOp eration is carried out at elevat temperature (> 20°C above ambient temperature). Dedicated facilityPROCS	ted 3b	Drain down and flush system prior to maintenance.	equipment opening or
Maintenance of small itemsNo dedicated facilityPROC8a	on-	No other specific measures identified	d.
Remanufacture of reject articlesPROC9		No other specific measures identified	d.
Storage.PROC1PROC2		Store substance within a closed syst	tem.
Section 2.2		ntrol of Environmental Exposure	
Substance is complex UVCB.			
Predominantly hydrophobic.			
Readily biodegradable.			
Amounts Used			1
		-1	104
Fraction of EU tonnage used			0,1
Regional use tonnage (tonnes			700
Fraction of Regional tonnage used			0,14
Annual site tonnage (tonnes/y			100
Maximum daily site tonnage (5,0E+03
Frequency and Duration of	Use		
Continuous release.			
Emission Days (days/year):			20
Environmental factors not in	nflu	enced by risk management	
Local freshwater dilution factor	or:		10
Local marine water dilution fa			100
		ffecting Environmental Exposure	
		ss (initial release prior to RMM):	5,0E-03
		om process (initial release prior to	3,0E-05
	oroce	ess (initial release prior to RMM):	1,0E-03
		ures at process level (source) to pr	
Common practices vary acros	ss si	tes thus conservative process re-	
lease estimates used.		·	
Technical onsite conditions sions and releases to soil	and	d measures to reduce or limit disch	arges, air emis-
)CI Ir	e is driven by freshwater sediment.	
		substance to or recover from onsite	
wastewater.	ived	Substance to or recover from onsite	
No wastewater treatment requ	uired	1.	
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Treat air emission to provide a typical removal efficiency of (%)	70
Treat onsite wastewater (prior to receiving water discharge) to provide	0
the required removal efficiency of >= (%)	
If discharging to domestic sewage treatment plant, no secondary	0
wastewater treatment required.	
Organisational measures to prevent/limit release from site	
Do not apply industrial sludge to natural soils.	
Sludge should be incinerated, contained or reclaimed.	
Conditions and Measures related to municipal sewage treatment p	
Estimated substance removal from wastewater via domestic sewage	93,6
treatment (%)	
Total efficiency of removal from wastewater after onsite and offsite	93,6
(domestic treatment plant) RMMs (%)	
Maximum allowable site tonnage (MSafe) based on release following	2,1E+06
total wastewater treatment removal (kg/d)	
Assumed domestic sewage treatment plant flow (m3/d)	2,0E+03
Conditions and Measures related to external treatment of waste for	r disposal
External treatment and disposal of waste should comply with applicable	local and/or regional
regulations.	
Conditions and measures related to external recovery of waste	
External recovery and recycling of waste should comply with applicable	local and/or regional
1 2	

SECTION 3	EXPOSURE ESTIMATION	
Section 3.1 - Health		

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

Section 3.2 - Environment

regulations.

The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model.

SECTION 4	GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO	
Section 4.1 - Health		
Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management		
Measures/Operational Conditions outlined in Section 2 are implemented.		

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

Section 4.2 - Environment

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management

Required removal efficiency for wastewater can be achieved using onsite/offsite technolo-

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gies, either alone or in combination.

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

Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org).

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Exposure Scenario - Worker

Exposure Scenario - Worker	
30000000785	
SECTION 1	EXPOSURE SCENARIO TITLE
Title	Lubricants- ProfessionalLow Environmental Release
Use Descriptor	Sector of Use: SU22
	Process Categories: PROC 1, PROC 2, PROC 3, PROC 4, PROC 8a, PROC 8b, PROC 9, PROC 10, PROC 11, PROC 13, PROC 17, PROC 18, PROC 20 Environmental Release Categories: ERC9a, ERC9b, ESVOC SpERC 8.6c.v1
Scope of process	Covers the use of formulated lubricants in closed and open systems including transfer operations, operation of engines and similar articles, reworking on reject articles, equipment maintenance and disposal of waste oil.

SECTION 2	OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES	
Section 2.1	Control of Worker Exposure	
Product Characteristics		
Physical form of product	Liquid, vapour pressure < 0.5 kPa at STP	
Concentration of the Substance in Mixture/Article	Covers use of substance/product up to 100% (unless stated differently).,	
Frequency and Duration of	Use	
Covers daily exposures up to 8 hours (unless stated differently).		
Other Operational Conditions affecting Exposure		
Assumes use at not more than 20°C above ambient temperature (unless stated differently). Assumes a good basic standard of occupational hygiene is implemented.		

Assumes a good basic standard of occupational hygiene is implemented.

Contributing Scenarios Risk Management Measures

General exposures (closed systems)PROC1PROC2PROC3	No other specific measures identified.
Operation of equipment containing engine oils and similar.PROC20	No other specific measures identified.
General exposures (open systems)PROC4	No other specific measures identified.
Bulk transfersPROC8b	No other specific measures identified.
Filling/ preparation of equipment from drums or contain- ers.Dedicated facilityPROC8b	No other specific measures identified.
Filling/ preparation of equipment from drums or containers.Non-dedicated facilityPROC8a	Avoid carrying out activities involving exposure for more than 4 hours
Operation and lubrication of high energy open equipmentIndoorPROC17PROC18	Provide extraction ventilation at points where emissions occur.

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Departion and lubrication of high energy open equipmentOut-doorPROC17				
And machine set upPROC8b Maintenance (of larger plant items) and machine set upOperation is carried out at elevated temperature (> 20°C above ambient temperature). Dedicated facilityPROC8b Drain or remove substance from equipment prior to breaktion is carried out at elevated temperation is carried out at elevated temperature (> 20°C above ambient temperature). Non-dedicated facilityPROC8a Drain or remove substance from equipment prior to breaktion is carried out at elevated temperature). Non-dedicated facilityPROC8a Drain or remove substance from equipment prior to breaktion or maintenance. ManualRolling, BrushingPROC10 No other specific measures identified.	energy open equipmentOut-	Avoid carrying out activities involvir		
and machine set upOperation is carried out at elevated temperature (> 20°C above ambient temperature). Dedicated facilityPROC8b Maintenance of small itemsOperation is carried out at elevated temperature (> 20°C above ambient temperature). Dedicated facilityPROC8b Maintenance of small itemsOperation is carried out at elevated temperature (> 20°C above ambient temperature). Non-dedicated facilityPROC8a Engine lubricant servicePROC9 ManualRolling, BrushingPROC10 No other specific measures identified. SprayingPROC11 Provide a good standard of general or controlled ventilation (5 to 15 air changes per hour). Avoid carrying out activities involving exposure for more than 4 hours (or). Or: Wear a respirator conforming to EN140 with Type A filter or better. Treatment by dipping and pourbetter. Scriege.PROC1PROC2 Store substance within a closed system. Section 2.2 Control of Environmental Exposure Substance is complex UVCB. Predominantly hydrophobic. Readily biodegradable. Amounts Used Fraction of EU tonnage used in region: Regional use tonnage (tonnes/year): 12 Freation of Regional tonnage used locally: 5,0E-04 Annual site tonnage (tonnes/year): 5,0E-04 Anual site tonnage (tonnes/year): 5,0E-04 Anual site tonnage (tonnes/year): 5,0E-04 Anual site tonnage (tonnes/year): 5,0E-04 Frequency and Duration of Use Continuous release. Emission Days (days/year): Emission Days (days/year): Emission Days (days/year): Emission Days (days/year): Environmental factors not influenced by risk management Local freshwater dilution factor: Other Operational Conditions affecting Environmental Exposure		No other specific measures identific	ed.	
Maintenance of small itemsOperation is carried out at elevated temperature (> 20°C above ambient temperature).Non-dedicated facilityPROC8a Engine lubricant servicePROC9 ManualRolling, BrushingPROC10 SprayingPROC11 SprayingPROC11 Provide a good standard of general or controlled ventilation (5 to 15 air changes per hour). Avoid carrying out activities involving exposure for more than 4 hours , or: Wear a respirator conforming to EN140 with Type A filter or better. Treatment by dipping and pouringPROC13 Storage.PROC1PROC2 Store substance within a closed system. Section 2.2 Control of Environmental Exposure Substance is complex UVCB. Predominantly hydrophobic. Readily biodegradable. Amounts Used Fraction of EU tonnage used in region: Regional use tonnage (tonnes/year): Fraction of Regional tonnage used locally: Annual site tonnage (tonnes/year): Maximum daily site tonnage (kg/day): Frequency and Duration of Use Continuous release. Emission Days (days/year): Environmental factors not influenced by risk management Local marine water dilution factor: 100 Other Operational Conditions affecting Environmental Exposure	and machine set upOperation is carried out at elevated temperature (> 20°C above ambient temperature). Dedicated facili-	1	ent opening or mainte	-
Engine lubricant servicePROC9 No other specific measures identified.	Maintenance of small itemsOperation is carried out at elevated temperature (> 20°C above ambient temperature).Non-dedicated facili-		quipment prior to break	(-
SprayingPROC11 Provide a good standard of general or controlled ventilation (5 to 15 air changes per hour). Avoid carrying out activities involving exposure for more than 4 hours , or: Wear a respirator conforming to EN140 with Type A filter or better. Treatment by dipping and pouringPROC13 Storage.PROC1PROC2 Store substance within a closed system. Section 2.2 Control of Environmental Exposure Substance is complex UVCB. Predominantly hydrophobic. Readily biodegradable. Amounts Used Fraction of EU tonnage used in region: Regional use tonnage (tonnes/year): 12 Fraction of Regional tonnage used locally: 5,0E-04 Annual site tonnage (tonnes/year): 5,8E-03 Maximum daily site tonnage (kg/day): Frequency and Duration of Use Continuous release. Emission Days (days/year): 365 Environmental factors not influenced by risk management Local freshwater dilution factor: 10 Cother Operational Conditions affecting Environmental Exposure		No other specific measures identific	ed.	
(5 to 15 air changes per hour). Avoid carrying out activities involving exposure for more than 4 hours , or: Wear a respirator conforming to EN140 with Type A filter or better. Treatment by dipping and pouringPROC13 Storage.PROC1PROC2 Store substance within a closed system. Section 2.2 Control of Environmental Exposure Substance is complex UVCB. Predominantly hydrophobic. Readily biodegradable. Amounts Used Fraction of EU tonnage used in region: Regional use tonnage (tonnes/year): 12 Fraction of Regional tonnage used locally: 5,0E-04 Annual site tonnage (tonnes/year): 5,8E-03 Maximum daily site tonnage (kg/day): 1,6E-02 Frequency and Duration of Use Continuous release. Emission Days (days/year): 365 Environmental factors not influenced by risk management Local freshwater dilution factor: 10 Other Operational Conditions affecting Environmental Exposure	ManualRolling, BrushingPROC10	No other specific measures identific	ed.	
IngPROC13 Storage.PROC1PROC2 Store substance within a closed system. Section 2.2 Control of Environmental Exposure Substance is complex UVCB. Predominantly hydrophobic. Readily biodegradable. Amounts Used Fraction of EU tonnage used in region: Regional use tonnage (tonnes/year): Fraction of Regional tonnage used locally: Annual site tonnage (tonnes/year): 5,0E-04 Annual site tonnage (tonnes/year): 5,8E-03 Maximum daily site tonnage (kg/day): 1,6E-02 Frequency and Duration of Use Continuous release. Emission Days (days/year): Society of Regional tonnage used locally: 1,6E-02 Frequency and Duration of Use Continuous release. Emission Days (days/year): 10 Local freshwater dilution factor: 10 Cother Operational Conditions affecting Environmental Exposure	SprayingPROC11	(5 to 15 air changes per hour). Avoid carrying out activities involvir than 4 hours , or: Wear a respirator conforming to EN	ng exposure for more	
Storage.PROC1PROC2 Store substance within a closed system. Section 2.2 Substance is complex UVCB. Predominantly hydrophobic. Readily biodegradable. Amounts Used Fraction of EU tonnage used in region: Regional use tonnage (tonnes/year): Fraction of Regional tonnage used locally: Annual site tonnage (tonnes/year): Maximum daily site tonnage (kg/day): Frequency and Duration of Use Continuous release. Emission Days (days/year): Environmental factors not influenced by risk management Local freshwater dilution factor: Local marine water dilution factor: Other Operational Conditions affecting Environmental Exposure		No other specific measures identific	ed.	
Substance is complex UVCB. Predominantly hydrophobic. Readily biodegradable. Amounts Used Fraction of EU tonnage used in region: Regional use tonnage (tonnes/year): Fraction of Regional tonnage used locally: Annual site tonnage (tonnes/year): Maximum daily site tonnage (kg/day): Frequency and Duration of Use Continuous release. Emission Days (days/year): Environmental factors not influenced by risk management Local freshwater dilution factor: Local marine water dilution factor: 100 Other Operational Conditions affecting Environmental Exposure		Store substance within a closed sy	stem.	
Substance is complex UVCB. Predominantly hydrophobic. Readily biodegradable. Amounts Used Fraction of EU tonnage used in region: Regional use tonnage (tonnes/year): Fraction of Regional tonnage used locally: Annual site tonnage (tonnes/year): Maximum daily site tonnage (kg/day): Frequency and Duration of Use Continuous release. Emission Days (days/year): Environmental factors not influenced by risk management Local freshwater dilution factor: Local marine water dilution factor: Other Operational Conditions affecting Environmental Exposure	Section 2.2 Contr	rol of Environmental Exposure		
Predominantly hydrophobic. Readily biodegradable. Amounts Used Fraction of EU tonnage used in region: Regional use tonnage (tonnes/year): Fraction of Regional tonnage used locally: Annual site tonnage (tonnes/year): 5,0E-04 Annual site tonnage (tonnes/year): 5,8E-03 Maximum daily site tonnage (kg/day): 1,6E-02 Frequency and Duration of Use Continuous release. Emission Days (days/year): Environmental factors not influenced by risk management Local freshwater dilution factor: 10 Local marine water dilution factor: 100 Other Operational Conditions affecting Environmental Exposure				
Readily biodegradable. Amounts Used Fraction of EU tonnage used in region: 0,1 Regional use tonnage (tonnes/year): 12 Fraction of Regional tonnage used locally: 5,0E-04 Annual site tonnage (tonnes/year): 5,8E-03 Maximum daily site tonnage (kg/day): 1,6E-02 Frequency and Duration of Use Continuous release. Emission Days (days/year): 365 Environmental factors not influenced by risk management Local freshwater dilution factor: 10 Local marine water dilution factor: 100 Other Operational Conditions affecting Environmental Exposure				
Fraction of EU tonnage used in region: Regional use tonnage (tonnes/year): Fraction of Regional tonnage used locally: Annual site tonnage (tonnes/year): Maximum daily site tonnage (kg/day): Frequency and Duration of Use Continuous release. Emission Days (days/year): Environmental factors not influenced by risk management Local freshwater dilution factor: Local marine water dilution factor: Other Operational Conditions affecting Environmental Exposure				
Regional use tonnage (tonnes/year): Fraction of Regional tonnage used locally: Annual site tonnage (tonnes/year): Maximum daily site tonnage (kg/day): Frequency and Duration of Use Continuous release. Emission Days (days/year): Environmental factors not influenced by risk management Local freshwater dilution factor: Local marine water dilution factor: Other Operational Conditions affecting Environmental Exposure	Amounts Used			
Fraction of Regional tonnage used locally: Annual site tonnage (tonnes/year): Maximum daily site tonnage (kg/day): 1,6E-02 Frequency and Duration of Use Continuous release. Emission Days (days/year): 365 Environmental factors not influenced by risk management Local freshwater dilution factor: 10 Local marine water dilution factor: 100 Other Operational Conditions affecting Environmental Exposure	Fraction of EU tonnage used in region	on:	0,1	
Annual site tonnage (tonnes/year): 5,8E-03 Maximum daily site tonnage (kg/day): 1,6E-02 Frequency and Duration of Use Continuous release. Emission Days (days/year): 365 Environmental factors not influenced by risk management Local freshwater dilution factor: 10 Local marine water dilution factor: 100 Other Operational Conditions affecting Environmental Exposure	Regional use tonnage (tonnes/year):		12	
Maximum daily site tonnage (kg/day): Frequency and Duration of Use Continuous release. Emission Days (days/year): Servironmental factors not influenced by risk management Local freshwater dilution factor: Local marine water dilution factor: Other Operational Conditions affecting Environmental Exposure	Fraction of Regional tonnage used lo	ocally:	5,0E-04	
Frequency and Duration of Use Continuous release. Emission Days (days/year): Environmental factors not influenced by risk management Local freshwater dilution factor: Local marine water dilution factor: Other Operational Conditions affecting Environmental Exposure	Annual site tonnage (tonnes/year):		5,8E-03	
Continuous release. Emission Days (days/year): 365 Environmental factors not influenced by risk management Local freshwater dilution factor: 10 Local marine water dilution factor: 100 Other Operational Conditions affecting Environmental Exposure	Maximum daily site tonnage (kg/day):	1,6E-02	
Emission Days (days/year): Solution 1	Frequency and Duration of Use			
Environmental factors not influenced by risk management Local freshwater dilution factor: Local marine water dilution factor: Other Operational Conditions affecting Environmental Exposure	Continuous release.			
Local freshwater dilution factor: 10 Local marine water dilution factor: 100 Other Operational Conditions affecting Environmental Exposure			365	
Local marine water dilution factor: 100 Other Operational Conditions affecting Environmental Exposure		ced by risk management		
Other Operational Conditions affecting Environmental Exposure				
			100	
Release fraction to air from process (initial release prior to RMM): 1,0E-02		•		
	Release fraction to air from process	(initial release prior to RMM):	1,0E-02	

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Release fraction to wastewater from process (initial release prior to	1,0E-02
RMM):	
Release fraction to soil from process (initial release prior to RMM):	1,0E-02
Technical conditions and measures at process level (source) to pr	event release
Common practices vary across sites thus conservative process re-	
lease estimates used.	
Technical onsite conditions and measures to reduce or limit disch	arges, air emis-
sions and releases to soil	
Risk from environmental exposure is driven by freshwater.	
No wastewater treatment required.	
Treat air emission to provide a typical removal efficiency of (%)	0
Treat onsite wastewater (prior to receiving water discharge) to provide	0
the required removal efficiency of >= (%)	
If discharging to domestic sewage treatment plant, no secondary	0
wastewater treatment required.	
Organisational measures to prevent/limit release from site	
Do not apply industrial sludge to natural soils.	
Sludge should be incinerated, contained or reclaimed.	
Conditions and Measures related to municipal sewage treatment p	lant
Estimated substance removal from wastewater via domestic sewage treatment (%)	93,6
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%)	93,6
Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal (kg/d)	41
Assumed domestic sewage treatment plant flow (m3/d)	2.000
Conditions and Measures related to external treatment of waste fo	r disposal
External treatment and disposal of waste should comply with applicable	-
regulations.	Ç
Conditions and measures related to external recovery of waste	
External recovery and recycling of waste should comply with applicable regulations.	local and/or regiona

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

indicated.

Section 3.2 -Environment

The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model.

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

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Measures/Operational Conditions outlined in Section 2 are implemented.

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

Section 4.2 - Environment

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.

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

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

Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org).

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Exposure Scenario - Worker

Exposure occitatio Worker		
3000000786		
SECTION 1	EXPOSURE SCENARIO TITLE	
Title	Lubricants- ProfessionalHigh Environmental Release	
Use Descriptor	Sector of Use: SU22	
	Process Categories: PROC 1, PROC 2, PROC 3, PROC 4, PROC 8a, PROC 8b, PROC 9, PROC 10, PROC 11, PROC 13, PROC 17, PROC 18, PROC 20 Environmental Release Categories: ERC8a, ERC8d, ESVOC SpERC 8.6c.v1	
Scope of process	Covers the use of formulated lubricants in closed and open systems including transfer operations, operation of engines and similar articles, reworking on reject articles, equipment maintenance and disposal of waste oil.	

SECTION 2	OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES		
Section 2.1	Control of Worker Exposure		
Product Characteristics			
Physical form of product	Liquid, vapour pressure < 0.5 kPa at STP		
Concentration of the Substance in Mixture/Article	Covers use of substance/product up to 100% (unless stated differently).,		
Frequency and Duration of	f Use		
Covers daily exposures up to	to 8 hours (unless stated differently).		
Other Operational Condition	ons affecting Exposure		
Assumes use at not more than 20°C above ambient temperature (unless stated differently). Assumes a good basic standard of occupational hygiene is implemented.			

Contributing Scenarios **Risk Management Measures** General exposures (closed sys-No other specific measures identified. tems)PROC1PROC2PROC3 Operation of equipment containing No other specific measures identified. engine oils and similar.PROC20 General exposures (open sys-No other specific measures identified. tems)PROC4 Bulk transfersPROC8b No other specific measures identified. Filling/ preparation of equipment No other specific measures identified. from drums or containers.Dedicated facilityPROC8b Filling/ preparation of equipment Avoid carrying out activities involving exposure for more from drums or containers. Nonthan 4 hours dedicated facilityPROC8a Operation and lubrication of high Provide extraction ventilation at points where emissions energy open equipmentInoccur. doorPROC17PROC18

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Operation and lubrication of high energy open equipmentOut-doorPROC17 Avoid carrying out operation for more descriptions of high energy open equipmentOut-		e than 4 hours.		
Maintenance (of larger plant it and machine set upPROC8b				
Maintenance (of larger plant items) and machine set upOperation is carried out at elevated temperature (> 20°C above ambient temperature).Dedicated facilityPROC8b		Drain down system prior to equipme nance.	ent opening or mainte) -
Maintenance of small itemsOption is carried out at elevated perature (> 20°C above ambie temperature).Non-dedicated ftyPROC8a	tem- ent	Drain or remove substance from equipment prior to breakin or maintenance.		k-
Engine lubricant servicePROC9		No other specific measures identifie	d.	
ManualRolling, BrushingPROC10 N		No other specific measures identifie	d.	
SprayingPROC11		Provide a good standard of general (5 to 15 air changes per hour). Avoid carrying out activities involving than 4 hours , or: Wear a respirator conforming to ENbetter.	g exposure for more	
Treatment by dipping and pouringPROC13		No other specific measures identifie	d.	
Storage.PROC1PROC2 Store substance within a closed system.		tem.		
Section 2.2 Control of Environmental Exposure		rol of Environmental Exposure		
Substance is complex UVCB.		•		
Predominantly hydrophobic.				
Readily biodegradable.				
Amounts Used				
Fraction of EU tonnage used in region:		on:	0.1	

Section 2.2	Control of Environmental Expos	sui c	
Substance is complex UVCB.			
Predominantly hydrophobic.			
Readily biodegradable.			
Amounts Used			
Fraction of EU tonnage used	in region:	0,1	
Regional use tonnage (tonne	s/year):	12	
Fraction of Regional tonnage	used locally:	5,0E-04	
Annual site tonnage (tonnes/	year):	5,8E-03	
Maximum daily site tonnage	1,6E-02		
Frequency and Duration of	Use		
Continuous release.			
Emission Days (days/year):		365	
Environmental factors not influenced by risk management			
Local freshwater dilution factor	or:	10	
Local marine water dilution factor:		100	
Other Operational Conditions affecting Environmental Exposure			
	ride dispersive use (regional only):	1,5E-01	
Release fraction to air from w	ride dispersive use (regional only):	5,0E-02	
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Release fraction to soil from wide dispersive use (regional only):	5,0E-02
Technical conditions and measures at process level (source) to pr	event release
Common practices vary across sites thus conservative process re-	
lease estimates used.	
Technical onsite conditions and measures to reduce or limit disch	arges, air emis-
sions and releases to soil	
Risk from environmental exposure is driven by freshwater.	
No wastewater treatment required.	
Treat air emission to provide a typical removal efficiency of (%)	0
Treat onsite wastewater (prior to receiving water discharge) to provide	0
the required removal efficiency of >= (%)	
If discharging to domestic sewage treatment plant, no secondary	0
wastewater treatment required.	
Organisational measures to prevent/limit release from site	
Do not apply industrial sludge to natural soils.	
Sludge should be incinerated, contained or reclaimed.	
Conditions and Measures related to municipal sewage treatment p	lant
Estimated substance removal from wastewater via domestic sewage	93,6
treatment (%)	
Total efficiency of removal from wastewater after onsite and offsite	93,6
(domestic treatment plant) RMMs (%)	
Maximum allowable site tonnage (MSafe) based on release following	40
total wastewater treatment removal (kg/d)	
Assumed domestic sewage treatment plant flow (m3/d)	2.000
Conditions and Measures related to external treatment of waste fo	
External treatment and disposal of waste should comply with applicable	e local and/or regiona
regulations.	
regulations. Conditions and measures related to external recovery of waste External recovery and recycling of waste should comply with applicable	local and/or regiona

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

Section 3.2 - Environment

The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model.

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

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should ensure that risks are managed to at least equivalent levels.

Section 4.2 - Environment

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.

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

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

Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org).

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Exposure Scenario - Worker

30000000787	
SECTION 1	EXPOSURE SCENARIO TITLE
Title	Metal working fluids / rolling oils- Industrial
Use Descriptor	Sector of Use: SU3 Process Categories: PROC 1, PROC 2, PROC 3, PROC 4, PROC 5, PROC 7, PROC 8a, PROC 8b, PROC 9, PROC 10, PROC 13, PROC 17 Environmental Release Categories: ERC4, ESVOC SpERC 4.7a.v1
Scope of process	Covers the use in formulated MWFs/rolling oils including transfer operations, rolling and annealing activities, cutting/machining activities, automated and manual application of corrosion protections (including brushing, dipping and spraying), equipment maintenance, draining and disposal of waste oils.

SECTION 2	OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES		
Section 2.1	Control of Worker Exposure		
Product Characteristics			
Physical form of product	Liquid, vapour pressure < 0.5 kPa at STP		
Concentration of the Substance in Mixture/Article	Covers use of substance/product up to 100% (unless stated differently).,		
Frequency and Duration of	Use		
Covers daily exposures up to 8 hours (unless stated differently).			
Other Operational Condition	ns affecting Exposure		
Assumes use at not more than 20°C above ambient temperature (unless stated differently).			

Assumes use at not more than 20°C above ambient temperature (unless stated differently). Assumes a good basic standard of occupational hygiene is implemented.

Contributing Scenarios	Risk Management Measures
General exposures (closed sy tems)PROC1PROC2PROC3	No other specific measures identified.
General exposures (open systems)PROC4	No other specific measures identified.
Bulk transfersPROC8b	No other specific measures identified.
Filling/ preparation of equipment from drums or containers.PROC8bPROC5PROC9	ent No other specific measures identified.
Process samplingPROC8b	No other specific measures identified.
Metal machining operationsPROC17	No other specific measures identified.
Treatment by dipping and pouringPROC13	No other specific measures identified.

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SprayingPROC7	Minimise exposure by partial enclosure of the operation o equipment and provide extract ventilation at openings.	
ManualRolling, BrushingPROC10	No other specific measures identified.	
Automated metal roll- ing/formingUse in contained sys- temsOperation is carried out at elevated temperature (> 20°C above ambient tempera- ture).PROC2	No other specific measures identified.	
Semi-automated metal roll- ing/formingOperation is carried out at elevated temperature (> 20°C above ambient tempera- ture).PROC17	Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings.	
Equipment cleaning and mainte- nanceDedicated facilityPROC8b	No other specific measures identified.	
Equipment cleaning and mainte- nanceNon-dedicated facili- tyPROC8a	No other specific measures identified.	
Storage.PROC1PROC2	Store substance within a closed system.	

Section 2.2	Control of Environmental Exposure	
Substance is complex UVCB.		
Predominantly hydrophobic.		
Readily biodegradable.		
Amounts Used		
Fraction of EU tonnage used	in region:	0,1
Regional use tonnage (tonnes	s/year):	10
Fraction of Regional tonnage	used locally:	1
Annual site tonnage (tonnes/		10
Maximum daily site tonnage (kg/day):	500
Frequency and Duration of	Use	
Continuous release.		
Emission Days (days/year):		20
Environmental factors not i	nfluenced by risk management	
Local freshwater dilution factor	or:	10
Local marine water dilution factor:		100
Other Operational Condition	ns affecting Environmental Exposure	
Release fraction to air from p	rocess (initial release prior to RMM):	2,0E-02
Release fraction to wastewate RMM):	er from process (initial release prior to	3,0E-05
Release fraction to soil from process (initial release prior to RMM):		0
Technical conditions and m	neasures at process level (source) to p	prevent release
Common practices vary acros lease estimates used.	ss sites thus conservative process re-	
Technical onsite conditions sions and releases to soil	and measures to reduce or limit disc	harges, air emis-
Risk from environmental expo	osure is driven by freshwater.	
Prevent discharge of undisso	lved substance to or recover from onsite	

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wastewater.			
No wastewater treatment required.			
Treat air emission to provide a typical removal efficiency of (%)	70		
Treat onsite wastewater (prior to receiving water discharge) to provide	0		
the required removal efficiency of >= (%)			
If discharging to domestic sewage treatment plant, no secondary	0		
wastewater treatment required.			
Organisational measures to prevent/limit release from site			
Do not apply industrial sludge to natural soils.			
Sludge should be incinerated, contained or reclaimed.			
Conditions and Measures related to municipal sewage treatment p	lant		
Estimated substance removal from wastewater via domestic sewage	93,6		
treatment (%)			
Total efficiency of removal from wastewater after onsite and offsite	93,6		
(domestic treatment plant) RMMs (%)			
Maximum allowable site tonnage (MSafe) based on release following	8,3E+05		
total wastewater treatment removal (kg/d)			
Assumed domestic sewage treatment plant flow (m3/d)	2,0E+03		
Conditions and Measures related to external treatment of waste fo	r disposal		
External treatment and disposal of waste should comply with applicable	local and/or regional		
regulations.			
Conditions and measures related to external recovery of waste			
External recovery and recycling of waste should comply with applicable local and/or regional			
regulations.			

SECTION 3	EXPOSURE ESTIMATION

Section 3.1 - Health

indicated.

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

Section 3.2 - Environment

The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model.

SECTION 4	GUIDANCE TO CHECK COMPLIANCE WITH THE
	EXPOSURE SCENARIO
Coation 4.4 Hoolth	

Section 4.1 - Health

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.

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

Section 4.2 -Environment

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management

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measures.

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

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

Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org).

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Exposure Scenario - Worker

30000000788	
SECTION 1	EXPOSURE SCENARIO TITLE
Title	Metal working fluids / rolling oils- Professional
Use Descriptor	Sector of Use: SU22 Process Categories: PROC 1, PROC 2, PROC 3, PROC 5, PROC 8a, PROC 8b, PROC 9, PROC 10, PROC 11, PROC 13, PROC 17 Environmental Release Categories: ERC8a, ERC8b, ESVOC SpERC 9.6b.v1
Scope of process	Covers the use in formulated MWFs including transfer operations, open and contained cutting/machining activities, automated and manual application of corrosion protections, draining and working on contaminated/ reject articles, and disposal of waste oils.

SECTION 2	OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES		
Section 2.1	Control of Worker Exposure		
Product Characteristics			
Physical form of product	Liquid, vapour pressure < 0.5 kPa at STP		
Concentration of the Substance in Mixture/Article	Covers use of substance/product up to 100% (unless stated differently).,		
Frequency and Duration of	Use		
Covers daily exposures up to 8 hours (unless stated differently).			
Other Operational Conditions affecting Exposure			
Assumes use at not more than 20°C above ambient temperature (unless stated differently			
Assumes a good basis standard of assumptional busines is implemented			

Assumes a good basic standard of occupational hygiene is implemented.

Contributing Scenarios Risk Management Measures General exposures (closed sys-No other specific measures identified. tems)PROC1PROC2PROC3 Bulk transfersPROC8b No other specific measures identified. Filling/ preparation of equipment from drums No other specific measures identified. or containers.PROC5PROC8aPROC8bPROC9 Process samplingDedicated facilityPROC8b No other specific measures identified. Metal machining operationsPROC17 Provide a good standard of general or controlled ventilation (5 to 15 air changes per hour). ManualRolling, BrushingPROC10 No other specific measures identified. Provide a good standard of general or controlled SprayingPROC11 ventilation (5 to 15 air changes per hour).

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		Avoid carrying out activi more than 4 hours , or:	- '	
		Wear a respirator confor A/P2 filter or better.	rming to EN140 with Ty	pe
Treatment by dipping and por	uringPROC13	No other specific measu	res identified.	
Equipment cleaning and mair PROC8aPROC8b	ntenance-	Drain down system prior maintenance.	r to equipment opening	or
Storage.PROC1PROC2		Store substance within a	a closed system.	
Section 2.2	Control of Env	rironmental Exposure		
Substance is complex UVCB				
Predominantly hydrophobic.	•			
Readily biodegradable.				
Amounts Used				
Fraction of EU tonnage used	in region:		0,1	
Regional use tonnage (tonne			5,0	
Fraction of Regional tonnage			5,0E-04	
Annual site tonnage (tonnes/			2,5E-03	
Maximum daily site tonnage (6,8E-03	
Frequency and Duration of			0,01-03	
Continuous release.	USE			
			365	
Emission Days (days/year): Environmental factors not i	nfluonaad by rie	ok managament	303	
		sk management	10	
Local freshwater dilution factor: Local marine water dilution factor:		100		
Other Operational Conditio		vironmontal Exposuro	100	
			5,0E-02	
Release fraction to air from wide dispersive use (regional only): Release fraction to wastewater from wide dispersive use:		2,5E-02		
Release fraction to soil from			0	
Technical conditions and m			ŭ .	
Common practices vary acros			event release	
lease estimates used.	33 Siles trus con	servative process re		
Technical onsite conditions	and measures	to reduce or limit disch	arges, air emis-	
sions and releases to soil	, a.i.a iii.aaaai oo		argoo, arronno	
Risk from environmental expo	osure is driven by	/ freshwater.		
No wastewater treatment req		,		
Treat air emission to provide		l efficiency of (%)	0	
Treat onsite wastewater (prior to receiving water discharge) to provide		0		
the required removal efficiency		3-7 -3 F-3-13		
If discharging to domestic sev		plant, no secondary	0	
wastewater treatment require		•		
Organisational measures to		elease from site		
Do not apply industrial sludge				
Sludge should be incinerated				
Conditions and Measures r				
Estimated substance remova	I from wastewate	er via domestic sewage	93,6	

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treatment (%)	
Total efficiency of removal from wastewater after onsite and offsite	93,6
(domestic treatment plant) RMMs (%)	
Maximum allowable site tonnage (MSafe) based on release following	18
total wastewater treatment removal (kg/d)	
Assumed domestic sewage treatment plant flow (m3/d)	2,0E+03

Conditions and Measures related to external treatment of waste for disposal

External treatment and disposal of waste should comply with applicable local and/or regional regulations.

Conditions and measures related to external recovery of waste

External recovery and recycling of waste should comply with applicable local and/or regional regulations.

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

Section 3.2 - Environment

The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model.

	GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO
Continu 4.4 Hookk	

Section 4.1 - Health

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.

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

Section 4.2 - Environment

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.

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

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

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30000000790	
SECTION 1	EXPOSURE SCENARIO TITLE
Title	Use as binders and release agents- Industrial
Use Descriptor	Sector of Use: SU3 Process Categories: PROC 1, PROC 2, PROC 3, PROC 4, PROC 6, PROC 7, PROC 8b, PROC 10, PROC 13, PROC 14 Environmental Release Categories: ERC4, ESVOC SpERC 4.10a.v1
Scope of process	Covers the use as binders and release agents including material transfers, mixing, application (including spraying and brushing), and handling of waste.

SECTION 2	OPERATIONAL CONDITIONS AND RISK MANAGEM MEASURES	ENT
Section 2.1	Control of Worker Exposure	
Product Characteristics		
Physical form of product	Liquid, vapour pressure < 0.5 kPa at STP	
Concentration of the Substance in Mixture/Article	Covers use of substance/product up to 100% (unless st differently).,	ated
Frequency and Duration of Use		
Covers daily exposures up to 8 hours (unless stated differently).		
Other Operational Conditions affecting Exposure		
Assumes use at not more than 20°C above ambient temperature (unless stated differently). Assumes a good basic standard of occupational hygiene is implemented.		ently).

Contributing Scenarios	Risk Management Measures
Material transfersUse in con-	No other specific measures identified.
tained sys-	
temsPROC1PROC2PROC3	
Drum/batch transfersPROC8b	No other specific measures identified.
Mixing operations (closed sys-	No other specific measures identified.
tems)PROC3	
Mixing operations (open sys-	No other specific measures identified.
tems)PROC4	
Mold formingPROC14	No other specific measures identified.
Casting operations(open sys-	Provide extraction ventilation at points where emissions oc-
tems)Operation is carried out a	t cur.
elevated temperature (> 20°C	
above ambient tempera-	
ture).Aerosol generation due to	
elevated process temperature-	
PROC6	
SprayingMachinePROC7	Minimise exposure by partial enclosure of the operation or

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	equipment and provide extract ventila	tion at openings.
SprayingManualPROC7	Provide a good standard of general o to 15 air changes per hour).	
	Avoid carrying out activities involving 4 hours	exposure for more than
ManualRolling, Brush-ingPROC10	No other specific measures identified	
Dipping, immersion and pouringPROC13	No other specific measures identified	
Storage.PROC1PROC2	Store substance within a closed syste	em.
Section 2.2	Control of Environmental Exposure	
Substance is complex UVCB.		
Predominantly hydrophobic.		
Readily biodegradable.		
Amounts Used		
Fraction of EU tonnage used in	region:	0,1
Regional use tonnage (tonnes/		70
Fraction of Regional tonnage u		1
Annual site tonnage (tonnes/ye		70
Maximum daily site tonnage (kg		3,5E+03
Frequency and Duration of U		-,-
Continuous release.		
Emission Days (days/year):		20
	fluenced by risk management	
Local freshwater dilution factor:		10
Local marine water dilution fact	or:	100
Other Operational Conditions	affecting Environmental Exposure	
	cess (initial release prior to RMM):	1,0
Release fraction to wastewater RMM):	from process (initial release prior to	3,0E-06
	ocess (initial release prior to RMM):	0
Technical conditions and me	asures at process level (source) to pro	event release
Common practices vary across lease estimates used.	sites thus conservative process re-	
	and measures to reduce or limit discha	arges, air emis-
Risk from environmental expos	ure is driven by freshwater	T
	ed substance to or recover from onsite	
wastewater.	cu substance to or recover from orisite	
No wastewater treatment requi	red	
	typical removal efficiency of (%)	80
	o receiving water discharge) to provide	0
the required removal efficiency		
	age treatment plant, no secondary	0
wastewater treatment required.	•	
	prevent/limit release from site	
Do not apply industrial sludge to		
Sludge should be incinerated, of		

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Conditions and Measures related to municipal sewage treatment plant	
Estimated substance removal from wastewater via domestic sewage treatment (%)	93,6
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%)	93,6
Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal (kg/d)	6,5E+06
Assumed domestic sewage treatment plant flow (m3/d)	2,0E+03
Conditions and Measures related to external treatment of waste for disposal	

Conditions and Measures related to external treatment of waste for disposal

External treatment and disposal of waste should comply with applicable local and/or regional regulations.

Conditions and measures related to external recovery of waste

External recovery and recycling of waste should comply with applicable local and/or regional regulations.

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

indicated.

Section 3.2 -Environment

The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model.

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

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.

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

Section 4.2 -Environment

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management

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

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

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30000000791	0000000791	
SECTION 1	EXPOSURE SCENARIO TITLE	
Title	Use as binders and release agents- Professional	
Use Descriptor	Sector of Use: SU22 Process Categories: PROC 1, PROC 2, PROC 3, PROC 4, PROC 6, PROC 8a, PROC 8b, PROC 10, PROC 11, PROC 14 Environmental Release Categories: ERC8a, ERC8d, ESVOC SpERC 8.10b.v1	
Scope of process	Covers the use as binders and release agents including material transfers, mixing, application by spraying, brushing, and handling of waste.	

SECTION 2	OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES
Section 2.1	Control of Worker Exposure
Product Characteristics	
Physical form of product	Liquid, vapour pressure < 0.5 kPa at STP
Concentration of the Substance in Mixture/Article	Covers use of substance/product up to 100% (unless stated differently).,
Frequency and Duration of Use	
Covers daily exposures up to 8 hours (unless stated differently).	
Other Operational Conditions affecting Exposure	
Assumes use at not more than 20°C above ambient temperature (unless stated differently). Assumes a good basic standard of occupational hygiene is implemented.	

	5 1 1 2 2
Contributing Scenarios	Risk Management Measures
Bulk transfersUse in contained systemsPROC1PROC2PROC	110 0 m o
Drum/batch transfer- sPROC8aPROC8b	No other specific measures identified.
Mixing operations (closed systems)PROC3	No other specific measures identified.
Mixing operations (open systems)PROC4	No other specific measures identified.
Mold formingPROC14	No other specific measures identified.
Casting operations(open systems)Operation is carried out a elevated temperature (> 20°C above ambient temperature).PROC6	Provide extraction ventilation at points where emissions occur.
SprayingMachinePROC11	Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings. , or:

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	Wear a respirator conforming to EN140 with Type A filter or better.	
SprayingManualPROC11	Provide a good standard of general o to 15 air changes per hour). Avoid carrying out activities involving 4 hours	·
ManualRolling, Brush- ingPROC10		
Storage.PROC1PROC2	Store substance within a closed syste	em.
Section 2.2 Co	ontrol of Environmental Exposure	
Substance is complex UVCB.		
Predominantly hydrophobic.		
Readily biodegradable.		
Amounts Used		
Fraction of EU tonnage used in re	eaion:	0,1
Regional use tonnage (tonnes/ye		30
Fraction of Regional tonnage use		5,0E-04
Annual site tonnage (tonnes/year		1,5E-02
Maximum daily site tonnage (kg/g		4,1E-02
Frequency and Duration of Use		, -
Continuous release.	-	
Emission Days (days/year):		365
Environmental factors not influ	enced by risk management	
Local freshwater dilution factor:	<u> </u>	10
Local marine water dilution factor	T:	100
Other Operational Conditions a	affecting Environmental Exposure	
Release fraction to air from wide	dispersive use (regional only):	9,5E-01
Release fraction to wastewater fr	om wide dispersive use:	2,5E-02
Release fraction to soil from wide	e dispersive use (regional only):	2,5E-02
Technical conditions and meas	sures at process level (source) to pro	event release
Common practices vary across s	ites thus conservative process re-	
lease estimates used.		
Technical onsite conditions an	d measures to reduce or limit discha	arges, air emis-
sions and releases to soil		
Risk from environmental exposur		
No wastewater treatment required.		
Treat air emission to provide a typical removal efficiency of (%)		0
Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of >= (%)		0
If discharging to domestic sewage treatment plant, no secondary wastewater treatment required.		0
Organisational measures to pr	event/limit release from site	
Do not apply industrial sludge to	natural soils.	
Sludge should be incinerated, co	ntained or reclaimed.	
Conditions and Measures relat	ed to municipal sewage treatment p	lant
	m wastewater via domestic sewage	93,6

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Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%)	93,6	
Maximum allowable site tonnage (MSafe) based on release following	82	
total wastewater treatment removal (kg/d)		
Assumed domestic sewage treatment plant flow (m3/d)	2,0E+03	
Conditions and Massures related to external treatment of wests for disposal		

Conditions and Measures related to external treatment of waste for disposal

External treatment and disposal of waste should comply with applicable local and/or regional regulations.

Conditions and measures related to external recovery of waste

External recovery and recycling of waste should comply with applicable local and/or regional regulations.

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

Section 3.2 - Environment

The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model.

SECTION 4	GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO
	EXPOSURE SCENARIO
0 4 4 11 14	

Section 4.1 - Health

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.

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

Section 4.2 - Environment

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures

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

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

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SECTION 1	EXPOSURE SCENARIO TITLE
Title	Use in Agrochemicals uses- Professional
Use Descriptor	Sector of Use: SU22 Process Categories: PROC 1, PROC 2, PROC 4, PROC 8a, PROC 8b, PROC 11, PROC 13 Environmental Release Categories: ERC8a, ERC8d, ESVOC SpERC 8.11a.v1
Scope of process	Use as an agrochemical excipient for application by manual or machine spraying, smokes and fogging; including equipment clean-downs and disposal.

SECTION 2	OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES	
Section 2.1	Control of Worker Exposure	
Product Characteristics		
Physical form of product	Liquid, vapour pressure < 0.5 kPa at STP	
Concentration of the Substance in Mixture/Article	Covers use of substance/product up to 100% (unless stated differently).,	
Frequency and Duration of		
	8 hours (unless stated differently).	
Other Operational Conditio		
	in 20°C above ambient temperature (unless stated differently). ard of occupational hygiene is implemented.	
Contributing Scenarios	Risk Management Measures	
Transfer from/pouring from containersPROC8b	No other specific measures identified.	
Mixing in contain- ers.PROC4	No other specific measures identified.	
Spraying/ fogging by manual applicationPROC11	Wear a respirator conforming to EN140 with Type A/P2 filter or better.	
Spraying/ fogging by machine applicationPROC11	Apply within a vented cab supplied with filtered air under positive pressure and with a protection factor of >20. , or:	
	Wear a respirator conforming to EN140 with Type A/P2 filter or better.	
Ad hoc manual application via trigger sprays, dipping, etc.PROC13	No other specific measures identified.	
Equipment cleaning and maintenancePROC8a	No other specific measures identified.	
Storage.PROC1PROC2	Store substance within a closed system.	

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Section 2.2	Control of Environmental Exposure	
Substance is complex UVCB		
,	•	
Predominantly hydrophobic.		
Readily biodegradable.		
Amounts Used		
Fraction of EU tonnage used	·	0,1
Regional use tonnage (tonne		610
Fraction of Regional tonnage		2,0E-03
Annual site tonnage (tonnes/		1,2
Maximum daily site tonnage		3,4
Frequency and Duration of	Use	
Continuous release.		
Emission Days (days/year):		365
	influenced by risk management	
Local freshwater dilution fact		10
Local marine water dilution fa		100
Other Operational Condition	ns affecting Environmental Exposure	
Release fraction to air from w	vide dispersive use (regional only):	9,0E-01
Release fraction to wastewat	er from wide dispersive use:	1,0E-02
Release fraction to soil from	wide dispersive use (regional only):	9,0E-02
Technical conditions and n	neasures at process level (source) to pr	event release
Common practices vary across sites thus conservative process re-		
lease estimates used.	·	
Technical onsite conditions	s and measures to reduce or limit disch	arges, air emis-
sions and releases to soil		
Risk from environmental exp	osure is driven by soil.	
No wastewater treatment req		
Treat air emission to provide	a typical removal efficiency of (%)	0
	r to receiving water discharge) to provide	0
the required removal efficiend	cy of >= (%)	
If discharging to domestic se	wage treatment plant, no secondary	0
wastewater treatment require	ed.	
Organisational measures to	prevent/limit release from site	
Do not apply industrial sludge	e to natural soils.	
Sludge should be incinerated		
	elated to municipal sewage treatment p	lant
	I from wastewater via domestic sewage	93,6
treatment (%)		
Total efficiency of removal from	om wastewater after onsite and offsite	93,6
(domestic treatment plant) R	MMs (%)	
	age (MSafe) based on release following	4,7E+03
total wastewater treatment re		
Assumed domestic sewage t		2,0E+03
Conditions and Measures related to external treatment of waste for disposal		
External treatment and disposal of waste should comply with applicable local and/or regional		
regulations.		
Conditions and measures r	elated to external recovery of waste	
External recovery and recycli	ng of waste should comply with applicable	local and/or regional

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regulations.

Section 3.1 - Health

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

Section 3.2 - Environment

The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model.

SECTION 4 GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO

Section 4.1 - Health

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.

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

Section 4.2 - Environment

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.

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

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

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Exposure Scenario - Worker		
30000000793		
SECTION 1	EXPOSURE SCENARIO TITLE	
Title	Use as a fuel- Industrial	
Use Descriptor	Sector of Use: SU3 Process Categories: PROC 1, PROC 2, PROC 3, PROC 8a, PROC 8b, PROC 16 Environmental Release Categories: ERC7, ESVOC SpERC 7.12a.v1	
Scope of process	Covers the use as a fuel (or fuel additive) and includes activities associated with its transfer, use, equipment maintenance and handling of waste.	

SECTION 2	OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES	
Section 2.1	Control of Worker Exposure	
Product Characteristics		
Physical form of product	Liquid, vapour pressure < 0.5 kPa at STF	
Concentration of the Sub-	Covers use of substance/product up to 100% (unless stated	
stance in Mixture/Article	differently).,	•
Frequency and Duration of	Use	
Covers daily exposures up to	8 hours (unless stated differently).	
Other Operational Conditio	ns affecting Exposure	
Assumes use at not more that	n 20°C above ambient temperature (unles	s stated differently).
Assumes a good basic stand	ard of occupational hygiene is implemented	d.
Contributing Scenarios	Risk Management Measures	
Bulk transfersDedicated facilityPROC8b	No other specific measures identified.	
Drum/batch transfersDedicated facilityPROC8b	No other specific measures identified.	
General exposures (closed systems)PROC1PROC2	No other specific measures identified.	
Use as a fuel(closed systems)PROC16PROC3	No other specific measures identified.	
Equipment cleaning and maintenancePROC8a	No other specific measures identified.	
Storage.PROC1PROC2	Store substance within a closed system.	
Section 2.2	Control of Environmental Exposure	
Substance is complex UVCB		
Predominantly hydrophobic.		
Readily biodegradable.		
Amounts Used		
Fraction of EU tonnage used	ed in region: 0,1	
	Regional use tonnage (tonnes/year): 15	

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Annual site tonnage (tonnes/year): Maximum daily site tonnage (kg/day): Toto Trequency and Duration of Use Continuous release. Emission Days (days/year): Local freshwater dilution factor: Local marine water dilution saffecting Environmental Exposure Release fraction to air from process (initial release prior to RMM): Release fraction to soil from process (initial release prior to RMM): Release fraction to soil from process (initial release prior to RMM): Release fraction to soil from process (initial release prior to RMM): Release fraction to soil from process (initial release prior to RMM): Release fraction to soil from process (initial release prior to RMM): Release fraction to soil from process (initial release prior to RMM): Release fraction to soil from process (initial release prior to RMM): Release fraction to soil from process (initial release prior to RMM): Release fraction to soil from process (initial release prior to RMM): Release fraction to soil from process (initial release prior to RMM): Release fraction to soil from process (initial release prior to RMM): Release fraction to soil from process (initial release prior to RMM): Release fraction to soil from process (initial release prior to RMM): Release fraction to soil from process (initial release prior to RMM): Release fraction to soil from process (initial release prior to RMM): Release fraction to soil from process (initial release prior to RMM): Release fraction to soil from process (initial release prior to RMM): Release fraction to soil from process (initial release prior to RMM): Release fraction to soil from process (initial release prior to RMM): Release fraction to soil from process (initial release prior to RMM): Release fraction to soil from process (initial release prior to RMM): Relea	F (T a
Maximum daily site tonnage (kg/day): Frequency and Duration of Use Continuous release. Enission Days (days/year): Environmental factors not influenced by risk management Local freshwater dilution factor: Cocal marine water dilution factor: Other Operational Conditions affecting Environmental Exposure Release fraction to air from process (initial release prior to RMM): Release fraction to wastewater from process (initial release prior to RMM): Release fraction to soil from process (initial release prior to RMM): OFfechnical conditions and measures at process level (source) to prevent release Common practices vary across sites thus conservative process re- ease estimates used. Fechnical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Risk from environmental exposure is driven by freshwater. No wastewater treatment required. Freat air emission to provide a typical removal efficiency of (%) Freat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of >= (%) f discharging to domestic sewage treatment plant, no secondary wastewater treatment required. Organisational measures to prevent/limit release from site Oon ont apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed. Conditions and Measures related to municipal sewage treatment plant estimated substance removal from wastewater via domestic sewage reatment (%) Organisational measures to prevent/limit release following of the province of removal from wastewater after onsite and offsite domestic treatment plant) RMMs (%) Maximum allowable site tonnage (MSafe) based on release following otal wastewater treatment removal (kg/d) Assumed domestic sewage treatment plant flow (m3/d) Conditions and Measures related to external treatment of waste for disposal Combustion emissions limited by required exhaust emission controls. Waste combustion emissions considered in regional exposure assessment.	Fraction of Regional tonnage used locally:	1
Continuous release.		
Continuous release. Emission Days (days/year): Environmental factors not influenced by risk management Local freshwater dilution factor: Local marine water dilution factor: Local marine water dilution factor: Cother Operational Conditions affecting Environmental Exposure Release fraction to air from process (initial release prior to RMM): Release fraction to wastewater from process (initial release prior to RMM): Release fraction to soil from process (initial release prior to RMM): Release fraction to soil from process (initial release prior to RMM): Release fraction to soil from process (initial release prior to RMM): Release fraction to soil from process (initial release prior to RMM): Release fraction to soil from process (initial release prior to RMM): Release fraction to soil from process (initial release prior to RMM): Release fraction to soil from process (initial release prior to RMM): Release fraction to soil from process (initial release prior to RMM): Release fraction to soil from process (initial release prior to RMM): Release fraction to soil from process (initial release prior to RMM): Release fraction to soil from massures to reduce or limit discharges, air emissions and release to soil Risk from environmental exposure is driven by freshwater. No wastewater treatment required. Freat air emission to provide a typical removal efficiency of (%) Freat air emission to provide a typical removal efficiency of (%) Freat onsite wastewater (prior to receiving water discharge) to provide No wastewater treatment required. Conditions and Measures to prevent/limit release from site Do not apply industrial sludge to natural soils. Conditions and Measures related to municipal sewage treatment plant Estimated substance removal from wastewater via domestic sewage reatment (%) Conditions and Measures related to municipal sewage treatment plant Combustion emissions limited by required exhaust emission controls. Waste combustion emissions considered in regional exposure assessment.	Maximum daily site tonnage (kg/day):	750
Emission Days (days/year): Environmental factors not influenced by risk management Local freshwater dilution factor: Local marine water despoint on the process (initial release prior to RMM): Local marine marine massures to reduce or limit discharges, air emissions and release to soil Risk from environmental exposure is driven by freshwater. Local marine water despoint reduce or limit discharges, air emissions on prevent release form waster discharges, air emissions on prevent release form site on the provide at prov		T
Environmental factors not influenced by risk management ocal freshwater dilution factor: ocal marine water dilution factor: Other Operational Conditions affecting Environmental Exposure Release fraction to air from process (initial release prior to RMM): Release fraction to wastewater from process (initial release prior to RMM): Release fraction to soil from process (initial release prior to RMM): OTECHNICAL CONDITION (INC.) Release fraction to soil from process (initial release prior to RMM): OTECHNICAL CONDITION (INC.) Release fraction to soil from process (initial release prior to RMM): OTECHNICAL CONDITION (INC.) Release fraction to soil from process (initial release prior to RMM): OTECHNICAL CONDITION (INC.) Release fraction to soil from process (initial release prior to RMM): OTECHNICAL CONDITION (INC.) Release fraction to soil from process (initial release prior to RMM): OTECHNICAL CONDITION (INC.) OTECHNIC		
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Assumed domestic sewage treatment plant flow (m3/d) Conditions and Measures related to external treatment of waste for disposal Combustion emissions limited by required exhaust emission controls. Waste combustion emissions considered in regional exposure assessment. Conditions and measures related to external recovery of waste	Maximum allowable site tonnage (MSafe) based on release following	1,5E+06
Conditions and Measures related to external treatment of waste for disposal Combustion emissions limited by required exhaust emission controls. Waste combustion emissions considered in regional exposure assessment. Conditions and measures related to external recovery of waste		2.0E+03
Combustion emissions limited by required exhaust emission controls. Waste combustion emissions considered in regional exposure assessment. Conditions and measures related to external recovery of waste		
Waste combustion emissions considered in regional exposure assessment. Conditions and measures related to external recovery of waste		- 1
		ent.
	Conditions and measures related to external recovery of waste	

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

According to EC No 1907/2006 as amended as at the date of this SDS

ShellSol A100 High Cumene

Version Revision Date: SDS Number: Date of last issue: 05.12.2023

7.2 28.03.2024 800001005781 Print Date 04.04.2024

Section 3.2 - Environment

The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model.

SECTION 4	GUIDANCE TO CHECK COMPLIANCE WITH THE
	EXPOSURE SCENARIO

Section 4.1 - Health

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.

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

Section 4.2 - Environment

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.

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

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

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Exposure Scenario - Worker

Exposure deciratio - Worker		
30000000794		
SECTION 1	EXPOSURE SCENARIO TITLE	
Title	Use as a fuel- Professional	
Use Descriptor	Sector of Use: SU22 Process Categories: PROC 1, PROC 2, PROC 3, PROC 8a, PROC 8b, PROC 16 Environmental Release Categories: ERC9a, ERC9b, ESVOC SpERC 9.12b.v1	
Scope of process	Covers the use as a fuel (or fuel additive) and includes activities associated with its transfer, use, equipment maintenance and handling of waste.	

SECTION 2	OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES		
Section 2.1	Control of Worker Exposure		
Product Characteristics			
Physical form of product	Liquid, vapour pressure < 0.5 kPa at STP		
Concentration of the Substance in Mixture/Article	Covers use of substance/product up to 100% (unless stated differently).,		
Frequency and Duration of	Use		
Covers daily exposures up to 8 hours (unless stated differently).			
Other Operational Condition	ns affecting Exposure		
	an 20°C above ambient temperature (unless stated differently)		

Assumes a good basic standard of occupational hygiene is implemented.

Contributing Scenarios	Risk Management Measures
Bulk transfersDedicated facili- tyPROC8b	No other specific measures identified.
Drum/batch transfersDedicate facilityPROC8b	d No other specific measures identified.
Refueling.Dedicated facili- tyPROC8b	No other specific measures identified.
General exposures (closed systems)PROC1PROC2PROC	No other specific measures identified.
Use as a fuel(closed systems)PROC16	No other specific measures identified.
Equipment cleaning and maintenancePROC8a	No other specific measures identified.
Storage.PROC1	Store substance within a closed system.

Section 2.2	Control of Environmental Exposure	
Substance is complex UVCB.		
Predominantly hydrophobic.		
Readily biodegradable.		
Amounts Used		

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Fraction of EU tonnage used in region:	0,1
Regional use tonnage (tonnes/year):	15
Fraction of Regional tonnage used locally:	5,0E-04
Annual site tonnage (tonnes/year):	7,5E-03
Maximum daily site tonnage (kg/day):	2,1E-02
Frequency and Duration of Use	,
Continuous release.	
Emission Days (days/year):	365
Environmental factors not influenced by risk management	
ocal freshwater dilution factor:	10
Local marine water dilution factor:	100
Other Operational Conditions affecting Environmental Exposure	1
Release fraction to air from wide dispersive use (regional only):	1,0E-04
Release fraction to wastewater from wide dispersive use:	1,0E-05
Release fraction to soil from wide dispersive use (regional only):	1,0E-05
Technical conditions and measures at process level (source) to p	
Common practices vary across sites thus conservative process re-	
ease estimates used.	
Fechnical onsite conditions and measures to reduce or limit disc	harges, air emis-
sions and releases to soil	3 ,
Risk from environmental exposure is driven by freshwater.	
No wastewater treatment required.	
Freat air emission to provide a typical removal efficiency of (%)	0
Freat onsite wastewater (prior to receiving water discharge) to provide	0
he required removal efficiency of >= (%)	
f discharging to domestic sewage treatment plant, no secondary	0
vastewater treatment required.	
Organisational measures to prevent/limit release from site	•
Do not apply industrial sludge to natural soils.	
Sludge should be incinerated, contained or reclaimed.	
Conditions and Measures related to municipal sewage treatment	plant
Estimated substance removal from wastewater via domestic sewage	93,6
reatment (%)	
Total efficiency of removal from wastewater after onsite and offsite	93,6
domestic treatment plant) RMMs (%)	
Maximum allowable site tonnage (MSafe) based on release following	53
otal wastewater treatment removal (kg/d)	
Assumed domestic sewage treatment plant flow (m3/d)	2,0E+03
Conditions and Measures related to external treatment of waste for	or disposal
Combustion emissions limited by required exhaust emission controls.	-
Waste combustion emissions considered in regional exposure assessi	ment.
Conditions and measures related to external recovery of waste This substance is consumed during use and no waste of substance is	

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

According to EC No 1907/2006 as amended as at the date of this SDS

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Section 3.2 - Environment

The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model.

SECTION 4 GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO

Section 4.1 - Health

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.

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

Section 4.2 -Environment

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.

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

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

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Exposure Scenario - Worker

30000000796		
OFOTION 4	EVECUIES COENADIO TITLE	
SECTION 1	EXPOSURE SCENARIO TITLE	
Title	Functional Fluids- Professional	
Use Descriptor	Sector of Use: SU22 Process Categories: PROC 1, PROC 2, PROC 3, PROC 8a, PROC 9, PROC 20 Environmental Release Categories: ERC9a, ERC9b, ESVOC SpERC 9.13b.v1	
Scope of process	Use as functional fluids e.g. cable oils, transfer oils, coolants, insulators, refrigerants, hydraulic fluids in professional equipment including maintenance and related material transfers.	

SECTION 2	OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES		
Section 2.1	Control of Worker Exposure		
Product Characteristics			
Physical form of product	Liquid, vapour pressure < 0.5 kPa at STP		
Concentration of the Substance in Mixture/Article	Covers use of substance/product up to 100% (unless stated differently).,		
Frequency and Duration of	Use		
Covers daily exposures up to 8 hours (unless stated differently).			
Other Operational Condition	ons affecting Exposure		
	an 20°C above ambient temperature (unless stated differently).		

Assumes a good basic standard of occupational hygiene is implemented.

			1
Contributing Scenarios	Ris	sk Management Measures	
Drum/batch transfersNon-dedicated facilityPROC8a		Use drum pumps.	
Transfer from/pouring from coltainersPROC9	n-	No other specific measures identified.	
Filling/ preparation of equipme from drums or containers.PROC9	ent	No other specific measures identified.	
General exposures (closed systems)PROC1PROC2PROC	23	No other specific measures identified.	
Operation of equipment containing engine oils and similar.PROC20	in-	No other specific measures identified.	
Operation of equipment contai ing engine oils and simi- lar.Operation is carried out at elevated temperature (> 20°C above ambient tempera- ture).PROC20	in-	No other specific measures identified.	
Remanufacture of reject arti-		No other specific measures identified.	

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clesPROC9		
Equipment maintenance- PROC8a	Drain down system prior to equipmenance.	nt opening or mainte-
Storage.PROC1PROC2	Store substance within a closed system.	
Section 2.2 C	ontrol of Environmental Expecuse	
Substance is complex UVCB.	ontrol of Environmental Exposure	
Predominantly hydrophobic.		
Readily biodegradable.		
Amounts Used	a min m	0.4
Fraction of EU tonnage used in r		0,1
Regional use tonnage (tonnes/ye		
Fraction of Regional tonnage use		5,0E-04
Annual site tonnage (tonnes/yea	r):	7,5E-03
Maximum daily site tonnage (kg/		2,1E-02
Frequency and Duration of Us	<u>e</u>	T
Continuous release.		
Emission Days (days/year):		365
Environmental factors not influ	uenced by risk management	Τ
Local freshwater dilution factor:		10
Local marine water dilution facto		100
	affecting Environmental Exposure	T = -=
Release fraction to air from wide		5,0E-02
Release fraction to wastewater f		2,5E-02
Release fraction to soil from wide		2,5E-02
	sures at process level (source) to pro-	event release
Common practices vary across s lease estimates used.	ites thus conservative process re-	
Technical onsite conditions ar	nd measures to reduce or limit discha	arges, air emis-
sions and releases to soil		•
Risk from environmental exposu	re is driven by freshwater.	
No wastewater treatment require		
Treat air emission to provide a ty		0
	receiving water discharge) to provide	0
the required removal efficiency of >= (%)		
the required removal emoletics c	If discharging to domestic sewage treatment plant, no secondary	
	je treatilient plant, no secondary	0
	e treatment plant, no secondary	
If discharging to domestic sewag wastewater treatment required. Organisational measures to pr	event/limit release from site	
If discharging to domestic sewag wastewater treatment required.	event/limit release from site	
If discharging to domestic sewag wastewater treatment required. Organisational measures to pr	revent/limit release from site natural soils.	
If discharging to domestic sewage wastewater treatment required. Organisational measures to property to be pro	revent/limit release from site natural soils. ontained or reclaimed. ted to municipal sewage treatment p	lant
If discharging to domestic sewage wastewater treatment required. Organisational measures to property to property to property the property of	revent/limit release from site natural soils. ontained or reclaimed.	
If discharging to domestic sewage wastewater treatment required. Organisational measures to property to property to property the property of	revent/limit release from site natural soils. ontained or reclaimed. ted to municipal sewage treatment p om wastewater via domestic sewage	lant 93,6
If discharging to domestic sewage wastewater treatment required. Organisational measures to property to property to property industrial sludge to Sludge should be incinerated, concluding and Measures related the substance removal from the treatment (%)	revent/limit release from site natural soils. ontained or reclaimed. ted to municipal sewage treatment p om wastewater via domestic sewage wastewater after onsite and offsite	lant
If discharging to domestic sewage wastewater treatment required. Organisational measures to property	revent/limit release from site natural soils. ontained or reclaimed. ted to municipal sewage treatment p om wastewater via domestic sewage wastewater after onsite and offsite s (%) e (MSafe) based on release following	lant 93,6
If discharging to domestic sewage wastewater treatment required. Organisational measures to property to property to property industrial sludge to Sludge should be incinerated, concluding and Measures related treatment (%) Total efficiency of removal from (domestic treatment plant) RMM	revent/limit release from site natural soils. ontained or reclaimed. ted to municipal sewage treatment p om wastewater via domestic sewage wastewater after onsite and offsite s (%) e (MSafe) based on release following val (kg/d)	93,6 93,6

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External treatment and disposal of waste should comply with applicable local and/or regional regulations.

Conditions and measures related to external recovery of waste

External recovery and recycling of waste should comply with applicable local and/or regional regulations.

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

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

Section 3.2 - Environment

The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model.

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

Section 4.1 - Health

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.

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

Section 4.2 - Environment

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.

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

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

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Exposure oceriano - Worker	
30000000795	
SECTION 1	EXPOSURE SCENARIO TITLE
Title	Functional Fluids- Industrial
Use Descriptor	Sector of Use: SU3 Process Categories: PROC 1, PROC 2, PROC 3, PROC 4, PROC 8a, PROC 8b, PROC 9 Environmental Release Categories: ERC7, ESVOC SpERC 7.13a.v1
Scope of process	Use as functional fluids e.g. cable oils, transfer oils, coolants, insulators, refrigerants, hydraulic fluids in industrial equipment including maintenance and related material transfers.

CECTION O	ODERATIONAL CONDITIONS AND DISK MANAGEMENT	
SECTION 2	OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES	
Section 2.1	Control of Worker Exposure	
Product Characteristics	p	
Physical form of product	Liquid, vapour pressure < 0.5 kPa at STP	
Concentration of the Substance in Mixture/Article	Covers use of substance/product up to 100% (unless stated differently).,	
Frequency and Duration of	Use	
Covers daily exposures up to	8 hours (unless stated differently).	
Other Operational Conditio	ns affecting Exposure	
Assumes use at not more that	n 20°C above ambient temperature (unless stated differently).	
Assumes a good basic standa	ard of occupational hygiene is implemented.	
Contributing Scenarios	Risk Management Measures	
Bulk transfers(closed systems)PROC1PROC2	No other specific measures identified.	
Drum/batch transfersDedicated facilityPROC8b	No other specific measures identified.	
Filling of arti-	No other specific measures identified.	
cles/equipment(closed systems)PROC9		
Filling/ preparation of	No other specific measures identified.	
equipment from drums or		
containers.Non-dedicated		
facilityPROC8a		
General exposures (closed	No other specific measures identified.	
systems)PROC2		
General exposures (open	No other specific measures identified.	
systems)PROC4		
Remanufacture of reject articlesPROC9	No other specific measures identified.	
Equipment maintenance- PROC8a	No other specific measures identified.	

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Section 2.2 Control of Environmental Exposure Substance is complex UVCB. Predominantly hydrophobic. Readily biodegradable. Amounts Used Fraction of EU tonnage used in region: Regional use tonnage (tonnes/year): Fraction of Regional tonnage used locally: Annual site tonnage (tonnes/year): Fraction of Regional tonnage used locally: Annual site tonnage (tonnes/year): Frequency and Duration of Use Continuous release. Emission Days (days/year): 20 Environmental factors not influenced by risk management Local freshwater dilution factor: Local marine water dilution factor: 100 Cother Operational Conditions affecting Environmental Exposure Release fraction to air from process (initial release prior to RMM): Release fraction to wastewater from process (initial release prior to RMM): Release fraction to soil from process (initial release prior to RMM): Technical conditions and measures at process level (source) to prevent release Common practices vary across sites thus conservative process re- lease estimates used. Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Risk from environmental exposure is driven by freshwater. Prevent discharge of undissolved substance to or recover from onsite wastewater. Prevent discharge of undissolved substance to or recover from onsite wastewater. Prevent discharge of undissolved substance to or recover from onsite wastewater. Prevent discharge of undissolved substance for or recover from onsite wastewater. Prevent discharge of undissolved substance for receiving water discharge) to provide the required deficiency of (%) Or Treat onsite wastewater (prior to receiving water discharge) to provide of the required reamonal efficiency of (%) Or on apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed. Conditions and Measures related to municipal sewage treatment plant estimated substance removal from wastewater via domestic sewage treatment plant (%) Total effi	Storage.PROC1PROC2	Store substance within a closed system.	
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Readily biodegradable. Amounts Used Fraction of EU tonnage used in region: Fraction of Regional tonnage used locally: Fraction of Regional tonnage used locally: Fraction of Regional tonnage used locally: Maximum daily site tonnage (kg/day): Maximum daily site tonnage (kg/day): Frequency and Duration of Use Continuous release. Emission Days (days/year): Environmental factors not influenced by risk management Local freshwater dilution factor: Local marine water dilution factor: Other Operational Conditions affecting Environmental Exposure Release fraction to air from process (initial release prior to RMM): Release fraction to air from process (initial release prior to RMM): Release fraction to soil from process (initial release prior to RMM): Technical conditions and measures at process level (source) to prevent release Common practices vary across sites thus conservative process release estimates used. Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Risk from environmental exposure is driven by freshwater. Prevent discharge of undissolved substance to or recover from onsite wastewater. No wastewater treatment required. Treat air emission to provide a typical removal efficiency of (%) Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of >= (%) If discharging to domestic sewage treatment plant, no secondary wastewater treatment required. Organisational measures to prevent/limit release from site Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed. Conditions and Measures related to municipal sewage treatment plant efficiency of yender treatment plant			
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Maximum daily site tonnage (kg/day): Frequency and Duration of Use	Fraction of Regional tonnage	used locally:	0,67
Continuous release.	Annual site tonnage (tonnes/y	/ear):	10
Continuous release.			500
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Estimated substance removal from wastewater via domestic sewage treatment (%) Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%) Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal (kg/d) Assumed domestic sewage treatment plant flow (m3/d) Conditions and Measures related to external treatment of waste for disposal	Conditions and Measures re	plated to municipal sewage treatment n	lant
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(domestic treatment plant) RMMs (%) Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal (kg/d) 8,3E+05 Assumed domestic sewage treatment plant flow (m3/d) 2,0E+03 Conditions and Measures related to external treatment of waste for disposal		m wastewater after onsite and offsite	93.6
Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal (kg/d) Assumed domestic sewage treatment plant flow (m3/d) Conditions and Measures related to external treatment of waste for disposal			30,0
total wastewater treatment removal (kg/d) Assumed domestic sewage treatment plant flow (m3/d) Conditions and Measures related to external treatment of waste for disposal			8 3F±05
Assumed domestic sewage treatment plant flow (m3/d) 2,0E+03 Conditions and Measures related to external treatment of waste for disposal			U,ULTUU
Conditions and Measures related to external treatment of waste for disposal			2 0F±03

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regulations.

Conditions and measures related to external recovery of waste

External recovery and recycling of waste should comply with applicable local and/or regional regulations.

SECTION 3	EXPOSURE ESTIMATION
3201013	LAI OSONE ESTIMATION

Section 3.1 - Health

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

Section 3.2 - Environment

The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model.

SECTION 4	GUIDANCE TO CHECK COMPLIANCE WITH THE
	EXPOSURE SCENARIO

Section 4.1 - Health

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.

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

Section 4.2 - Environment

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures

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

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

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Exposure oceriano - Worker	
30000000802	
SECTION 1	EXPOSURE SCENARIO TITLE
Title	Road and construction applications- Professional
Use Descriptor	Sector of Use: SU22 Process Categories: PROC 8a, PROC 8b, PROC 9, PROC 10, PROC 11, PROC 13 Environmental Release Categories: ERC8d, ERC8f, ESVOC SpERC 8.15.v1
Scope of process	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	
Section 2.1	Control of Worker Exposure	
Product Characteristics		
Physical form of product	Liquid, vapour pressure < 0.5 kPa at STP	
Concentration of the Substance in Mixture/Article	Covers use of substance/product up to 100% (unless stated differently).,	
Frequency and Duration of	Use	
	8 hours (unless stated differently).	
Other Operational Condition		
	n 20°C above ambient temperature (unless stated differently).	
	ard of occupational hygiene is implemented.	
	, ,,,	
Contributing Scenarios	Risk Management Measures	
Drum/batch transfersNon-	No other specific measures identified.	
dedicated facilityPROC8a	·	
Drum/batch transfersDedi-	No other specific measures identified.	
cated facilityPROC8b	·	
Drum/batch transfersDedi-	Ensure operation is undertaken outdoors.	
cated facilityOperation is	Avoid carrying out activities involving exposure for more than	
carried out at elevated tem-	4 hours	
perature (> 20°C above		
ambient tempera-		
ture).PROC8b		
ManualRolling, Brush-	Ensure operation is undertaken outdoors.	
ingPROC10		
Spraying/ fogging by ma-	Ensure operation is undertaken outdoors.	
chine applicationOperation	Wear a respirator conforming to EN140 with Type A filter or	
is carried out at elevated	better.	
temperature (> 20°C above	Limit the substance content in the mixture to 50 %.	
ambient tempera-		
ture).PROC11		
Spraying/ fogging by ma-	Ensure operation is undertaken outdoors.	

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chine applicationPROC11	Wear a respirator conforming to EN140 v better.	vith Type A filter or
Dipping, immersion and pouringPROC13	No other specific measures identified.	
Drum and small package fillingPROC9	No other specific measures identified.	
Equipment cleaning and maintenancePROC8a	Drain down system prior to equipment opening or maintenance.	
Section 2.2	Control of Environmental Exposure	
Substance is complex UVCB	•	
Predominantly hydrophobic.	•	
Readily biodegradable.		
Amounts Used		
Fraction of EU tonnage used	in region:	0,1
Regional use tonnage (tonne		22
Fraction of Regional tonnage		5,0E-04
Annual site tonnage (tonnes/	•	1,1E-02
Maximum daily site tonnage		3,0E-02
Frequency and Duration of		J,0L-02
Continuous release.	036	
Emission Days (days/year):		365
	influenced by risk management	303
		10
Local freshwater dilution factor: Local marine water dilution factor:		100
	ons affecting Environmental Exposure	100
		9,5E-01
Release fraction to air from wide dispersive use (regional only):		1,0E-02
•		
Release fraction to soil from wide dispersive use (regional only): 4,0E-02 Technical conditions and measures at process level (source) to prevent release		
		evenii reiease
Common practices vary across sites thus conservative process release estimates used.		
	s and measures to reduce or limit disch	arges air emis.
sions and releases to soil	s and incusares to reduce or mine dison	arges, an enns
	osure is driven by freshwater.	
No wastewater treatment rec		
Treat air emission to provide a typical removal efficiency of (%)		0
Treat onsite wastewater (prior to receiving water discharge) to provide		0
the required removal efficiency of >= (%)		
If discharging to domestic sewage treatment plant, no secondary		0
wastewater treatment required.		
	o prevent/limit release from site	
Do not apply industrial sludge		
Sludge should be incinerated		
Conditions and Measures	elated to municipal sewage treatment p	lant
Estimated substance removal from wastewater via domestic sewage		93,6
treatment (%)		
Total efficiency of removal from wastewater after onsite and offsite 93,6		93,6
(domestic treatment plant) RMMs (%)		

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Maximum allowable site tonnage (MSafe) based on release following	77
total wastewater treatment removal (kg/d)	
Assumed domestic sewage treatment plant flow (m3/d)	2,0E+03

Conditions and Measures related to external treatment of waste for disposal

External treatment and disposal of waste should comply with applicable local and/or regional regulations.

Conditions and measures related to external recovery of waste

External recovery and recycling of waste should comply with applicable local and/or regional regulations.

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

Section 3.2 - Environment

The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model.

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

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.

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

Section 4.2 - Environment

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.

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

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

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30000000806	
SECTION 1	EXPOSURE SCENARIO TITLE
Title	Use in laboratories- Industrial
Use Descriptor	Sector of Use: SU3 Process Categories: PROC 10, PROC 15 Environmental Release Categories: ERC2, ERC4
Scope of process	Use of the substance within laboratory settings, including material transfers and equipment cleaning.

SECTION 2	OPERATIONAL CONDITIONS AI MEASURES	ND RISK MANAGEMENT
Section 2.1	Control of Worker Exposure	
Product Characteristics		
Physical form of product	Liquid, vapour pressure 0.5 - 10 k	Pa at STP
Concentration of the Substance in Mixture/Article	Covers use of substance/product differently).,	up to 100% (unless stated
Frequency and Duration of		
	8 hours (unless stated differently).	
Other Operational Condition		•
	an 20°C above ambient temperature ard of occupational hygiene is imple	
Contributing Scenarios	Risk Management Measures	
Laboratory activitiesPROC15	No other specific measures identif	ïed.
CleaningPROC10	No other specific measures identif	ïied.
Section 2.2	Control of Environmental Expos	sure
Substance is complex UVCB	•	
Predominantly hydrophobic.		
Readily biodegradable.		
Amounts Used		
Fraction of EU tonnage used	in region:	0,1
Regional use tonnage (tonnes/year):		2,5
Fraction of Regional tonnage used locally:		0,8
Annual site tonnage (tonnes/	year):	2,0
Maximum daily site tonnage	(kg/day):	100
Frequency and Duration of	Use	
Continuous release.		
Emission Days (days/year): 20		20
Environmental factors not	influenced by risk management	
Local freshwater dilution fact	or:	10
Local marine water dilution factor: 100		100
	ns affecting Environmental Expo	

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Release fraction to air from process (initial release prior to RMM):	2,5E-02
Release fraction to wastewater from process (initial release prior to RMM):	2,0E-02
Release fraction to soil from process (initial release prior to RMM):	1,0E-04
Technical conditions and measures at process level (source) to pro	event release
Common practices vary across sites thus conservative process re-	
lease estimates used.	
Technical onsite conditions and measures to reduce or limit discha	arges, air emis-
sions and releases to soil	
Risk from environmental exposure is driven by freshwater sediment.	
No wastewater treatment required.	
Treat air emission to provide a typical removal efficiency of (%)	0
Treat onsite wastewater (prior to receiving water discharge) to provide	0
the required removal efficiency of >= (%)	
If discharging to domestic sewage treatment plant, no secondary	0
wastewater treatment required.	
Organisational measures to prevent/limit release from site	
Do not apply industrial sludge to natural soils.	
Sludge should be incinerated, contained or reclaimed.	
Conditions and Measures related to municipal sewage treatment p	lant
Estimated substance removal from wastewater via domestic sewage treatment (%)	93,6
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%)	93,6
Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal (kg/d)	3,1E+03
Assumed domestic sewage treatment plant flow (m3/d)	2,0E+03
Conditions and Measures related to external treatment of waste for	r disposal
External treatment and disposal of waste should comply with applicable regulations.	
Conditions and measures related to external recovery of waste	
External recovery and recycling of waste should comply with applicable	local and/or regiona
regulations.	3

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

Section 3.2 - Environment

The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model.

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

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Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.

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

Section 4.2 - Environment

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures

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

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

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30000000810		
SECTION 1	EXPOSURE SCENARIO TITLE	
Title	Use in laboratories- Professional	
Use Descriptor	Sector of Use: SU22 Process Categories: PROC 10, PROC 15 Environmental Release Categories: ERC8a, ESVOC SpERC 8.17.v1	
Scope of process	Use of small quantities within laboratory settings, including material transfers and equipment cleaning.	

SECTION 2	OPERATIONAL CONDITIONS AND RIS	EK MANACEMENT
SECTION 2	MEASURES	OK WANAGEWENT
Section 2.1	Control of Worker Exposure	
Product Characteristics		
Physical form of product	Liquid, vapour pressure 0.5 - 10 kPa at S	STP
Concentration of the Sub-	Covers use of substance/product up to 1	00% (unless stated
stance in Mixture/Article	differently).,	•
Frequency and Duration of		
	8 hours (unless stated differently).	
Other Operational Condition	ns affecting Exposure	
Assumes use at not more that	n 20°C above ambient temperature (unles	s stated differently).
Assumes a good basic standa	ard of occupational hygiene is implemente	d.
Contributing Scenarios	Risk Management Measures	
Laboratory activi- tiesPROC15	No other specific measures identified.	
CleaningPROC10	No other specific measures identified.	
Section 2.2	Control of Environmental Exposure	
Substance is complex UVCB.		
Predominantly hydrophobic.		
Readily biodegradable.		
Amounts Used		
Fraction of EU tonnage used in region: 0,1		0,1
Regional use tonnage (tonnes/year):		2,0
Fraction of Regional tonnage used locally:		5,0E-04
Annual site tonnage (tonnes/		1,0E-03
Maximum daily site tonnage (kg/day): 2,7E-03		2,7E-03
Frequency and Duration of Use		
Continuous release.		
Emission Days (days/year): 365		365
Environmental factors not influenced by risk management		
Local freshwater dilution factor: 10		10
Local marine water dilution factor: 100		

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Other Operational Conditions affecting Environmental Exposure	1
Release fraction to air from wide dispersive use (regional only):	5,0E-01
Release fraction to wastewater from wide dispersive use:	5,0E-01
Release fraction to soil from wide dispersive use (regional only):	0
Technical conditions and measures at process level (source) to pre	event release
Common practices vary across sites thus conservative process re-	
lease estimates used.	
Technical onsite conditions and measures to reduce or limit discharge	arges, air emis-
sions and releases to soil	_
Risk from environmental exposure is driven by freshwater.	
No wastewater treatment required.	
Treat air emission to provide a typical removal efficiency of (%)	0
Treat onsite wastewater (prior to receiving water discharge) to provide	0
the required removal efficiency of >= (%)	
If discharging to domestic sewage treatment plant, no secondary	0
wastewater treatment required.	
Organisational measures to prevent/limit release from site	
Do not apply industrial sludge to natural soils.	
Sludge should be incinerated, contained or reclaimed.	
Conditions and Measures related to municipal sewage treatment p	lant
Estimated substance removal from wastewater via domestic sewage	93,6
treatment (%)	
Total efficiency of removal from wastewater after onsite and offsite	93,6
(domestic treatment plant) RMMs (%)	
Maximum allowable site tonnage (MSafe) based on release following	6,8
total wastewater treatment removal (kg/d)	
Assumed domestic sewage treatment plant flow (m3/d)	2,0E+03
Conditions and Measures related to external treatment of waste for	r disposal
External treatment and disposal of waste should comply with applicable	local and/or regiona
regulations.	_
Conditions and measures related to external recovery of waste	
External recovery and recycling of waste should comply with applicable	local and/or regiona
regulations.	J
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	SECTION 3	EXPOSURE ESTIMATION
Section 3.1 - Health		
	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise	
	indicated.	

Section 3.2 - Environment

The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model.

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

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Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.

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

Section 4.2 - Environment

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures

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

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

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30000000815	
SECTION 1	EXPOSURE SCENARIO TITLE
Title	Water treatment chemicals- Industrial
Use Descriptor	Sector of Use: SU3 Process Categories: PROC 1, PROC 2, PROC 3, PROC 4, PROC 8a, PROC 8b, PROC 13 Environmental Release Categories: ERC3, ERC4, ESVOC SpERC 3.22a.v1
Scope of process	Covers the use of the substance for the treatment of water at industrial facilities in open and closed systems.

SECTION 2	OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES
Section 2.1	Control of Worker Exposure
Product Characteristics	
Physical form of product	Liquid, vapour pressure 0.5 - 10 kPa at STP
Concentration of the Substance in Mixture/Article	Covers use of substance/product up to 100% (unless stated differently).,
Frequency and Duration of	Use
Covers daily exposures up to	8 hours (unless stated differently).
Other Operational Condition	
	an 20°C above ambient temperature (unless stated differently). ard of occupational hygiene is implemented.
Contributing Scenarios	Risk Management Measures
Bulk transfersUse in contained systemsPROC2	No other specific measures identified.
Drum/batch transfersDedicated facilityPROC8b	No other specific measures identified.
General exposures (closed systems)Use in contained batch processesPROC3	No other specific measures identified.
General exposures (open systems)PROC4	No other specific measures identified.
Pouring from small containersPROC13	No other specific measures identified.
Equipment maintenance- PROC8a	Drain down and flush system prior to equipment opening or maintenance.
Storage.PROC1	Store substance within a closed system.
Section 2.2	Control of Environmental Exposure
Substance is complex UVCB.	
Predominantly hydrophobic.	
Readily biodegradable.	

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Amounts Used	
Fraction of EU tonnage used in region:	0,1
Regional use tonnage (tonnes/year):	55
Fraction of Regional tonnage used locally:	0,54
	30
Annual site tonnage (tonnes/year):	100
Maximum daily site tonnage (kg/day):	100
Frequency and Duration of Use	1
Continuous release.	200
Emission Days (days/year):	300
Environmental factors not influenced by risk management	10
Local freshwater dilution factor:	10
Local marine water dilution factor:	100
Other Operational Conditions affecting Environmental Exposure	I = 0= 00
Release fraction to air from process (initial release prior to RMM):	5,0E-02
Release fraction to wastewater from process (initial release prior to RMM):	9,5E-01
Release fraction to soil from process (initial release prior to RMM):	0
Technical conditions and measures at process level (source) to pro	event release
Common practices vary across sites thus conservative process re-	
lease estimates used.	
Technical onsite conditions and measures to reduce or limit discha-	arges, air emis-
sions and releases to soil	
Risk from environmental exposure is driven by freshwater sediment.	
Onsite waste water treatment required.	
Treat air emission to provide a typical removal efficiency of (%)	0
Treat onsite wastewater (prior to receiving water discharge) to provide	95,8
the required removal efficiency of >= (%)	
If discharging to domestic sewage treatment plant, no secondary	34,9
wastewater treatment required.	
Organisational measures to prevent/limit release from site	
Do not apply industrial sludge to natural soils.	
Sludge should be incinerated, contained or reclaimed.	
Conditions and Measures related to municipal sewage treatment p	
Estimated substance removal from wastewater via domestic sewage treatment (%)	93,6
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%)	95,8
Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal (kg/d)	100
Assumed domestic sewage treatment plant flow (m3/d)	2,0E+03
Conditions and Measures related to external treatment of waste for	
External treatment and disposal of waste should comply with applicable regulations.	
Conditions and measures related to external recovery of waste	
External recovery and recycling of waste should comply with applicable regulations.	local and/or regional

SECTION 3	EXPOSURE ESTIMATION

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Section 3.1 - Health

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

Section 3.2 - Environment

The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model.

SECTION 4	GUIDANCE TO CHECK COMPLIANCE WITH THE
	EXPOSURE SCENARIO

Section 4.1 - Health

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.

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

Section 4.2 - Environment

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures

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

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

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30000000820	
SECTION 1	EXPOSURE SCENARIO TITLE
Title	Water treatment chemicals- Professional
Use Descriptor	Sector of Use: SU22 Process Categories: PROC 1, PROC 2, PROC 3, PROC 4, PROC 8a, PROC 8b, PROC 13 Environmental Release Categories: ERC8f, ESVOC SpERC 8.22b.v1
Scope of process	Covers the use of the substance for the treatment of water in open and closed systems.

SECTION 2	OPERATIONAL CONDITIONS AND RIS MEASURES	K MANAGEMENT
Section 2.1	Control of Worker Exposure	
Product Characteristics		
Physical form of product	Liquid, vapour pressure 0.5 - 10 kPa at S	TP
Concentration of the Substance in Mixture/Article	Covers use of substance/product up to 10 differently).,	00% (unless stated
Frequency and Duration of Use		
Covers daily exposures up to	8 hours (unless stated differently).	
Other Operational Conditio		
Assumes use at not more than 20°C above ambient temperature (unless stated differently). Assumes a good basic standard of occupational hygiene is implemented.		
Contributing Scenarios	Risk Management Measures	
Drum/batch transfersDedicated facilityPROC8b	No other specific measures identified.	
General exposures (closed systems)PROC3	No other specific measures identified.	
General exposures (open systems)PROC4	No other specific measures identified.	
Pouring from small containersPROC13	No other specific measures identified.	
Equipment maintenance- PROC8a	No other specific measures identified.	
Storage.PROC1PROC2	Store substance within a closed system.	
Section 2.2	Control of Environmental Exposure	
Substance is complex UVCB.	Substance is complex UVCB.	
Predominantly hydrophobic.		
Readily biodegradable.		
Amounts Used		
	Fraction of EU tonnage used in region: 0,1	
Regional use tonnage (tonnes/year): 25		
Fraction of Regional tonnage used locally: 6,0E-02		6,0E-02

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Annual site tonnage (tonnes/year):	1,5
Maximum daily site tonnage (kg/day):	4,0
Frequency and Duration of Use	
Continuous release.	
Emission Days (days/year):	365
Environmental factors not influenced by risk management	
Local freshwater dilution factor:	10
Local marine water dilution factor:	100
Other Operational Conditions affecting Environmental Exposure	
Release fraction to air from wide dispersive use (regional only):	1,0E-02
Release fraction to wastewater from wide dispersive use:	9,9E-01
Release fraction to soil from wide dispersive use (regional only):	0
Technical conditions and measures at process level (source) to pr	event release
Common practices vary across sites thus conservative process re-	
lease estimates used.	
Technical onsite conditions and measures to reduce or limit disch	arges, air emis-
sions and releases to soil	-
Risk from environmental exposure is driven by soil.	
If discharging to domestic sewage treatment plant, no secondary	
wastewater treatment required.	
Treat air emission to provide a typical removal efficiency of (%)	0
Treat onsite wastewater (prior to receiving water discharge) to provide	0,7
the required removal efficiency of >= (%)	,
If discharging to domestic sewage treatment plant, no secondary	0
wastewater treatment required.	
Organisational measures to prevent/limit release from site	•
Do not apply industrial sludge to natural soils.	
Sludge should be incinerated, contained or reclaimed.	
Conditions and Measures related to municipal sewage treatment p	lant
Estimated substance removal from wastewater via domestic sewage	93,6
treatment (%)	
Total efficiency of removal from wastewater after onsite and offsite	93,6
(domestic treatment plant) RMMs (%)	
Maximum allowable site tonnage (MSafe) based on release following	48
total wastewater treatment removal (kg/d)	
Assumed domestic sewage treatment plant flow (m3/d)	2,0E+03
Conditions and Measures related to external treatment of waste fo	r disposal
External treatment and disposal of waste should comply with applicable	local and/or regional
regulations.	· ·
-	
Conditions and measures related to external recovery of waste	
External recovery and recycling of waste should comply with applicable local and/or regional	
regulations.	
·	

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

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Section 3.2 - Environment

The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model.

SECTION 4	GUIDANCE TO CHECK COMPLIANCE WITH THE
	EXPOSURE SCENARIO

Section 4.1 - Health

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.

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

Section 4.2 - Environment

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.

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

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