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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 : +31 (0)10 441 5137 / +31 (0)10 441 5191 Telefax : +31 (0)20 716 8316 / +31 (0)20 713 9230

Contact for Safety Data

Sheet

: sccmsds@shell.com

#### 1.4 Emergency telephone number

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

week)

Poison Centre Information (CIAV): 800 250 250

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.

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

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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.

Disposal:

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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 airvapour 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 STOT RE1; H372 Aquatic Chronic3; H412	>= 0 - < 0,1

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#### **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

rinsing.

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 temporary burning constition of the page and threat coughing

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-

sation, redness, or swelling.

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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 large contact with spilled product is expected. Self-Contained Breathing Apparatus must be worn when approaching a fire in

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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

contaminated soil and dispose of safely.

For large liquid spills (> 1 drum), transfer by mechanical

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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 operations, and mechanical movements. These activities may lead to static discharge e.g. spark formation. Restrict line ve-

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locity during pumping in order to avoid generation of electrostatic discharge ( $\leq 1$  m/s until fill pipe submerged to twice its diameter, then  $\leq 7$  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 for liquids that are determined to be static accumulators: American Petroleum Institute 2003 (Protection Against Igni-

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tions 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	VLE-MP	50 ppm	PT OEL	
Cumono	Further information: Included by specific national legislation or by not trans				
	posed commi	posed communitary legilation, irritation of the upper respiratory tract, impair-			
	ment of centra	ment of central nervous system, Eye irritation, Skin irritation			
Cumene		TWA (inhalable	10 ppm	PT DL	
		fraction)	50 mg/m3	305/2007	
	Further inform		n assigned to the occupation	al exposure	
			of significant uptake through		
Cumene		STEL (inhalable	50 ppm	PT DL	
		fraction)	250 mg/m3	305/2007	
	Further inform	nation: A skin notatio	n assigned to the occupation	al exposure	
	limit value ind	icates the possibility	of significant uptake through	the skin.	
Cumene		TWA	10 ppm	2019/1831/E	
			50 mg/m3	U	
			n assigned to the occupation		
		icates the possibility	of significant uptake through	the skin., In-	
	dicative				
Cumene		STEL	50 ppm	2019/1831/E	
			250 mg/m3	U	
	Further inform	nation: A skin notatio	n assigned to the occupation	al exposure	
		icates the possibility	of significant uptake through	the skin., In-	
	dicative	T	T	1	
Benzene	71-43-2	VLE-MP	0,5 ppm	PT OEL	
			sorption by the skin, Substai	nces that are	
	confirmed as	being carcinogenic f		1	
Benzene		VLE_CD	2,5 ppm	PT OEL	
			sorption by the skin, Substai	nces that are	
	confirmed as	being carcinogenic f			
Benzene		TWA	1 ppm	PT DL	
			3,25 mg/m3	88/2015	
	Further inform		·		
Benzene		TWA	0,25 ppm	Shell Internal	
			0,8 mg/m3	Standard	
				(SIS) for 8-12	
				hour TWA.	
Benzene		STEL	2,5 ppm	Shell Internal	
			8 mg/m3	Standard	
				(SIS) for 15	

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min (STEL)

#### **Biological occupational exposure limits**

Substance name	CAS-No.	Control parameters	Sampling time	Basis
Benzene	71-43-2	S- Phenylmercapturic acid: 25 µg/g creat- inine (Urine)	End of shift	PT NP1796
		t,t-Muconic acid: 500 µg/g creatinine (Urine)	End of shift	PT NP1796

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

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

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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.

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

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use.

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 Stand-

ard, 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 specific 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 appa-

ratus.

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 / : 7 %(V)

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upper flammability limit

Lower explosion limit / Lower flammability limit 0,6 %(V)

38 - 50 °C Flash point

Method: IP 170

507 °C Auto-ignition temperature

Decomposition temperature Decomposition tempera-

ture

Data not available

pΗ Data not available

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

Typical 876 kg/m3 (15 °C) Density

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

Method: ASTM D 3539, nBuAc=1

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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 400 pS/m and is considered page.

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

#### **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,

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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

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

Remarks: LC50 greater than near-saturated vapour concen-

tration.

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

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

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:

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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

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

4/5

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.

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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	

#### 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

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#### 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

#### **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:

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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

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:

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.

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#### 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..

#### 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 meth-

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

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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 tech-

nical 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.

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

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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

**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)

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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 Authorisa-

tion under REACH.

#### Other regulations:

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

Product is subject to Decree Law No 150/2015 of 5 August 2015 that transposes Seveso III directive (2012/18/EU) into national law and establishes the system for the prevention and control of serious accidents involving dangerous substances and the limitation of their consequences for human health and the environment.

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

PT DL 305/2007 : Portugal. Indicative Occupational Exposure Limits
PT DL 88/2015 : Portugal. Binding Occupational Exposure Limits
PT NP1796 : Portuguese Norm 1796 - Biological Exposure Indices

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PT OEL : Portugal. Security and Health at the Workplace - Occupational

exposure limits of chemical agents

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

PT DL 305/2007 / TWA : 8 Hour limit value
PT DL 305/2007 / STEL : Short term limit value
PT DL 88/2015 / TWA : 8-Hour limit value
PT OEL / VLE-MP : Time Weighted Average
PT OEL / VLE CD : Short Term Exposure Limit

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 carrying 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.

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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 Sheet

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

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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

**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

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- 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

**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

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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** 

Exposure Occidente Worker				
30000000750	3000000750			
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	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	No other specific measures identified.
systems)PROC1PROC2PROC3	
General exposures (open systems)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

Section 2.2 | Control of Environmental Exposure

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Culatoria is a secondary IN/CD	
Substance is complex UVCB.	
Predominantly hydrophobic.	
Readily biodegradable.	
Amounts Used	
Fraction of EU tonnage used in region:	0,1
Regional use tonnage (tonnes/year):	2,4E+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	
Continuous release.	
Emission Days (days/year):	300
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 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 pr	/
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	15,9
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	1,0E+06
total wastewater treatment removal (kg/d)	
Assumed domestic sewage treatment plant flow (m3/d)	1,0E+04
Conditions and Measures related to external treatment of waste fo	r disposal
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 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	o 8 hours (unless stated differently).		
Other Operational Conditi	ons affecting Exposure		
	nan 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 systems)PROC1PROC2PROC	No other specific measures identified.
General exposures (open systems)PROC4	No other specific measures identified.
Process samplingPROC3	No other specific measures identified.
Laboratory activitiesPROC15	No other specific measures identified.
Bulk transfers(closed systems)PROC8b	No other specific measures identified.
Bulk transfers(open systems)PROC8b	No other specific measures identified.
Drum and small package fill-ingPROC9	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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Continue 0.0			
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/year):	850		
Fraction of Regional tonnage used locally:	2,0E-03		
Annual site tonnage (tonnes/year):	1,7		
Maximum daily site tonnage (kg/day):	85		
Frequency and Duration of Use			
Continuous release.			
Emission Days (days/year):	20		
Environmental factors not influenced by risk management			
Local freshwater dilution factor:	10		
Local marine water dilution factor:	100		
Other Operational Conditions affecting Environmental Exposure	1		
Release fraction to air from process (initial release prior to RMM):	1,0E-03		
Release fraction to wastewater from process (initial release prior to	1,0E-05		
RMM):	1,02 00		
Release fraction to soil from process (initial release prior to RMM):	1,0E-05		
Technical conditions and measures at process level (source) to prevent release			
-reconnear conditions and measures at brocess lever (source) to br			
Common practices vary across sites thus conservative process release estimates used.			
Common practices vary across sites thus conservative process release estimates used.  Technical onsite conditions and measures to reduce or limit disch sions and releases to soil			
Common practices vary across sites thus conservative process release estimates used.  Technical onsite conditions and measures to reduce or limit disch sions and releases to soil  Risk from environmental exposure is driven by freshwater.			
Common practices vary across sites thus conservative process release estimates used.  Technical onsite conditions and measures to reduce or limit disch sions and releases to soil  Risk from environmental exposure is driven by freshwater.  Prevent discharge of undissolved substance to or recover from onsite			
Common practices vary across sites thus conservative process release estimates used.  Technical onsite conditions and measures to reduce or limit disch sions and releases to soil  Risk from environmental exposure is driven by freshwater.  Prevent discharge of undissolved substance to or recover from onsite wastewater.			
Common practices vary across sites thus conservative process release estimates used.  Technical onsite conditions and measures to reduce or limit disch 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.	arges, air emis-		
Common practices vary across sites thus conservative process release estimates used.  Technical onsite conditions and measures to reduce or limit disch 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 (%)	arges, air emis-		
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Common practices vary across sites thus conservative process release estimates used.  Technical onsite conditions and measures to reduce or limit disch 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 (%)  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	arges, air emis-		
Common practices vary across sites thus conservative process release estimates used.  Technical onsite conditions and measures to reduce or limit disch 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 (%)  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.	arges, air emis- 90 0		
Common practices vary across sites thus conservative process release estimates used.  Technical onsite conditions and measures to reduce or limit disch 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 (%)  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 p	arges, air emis- 90 0		
Common practices vary across sites thus conservative process release estimates used.  Technical onsite conditions and measures to reduce or limit disch 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 (%)  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 p  Estimated substance removal from wastewater via domestic sewage treatment (%)	arges, air emis- 90 0 0		
Common practices vary across sites thus conservative process release estimates used.  Technical onsite conditions and measures to reduce or limit dischesions 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 p  Estimated substance removal from wastewater via domestic sewage treatment (%)  Total efficiency of removal from wastewater after onsite and offsite	arges, air emis- 90 0		
Common practices vary across sites thus conservative process release estimates used.  Technical onsite conditions and measures to reduce or limit disch 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 (%)  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 p  Estimated substance removal from wastewater via domestic sewage treatment (%)  Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%)	arges, air emis- 90 0 0 0 lant 93,6 93,6		
Common practices vary across sites thus conservative process release estimates used.  Technical onsite conditions and measures to reduce or limit disch 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 (%)  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 platinated 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	arges, air emis- 90 0 0		
Common practices vary across sites thus conservative process release estimates used.  Technical onsite conditions and measures to reduce or limit disch 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 (%)  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 pereatment (%)  Total efficiency of 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)	arges, air emis-  90 0 0 0  lant 93,6 93,6 2,1E+05		
Common practices vary across sites thus conservative process release estimates used.  Technical onsite conditions and measures to reduce or limit disch 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 (%)  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 (%)  Total efficiency of 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)	arges, air emis-  90 0 0 0  lant 93,6 93,6 2,1E+05 2,0E+03		
Common practices vary across sites thus conservative process release estimates used.  Technical onsite conditions and measures to reduce or limit disch 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 (%)  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 pereatment (%)  Total efficiency of 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)	arges, air emis- 90 0 0 0 lant 93,6 93,6 2,1E+05 2,0E+03 r disposal		

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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 oceriano - Worker		
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 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 that	an 20°C above ambient temperature (unless	stated differently).
Accurace a good basis standard of accurational busines is implemented		

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 Batch processes at elevated No other specific measures identified. temperaturesOperation is carried out at elevated temperature (> 20°C above ambient temperature). Use in contained batch processesPROC3 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)PROCS   ManualTransfer from/pouring from containersPROC8a   No other specific measures identified.				
Trom containersPROC8a		No other specific measures identified	d.	
Drum/batch transfersPROC8b		No other specific measures identified	d.	
Production or preparation or articles by tabletting, compression, extrusion or pelletisationPROC14  Drum and small package fillingPROC9  Equipment cleaning and maintenancePROC8a  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): Fraquency 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: Local marine water dilution factor: Release fraction to air from process (after typical onsite RMMs consistent with EU Solvent Emissions Directive requirements): Release fraction to sair from process (and the process of the process release estimates used.  Technical conditions and measures at process level (source) to prevent release common practices vary across sites thus conservative process release estimates used.  Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Risk from environmental exposure is driven by freshwater sediment.  Prevent discharge of undissolved substance to or recover from onsite wastewater.  No wastewater treatment required.  Treat onsite wastewater (prior to receiving water discharge) to provide 0 the required removal efficiency of >= (%)	from containersPROC8a	·		
articles by tabletting, compression, extrusion or pelletisationPROC14  Drum and small package fillingPROC9  Equipment cleaning and maintenancePROC8a  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 (syday):  Fraction of Regional tonnage (kg/day):  Fraction of Regional 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:  Cother Operational Conditions affecting Environmental Exposure  Release fraction to air from process (after typical onsite RMMs consistent with EU Solvent Emissions Directive requirements):  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 pr	Drum/batch transfersPROC8b	No other specific measures identified	d.	
Drum and small package fillingPROC9  Requipment cleaning and maintenancePROC8a  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/year): 730  Fraction of Regional tonnage used locally: 1  Annual site tonnage (tonnes/year): 730  Maximum daily site tonnage (kg/day): 7,3E+03  Frequency and Duration of Use  Continuous release.  Emission Days (days/year): 100  Environmental factors not influenced by risk management  Local freshwater dilution factor: 100  Other Operational Conditions affecting Environmental Exposure  Release fraction to air from process (after typical onsite RMMs consistent with EU Solvent Emissions Directive requirements):  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):  Technical conditions and measures at process level (source) to prevent release Common practices vary across sites thus conservative process release estimates used.  Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil  Risk from environmental exposure is driven by freshwater sediment.  Prevent discharge of undissolved substance to or recover from onsite wastewater.  No wastewater treatment required.  Treat air emission to provide a typical removal efficiency of (%)  Treat onsite wastewater (prior to receiving water discharge) to provide of the required removal efficiency of >= (%)	articles by tabletting, compres sion, extrusion or pelletisa-		d.	
Equipment cleaning and maintenancePROC8a  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): Fraction of Regional tonnage used locally: Annual site tonnage (tonnes/year): 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: Local marine water dilution factor: Local marine water dilution factor: Local sess fraction to air from process (after typical onsite RMMs consistent with EU Solvent Emissions Directive requirements): Release fraction to wastewater from process (initial release prior to RMM): Release fraction to soil from process (initial release prior to RMM): 1,0E-04 Technical conditions and measures at process level (source) to prevent release Common practices vary across sites thus conservative process release estimates used. Risk from environmental exposure is driven by freshwater sediment. Prevent discharge of undissolved substance to or recover from onsite wastewater. No wastewater treatment required. Treat air emission to provide a typical removal efficiency of (%)  Treat onsite wastewater (prior to receiving water discharge) to provide of the required removal efficiency of read on the required removal efficiency of (%)	Drum and small package fill-	No other specific measures identified	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:  Regional use tonnage (tonnes/year):  Fraction of Regional tonnage used locally:  Annual site tonnage (tonnes/year):  Fraction of Regional 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:  10  Other Operational Conditions affecting Environmental Exposure  Release fraction to air from process (after typical onsite RMMs consistent with EU Solvent Emissions Directive requirements):  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):  1,0E-04  Technical conditions and measures at process level (source) to prevent release  Common practices vary across sites thus conservative process release estimates used.  Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil  Risk from environmental exposure is driven by freshwater sediment.  Prevent discharge of undissolved substance to or recover from onsite wastewater.  No wastewater treatment required.  Treat air emission to provide a typical removal efficiency of (%)  Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of >= (%)	Equipment cleaning and	No other specific measures identified	d.	
Substance is complex UVCB.  Predominantly hydrophobic.  Readily biodegradable.  Amounts Used Fraction of EU tonnage used in region: 730 Fraction of Regional tonnage used locally: 730 Fraction of Regional tonnage used locally: 730 Maximum daily site tonnage (kg/day): 7,3E+03 Frequency and Duration of Use Continuous release. Emission Days (days/year): 100 Environmental factors not influenced by risk management Local freshwater dilution factor: 100 Cother Operational Conditions affecting Environmental Exposure Release fraction to air from process (after typical onsite RMMs consistent with EU Solvent Emissions Directive requirements): Release fraction to wastewater from process (initial release prior to RMM): Release fraction to soil from process (initial release prior to RMM): 1,0E-04 Technical conditions and measures at process level (source) to prevent release Common practices vary across sites thus conservative process release estimates used. Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Risk from environmental exposure is driven by freshwater sediment. Prevent discharge of undissolved substance to or recover from onsite wastewater. No wastewater treatment required. Treat air emission to provide a typical removal efficiency of (%) Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of >= (%)		Store substance within a closed syst	em.	
Substance is complex UVCB. Predominantly hydrophobic. Readily biodegradable.  Amounts Used Fraction of EU tonnage used in region: 730 Fraction of Regional tonnage used locally: 730 Fraction of Regional tonnage used locally: 1 Annual site tonnage (tonnes/year): 730 Maximum daily site tonnage (kg/day): 7,3E+03  Frequency and Duration of Use Continuous release. Emission Days (days/year): 100 Environmental factors not influenced by risk management Local freshwater dilution factor: 100 Cother Operational Conditions affecting Environmental Exposure Release fraction to air from process (after typical onsite RMMs consistent with EU Solvent Emissions Directive requirements): Release fraction to wastewater from process (initial release prior to RMM): Release fraction to soil from process (initial release prior to RMM): 1,0E-04 Technical conditions and measures at process level (source) to prevent release Common practices vary across sites thus conservative process release estimates used.  Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Risk from environmental exposure is driven by freshwater sediment. Prevent discharge of undissolved substance to or recover from onsite wastewater.  No wastewater treatment required. Treat air emission to provide a typical removal efficiency of (%) 0 Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of >= (%)	Section 2.2	Control of Environmental Exposure		
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RMM):  Release fraction to soil from process (initial release prior to RMM):  1,0E-04  Technical conditions and measures at process level (source) to prevent release  Common practices vary across sites thus conservative process release estimates used.  Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil  Risk from environmental exposure is driven by freshwater sediment.  Prevent discharge of undissolved substance to or recover from onsite wastewater.  No wastewater treatment required.  Treat air emission to provide a typical removal efficiency of (%)  Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of >= (%)			0.05.04	
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Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of >= (%)	·		0	
the required removal efficiency of >= (%)			_	
it discharging to domestic sewage treatment plant, no secondary   0	the required removal efficiency of >= (%)			
- · · · · · · · · · · · · · · · · · · ·	ır discharging to domestic sew	age treatment plant, no secondary	U	

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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	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	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 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

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			

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 RMM):	7,0E-04
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 release estimates used.	
Technical onsite conditions and measures to reduce or limit disch	arges air emis.
sions and releases to soil	arges, air eims-
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 the required removal efficiency of >= (%)	77,7
If discharging to domestic sewage treatment plant, no secondary wastewater treatment required.	0
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)	8,8E+04
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.	
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	
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.

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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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# **ShellSol A100 High Cumene**

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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 MEASURES	MANAGEMENT	
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 sy tems)PROC1	/S-	No other specific measures identified.	
Filling/ preparation of equipme from drums or containers.Use contained systemsPROC2		No other specific measures identified.	
General exposures (closed sy tems)Use in contained systemsPROC2	/S-	No other specific measures identified.	
Preparation of material for applicationUse in contained batch processesPROC3	pli-	No other specific measures identified.	
Film formation - air dry- ingOutdoorPROC4		No other specific measures identified.	
Film formation - air dryingln-doorPROC4		No other specific measures identified.	

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Preparation of material for applicationIndoorPROC5	No other specific measures identifie	d.
Preparation of material for applicationOutdoorPROC5	No other specific measures identifie	d.
Material transfersDrum/batch transfersNon-dedicated facilityPROC8a	No other specific measures identifie	d.
Material transfersDrum/batch transfersDedicated facilityPROC8b	No other specific measures identifie	d.
Roller, spreader, flow application- IndoorPROC10	No other specific measures identifie	d.
Roller, spreader, flow applicationOutdoorPROC10	No other specific measures identifie	d.
ManualSprayingIndoorPROC11	Carry out in a vented booth or extra	cted enclosure.
	Wear a full face respirator conforming A/P2 filter or better.	ng to EN136 with Type
ManualSprayingOutdoorPROC11	Ensure operation is undertaken outder Avoid carrying out activities involving 4 hours Limit the substance content in the m, or: Wear a full face respirator conforming A/P2 filter or better.	g exposure for more than nixture to 50 %.
Dipping, immersion and pouringIndoorPROC13	No other specific measures identifie	d.
Dipping, immersion and pouringOutdoorPROC13	No other specific measures identified.	
Laboratory activitiesPROC15	No other specific measures identified.	
Hand application - fingerpaints, pastels, adhesivesIn-doorPROC19	No other specific measures identified.	
Hand application - fingerpaints, pastels, adhesivesOut-doorPROC19	No other specific measures identified.	
Storage.PROC1	Store substance within a closed sys	tem.
Section 2.2 Cor	ntrol of Environmental Exposure	
Substance is complex UVCB.		
Predominantly hydrophobic.		
Readily biodegradable.		
Amounts Used		
Fraction of EU tonnage used in reg		0,1
Regional use tonnage (tonnes/yea		2,2E+03
Fraction of Regional tonnage used	locally:	5,0E-04
I Applied cite temporal (tempos/year):		1 1

Annual site tonnage (tonnes/year):
Maximum daily site tonnage (kg/day):

1,1

3,0

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Continuous release.	
Emission Days (days/year):	365
Environmental factors not influenced by risk management	300
Local freshwater dilution factor:	10
Local marine water dilution factor:	100
Other Operational Conditions affecting Environmental Exposure	100
Release fraction to air from wide dispersive use (regional only):	9,8E-01
Release fraction to wastewater from wide dispersive use:	1,0E-02
Release fraction to soil from wide dispersive use (regional only):	1,0E-02
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	arges air emis-
sions and releases to soil	arges, an emis-
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 >= (%)	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.	
ordago oriodia do momeratoa, contamoa or rociamoa.	
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 (%)	,
Maximum allowable site tonnage (MSafe) based on release following	4,7E+03
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	
External treatment and disposal of waste should comply with applicable	-
regulations.	<b>5</b> -
Conditions and measures related to external recovery of waste	
External recovery and recycling of waste should comply with applicable	local and/or regiona
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.

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		
30000000757	0000000757	
0=0=10114		
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 a good basic standard of occupational hygiene is implemented.

Contributing Scenarios	Risk Management Measures
Bulk transfersNon-dedicated f cilityPROC8a	No other specific measures identified.
Automated process with (sem closed systems.Use in contair systemsPROC2	,
Automated process with (sem closed systems.Drum/batch trafersUse in contained batch processesPROC3	ans-
Application of cleaning product closed systemsPROC2	ts in No other specific measures identified.
Filling/ preparation of equipme from drums or containers.PROC8b	No other specific measures identified.
Use in contained batch proces esPROC4	No other specific measures identified.

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Degreasing small objects in cleaning stationPROC13	No other specific measures identifi	ed.
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 than
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 Cor	ntrol of Environmental Exposure	
Substance is complex UVCB.		
Predominantly hydrophobic.		
Readily biodegradable.		
Amounts Used		
Fraction of EU tonnage used in reg	gion:	0,1
Regional use tonnage (tonnes/yea	r):	320
Fraction of Regional tonnage used	locally:	3,2E-01
Annual site tonnage (tonnes/year):		100
Maximum daily site tonnage (kg/da	ay):	5,0E+03
Frequency and Duration of Use		
Continuous release.		
Emission Days (days/year):		20
Environmental factors not influe	nced by risk management	
Local freshwater dilution factor:		10
Local marine water dilution factor:		100
	fecting Environmental Exposure	
Release fraction to air from proces		1,0
Release fraction to wastewater fro RMM):		3,0E-06
Release fraction to soil from proce		0
	ires at process level (source) to pr	event release
Common practices vary across site	es thus conservative process re-	
lease estimates used.		
sions and releases to soil	measures to reduce or limit disch	arges, air emis-
Risk from environmental exposure		
Prevent discharge of undissolved wastewater.	substance to or recover from onsite	
No wastewater treatment required		
Treat air emission to provide a typ		70
Treat onsite wastewater (prior to re the required removal efficiency of	eceiving water discharge) to provide >= (%)	0
If discharging to domestic sewage	treatment plant, no secondary	0
wastewater treatment required.	ant/limit rologge from cite	
Organisational measures to prevale Do not apply industrial sludge to not		
Sludge should be incinerated, con		
<b>5</b>		

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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** 

Exposure cochano Worker		
30000000758	3000000758	
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 MEASURES	MANAGEMENT
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 I	Management Measures	
Filling/ preparation of equipme from drums or containers.Dedicated facilityPROC8b		No other specific measures identified.	
Filling/ preparation of equipme from drums or containers.Non dedicated facilityPROC8a		Avoid carrying out activities involving exposure for more than 4 hours	
Automated process with (sem closed systems.Use in contair systemsPROC2	,	No other specific measures identified.	
Automated process with (sem closed systems.Drum/batch tr fersUse in contained batch processesPROC3	áns-	No other specific measures identified.	
Semi Automated process. (e.g Semi automatic application of care and maintenance prod- ucts)PROC4	_	No other specific measures identified.	

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ManualSurfacesCleaningDipping, immersion and pouringPROC13	No other specific measures identified.
ManualSurfacesCleaningPROC13	No other specific measures identified.
Cleaning with low-pressure washers ers Rolling, Brushing no spraying PROC10	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		ol of Environmental Exposure	
Substance is complex UVCB.			
Predominantly hydrophobic.			
Readily biodegradable.			
Amounts Used			
Fraction of EU tonnage used	in regior	n:	0,1
Regional use tonnage (tonnes			2,0
Fraction of Regional tonnage	used lo	cally:	5,0E-04
Annual site tonnage (tonnes/)			1,0E-03
Maximum daily site tonnage (			2,7E-03
Frequency and Duration of	Use		
Continuous release.			
Emission Days (days/year):			365
Environmental factors not i		ed by risk management	
Local freshwater dilution factor	or:		10
Local marine water dilution fa			100
		ting 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 t	thus conservative process re-	
lease estimates used.			
	and m	easures to reduce or limit discha	arges, air emis-
sions and releases to soil			
Risk from environmental expo		driven by freshwater.	
No wastewater treatment requ			
Treat air emission to provide			0
Treat onsite wastewater (prior	r to rece	eiving 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 regulations.	local and/or regional

	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

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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** 

3000000783		
EXPOSURE SCENARIO TITLE		
Use in Oil and Gas field drilling and production operations-		
Industrial		
Sector of Use: SU3		
Process Categories: PROC 1, PROC 2, PROC 3, PROC 4,		
PROC 8a, PROC 8b		
Environmental Release Categories: ERC4		
Zirin di inidia i Noidado datagonido. Zirio		
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 RIS MEASURES	K MANAGEMENT	
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 STF		
Concentration of the Substance in Mixture/Article differently).,		00% (unless stated	
Frequency and Duration of Use			
Covers daily exposures up to	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
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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General exposures (closed systems)PROC1	No other specific measures identified.	
Pouring from small containersPROC8a		
General exposures (open systems)PROC4	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	
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 upless 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.

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 MANAGEM MEASURES	MENT
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 s differently).,	stated
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	Ris	sk Management Measures	
General exposures (closed		No other specific measures identified.	
systems)PROC1PROC2PRO			
General exposures (open sys-	-	No other specific measures identified.	
tems)PROC4			
Bulk transfersDedicated facili-		No other specific measures identified.	
tyPROC8b			
Filling/ preparation of equipme	ent	No other specific measures identified.	
from drums or containers.Non	-		
dedicated facilityPROC8a			
Filling/ preparation of equipme	ent	No other specific measures identified.	
from drums or contain-			
ers.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 equip-		·	
mentPROC17PROC18			

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ManualRolling, BrushingPROC10		No other specific measures identified	d.		
Treatment by dipping and pour-		No other specific measures identified	d.		
ingPROC13 SprayingPROC7		Carry out in a vented booth or extract	etad anclasura		
Spraying NOC1		Carry out in a vented booth of extrac	ned enclosure.		
Maintenance (of larger plant items) and machine set upDedi-		No other specific measures identified	d.		
cated facilityPROC8b					
Maintenance (of larger plant		Drain down and flush system prior to	equipment opening or		
items) and machine set upOp		maintenance.	maintenance.		
eration is carried out at elevat temperature (> 20°C above	ea				
ambient tempera-					
ture).Dedicated facilityPROC8	3b				
Maintenance of small itemsNo		No other specific measures identified	d.		
dedicated facilityPROC8a		·			
Remanufacture of reject articlesPROC9		No other specific measures identified	d.		
Storage.PROC1PROC2		Store substance within a closed syst	em.		
0					
Section 2.2		ntrol of Environmental Exposure			
Substance is complex UVCB.					
Predominantly hydrophobic.					
Readily biodegradable.					
Amounts Used	:	aia a	0.4		
Fraction of EU tonnage used			0,1		
Regional use tonnage (tonnes/yea			0,14		
Fraction of Regional tonnage used			100		
Annual site tonnage (tonnes/year)  Maximum daily site tonnage (kg/d			5,0E+03		
Maximum daily site tonnage (kg/day):  Frequency and Duration of Use			0,02100		
Continuous release.	030				
Emission Days (days/year):			20		
Environmental factors not in	nflu	enced by risk management	120		
Local freshwater dilution factor		g	10		
Local marine water dilution factor:			100		
Other Operational Conditions affecting Environmental Exposure					
Release fraction to air from process (initial release prior to RMM):			5,0E-03		
		om process (initial release prior to	3,0E-05		
Release fraction to soil from process (initial release prior to RMM): 1,0E-03					
		ures at process level (source) to pr	event release		
	ss si	tes thus conservative process re-			
lease estimates used.					
	and	d measures to reduce or limit disch	arges, air emis-		
Sions and releases to soil	CUL	o is driven by freshwater sediment			
Risk from environmental exposure is driven by freshwater sediment.  Prevent discharge of undissolved substance to or recover from onsite					
wastewater.	veu	Substance to or recover from offsite			
No wastewater treatment requ	uired	1.			
	o	<del></del>	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	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	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
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 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 coeriano Worke	•	
3000000785		
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 MEASURES	( MANAGEMENT
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 differently).,	0% (unless stated
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 sys- No other specific measures identified.

tems)PROC1PROC2PROC3	
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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Operation and lubrication of his energy open equipmentOut-doorPROC17	gh	Ensure operation is undertaken of Avoid carrying out activities involved than 4 hours		
Maintenance (of larger plant items) and machine set upPROC8b		No other specific measures identi	fied.	
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 equip nance.	ment opening or maint	Э-
Maintenance of small itemsOp tion is carried out at elevated to perature (> 20°C above ambie temperature).Non-dedicated fatyPROC8a	em- nt	Drain or remove substance from in or maintenance.	equipment prior to brea	ık-
Engine lubricant servicePROC	9	No other specific measures identi	fied.	
ManualRolling, BrushingPROC	210	No other specific measures identi	fied.	
SprayingPROC11		Provide a good standard of general (5 to 15 air changes per hour). Avoid carrying out activities involve than 4 hours , or: Wear a respirator conforming to E better.	ring exposure for more	
Treatment by dipping and pour ingPROC13	r_	No other specific measures identi	fied.	
Storage.PROC1PROC2		Store substance within a closed s	ystem.	
Section 2.2	Conti	ol of Environmental Exposure		
Substance is complex UVCB.		, and the second		1
Predominantly hydrophobic.				1
Readily biodegradable.				•
Amounts Used			<u>I</u>	•
Fraction of EU tonnage used in	n regio	on:	0,1	
Regional use tonnage (tonnes			12	•
Fraction of Regional tonnage u			5,0E-04	•
Annual site tonnage (tonnes/ye			5,8E-03	•
Maximum daily site tonnage (k		):	1,6E-02	
Frequency and Duration of Use				
Continuous release.				
Emission Days (days/year):			365	
Environmental factors not influence		ced by risk management		
Local freshwater dilution factor:			10	
Local marine water dilution factor:			100	
		cting Environmental Exposure		
Release fraction to air from pro	ocess	(initial release prior to RMM):	1,0E-02	

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Release fraction to wastewater from process (initial release prior to RMM):	1,0E-02
Release fraction to soil from process (initial release prior to RMM):	1,0E-02
Technical conditions and measures at process level (source) to pro	
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.	
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 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.	
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	

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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** 

20000000700		
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 MEASURES	MANAGEMENT
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 R	isk Management Measures
General exposures (closed systems)PROC1PROC2PROC3	No other specific measures identified.
Operation of equipment containi engine oils and similar.PROC20	
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.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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Operation and lubrication of high energy open equipmentOut-	Avoid carrying out operation for m	nore than 4 hours.
doorPROC17	No other enecific measures identi	find
Maintenance (of larger plant items) and machine set upPROC8b	No other specific measures identi	ilea.
Maintenance (of larger plant items)	Drain down system prior to equip	ment opening or mainte-
and machine set upOperation is	nance.	
carried out at elevated tempera-		
ture (> 20°C above ambient tem-		
perature).Dedicated facili-		
tyPROC8b	Decision of the second of the	
Maintenance of small itemsOpera-	Drain or remove substance from	equipment prior to break-
tion is carried out at elevated temperature (> 20°C above ambient	in or maintenance.	
temperature).Non-dedicated facili-		
tyPROC8a		
Engine lubricant servicePROC9	No other specific measures identi	fied.
-	-	
ManualRolling, BrushingPROC10	No other specific measures identi	fied.
SprayingPROC11	Provide a good standard of gener	al or controlled ventilation
	(5 to 15 air changes per hour).	
	Avoid carrying out activities involved	ring exposure for more
	than 4 hours	
	, or:	-N.4.40 31 T A 616
	Wear a respirator conforming to E better.	:N140 with Type A filter or
	Detter.	
Treatment by dipping and pour-	No other specific measures identi	fied.
ingPROC13		
Storage.PROC1PROC2	Store substance within a closed s	ystem.
Section 2.2 Cont	rol 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/year)		12
Fraction of Regional tonnage used le	ocally:	5,0E-04
Annual site tonnage (tonnes/year):		5,8E-03
Maximum daily site tonnage (kg/day	<u>)</u> :	1,6E-02
Frequency and Duration of Use		
Continuous release.		
Emission Days (days/year):		365
Environmental factors not influen	cea by risk management	10
Local freshwater dilution factor:		10
Local marine water dilution factor:	ecting Environmental Experies	100
Other Operational Conditions affe		1 55 01
Release fraction to air from wide dis	persive use (regional only):	1,5E-01

Release fraction to air from wide 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	
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 the required removal efficiency of >= (%)	0
If discharging to domestic sewage treatment plant, no secondary wastewater treatment required.	0
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)	40
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 local and/or regional regulations.	
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		
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** 

3000000787		
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 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 N	Management Measures	
General exposures (closed sy tems)PROC1PROC2PROC3	/S-	No other specific measures identified.	
General exposures (open sys tems)PROC4	-	No other specific measures identified.	
Bulk transfersPROC8b		No other specific measures identified.	
Filling/ preparation of equipme 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	ır-	No other specific measures identified.	

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SprayingPROC7	Minimise exposure by partial enclosure of the operation or 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/year):		10
Fraction of Regional tonnage used locally:		1
Annual site tonnage (tonnes/year):		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 p	process (initial release prior to RMM):	0
Technical conditions and m	neasures at process level (source) to p	revent release
Common practices vary acros lease estimates used.	ss sites thus conservative process re-	
	s and measures to reduce or limit disch	horace oir emis
sions and releases to soil	s and measures to reduce or limit discr	iaiyes, ali elliis-
Risk from environmental expo	seura is drivan by frashwater	
	lved substance to or recover from onsite	
Frevent discharge of undisso	ived substance to or recover morn 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 2 EVEN STIME FOR MATION		
SECTION 3 EXPOSURE ESTIMATION	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

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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** 

	Exposure ocernario - 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 STF		
Concentration of the Substance in Mixture/Article			
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 a good basis standard of assumptional business is implemented			

Assumes a good basic standard of occupational hygiene is implemented.

Contributing Scenarios Risk Managem		nent Measures
General exposures (closed systems)PROC1PROC2PROC3		No other specific measures identified.
Bulk transfersPROC8b		No other specific measures identified.
Filling/ preparation of equipment from drums or contain- ers.PROC5PROC8aPROC8bPROC9		No other specific measures identified.
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.
SprayingPROC11		Provide a good standard of general or controlled ventilation (5 to 15 air changes per hour).

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		more than 4 hours , or:	ties involving exposure fo
Treatment by dipping and po	uringPROC13	No other specific measu	res identified.
Equipment cleaning and maintenance-PROC8aPROC8b		Drain down system prior maintenance.	r to equipment opening or
Storage.PROC1PROC2		Store substance within a	a closed system.
Section 2.2	Control of En	vironmental Exposure	
Substance is complex UVCB			
Predominantly hydrophobic.	-		
Readily biodegradable.			
Amounts Used			<u> </u>
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			0,02 00
Continuous release.	030		1
Emission Days (days/year):			365
	nfluenced by r	isk management	1 000
Environmental factors not influenced by risk management  Local freshwater dilution factor:  10		10	
		100	
Other Operational Conditio		vironmental Exposure	
Release fraction to air from w			5,0E-02
Release fraction to wastewate			2,5E-02
Release fraction to soil from v			0
Technical conditions and m			event release
Common practices vary acros			
lease estimates used.		•	
<b>Technical onsite conditions</b>	and measures	to reduce or limit disch	arges, air emis-
sions and releases to soil			_
Risk from environmental expo	osure is driven b	y freshwater.	
No wastewater treatment req	uired.		
Treat air emission to provide a typical removal efficiency of (%) 0		0	
Treat onsite wastewater (prior to receiving water discharge) to provide 0		0	
the required removal efficience			
If discharging to domestic sev	•	plant, no secondary	0
wastewater treatment require			
Organisational measures to	•		
Do not apply industrial sludge			
Sludge should be incinerated	, contained or re	eclaimed.	
Canditiana and Manager	alata al ta manari	inal aguaga tuanturant m	lant
Conditions and Measures r		· · · · · ·	
Estimated substance remova	i iioiii wastewat	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 b	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
	LAI OSORE SCENARIO
Cootion 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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30000000190	
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	
7.100.71	
Scope of process	Covers the use as binders and release agents including ma-
	terial transfers, mixing, application (including spraying and
brushing), and handling of waste.	
brashing), and handing or waste.	

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 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   I	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	ition at openings.
SprayingManualPROC7	Provide a good standard of general o to 15 air changes per hour). Avoid carrying out activities involving 4 hours	·
	Tiodio	
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	lontrol of Environmental Exposure	
Substance is complex UVCB.	ontrol of Environmental Exposure	
Predominantly hydrophobic.		
Readily biodegradable.		
Amounts Used	ragion!	0.1
Fraction of EU tonnage used in r Regional use tonnage (tonnes/ye		70
Fraction of Regional tonnage use		1
Annual site tonnage (tonnes/yea		70
Maximum daily site tonnage (kg/		3,5E+03
Frequency and Duration of Us		3,5E+03
Continuous release.	<del>5</del>	T
		20
Emission Days (days/year):  Environmental factors not influence.	uenced by risk management	20
Local freshwater dilution factor:	denced by risk management	10
Local marine water dilution factor	r:	100
	affecting Environmental Exposure	100
		1,0
Release fraction to air from process (initial release prior to RMM):  Release fraction to wastewater from process (initial release prior to RMM):  3,0E-06  RMM):		
Release fraction to soil from prod	cess (initial release prior to RMM):	0
	Technical conditions and measures at process level (source) to prevent release	
Common practices vary across s	sites thus conservative process re-	
lease estimates used.		
Technical onsite conditions and measures to reduce or limit discharges, air emis-		arges, air emis-
sions and releases to soil		
Risk from environmental exposu		
Prevent discharge of undissolved substance to or recover from onsite		
wastewater.		
No wastewater treatment required.		
Treat air emission to provide a ty		80
	receiving water discharge) to provide	0
the required removal efficiency of		
	ge 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, co		

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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	
( 6 )	,	

#### 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 b	peen 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

## 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 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 Sub- stance 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 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
Bulk transfersUse in contained systemsPROC1PROC2PROC	No other specific measures identified.
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 or controlled ventilation (5		
	to 15 air changes per hour).		
	Avoid carrying out activities involving exposure for more that		
	4 hours		
ManualRolling, Brush- ingPROC10	No other specific measures identified.		
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 r	egion:	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/		4,1E-02	
Frequency and Duration of Use		,	
Continuous release.			
Emission Days (days/year):		365	
Environmental factors not influ	uenced by risk management		
Local freshwater dilution factor:		10	
Local marine water dilution factor: 100		100	
Other Operational Conditions affecting Environmental Exposure			
	Release fraction to air from wide dispersive use (regional only): 9,5E-01		
Release fraction to wastewater fr		2,5E-02	
Release fraction to soil from wide		2,5E-02	
	sures at process level (source) to pro	event release	
	ites thus conservative process re-		
lease estimates used.			
	d measures to reduce or limit discha	arges, air emis-	
sions and releases to soil	so in duivou by function	T	
Risk from environmental exposu			
No wastewater treatment required.		0	
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 >= (%)		U	
If discharging to domestic sewage treatment plant, no secondary		0	
wastewater treatment required.			
Organisational measures to pr			
Do not apply industrial sludge to Sludge should be incinerated, co			
	ed to municipal sewage treatment p		
Estimated substance removal fro treatment (%)	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 Managers 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
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	
Section 2.4	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		
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	
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	in region:	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		3,4	
Continuous release.	USE		
		265	
Emission Days (days/year):	nfluenced by rick management	365	
Local freshwater dilution factors	nfluenced by risk management	10	
		10	
Local marine water dilution fa		100	
	ns affecting Environmental Exposure	0.05.04	
	ride dispersive use (regional only):	9,0E-01	
Release fraction to wastewate		1,0E-02	
	wide dispersive use (regional only):	9,0E-02	
	neasures at process level (source) to pr	event release	
•	ss sites thus conservative process re-		
lease estimates used.	Page Page		
	s and measures to reduce or limit disch	arges, air emis-	
sions and releases to soil	anna ia daine de la coll	-	
Risk from environmental expo			
No wastewater treatment req		0	
	a typical removal efficiency of (%)	0	
Treat onsite wastewater (prio	0		
the required removal efficience		0	
	wage treatment plant, no secondary	0	
wastewater treatment required.  Organisational measures to prevent/limit release from site			
Do not apply industrial sludge			
Sludge should be incinerated	, contained of rectainted.		
Conditions and Massures r	alated to municipal covers treatment n	lont	
	elated to municipal sewage treatment p I from wastewater via domestic sewage		
	i from wastewater via domestic sewage	93,6	
treatment (%)	om wastewater after onsite and offsite	02.6	
•		93,6	
(domestic treatment plant) RI		4.75.02	
	age (MSafe) based on release following	4,7E+03	
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			

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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 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 Condition	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.		
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 in region: 0,1		
Regional use tonnage (tonne	nnage (tonnes/year): 15	

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Fraction of Regional tonnage used locally:	1
Annual site tonnage (tonnes/year):	15
Maximum daily site tonnage (kg/day):	750
Frequency and Duration of Use	
Continuous release.	
Emission Days (days/year):	20
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 process (initial release prior to RMM):	5,0E-03
Release fraction to wastewater from process (initial release prior to RMM):	1,0E-05
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 release 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 (%)	95
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)	1,5E+06
Assumed domestic sewage treatment plant flow (m3/d)	2,0E+03
Conditions and Measures related to external treatment of waste fo	1
Combustion emissions limited by required exhaust emission controls. Waste combustion emissions considered in regional exposure assessm	
Conditions and measures related to external recovery of waste	
This substance is consumed during use and no waste of substance is g	jenerated.

SECTION 3	EXPOSURE ESTIMATION	
Section 3.1 - Health		
The ECETOC TRA tool has indicated.	been 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.

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Exposure oceriano - Worke	·-
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 MAN MEASURES	AGEMENT
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% (ur differently).,	nless stated
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
Bulk transfersDedicated facilityPROC8b	No other specific measures identified.
Drum/batch transfersDedicated 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	<b>3</b> ,
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		

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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 occinio - Worker	
30000000796	
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
	<u>'</u>
Scope of process	Use as functional fluids e.g. cable oils, transfer oils, coolants,
	insulators, refrigerants, hydraulic fluids in professional equip-
	ment including maintenance and related material transfers.
	Ĭ

SECTION 2	OPERATIONAL CONDITIONS AND RISK MANAG MEASURES	SEMENT
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% (unles differently).,	ss stated
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
Drum/batch transfersNon-	Use drum pumps.
dedicated facilityPROC8a	
Transfer from/pouring from con tainersPROC9	No other specific measures identified.
Filling/ preparation of equipmen	nt No other specific measures identified.
from drums or contain-	
ers.PROC9	
General exposures (closed	No other specific measures identified.
systems)PROC1PROC2PROC	
Operation of equipment contain	n- No other specific measures identified.
ing engine oils and simi-	
lar.PROC20	
Operation of equipment contain	n- No other specific measures identified.
ing engine oils and simi-	
lar.Operation is carried out at	
elevated temperature (> 20°C	
above ambient tempera-	
ture).PROC20	
Remanufacture of reject arti-	No other specific measures identified.

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clesPROC9		
Equipment maintenance- PROC8a	Drain down system prior to equipme nance.	nt opening or mainte-
Storage.PROC1PROC2	Store substance within a closed syst	tem.
Section 2.2 C	ontrol of Environmental Exposure	
Substance is complex UVCB.		
Predominantly hydrophobic.		
Readily biodegradable.		
Amounts Used		I.
Fraction of EU tonnage used in	region:	0,1
Regional use tonnage (tonnes/ye		15
Fraction of Regional tonnage us		5,0E-04
Annual site tonnage (tonnes/yea		7,5E-03
Maximum daily site tonnage (kg/	(dav):	2,1E-02
Frequency and Duration of Us		2,12 02
Continuous release.		
Emission Days (days/year):		365
Environmental factors not infl	uenced by risk management	303
Local freshwater dilution factor:	deliced by fisk management	10
Local marine water dilution factor.	٠,	100
	affecting Environmental Exposure	100
Release fraction to air from wide		5,0E-02
		2,5E-02
Release fraction to wastewater from wide dispersive use:  Release fraction to soil from wide dispersive use (regional only):		2,5E-02 2,5E-02
	e dispersive use (regional only). sures at process level (source) to pr	
	sites thus conservative process re-	CVCIII TOICUSC
lease estimates used.	sites thas conservative process re	
	nd measures to reduce or limit disch	arges, air emis-
sions and releases to soil		J
Risk from environmental exposu	re is driven by freshwater.	
No wastewater treatment require	•	
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		0
wastewater treatment required.		
Organisational measures to p	revent/limit release from site	1
Do not apply industrial sludge to		
Sludge should be incinerated, co		
Conditions and Measures rela	ted 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 (%)		33,0
Maximum allowable site tonnage (MSafe) based on release following		52
total wastewater treatment removal (kg/d)		~-
total wastewater treatment remo	vai (kg/g)	
total wastewater treatment remo Assumed domestic sewage trea		2,0E+03

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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 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**

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 Scenario - 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.

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 Conditio	
	in 20°C above ambient temperature (unless stated differently).
Assumes a good basic stand	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- cles/equipment(closed sys- tems)PROC9	No other specific measures identified.
Filling/ preparation of equipment from drums or containers.Non-dedicated facilityPROC8a	No other specific measures identified.
General exposures (closed systems)PROC2	No other specific measures identified.
General exposures (open systems)PROC4	No other specific measures identified.
Remanufacture of reject articlesPROC9	No other specific measures identified.
Equipment maintenance- PROC8a	No other specific measures identified.

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Storage.PROC1PROC2	Store substance within a closed system.	
Section 2.2	Control of Environmental Exposure	ı
Substance is complex UVCB		
Predominantly hydrophobic.		
Readily biodegradable.		
Amounts Used		
		0,1
Regional use tonnage (tonne	s/year):	15
Fraction of Regional tonnage	used locally:	0,67
Annual site tonnage (tonnes/		10
Maximum daily site tonnage (		500
Frequency and Duration of		•
Continuous release.		
Emission Days (days/year):		20
	nfluenced by risk management	1 - 0
Local freshwater dilution factor		10
Local marine water dilution fa		100
	ns affecting Environmental Exposure	100
	rocess (initial release prior to RMM):	5,0E-03
	er from process (initial release prior to	3,0E-05
RMM):		3,02-03
Release fraction to soil from	process (initial release prior to RMM):	1,0E-03
Technical conditions and m	neasures at process level (source) to pro	event release
Common practices vary acros	ss sites thus conservative process re-	
lease estimates used.		
Technical onsite conditions sions and releases to soil	s and measures to reduce or limit discha	arges, air emis-
	osure is driven by freshwater.	
	lved substance to or recover from onsite	
wastewater.	ived substance to or recover from onsite	
No wastewater treatment req	uirod	
	a typical removal efficiency of (%)	0
	r to receiving water discharge) to provide	0
the required removal efficience		U
		0
wastewater treatment require	wage treatment plant, no secondary	U
	p 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		
	I from wastewater via domestic sewage	93,6
treatment (%)		
	om wastewater after onsite and offsite	93,6
(domestic treatment plant) RI		
	age (MSafe) based on release following	8,3E+05
total wastewater treatment re		
Assumed domestic sewage to		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		

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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	<b>EXPOSURE ESTIMATION</b>
3EC11014 3	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	<b>GUIDANCE TO CHECK COMPLIANCE WITH THE</b>
	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	
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	
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.		
Contributing Scenarios	Risk Management Measures	
Drum/batch transfersNon- dedicated facilityPROC8a	No other specific measures identified.	
Drum/batch transfersDedicated facilityPROC8b	No other specific measures identified.	
Drum/batch transfersDedicated facilityOperation is carried out at elevated temperature (> 20°C above ambient temperature).PROC8b	Ensure operation is undertaken outdoors. Avoid carrying out activities involving exposure for more than 4 hours	
ManualRolling, Brush- ingPROC10	Ensure operation is undertaken outdoors.	
Spraying/ fogging by machine applicationOperation is carried out at elevated temperature (> 20°C above ambient temperature).PROC11	Ensure operation is undertaken outdoors. Wear a respirator conforming to EN140 with Type A filter or better. Limit the substance content in the mixture to 50 %.	
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		0,02 02
Continuous release.		
Emission Days (days/year):		365
	influenced by risk management	1 000
Local freshwater dilution fact		10
Local marine water dilution factor:		100
	ons affecting Environmental Exposure	100
		9,5E-01
		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		
	ss sites thus conservative process re-	1010000
lease estimates used.	oc choc and concertaints process to	
	s and measures to reduce or limit disch	arges, air emis-
sions and releases to soil		<b>J</b> ,
Risk from environmental exp	osure 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.		
	o prevent/limit release from site	
Do not apply industrial sludge Sludge should be incinerated		
Conditions and Massures	rolated to municipal cowage treatment of	lant
	related to municipal sewage treatment p	
Estimated substance removal from wastewater via domestic sewage 93,6		33,0
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 total wastewater treatment removal (kg/d)	77
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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Exposure occitatio - Worker	
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 AND RISK MANAGEMENT MEASURES	
Section 2.1	Control of Worker Exposure	
<b>Product Characteristics</b>		
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 up to 100% (unless stated differently).,	
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 (tonne	s/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
<b>Environmental factors not</b>	influenced by risk management	
Local freshwater dilution fact	or:	10
Local marine water dilution fa	actor:	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 release estimates used.	
Technical onsite conditions and measures to reduce or limit discharges and releases to soil	arges, air emis-
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 the required removal efficiency of >= (%)	0
If discharging to domestic sewage treatment plant, no secondary wastewater treatment required.	0
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 regulations.	local and/or regional

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 RISK MANAGEMENT MEASURES		
Section 2.1	Control of Worker Exposure		
<b>Product Characteristics</b>			
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	37 '		
	o 8 hours (unless stated differently).		
Other Operational Condition	ons affecting Exposure		
Assumes use at not more th	an 20°C above ambient temperature (unle	ss stated differently).	
Assumes a good basic stand	Assumes a good basic standard of occupational hygiene is implemented.		
Contributing Scenarios	Risk Management Measures		
Laboratory activitiesPROC15	No other specific measures identified.		
CleaningPROC10	No other specific measures identified.		
Section 2.2	Control of Environmental Exposure		
Substance is complex UVCE	3.		
Predominantly hydrophobic.			
Readily biodegradable.			
Amounts Used			
Fraction of EU tonnage used in region:		0,1	
Regional use tonnage (tonne	es/year):	2,0	
Fraction of Regional tonnage used locally:		5,0E-04	
Annual site tonnage (tonnes/year):		1,0E-03	
, ,		2,7E-03	
Frequency and Duration of Use			
Continuous release.			
Emission Days (days/year): 365		365	
	influenced by risk management	1	
Local freshwater dilution factor: 10			
Local marine water dilution factor: 100		100	

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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	

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 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 Sub-	Covers use of substance/product up to 100% (unless stated	
stance in Mixture/Article	differently).,	
Frequency and Duration of Use		
	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	
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 equ maintenance.	ipment opening or
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
Annual site tonnage (tonnes/year):	30
Maximum daily site tonnage (kg/day):	100
Frequency and Duration of Use	1
Continuous release.	
Emission Days (days/year):	300
Environmental factors not influenced by risk management	
Local freshwater dilution factor:	10
Local marine water dilution factor:	100
Other Operational Conditions affecting Environmental Exposure	100
Release fraction to air from process (initial release prior to RMM):	5,0E-02
Release fraction to wastewater from process (initial release prior to	9,5E-01
RMM):	
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.	<u> </u>
Technical onsite conditions and measures to reduce or limit discharge	arges, air emis-
sions and releases to soil	T
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	95,8
	90,0
(domestic treatment plant) RMMs (%)  Maximum allowable site tonnage (MSafe) based on release following	100
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.	local allu/ol regional
Conditions and measures related to external recovery of waste	
External recovery and recycling of waste should comply with applicable	local and/or regional
regulations.	iocai anu/oi regional
Togalations.	

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	<b>GUIDANCE TO CHECK COMPLIANCE WITH THE</b>
	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		
	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		
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	
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	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 regulations.	local and/or regional
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.