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

1.1 Product identifier

Trade name : C7+ Gasoline Component

Product code : X2331, ZA771

Registration number EU : 01-2119486943-23-0002, 01-2119486943-23-0003, 01-

2119486943-23-0004, 01-2119486943-23-0006, 01-

2119486943-23-0007

Synonyms : Mixed Aromatics, Petroleum naptha

CAS-No. : 68527-23-1

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

Use of the Sub- : Chemical feedstock and component of motor gasoline. For

stance/Mixture use only in industrial processes.

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.

This product must not be used in applications other than those listed in Section 1 without first seeking the advice of the sup-

plier.

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 : sccmsds@shell.com

Sheet

1.4 Emergency telephone number

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

week)

Poisons Centre: 070 245 245

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)

Flammable liquids, Category 2 H225: Highly flammable liquid and vapour.

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Skin irritation, Category 2 H315: Causes skin irritation.

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

ways.

Germ cell mutagenicity, Category 1B H340: May cause genetic defects.

Carcinogenicity, Category 1A H350: May cause cancer.

Reproductive toxicity, Category 2 H361d: Suspected of damaging the unborn child.

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

- H336: May cause drowsiness or dizziness.

Specific target organ toxicity - repeated

exposure, Category 2, Blood

, Blood-forming organs

, Peripheral nervous system

, Auditory system

, Immune system

, Respiratory system

, Visual system

, Central nervous system

H373: May cause damage to organs through pro-

longed or repeated exposure.

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:

H225 Highly flammable liquid and vapour.

HEALTH HAZARDS:

H315 Causes skin irritation.

H304 May be fatal if swallowed and enters airways.

H340 May cause genetic defects.

H350 May cause cancer.

H361d Suspected of damaging the unborn child. H336 May cause drowsiness or dizziness.

H373 May cause damage to organs (Blood, Blood forming organs, Peripheral nervous system, Auditory system, Immune system, Respiratory system, Visual system, Central nervous

system) through prolonged or repeated exposure.

ENVIRONMENTAL HAZARDS:

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H411 Toxic to aquatic life with long lasting effects.

Precautionary statements : Prevention:

P202 Do not handle until all safety precautions have been read and understood.

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

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

P280 Wear protective gloves/ protective clothing/ eye protec-

tion/ face protection.

P273 Avoid release to the environment.

Response:

P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower. P301 + P310 IF SWALLOWED: Immediately call a POISON CENTER/ doctor.

P331 Do NOT induce vomiting.

P332 + P313 If skin irritation occurs: Get medical advice/

attention.

P391 Collect spillage.

Storage:

No precautionary phrases.

Disposal:

No precautionary phrases.

2.3 Other hazards

The substance does not fulfill all screening criteria for persistence, bioaccumulation and toxicity and hence is not considered to be PBT or vPvB.

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.

In use, 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.

SECTION 3: Composition/information on ingredients

3.1 Substances

Components

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Chemical name	CAS-No.	Concentration (% w/w)
	EC-No.	
naphtha (petroleum), light	68527-23-1	<= 100
steam-cracked aromatic	271-264-4	

Further information

Contains:

Chemical name	Identification number	Classification	Concentration (% w/w)
Xylene, mixed isomers	1330-20-7, 215-535- 7	Flam. Liq.3; H226 Asp. Tox.1; H304 Acute Tox.4; H312 Skin Irrit.2; H315 Eye Irrit.2; H319 Acute Tox.4; H332 STOT SE3; H335 STOT RE2; H373 Aquatic Chronic3; H412	30 - 50
Toluene	108-88-3, 203-625-9	Flam. Liq.2; H225 Asp. Tox.1; H304 Skin Irrit.2; H315 STOT SE3; H336 Repr.2; H361d STOT RE2; H373 Aquatic Chronic3; H412	30 - 50
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	< 1

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.

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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

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

Skin irritation signs and symptoms may include a burning sensation, redness, swelling, and/or blisters.

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.

Other signs and symptoms of central nervous system (CNS) depression may include headache, nausea, and lack of coor-

dination.

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Damage to blood-forming organs may be evidenced by: a) fatigue and anaemia (RBC), b) decreased resistance to infection, and/or excessive bruising and bleeding (platelet effect). Auditory system effects may include temporary hearing loss and/or ringing in the ears.

Peripheral nerve damage may be evidenced by impairment of motor function (incoordination, unsteady walk, or muscle weakness in the extremities, and/or loss of sensation in the arms and legs).

Visual system disturbances may be evidenced by decreases

in the ability to discriminate between colours.

Respiratory irritation signs and symptoms may include a temporary burning sensation of the nose and throat, coughing,

and/or difficulty breathing.

4.3 Indication of any immediate medical attention and special treatment needed

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

Potential for chemical pneumonitis.

Treat symptomatically.

Potential for cardiac sensitisation, particularly in abuse situations. Hypoxia or negative inotropes may enhance these ef-

fects. Consider: oxygen therapy.

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

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Breathing Apparatus must be worn when approaching a fire in a confined space. Select fire fighter's clothing approved to

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

Specific extinguishing meth-

ods

Standard procedure for chemical fires.

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

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions

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

environment occurs or is likely to occur.

Local authorities should be advised if significant spillages

cannot be contained.

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

Isolate hazard area and deny entry to unnecessary or unpro-

tected personnel.

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

Avoid contact with skin, eyes and clothing.

Isolate hazard area and deny entry to unnecessary or unpro-

tected personnel.

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

6.2 Environmental precautions

Environmental precautions

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

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

6.3 Methods and material for containment and cleaning up

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

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

contaminated soil and dispose of safely.

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

Ventilate contaminated area thoroughly.

If contamination of site occurs remediation may require spe-

cialist advice.

6.4 Reference to other sections

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

SECTION 7: Handling and storage

7.1 Precautions for safe handling

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

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

Section 8 of this Safety Data Sheet.

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

material.

Ensure that all local regulations regarding handling and stor-

age facilities are followed.

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

Avoid contact with skin, eyes and clothing.

Extinguish any naked flames. Do not smoke. Remove ignition

sources. Avoid sparks.

Use local exhaust ventilation if there is risk of inhalation of

vapours, mists or aerosols.

Bulk storage tanks should be diked (bunded).

When using do not eat or drink.

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

distant ignition is possible.

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

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

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lead to static discharge e.g. spark formation. Restrict line velocity 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 precedures and precedures.

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:

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American Petroleum Institute 2003 (Protection Against Ignitions Arising out of Static, Lightning and Stray Currents) or National Fire Protection Agency 77 (Recommended Practices

on Static Electricity).

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

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational Exposure Limits

Components	CAS-No.	Value type (Form of exposure)	Control parameters	Basis	
Xylene, mixed isomers	1330-20-7	TLV 8 hr	50 ppm 221 mg/m3	BE OEL	
	Further inform	nation: Absorption of	the agent through the skin, t	he mucous	
			an important part of total ex		
	absorption ca	in be the result of dire	ect contact as well as the pre	sence in air.	
Xylene, mixed		TLV 15 min	100 ppm	BE OEL	
isomers			442 mg/m3		
	membranes of	or the eyes makes up	the agent through the skin, to an important part of total exect contact as well as the pre-	posure. This	
Toluene	108-88-3	TLV 8 hr	20 ppm	BE OEL	
Toluene	100-00-3	ILVOIII	77 mg/m3	BE OEL	
	Further inform	 nation: Absorption of	the agent through the skin, t	ho musous	
			an important part of total ex		
T.1	absorption ca		ect contact as well as the pre		
Toluene		TLV 15 min	100 ppm	BE OEL	
	- u		384 mg/m3	<u> </u>	
	Further information: Absorption of the agent through the skin, the mucous				
	membranes or the eyes makes up an important part of total exposure. This absorption can be the result of direct contact as well as the presence in air.				
	absorption ca				
Toluene		TWA	50 ppm	2006/15/EC	
			192 mg/m3		
		Further information: Indicative, Identifies the possibility of significant uptake			
	through the s				
Toluene		STEL	100 ppm	2006/15/EC	
			384 mg/m3		
	Further information: Indicative, Identifies the possibility of significant uptake				
	through the s	through the skin			
Benzene	71-43-2	TLV 8 hr	0,5 ppm	BE OEL	
			1,65 mg/m3		
	Further information: Absorption of the agent through the skin, the mucous				
	membranes or the eyes makes up an important part of total exposure. This				
	absorption can be the result of direct contact as well as the presence in air.,				
	This substance is part of the scope of the Royal degree of 2th December 1993				
	on the protection of workers against the risk of exposure to carcinogenic and				
		jents at labour.		3-111-111-1	
Benzene		TWA	0,25 ppm	Shell Internal	
	L	1	/ IT		

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		0,8 mg/m3	Standard (SIS) for 8-12 hour TWA.
Benzene	STEL	2,5 ppm 8 mg/m3	Shell Internal Standard (SIS) for 15 min (STEL)

Biological occupational exposure limits

No biological limit allocated.

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

Substance name	End Use	Exposure routes	Potential health effects	Value
C7+ Gasoline Component, 68527-23-1	Workers	Dermal	Long-term systemic effects	23,4 mg/kg
C7+ Gasoline Component, 68527-23-1	Workers	Inhalation	Long-term systemic effects	3,25 mg/m3

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 pole to identify a single representative PNEC for	opropriate and it is

8.2 Exposure controls

Engineering measures

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

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:

General Information:

Consider technical advances and process upgrades (including automation) for the elimination of releases. Minimise exposure using measures such as closed systems, dedicated facilities and suitable general/local exhaust ventilation. Drain down systems and clear transfer lines prior to breaking containment. Clean/flush equipment, where possible, prior to maintenance. Where there is potential for exposure: restrict access to authorised persons; provide specific activity training to operators to minimise exposures; wear suitable gloves and coveralls to prevent skin contamination; wear respiratory protection when there is potential for inhalation; clear up spills immediately and dispose of wastes safely. Ensure safe systems of work or equivalent arrangements are in place to manage risks. Regularly inspect, test and maintain all control measures. Consider the need for risk based health surveillance.

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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 Wear goggles for use against liquids and gas.

Wear full face shield if splashes are likely to occur.

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: Viton.

Incidental contact/Splash protection: Nitrile rubber.

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 moisturizer is recommended.

Skin and body protection Wear chemical resistant gloves/gauntlets and boots. Where

risk of splashing, also wear an apron.

Protective clothing approved to EU Standard EN14605. Wear antistatic and flame-retardant clothing, if a local risk

assessment deems it so.

If engineering controls do not maintain airborne concentra-Respiratory protection

> 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.

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> Where air-filtering respirators are unsuitable (e.g. airborne concentrations are high, risk of oxygen deficiency, confined space) use appropriate positive pressure breathing apparatus.

Where air-filtering respirators are suitable, select an appropriate 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.

Thermal hazards : When handling heated product, wear heat resistant gloves,

safety hat with chin strap, face shield (preferably with a chin guard), safety glasses, heat resistant coveralls (with cuffs over gloves and legs over boots), neck protection and heavy duty

boots, e.g. leather for heat resistance.

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 / freezing point -50 °C

100 - 205 °C Boiling point/boiling range

Flammability

Flammability (solid, gas) Not applicable

Lower explosion limit and upper explosion limit / flammability limit

Upper explosion limit /

upper flammability limit

8 %(V)

Lower explosion limit /

Lower flammability limit

1 %(V)

Flash point < 0 °C

> 225 °C Auto-ignition temperature

Decomposition temperature

Decomposition tempera-

Data not available

ture

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pH : Not applicable

Viscosity

Viscosity, dynamic : ca. 1 mPa.s (25 °C)

Method: ASTM D445

Viscosity, kinematic : Data not available

Solubility(ies)

Water solubility : Data not available

Partition coefficient: n-

octanol/water

log Pow: 2,1 - 6,7

Vapour pressure : Typical < 7 kPa (37,8 °C)

Relative density : Data not available

Density : Typical 860 - 870 kg/m3 (20 °C)

Method: ASTM D4052

Relative vapour density : 3,3

9.2 Other information

Explosive properties : Not applicable

Oxidizing properties : Data not available

Evaporation rate : Data not available

Conductivity: < 100 pS/m

The conductivity of this material makes it a static accumulator., A liquid is typically considered nonconductive if its con-

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 : Not applicable

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SECTION 10: Stability and reactivity

10.1 Reactivity

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

10.2 Chemical stability

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

10.3 Possibility of hazardous reactions

Hazardous reactions : Reacts with strong oxidising agents.

10.4 Conditions to avoid

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

In certain circumstances product can ignite due to static elec-

tricity.

10.5 Incompatible materials

Materials to avoid Strong oxidising agents.

10.6 Hazardous decomposition products

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

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

SECTION 11: Toxicological information

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

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

skin or eye contact, and accidental ingestion.

Acute toxicity

Product:

LD 50 (Rat, male and female): > 5.000 mg/kg Acute oral toxicity

Method: Other guideline method.

Remarks: Based on available data, the classification criteria

are not met.

Acute inhalation toxicity LC 50 (Rat, male and female): > 20 mg/l

> Exposure time: 4 h Test atmosphere: vapour

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

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403

Remarks: Based on available data, the classification criteria

are not met.

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

Method: Other guideline method.

Remarks: Based on available data, the classification criteria

are not met.

Components:

naphtha (petroleum), light steam-cracked aromatic:

Acute oral toxicity : LD 50 (Rat, male and female): > 5.000 mg/kg

Method: Other guideline method.

Remarks: Based on available data, the classification criteria

are not met.

Acute inhalation toxicity : LC 50 (Rat, male and female): > 20 mg/l

Exposure time: 4 h
Test atmosphere: vapour

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

403

Remarks: Based on available data, the classification criteria

are not met.

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

Method: Other guideline method.

Remarks: Based on available data, the classification criteria

are not met.

Skin corrosion/irritation

Product:

Species : Rabbit

Method : OECD Test Guideline 404 Remarks : Causes skin irritation.

Components:

naphtha (petroleum), light steam-cracked aromatic:

Species : Rabbit

Method : OECD Test Guideline 404 Remarks : Causes skin irritation.

Serious eye damage/eye irritation

Product:

Species : Rabbit

Method : Other guideline method.

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

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Components:

naphtha (petroleum), light steam-cracked aromatic:

Species : Rabbit

Method : Other guideline method.

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

Respiratory or skin sensitisation

Product:

Species : Guinea pig

Method : Other guideline method.

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

Components:

naphtha (petroleum), light steam-cracked aromatic:

Species : Guinea pig

Method : Other guideline method.

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

Germ cell mutagenicity

Product:

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

Remarks: May cause genetic defects.

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

473

Remarks: May cause genetic defects.

Genotoxicity in vivo : Species: Mouse

Method: OECD Test Guideline 474

Remarks: May cause heritable genetic damage

Germ cell mutagenicity- As-

sessment

May cause genetic defects.

Components:

naphtha (petroleum), light steam-cracked aromatic:

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

Remarks: May cause genetic defects.

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

473

Remarks: May cause genetic defects.

Genotoxicity in vivo : Species: Mouse

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Method: OECD Test Guideline 474

Remarks: May cause heritable genetic damage

Germ cell mutagenicity- As-

sessment

May cause genetic defects.

Carcinogenicity

Product:

Species : Rat, male and female

Application Route : Oral

Method : Other guideline method. Remarks : May cause cancer.

Known human carcinogen.

Contains benzene.

Causes leukaemia (AML - acute myelogenous leukaemia).

Species : Rat, male and female

Application Route : Inhalation

Method : Test(s) equivalent or similar to OECD Test Guideline 453

Remarks : May cause cancer.

Known human carcinogen.

Contains benzene.

Causes leukaemia (AML - acute myelogenous leukaemia).

Carcinogenicity - Assess-

ment

May cause cancer.

Components:

naphtha (petroleum), light steam-cracked aromatic:

Species : Rat, male and female

Application Route : Oral

Method : Other guideline method. Remarks : May cause cancer.

Known human carcinogen.

Contains benzene.

Causes leukaemia (AML - acute myelogenous leukaemia).

Species : Rat, male and female

Application Route : Inhalation

Method : Test(s) equivalent or similar to OECD Test Guideline 453

Remarks : May cause cancer.

Known human carcinogen.

Contains benzene.

Causes leukaemia (AML - acute myelogenous leukaemia).

Carcinogenicity - Assess-

ment

: May cause cancer.

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Material	GHS/CLP Carcinogenicity Classification
naphtha (petroleum), light steam-cracked aromatic	Carcinogenicity Category 1A
Xylene, mixed isomers	No carcinogenicity classification.
Toluene	No carcinogenicity classification.
Benzene	Carcinogenicity Category 1A

Material	Other Carcinogenicity Classification
naphtha (petroleum), light steam-cracked aromatic	IARC: Group 2B: Possibly carcinogenic to humans
Xylene, mixed isomers	IARC: Group 3: Not classifiable as to its carcinogenicity to humans
Toluene	IARC: Group 3: Not classifiable as to its carcinogenicity to humans
Benzene	IARC: Group 1: Carcinogenic to humans

Reproductive toxicity

Product:

Effects on fertility

Remarks: Suspected of damaging fertility or the unborn child.

Reproductive toxicity - As-

sessment

This product does not meet the criteria for classification in

categories 1A/1B.

Components:

naphtha (petroleum), light steam-cracked aromatic:

Effects on fertility

Remarks: Suspected of damaging fertility or the unborn child.

Reproductive toxicity - As-

sessment

This product does not meet the criteria for classification in

categories 1A/1B.

STOT - single exposure

Product:

Exposure routes : Inhalation

Target Organs : Central nervous system

Remarks : May cause drowsiness or dizziness.

Inhalation of vapours or mists may cause irritation to the res-

piratory system.

Vapours may cause drowsiness and dizziness.

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Components:

naphtha (petroleum), light steam-cracked aromatic:

Exposure routes : Inhalation

Target Organs : Central nervous system

Remarks : May cause drowsiness or dizziness.

Inhalation of vapours or mists may cause irritation to the res-

piratory system.

Vapours may cause drowsiness and dizziness.

STOT - repeated exposure

Product:

Exposure routes : Oral

Target Organs : Blood, Blood-forming organs, Peripheral nervous system,

Auditory system, Immune system, Respiratory system, Visual

system, Central nervous system

Remarks : May cause damage to organs or organ systems through pro-

longed or repeated exposure.

Components:

naphtha (petroleum), light steam-cracked aromatic:

Exposure routes : Oral

Target Organs : Blood, Blood-forming organs, Peripheral nervous system,

Auditory system, Immune system, Respiratory system, Visual

system, Central nervous system

Remarks : May cause damage to organs or organ systems through pro-

longed or repeated exposure.

Repeated dose toxicity

Product:

Species : Rat, male and female

Application Route : Oral

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

Target Organs : hematopoietic system

Species : Rat, male and female

Application Route : Inhalation Test atmosphere : vapour

Method : Test(s) equivalent or similar to OECD Test Guideline 413

Target Organs : No specific target organs noted

Species : Rabbit, female

Application Route : Dermal

Method : Test(s) equivalent or similar to OECD Test Guideline 410

Target Organs : No specific target organs noted

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Components:

naphtha (petroleum), light steam-cracked aromatic:

Species : Rat, male and female

Application Route : Oral

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

Target Organs : hematopoietic system

Species : Rat, male and female

Application Route : Inhalation Test atmosphere : vapour

Method : Test(s) equivalent or similar to OECD Test Guideline 413

Target Organs : No specific target organs noted

Species : Rabbit, female

Application Route : Dermal

Method : Test(s) equivalent or similar to OECD Test Guideline 410

Target Organs : No specific target organs noted

Aspiration toxicity

Product:

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

Components:

naphtha (petroleum), light steam-cracked aromatic:

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

Product:

Remarks : Classifications by other authorities under varying regulatory

frameworks may exist.

Remarks : Unless indicated otherwise, the data presented is representa-

tive of the product as a whole, rather than for individual com-

ponent(s).

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Components:

naphtha (petroleum), light steam-cracked aromatic:

Remarks : Classifications by other authorities under varying regulatory

frameworks may exist.

SECTION 12: Ecological information

12.1 Toxicity

Product:

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 1 mg/l

Exposure time: 96 h

Method: OECD Test Guideline 203

Remarks: Toxic

 $LL/EL/IL50 > 1 \le 10 \text{ mg/l}$

Toxicity to daphnia and other :

aquatic invertebrates

EC50 (Daphnia magna (Water flea)): 1,2 mg/l

Exposure time: 48 h

Method: OECD Test Guideline 202

Remarks: Toxic

 $LL/EL/IL50 > 1 \le 10 \text{ mg/l}$

Toxicity to algae/aquatic plants : EC50 (Pseudokirchneriella subcapitata (algae)): 1,3 mg/l

Exposure time: 96 h

Method: OECD Test Guideline 201

Remarks: Toxic

 $LL/EL/IL50 > 1 \le 10 \text{ mg/l}$

Toxicity to fish (Chronic tox-

icity)

Remarks: Data not available

Toxicity to daphnia and other :

aquatic invertebrates (Chron-

ic toxicity)

Remarks: Data not available

Toxicity to microorganisms : LL50 (Tetrahymena pyriformis): 76,7 mg/l

Exposure time: 72 h

Method: Based on quantitative structure-activity relationship

(QSAR) modelling Remarks: Harmful

 $LL/EL/IL50 > 1 \le 10 \text{ mg/l}$

Components:

naphtha (petroleum), light steam-cracked aromatic:

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 1 mg/l

Exposure time: 96 h

Method: OECD Test Guideline 203

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Remarks: Toxic

 $LL/EL/IL50 > 1 \le 10 \text{ mg/l}$

Toxicity to daphnia and other :

aquatic invertebrates

EC50 (Daphnia magna (Water flea)): 1,2 mg/l

Exposure time: 48 h

Method: OECD Test Guideline 202

Remarks: Toxic

 $LL/EL/IL50 > 1 \le 10 \text{ mg/l}$

Toxicity to algae/aquatic plants : EC50 (Pseudokirchneriella subcapitata (algae)): 1,3 mg/l

Exposure time: 96 h

Method: OECD Test Guideline 201

Remarks: Toxic

 $LL/EL/IL50 > 1 \le 10 \text{ mg/l}$

Toxicity to microorganisms : LL50 (Tetrahymena pyriformis): 76,7 mg/l

Exposure time: 72 h

Method: Based on quantitative structure-activity relationship

(QSAR) modelling Remarks: Harmful

 $LL/EL/IL50 > 1 \le 10 \text{ mg/l}$

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

Product:

Biodegradability : Biodegradation: 7,3 %

Exposure time: 28 d

Method: OECD Test Guideline 301F Remarks: Not readily biodegradable.

Oxidises rapidly by photo-chemical reactions in air.

Components:

naphtha (petroleum), light steam-cracked aromatic:

Biodegradability : Biodegradation: 7,3 %

Exposure time: 28 d

Method: OECD Test Guideline 301F Remarks: Not readily biodegradable.

Oxidises rapidly by photo-chemical reactions in air.

12.3 Bioaccumulative potential

Product:

Bioaccumulation : Species: Pimephales promelas (fathead minnow)

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Bioconcentration factor (BCF): 0,73 - 4,15

Method: Based on quantitative structure-activity relationship

(QSAR) modelling

Remarks: Contains components with the potential to bioaccumulate.

Components:

naphtha (petroleum), light steam-cracked aromatic:

Bioaccumulation : Species: Pimephales promelas (fathead minnow)

Bioconcentration factor (BCF): 0,73 - 4,15

Method: Based on quantitative structure-activity relationship

(QSAR) modelling

Remarks: Contains components with the potential to bioaccumulate.

12.4 Mobility in soil

Product:

Mobility : Remarks: Floats on water., If product enters soil, one or more

constituents will be highly mobile and may contaminate

groundwater.

Components:

naphtha (petroleum), light steam-cracked aromatic:

Mobility : Remarks: Floats on water., If product enters soil, one or more

constituents will be highly mobile and may contaminate

groundwater.

12.5 Results of PBT and vPvB assessment

Product:

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..

Components:

naphtha (petroleum), light steam-cracked aromatic:

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.

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12.7 Other adverse effects

Product:

Additional ecological infor-

mation

Unless indicated otherwise, the data presented is representative of the product as a whole, rather than for individual component(s).

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product

Recover or recycle if possible.

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

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

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

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

Waste, spills or used product is dangerous waste.

Disposal should be in accordance with applicable regional,

national, and local laws and regulations.

Local regulations may be more stringent than regional or national requirements and must be complied with.

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

Contaminated packaging

Drain container thoroughly.

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

cut or weld uncleaned drums.

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

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

14.2 UN proper shipping name

ADN : PETROLEUM DISTILLATES, N.O.S.

(NAPHTHA, pD50 <=110 kPa)

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)

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

14.4 Packing group

ADN

Packing group : II
Classification Code : F1

Labels : 3 (N2, CMR, F) CDNI Inland Water Waste : NST 3212 Naphtha

Agreement

ADR

Packing group : II
Classification Code : F1
Hazard Identification Number : 33
Labels : 3

RID

Packing group : II
Classification Code : F1
Hazard Identification Number : 33
Labels : 3

Remarks : SP640CD: Special provision 640D

IMDG

Packing group : II Labels : 3

IATA

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Packing group : II Labels : 3

14.5 Environmental hazards

adn

Environmentally hazardous : yes

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.

SECTION 15: Regulatory information

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

Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances.

34a Petroleum products: (a) gasolines and naphthas, (b) kerosenes (including jet fuels), (c) gas oils (including diesel fuels, home

heating oils and gas oil blending streams),(d) heavy fuel oils (e) alternative fuels serving the same purposes and with similar properties as regards flammability and environmental hazards as the products referred to in points (a)

to (d)

Other regulations:

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

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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

2006/15/EC : Europe. Indicative occupational exposure limit values

BE OEL : Belgium. Occupational exposure limit values

2006/15/EC / TWA : Limit Value - eight hours 2006/15/EC / STEL : Short term exposure limit BE OEL / TLV 8 hr : Long term exposure limit BE OEL / TLV 15 min : 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

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

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

ered to be PBT or vPvB.

A vertical bar (|) in the left margin indicates an amendment

from the previous version.

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 : Use as an intermediate

- Industrial

Uses - Worker

Title : Distribution of substance

- Industrial

Uses - Worker

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

- Industrial

Uses - Worker

Title : Use as a fuel

- Industrial

Uses - Worker

Title : Use as a fuel

- Professional

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

BE / EN

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Exposure Scenario - Worker

SECTION 2

30000000139	
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 8a, PROC 8b, PROC 15 Environmental Release Categories: ERC1
Scope of process	Manufacture of the substance or use as a process chemical or extraction agent within closed or contained systems. Includes incidental exposures during recycling/ recovery, material transfers, storage, sampling, associated laboratory activities, maintenance and loading (including marine vessel/barge, road/rail car and bulk container).

OPERATIONAL CONDITIONS AND RISK MANAGEMENT

	MEASURES
Section 2.1	Control of Worker Exposure
Product Characteristics	
Physical form of product	Liquid, vapour pressure 0.5 - 10 kPa at STP
Concentration of the Substance in Mixture/Article	Covers use of substance/product up to 100% (unless stated differently).,
Frequency and Duration of	
	8 hours (unless stated differently).
Other Operational Condition	
	in 20°C above ambient temperature (unless stated differently). ard of occupational hygiene is implemented.
Contributing Scenarios	Risk Management Measures
General measures (carcinogens).	Consider technical advances and process upgrades (including automation) for the elimination of releases. Minimise exposure using measures such as closed systems, dedicated facilities and suitable general/local exhaust ventilation. Drain down systems and clear transfer lines prior to breaking containment. Clean/flush equipment, where possible, prior to maintenance. Where there is potential for exposure: restrict access to authorised persons; provide specific activity training to operators to minimise exposures; wear suitable gloves and coveralls to prevent skin contamination; wear respiratory protection when its use is identified for certain contributing scenarios; clear up spills immediately and maintain all control measures. Consider the need for risk based health surveillance.
General measures (skin irritants).	Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if

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Γ	1		
	hand contact with substance likely. Clea		
	tion/spills as soon as they occur. Wash		
	nation immediately. Provide basic emplo		
	vent / minimise exposures and to report	any skin problems	
	that may develop.		
General exposures (closed	No other specific measures identified.		
systems)			
General exposures (closed	Handle substance within a closed syster		
systems) with sample col-	Sample via a closed loop or other syster	n to avoid exposure	
lectionGeneral measures			
(skin irritants).Outdoor			
General exposures (closed	Handle substance within a closed system		
systems)Use in contained	Ensure operation is undertaken outdoors	S.	
batch processes	Company is a place of large an other system		
Process sampling	Sample via a closed loop or other syster	n to avoid exposure	
Laboratory activities	Handle within a fume cupboard or impler	ment suitable equiva-	
	lent methods to minimise exposure.		
Bulk transfers(closed sys-	Ensure material transfers are under cont	ainment or extract	
tems)	ventilation.		
Equipment cleaning and	Drain down and flush system prior to equ	uipment opening or	
maintenance	maintenance.		
	Clear spills immediately.		
	Retain drain downs in sealed storage pending disposal or for		
	subsequent recycle.	0 1	
04	Others and others are sittline and an advantage		
Storage.General measures	Store substance within a closed system.		
(skin irritants).Outdoor	Sample via a closed loop or other syster	n to avoid exposure	
Section 2.2	Control of Environmental Exposure		
Substance is complex UVCB			
Predominantly hydrophobic.			
Not readily biodegradable.			
Amounts Used		<u> </u>	
Fraction of EU tonnage used		0,1	
Regional use tonnage (tonne		5,0E+05	
Fraction of Regional tonnage	•	1	
Annual site tonnage (tonnes/		5,0E+05	
Maximum daily site tonnage		1,7E+06	
Frequency and Duration of	Use	1	
Continuous release.			
Emission Days (days/year):		300	
	influenced by risk management	T	
Local freshwater dilution fact		40	
Local marine water dilution fa		100	
	ons affecting Environmental Exposure	1,05.05	
	process (initial release prior to RMM):	1,0E-05	
Release fraction to wastewat	er from process (initial release prior to	5,0E-06	

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DMM).	T
RMM): Release fraction to soil from process (initial release prior to RMM):	1,0E-04
Technical conditions and measures at process level (source) to process	
Common practices vary across sites thus conservative process re-	event release
lease estimates used.	
Technical onsite conditions and measures to reduce or limit disch	arnos air omis.
sions and releases to soil	arges, air cims-
Risk from environmental exposure is driven by humans via indirect	
exposure (primarily ingestion).	
If discharging to domestic sewage treatment plant, no secondary	
wastewater treatment required.	
Prevent discharge of undissolved substance to or recover from onsite	
wastewater.	
Treat air emission to provide a typical removal efficiency of (%)	90
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 (%)	95,0
Total efficiency of removal from wastewater after onsite and offsite	95,0
(domestic treatment plant) RMMs (%)	1.05.06
Maximum allowable site tonnage (MSafe) based on release following	1,8E+06
total wastewater treatment removal (kg/d) Assumed domestic sewage treatment plant flow (m3/d)	10.000
Conditions and Measures related to external treatment of waste for	
During manufacturing no waste of the substance is generated.	uispusai
During manufacturing no waste of the substance is generated.	
Conditions and measures related to external recovery of waste	
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

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Section 4.1 - Health

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

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

Available hazard data do not enable the derivation of a DNEL for dermal irritant effects.

Risk Management Measures are based on qualitative risk characterisation.

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

SECTION 2

30000000138	
SECTION 1	EXPOSURE SCENARIO TITLE
Title	Use as an intermediate- Industrial
Use Descriptor	Sector of Use: SU3, SU8, SU9 Process Categories: PROC 1, PROC 2, PROC 3, PROC 8a, PROC 8b, PROC 15 Environmental Release Categories: ERC6a
Scope of process	Use of substance as an intermediate within closed or contained systems (not related to Strictly Controlled Conditions). Includes incidental exposures during recycling/recovery, material transfers, storage, sampling, associated laboratory activities, maintenance and loading (including marine vessel/barge, road/rail car and bulk container).

OPERATIONAL CONDITIONS AND RISK MANAGEMENT

323113112	MEASURES	
Section 2.1	Control of Worker Exposure	
Product Characteristics		
Physical form of product	Liquid, vapour pressure 0.5 - 10 kPa at STP	
Concentration of the Substance in Mixture/Article	Covers use of substance/product up to 100% (unless stated differently).,	
Frequency and Duration of	Use	
	8 hours (unless stated differently).	
Other Operational Condition	ns affecting Exposure	
	in 20°C above ambient temperature (unless stated differently). ard of occupational hygiene is implemented.	
Contributing Scenarios	Risk Management Measures	
General measures (carcinogens).	Consider technical advances and process upgrades (including automation) for the elimination of releases. Minimise exposure using measures such as closed systems, dedicated facilities and suitable general/local exhaust ventilation. Drain down systems and clear transfer lines prior to breaking containment. Clean/flush equipment, where possible, prior to maintenance. Where there is potential for exposure: restrict access to authorised persons; provide specific activity training to operators to minimise exposures; wear suitable gloves and coveralls to prevent skin contamination; wear respiratory protection when its use is identified for certain contributing scenarios; clear up spills immediately and maintain all control measures. Consider the need for risk based health surveillance.	
General measures (skin irritants).	Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if	

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	hand contact with substance likely. Cleation/spills as soon as they occur. Wash nation immediately. Provide basic employent / minimise exposures and to report that may develop.	off any skin contami- byee training to pre-
General exposures (closed systems)	No other specific measures identified.	
General exposures (closed systems) with sample collection General measures (skin irritants). Outdoor	Handle substance within a closed system Sample via a closed loop or other system	
General exposures (closed systems)Use in contained batch processes	Handle substance within a closed system Ensure operation is undertaken outdoor	
Process sampling	Sample via a closed loop or other system	m to avoid exposure
Laboratory activities	Handle within a fume cupboard or imple lent methods to minimise exposure.	ement suitable equiva-
Bulk transfers(closed systems)	Ensure material transfers are under conventilation.	tainment or extract
Equipment cleaning and maintenance	Drain down and flush system prior to eq maintenance. Clear spills immediately. Retain drain downs in sealed storage per subsequent recycle.	
Storage.General measures (skin irritants).Outdoor	Store substance within a closed system Sample via a closed loop or other system	
Section 2.2	Control of Environmental Exposure	
Substance is complex UVCB		
Predominantly hydrophobic.		
Not readily biodegradable.		
Amounts Used		
Fraction of EU tonnage used	in region:	0,1
Regional use tonnage (tonne		1,5E+05
Fraction of Regional tonnage used locally:		0,1
Annual site tonnage (tonnes/		1,5E+04
Maximum daily site tonnage		5,0E+04
Frequency and Duration of		1 - 1
Continuous release.		
Emission Days (days/year):		300
	influenced by risk management	1
Local freshwater dilution fact		10
		100
	ons affecting Environmental Exposure	1
		5,0E-05
Release fraction to wastewater from process (initial release prior to		1,0E-05
	1 \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	i '

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Release fraction to soil from process (initial release prior to RMM):	1,0E-03
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 sions and releases to soil	arges, air emis-
Risk from environmental exposure is driven by humans via indirect exposure (primarily ingestion).	
If discharging to domestic sewage treatment plant, no secondary wastewater treatment required.	
Prevent discharge of undissolved substance to or recover from onsite wastewater.	
Treat air emission to provide a typical removal efficiency of (%)	80
Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of >= (%)	0
Organisational measures to prevent/limit release from site	I
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 (%)	95,0
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%)	95,0
Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal (kg/d)	1,8E+05
Assumed domestic sewage treatment plant flow (m3/d)	2.000
Conditions and Measures related to external treatment of waste fo	r disposal
This substance is consumed during use and no waste of substance is of	jenerated.
Conditions and measures related to external recovery of waste	
This substance is consumed during use and no waste of substance is o	an aratad

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.

Available hazard data do not enable the derivation of a DNEL for dermal irritant effects.

Risk Management Measures are based on qualitative risk characterisation.

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

SECTION 2

30000000140	
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 8a, PROC 8b, PROC 15 Environmental Release Categories: ERC1, ERC2, ERC3, ERC4, ERC5, ERC6a, ERC6b, ERC 6C, ERC 6D, ERC7
Scope of process	Bulk loading (including marine vessel/barge, rail/road car and IBC loading) of substance within closed or contained systems, including incidental exposures during its sampling, storage, unloading, maintenance and associated laboratory activities.

OPERATIONAL CONDITIONS AND RISK MANAGEMENT

	MEASURES	
Section 2.1	Control of Worker Exposure	
Product Characteristics		
Physical form of product	Liquid, vapour pressure 0.5 - 10 kPa at STP	
Concentration of the 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 Condition		
Assumes use at not more than 20°C above ambient temperature (unless stated differently). Assumes a good basic standard of occupational hygiene is implemented.		
Contributing Scenarios	Risk Management Measures	
General measures (carcinogens).	Consider technical advances and process upgrades (including automation) for the elimination of releases. Minimise exposure using measures such as closed systems, dedicated facilities and suitable general/local exhaust ventilation. Drain down systems and clear transfer lines prior to breaking containment. Clean/flush equipment, where possible, prior to maintenance. Where there is potential for exposure: restrict access to authorised persons; provide specific activity training to operators to minimise exposures; wear suitable gloves and coveralls to prevent skin contamination; wear respiratory protection when its use is identified for certain contributing scenarios; clear up spills immediately and maintain all control measures. Consider the need for risk based health surveil-lance.	
General measures (skin irritants).	Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if	

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	T	
	hand contact with substance likely. Clear	
	tion/spills as soon as they occur. Wash o	
	nation immediately. Provide basic emplo	
	vent / minimise exposures and to report	any skin problems
	that may develop.	
General exposures (closed	No other specific measures identified.	
systems)		
General exposures (closed	Handle substance within a closed system	
systems) with sample col-	Sample via a closed loop or other system	n to avoid exposure
lectionGeneral measures		
(skin irritants).		
General exposures (closed	Handle substance within a closed system	
systems)Use in contained	Sample via a closed loop or other system	n to avoid exposure
batch processes	Compute via a classed last at ather averters	- to ovaid ovacova
Process sampling	Sample via a closed loop or other system	1 to avoid exposure
Laboratory activities	Handle within a fume cupboard or impler	nent suitable equiva-
	lent methods to minimise exposure.	
Bulk transfers(closed sys-		ainment or extract
tems)	ventilation.	
,		
Equipment cleaning and	Drain down and flush system prior to equ	lipment opening or
maintenance	maintenance.	
	Clear spills immediately.	
	Retain drain downs in sealed storage per	nding disposal or for
	subsequent recycle.	
Storage.General measures	Store substance within a closed system.	
(skin irritants).	Sample via a closed loop or other system	n to avoid exposure
0	0	
Section 2.2	Control of Environmental Exposure	
Substance is complex UVCB	•	
Predominantly hydrophobic.		
Not readily biodegradable.		
Amounts Used		10.4
Fraction of EU tonnage used in region:		0,1
Regional use tonnage (tonnes/year):		5,0E+05
Fraction of Regional tonnage used locally:		2,0E-03
Annual site tonnage (tonnes/		1,0E+03
Maximum daily site tonnage (kg/day):		1,0E+04
Frequency and Duration of	USE	
Continuous release. Emission Days (days/year):		100
, , ,	influenced by risk management	100
Local freshwater dilution factors		10
Local marine water dilution fa		100
	ns affecting Environmental Exposure	100
		1,0E-03
		1,0E-05
. to.ouoo muotion to wastewat	or morn process (milital release prior to	1 .,02 00

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RMM):	
Release fraction to soil from process (initial release prior to RMM):	1,0E-05
Technical conditions and measures at process level (source) to pro	event release
Common practices vary across sites thus conservative process re-	
lease estimates used.	
Technical onsite conditions and measures to reduce or limit discha-	arges, air emis-
sions and releases to soil	
Risk from environmental exposure is driven by humans via indirect	
exposure (primarily ingestion).	
If discharging to domestic sewage treatment plant, no secondary	
wastewater treatment required.	
Prevent discharge of undissolved substance to or recover from onsite	
wastewater.	
Treat air emission to provide a typical removal efficiency of (%)	90
Treat onsite wastewater (prior to receiving water discharge) to provide	0
the required removal efficiency of >= (%)	
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	95,0
treatment (%)	
Total efficiency of removal from wastewater after onsite and offsite	95,0
(domestic treatment plant) RMMs (%)	
Maximum allowable site tonnage (MSafe) based on release following	1,7E+05
total wastewater treatment removal (kg/d)	
Assumed domestic sewage treatment plant flow (m3/d)	2.000
Conditions and Measures related to external treatment of waste for	
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

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Section 4.1 - Health

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

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

Available hazard data do not enable the derivation of a DNEL for dermal irritant effects.

Risk Management Measures are based on qualitative risk characterisation.

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

SECTION 2

30000000141	
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 8a, PROC 8b, PROC 9, PROC 15 Environmental Release Categories: ERC2
Scope of process	Formulation of the substance and its mixtures in batch or continuous operations within closed or contained systems, including incidental exposures during storage, materials transfers, mixing, maintenance, sampling and associated laboratory activities.

OPERATIONAL CONDITIONS AND RISK MANAGEMENT

020110112	MEASURES	
Section 2.1	Control of Worker Exposure	
Product Characteristics		
Physical form of product	Liquid, vapour pressure 0.5 - 10 kPa at STP	
Concentration of the Substance in Mixture/Article	Covers use of substance/product up to 100% (unless stated differently).,	
Frequency and Duration of	Use	
	8 hours (unless stated differently).	
Other Operational Condition	ns affecting Exposure	
	in 20°C above ambient temperature (unless stated differently). ard of occupational hygiene is implemented.	
Contributing Scenarios	Risk Management Measures	
General measures (carcinogens).	Risk Management Measures Consider technical advances and process upgrades (including automation) for the elimination of releases. Minimise exposure using measures such as closed systems, dedicated facilities and suitable general/local exhaust ventilation. Drain down systems and clear transfer lines prior to breaking containment. Clean/flush equipment, where possible, prior to maintenance. Where there is potential for exposure: restrict access to authorised persons; provide specific activity training to operators to minimise exposures; wear suitable gloves and coveralls to prevent skin contamination; wear respiratory protection when its use is identified for certain contributing scenarios; clear up spills immediately and maintain all control measures. Consider the need for risk based health surveillance.	
General measures (skin irritants).	Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if	

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	arry skiri problems
that may develop.	
Handle substance within a closed system	٦.
Sample via a closed loop or other system	n to avoid exposure
Handle substance within a closed system	`
Sample via a closed loop of other system	i to avoid exposure
Sample via a closed loop or other system	n to avoid exposure
Lloudle within a fume auch and as invalor	nont quitable service
	nent suitable equiva-
lent methods to minimise exposure.	
Ensure material transfers are under conta	ainment or extract
ventilation.	
Ensure material transfers are under conta	ainment or extract
ventilation.	
equipment and provide extract ventilation	n at openings.
Drain down and flush system prior to equ	inment opening or
	ilpinioni opening or
	nding disposal or for
subsequent recycle.	0 1
Ensure operation is undertaken outdoors	•
Control of Environmental Exposure	
	1
in region:	0,1
s/year):	0,1 3,5E+05
s/year): used locally: year):	3,5E+05
s/year): used locally: year): (kg/day):	3,5E+05 8,6E-02
s/year): used locally: year):	3,5E+05 8,6E-02 3,0E+04
s/year): used locally: year): (kg/day):	3,5E+05 8,6E-02 3,0E+04
	Ensure material transfers are under contiventilation. Minimise exposure by partial enclosure of equipment and provide extract ventilation. Drain down and flush system prior to equipment and provide extract ventilation. Drain down and flush system prior to equipment and provide extract ventilation. Clear spills immediately. Retain drain downs in sealed storage persubsequent recycle. Store substance within a closed system. Ensure operation is undertaken outdoors. Control of Environmental Exposure

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Environmental factors not influenced by risk management	
Environmental factors not influenced by risk management	10
Local freshwater dilution factor:	10
Local marine water dilution factor:	100
Other Operational Conditions affecting Environmental Exposure	
Release fraction to air from process (after typical onsite RMMs con-	1,0E-06
sistent with EU Solvent Emissions Directive requirements):	
Release fraction to wastewater from process (initial release prior to	1,0E-05
RMM):	
Release fraction to soil from process (initial release prior to RMM):	1,0E-04
Technical conditions and measures at process level (source) to pre	event release
Common practices vary across sites thus conservative process re-	
lease estimates used.	
Technical onsite conditions and measures to reduce or limit discharge	arges, air emis-
sions and releases to soil	
Risk from environmental exposure is driven by humans via indirect	
exposure (primarily ingestion).	
If discharging to domestic sewage treatment plant, no secondary	
wastewater treatment required.	
Prevent discharge of undissolved substance to or recover from onsite	
wastewater.	
Treat air emission to provide a typical removal efficiency of (%)	0
Treat onsite wastewater (prior to receiving water discharge) to provide	85,3
the required removal efficiency of >= (%)	
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	95,0
treatment (%)	
Total efficiency of removal from wastewater after onsite and offsite	95,0
(domestic treatment plant) RMMs (%)	
Maximum allowable site tonnage (MSafe) based on release following	2,4E+05
total wastewater treatment removal (kg/d)	
Assumed domestic sewage treatment plant flow (m3/d)	2.000
Conditions and Measures related to external treatment of waste for	r disposal
External treatment and disposal of waste should comply with applicable	
regulations.	ŭ
Conditions and measures related to external recovery of waste	
External recovery and recycling of waste should comply with applicable	local and/or regional
regulations.	5

SECTION 3	EXPOSURE ESTIMATION
Section 3.1 - Health	
The ECETOC TRA too	I 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.

Available hazard data do not enable the derivation of a DNEL for dermal irritant effects.

Risk Management Measures are based on qualitative risk characterisation.

Section 4.2 - Environment

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

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

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

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Exposure Scenario - Worker

Exposure Sociation 110	
30000000360	
SECTION 1	EXPOSURE SCENARIO TITLE
Title	Use as a fuel- Industrial
Use Descriptor	Sector of Use: SU3, SU10 Process Categories: PROC 1, PROC 2, PROC 3, PROC 8a, PROC 8b, PROC 16 Environmental Release Categories: ERC7
Scope of process	Covers the use as a fuel (or fuel additives and additive components) within closed or contained systems, including incidental exposures during 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 - 10 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	Use	
Covers daily exposures up to	8 hours (unless stated differently).	
Other Operational Conditio	ns affecting Exposure	
	an 20°C above ambient temperature (unless stated differently). ard of occupational hygiene is implemented.	
Contributing Scenarios	Risk Management Measures	
General measures (carcinogens).	Risk Management Measures Consider technical advances and process upgrades (including automation) for the elimination of releases. Minimise exposure using measures such as closed systems, dedicated facilities and suitable general/local exhaust ventilation. Drain down systems and clear transfer lines prior to breaking containment. Clean/flush equipment, where possible, prior to maintenance. Where there is potential for exposure: restrict access to authorised persons; provide specific activity training to operators to minimise exposures; wear suitable gloves and coveralls to prevent skin contamination; wear respiratory protection when its use is identified for certain contributing scenarios; clear up spills immediately and maintain all control measures. Consider the need for risk based health surveillance.	
General measures (skin irritants).	Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contami-	

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	nation immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop.	
Bulk transfers	Ensure material transfers are under containment or extract ventilation.	
Drum/batch transfers	Use drum pumps. Provide a good standard of general or controlled ventilation (5 to 15 air changes per hour).	
General exposures (closed systems)	No other specific measures identified.	
General exposures (closed systems)General measures (skin irritants).	Handle substance within a predominantly closed system provided with extract ventilation. Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).	
Use as a fuel(closed systems)	Handle substance within a closed system.	
Equipment cleaning and maintenance	Drain down system prior to equipment opening or maintenance. Retain drain downs in sealed storage pending disposal or for subsequent recycle. Clear spills immediately.	
Storage.	Store substance within a closed system.	
Storage.General measures (skin irritants).	Store substance within a closed system. Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).	
Section 2.2	Control of Environmental Exposure	
Substance is complex UVCB		
Predominantly hydrophobic.		
Not readily biodegradable.		
Amounts Used		
Fraction of EU tonnage used	in region:	0,1
Regional use tonnage (tonnes/year):		2,5E+05
Fraction of Regional tonnage		0,1
		2,5E+04
Maximum daily site tonnage		8,3E+04
Frequency and Duration of		•
Continuous release.		
Emission Days (days/year):		300
Environmental factors not	influenced by risk management	
Local freshwater dilution fact		10
Local marine water dilution fa		100
	ns affecting Environmental Exposure	
	rocess (initial release prior to RMM):	5,0E-04
Release fraction to wastewater from process (initial release prior to		1,0E-05

the Petrorisk model.

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RMM):	
Release fraction to soil from process (initial release prior to RMM):	0
Technical conditions and measures at process level (source) to pr	event release
Common practices vary across sites thus conservative process re-	
lease estimates used.	
Technical onsite conditions and measures to reduce or limit disch	arges, air emis-
sions and releases to soil	
Risk from environmental exposure is driven by humans via indirect	
exposure (primarily inhalation).	
If discharging to domestic sewage treatment plant, no secondary	
wastewater treatment required.	
Prevent discharge of undissolved substance to or recover from onsite	
wastewater.	
Treat air emission to provide a typical removal efficiency of (%)	95,0
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	95,0
treatment (%)	
Total efficiency of removal from wastewater after onsite and offsite	95,0
(domestic treatment plant) RMMs (%)	
Maximum allowable site tonnage (MSafe) based on release following	1,3E+05
total wastewater treatment removal (kg/d)	
Assumed domestic sewage treatment plant flow (m3/d)	2.000
Conditions and Measures related to external treatment of waste for	r disposal
This substance is consumed during use and no waste of substance is g	enerated.
Conditions and measures related to external recovery of waste	
This substance is consumed during use and no waste of substance is g	enerated.

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

Section 3.2 -Environment
The Hydrocarbon Block Method has been used to calculate environmental exposure with

SECTION 4	GUIDANCE TO CHECK COMPLIANCE WITH THE
	EXPOSURE SCENARIO

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Section 4.1 - Health

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

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

Available hazard data do not enable the derivation of a DNEL for dermal irritant effects.

Risk Management Measures are based on qualitative risk characterisation.

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

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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
Scope of process	Covers the use as a fuel (or fuel additives and additive components) within closed or contained systems, including incidental exposures during 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 - 10 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	Use	
Covers daily exposures up to	8 hours (unless stated differently).	
Other Operational Conditio	ns affecting Exposure	
Assumes use at not more that	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	
General measures (carcinogens).	Consider technical advances and process upgrades (including automation) for the elimination of releases. Minimise exposure using measures such as closed systems, dedicated facilities and suitable general/local exhaust ventilation. Drain down systems and clear transfer lines prior to breaking containment. Clean/flush equipment, where possible, prior to maintenance. Where there is potential for exposure: restrict access to authorised persons; provide specific activity training to operators to minimise exposures; wear suitable gloves and coveralls to prevent skin contamination; wear respiratory protection when its use is identified for certain contributing scenarios; clear up spills immediately and maintain all control measures. Consider the need for risk based health surveillance.	
General measures (skin irritants).	Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contami-	

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	Landa Carata Barrella Barrella Landa and	
	nation immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop.	
Bulk transfers	Ensure material transfers are under containment or extract ventilation.	
Drum/batch transfers	Use drum pumps. Provide a good standard of general or controlled ventilation (5 to 15 air changes per hour).	
General exposures (closed systems)	No other specific measures identified.	
General exposures (closed systems)General measures (skin irritants).	Handle substance within a predominantly closed system provided with extract ventilation. Provide a good standard of general or controlled ventilation (5 to 15 air changes per hour).	
Use as a fuel(closed systems)	Handle substance within a closed system.	
Equipment cleaning and maintenance	Drain down and flush system prior to equipment opening or maintenance. Provide a good standard of general or controlled ventilation (5 to 15 air changes per hour). Clear spills immediately. Wear a respirator conforming to EN140 with Type A filter or better. Retain drain downs in sealed storage pending disposal or for subsequent recycle.	
Storage.	Store substance within a closed system.	
Section 2.2	Control of Environmental Exposure	
Substance is complex UVCE	3.	
Predominantly hydrophobic.		
Not readily biodegradable.		
Amounts Used		
Fraction of EU tonnage used	I in region:	0,1
Regional use tonnage (tonnes/year):		1,0E+05
		5,0E-04
Annual site tonnage (tonnes/	/year):	5,0E+01
Maximum daily site tonnage	(kg/day):	1,4E+02
Frequency and Duration of	Use	
Continuous release.		
Emission Days (days/year):		365
	influenced by risk management	
Local freshwater dilution fact		10
Local marine water dilution fa		100
	ons affecting Environmental Exposure	1
	process (initial release prior to RMM):	1,0E-02
Release fraction to wastewater from process (initial release prior to 1,0E-05		1,0 Ŀ -05

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Release fraction to soil from process (initial release prior to RMM):	1,0E-05
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	goo, o
Risk from environmental exposure is driven by humans via indirect	
exposure (primarily inhalation).	
Soil emission controls are not applicable as there is no direct release	
to soil.	
Prevent discharge of undissolved substance to or recover from onsite	
wastewater.	
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.	
Conditions and Measures related to municipal sewage treatment p	
Estimated substance removal from wastewater via domestic sewage	95,0
treatment (%)	
Total efficiency of removal from wastewater after onsite and offsite	95,0
(domestic treatment plant) RMMs (%)	
Maximum allowable site tonnage (MSafe) based on release following	3,3E+03
total wastewater treatment removal (kg/d)	
Assumed domestic sewage treatment plant flow (m3/d)	2.000
Conditions and Measures related to external treatment of waste fo	
This substance is consumed during use and no waste of substance is g	enerated.
Conditions and measures related to external recovery of waste	
This substance is consumed during use and no waste of substance is g	enerated.

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.	

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Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. Risk Management Measures are based on qualitative risk characterisation.

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.