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ACCORDING TO EC-REGULATIONS 1907/2006 (REACH), 1272/2008 (CLP) & 2020/878

# JET KEROSENE V3014

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

1.1	Product identifier Product name Product description Trade Name Product code CAS No. EC No.	Kerosene (petroleum) sweetened V3014-KEROSENE-Kerosene (petroleum) sweetened KEROSENE KERO, V3014 91770-15-9 294-799-5		
	REACH Registration No.	01-2119502385-46-xxxx		
1.2	Relevant identified uses of the substance or mixture and uses advised against			
	Identified use(s)	No	Exposure Scenario	Page:
		1	Distribution of Kerosene (petroleum) sweetened (Industrial)	12
		2	Formulation and (re)packing of Kerosene (petroleum)	15
			sweetened (Industrial)	
		3	Use as a fuel (Industrial)	18
		4	Use as a fuel (Professional)	21
		5	Use as a fuel (Consumer)	24
	Uses advised against	Anyth	ning other than the above.	
1.3	Details of the supplier of the safety data sheet			
	Company Identification	Vitol SA		
		Place des Bergues 3		
		1201 Geneva		
	<b>T</b>	Switzerland		
	Telephone		10 498 7200	
	Fax		10 452 9545	
	E-mail (competent person)	xread	ch@vitol.com	
1.4	Emergency Telephone Number			
	Emergency Phone No.	+44 (	(0) 1235 239 670, 24/7	
	Language(s) spoken:	All official European languages.		

## **SECTION 2: HAZARDS IDENTIFICATION**

- 2.1 Classification of the substance or mixture
- 2.1.1 Regulation (EC) No. 1272/2008 (CLP)

Flam. Liq. 3; H226 Asp. Tox. 1; H304 Skin Irrit. 2; H315 STOT SE 3; H336 (Central nervous system, Inhalation) Aquatic Chronic 2; H411

2.2 Label elements

Product description

Hazard Pictogram(s)

Signal Word(s)

Hazard Statement(s)

According to Regulation (EC) No. 1272/2008 (CLP) V3014-KEROSENE-Kerosene (petroleum) sweetened



#### DANGER

H226: Flammable liquid and vapour. H304: May be fatal if swallowed and enters airways.

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H315: Causes skin irritation. H336: May cause drowsiness or dizziness. H411: Toxic to aquatic life with long lasting effects. Precautionary Statement(s) P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. P273: Avoid release to the environment. P280: Wear protective gloves/protective clothing/eye protection/face protection. P301+P310: IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician. P331: Do NOT induce vomiting. 2.3 Other hazards May form explosive mixture with air. The vapour is heavier than air; beware of pits and confined spaces. Product may release Hydrogen Sulphide: A specific assessment of inhalation risks from the presence of hydrogen sulphide in tank headspaces, confined spaces, product residue, tank waste and waste water, and unintentional releases should be made to help determine controls appropriate to local circumstances.

# SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

### 3.1 Substances

SUBSTANCE	CAS No.	EC No.	%W/W
Kerosene (petroleum) sweetened	91770-15-9	294-799-5	100

## **SECTION 4: FIRST AID MEASURES**



4.1	Description of first aid measures	
	Self-protection of the first aider	Eliminate sources of ignition. If it is suspected that fumes are still present, the responder should wear an appropriate mask or self-contained breathing apparatus. Drench contaminated clothing with water before removing to avoid risk of sparks from static electricity. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Avoid all contact. Do not ingest. If swallowed then seek immediate medical assistance.
	H2S Warning:	Hydrogen sulphide (H2S) can accumulate in the headspace of storage tanks and reach potentially hazardous concentrations.
		If there is any suspicion of inhalation: A self contained breathing apparatus should be worn. Remove to fresh air immediately.
	Inhalation	IF INHALED: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical advice/attention if you feel unwell.
	Skin contact	IF ON SKIN (or hair): Remove contaminated clothing immediately and wash affected skin with plenty of water or soap and water. If irritation (redness, rash, blistering) develops, get medical attention.
	Eye contact	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists, get medical advice/attention.
	Ingestion	IF SWALLOWED: Do not induce vomiting because of risk of aspiration into the lungs. If vomiting occurs spontaneously, keep head below hips to prevent aspiration. If unconscious, place in recovery position and get medical attention immediately. Do not give anything by mouth to an unconscious person. Get medical attention immediately. Do not wait for symptoms to appear.
4.2	Most important symptoms and effects, both acute	Irritation of the respiratory tract. Causes skin irritation. Slightly irritant to eyes.
	and delayed	Aspiration into the lungs may cause chemical pneumonitis, which can be fatal.

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4.3 Indication of any immediate medical attention and special treatment needed Notes to a physician: Ingestion may cause irritation of the gastrointestinal tract. Nausea, Vomiting and Diarrhoea.

Treat symptomatically.

IF INHALED: If unconscious, place in recovery position and get medical attention immediately. Administer oxygen if available and artificial respiration if necessary. IF SWALLOWED: Do not induce vomiting because of risk of aspiration into the lungs. If aspiration is suspected obtain immediate medical attention. If vomiting occurs spontaneously, keep head below hips to prevent aspiration into the lungs.

## SECTION 5: FIREFIGHTING MEASURES

- 5.1 Extinguishing media Suitable extinguishing media
- Unsuitable extinguishing media
   Special hazards arising from the substance or mixture

5.3 Advice for firefighters

Extinguish with sand or dry chemical. Foam, Carbon dioxide, Water fog or dry powder.

Do not use water jet. Direct water jet may spread the fire.

Flammable liquid and vapour. Will float and can be reignited on surface water. Decomposes in a fire giving off toxic fumes: A mixture of solid and liquid particulates and gases including unidentified organic and inorganic compounds. May form explosive mixture with air. Prevent liquid entering sewers, basements and any watercourses. Vapours are heavier than air and may travel considerable distances to a source of ignition and flashback. If sulphur compounds are present in appreciable amounts, combustion products may include also H2S and SOx (sulfur oxides) or sulfuric acid.

Fight fire with normal precautions from a reasonable distance. Fire fighters should wear complete protective clothing including self-contained breathing apparatus. Keep containers cool by spraying with water if exposed to fire. Avoid release to the environment. Dike fire control water for later disposal.

### SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1	Personal precautions, protective equipment and emergency procedures	Caution - spillages may be slippery. Ensure operatives are trained to minimise exposures. Ensure suitable personal protection during removal of spillages. Eliminate sources of ignition. Shut off leaks if without risk. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Avoid all contact with substance. Ensure adequate ventilation. Do not breathe vapour. Do not ingest. If swallowed then seek immediate medical assistance. Do not use sparking tools. Use non-sparking ventilation systems, approved explosion-proof equipment, and intrinsically safe electrical systems.
	H2S Warning:	Product may release Hydrogen Sulphide. Exposure controls - These controls may include: Segregation of areas, Access only to authorised persons, Permit to work systems, Confined space working procedures, Area H2S alarms, Personal H2S alarms, Personal escape sets, H2S awareness training. Please see section 8 for appropriate personal protection equipment.
	Small spillages:	Wear flame-resistant antistatic protective clothing.
	Large spillages:	Evacuate the area and keep personnel upwind. Drench contaminated clothing with water before removing to avoid risk of sparks from static electricity. Avoid all contact. Wear chemical protection suit and breathing apparatus. See Also Section: 8
6.2	Environmental precautions	Avoid release to the environment. Do not allow to enter drains, sewers or watercourses. Spillages or uncontrolled discharges into watercourses must be alerted to the Environment Agency or other appropriate regulatory body. If necessary: Dike area to contain the spill and prevent releases to sewers, drains, or other waterways.
6.3	Methods and material for containment and cleaning up	Provided it is safe to do so, isolate the source of the leak. Use non-sparking equipment when picking up flammable spill. The vapour is heavier than air; beware of pits and confined spaces. Ensure that the equipment is adequately grounded. Allow small spillages to evaporate provided there is adequate ventilation. Wear flame-resistant antistatic protective clothing. Wear chemical protection suit and breathing apparatus.

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Spillages onto land:	In case of soil contamination, remove contaminated soil and treat in accordance with local regulations. Adsorb spillages onto sand, earth or any suitable adsorbent material. Transfer to a lidded container for disposal or recovery. Dispose of this material and its container as hazardous waste. <b>Small spillages:</b> Allow small spillages to evaporate provided there is adequate
Spillages on water or at sea:	<ul> <li>ventilation. Wear flame-resistant antistatic protective clothing.</li> <li>Large spillages: Cover spillage with foam to reduce evaporation. Do not use water jet.</li> <li>Collect as much as possible in clean container for reuse or disposal.</li> <li>Small spillages: Contain product with floating barriers or other equipment.</li> <li>Collect spilled product by absorbing with specific floating absorbents.</li> <li>Large spillages: Consume a should be contained with floating barriers or other spillages.</li> </ul>
Reference to other sections	<b>Large spillages:</b> Open waters should be contained with floating barriers or other mechanical means and recovered, only if this is strictly necessary and if fire/explosion risks can be adequately prevented. Otherwise control the spreading of the spillage, and let the substance evaporate naturally. See Section: 8,13

# SECTION 7: HANDLING AND STORAGE

6.4

7.1	Precautions for safe handling	Obtain special instructions before use. Keep away from sources of ignition No smoking. Use only outdoors or in a well-ventilated area. Prevent vapour build up by providing adequate ventilation during and after use. May form explosive mixture with air. Take action to prevent static discharges. Use non-sparking tools. All parts of the plant and equipment should be electrically bonded together and connected to earth. Electrical continuity should be checked at regular intervals. Antistatic clothing and footwear should be used. The vapour is heavier than air; beware of pits and confined spaces. Avoid all contact with substance. Do not ingest. If swallowed then seek immediate medical assistance. Do not breathe vapour. See Section: 8. Keep good industrial hygiene. Wash hands thoroughly after handling. Contaminated clothing should be thoroughly cleaned.
	H2S Warning:	Product may release Hydrogen Sulphide: A specific assessment of inhalation risks from the presence of hydrogen sulphide in tank headspaces, confined spaces, product residue, tank waste and waste water, and unintentional releases should be made to help determine controls appropriate to local circumstances. These controls may include: Segregation of areas, Access only to authorised persons, Permit to work systems, Confined space working procedures, Area H2S alarms, Personal H2S alarms, Personal escape sets, H2S awareness training.
7.2	Conditions for safe storage, including any incompatibilities	Light hydrocarbon vapours can build up in the headspace of containers. These can cause flammability / explosion hazards. Bund storage facilities to prevent soil and water pollution in the event of spillage. Keep only in original packaging. Keep containers properly sealed when not in use. Protect from sunlight. Containers of this material may be hazardous when empty since they retain product residue. Empty container may contain product residue which may result in flammable or explosive vapours inside the container.
	Storage temperature	Store in a cool/low-temperature, well-ventilated (dry) place away from heat and ignition sources.
	Storage measures	Keep only in original packaging. Suitable containers: Mild steel, Stainless steel.
	Incompatible materials	Keep away from oxidising agents. Strong acids and Alkalis. Unsuitable containers: Synthetic materials
7.3	Specific end use(s)	See Section: 1.2 and/or Exposure Scenario

## SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 8.1.1	Control parameters Occupational exposure limits	Not established
8.1.2	Biological limit value	Not established
8.1.3	PNECs and DNELs	DNEL: Not established

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PNEC: Kerosene (petroleum) sweetened is a hydrocarbon UVCB. The hydrocarbon block method is used in PETRORISK to calculate the environmental toxicity (HC5) of each group of components in the substance. These are used to estimate the environmental risk for the substance. Therefore individual environmental compartments PNECs are not available for this product.

#### 8.2 Exposure controls

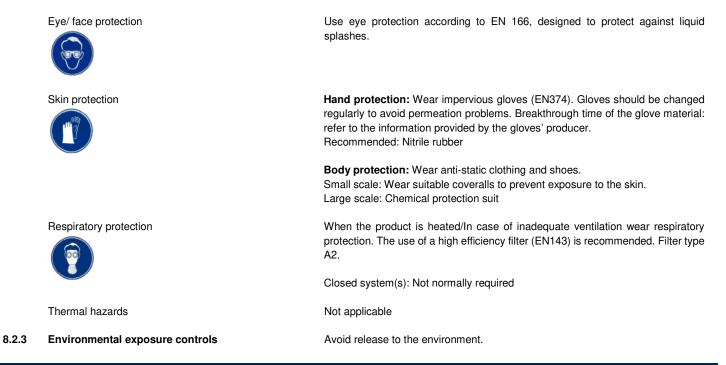
8.2.1 Appropriate engineering controls

8.2.2 Individual protection measures, such as personal protective equipment Provide adequate ventilation, including appropriate local extraction if dusts, fumes or vapours are likely to be evolved. Store in a cool/low-temperature, wellventilated (dry) place away from heat and ignition sources. Guarantee that the eye flushing systems and safety showers are located close to the working place.

Fuels are typically used, transferred and transported in closed systems. If exposure is likely (i.e. during sampling) the following advice may be appropriate. Keep good industrial hygiene. Always wash hands before smoking, eating and drinking. Do not eat, drink or smoke at the work place.

Refer to annexes for exposure scenarios detailing use specific exposure controls.

Protective clothing should be selected specifically for the working place, depending on concentration and quantity of the hazardous substances handled. The resistance of the protective clothing to chemicals should be ascertained with the respective supplier.



## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1	Information on basic physical and chemical properties			
	Physical state	Liquid		
	Colour	Almost colourless to pale yellow		
	Odour	Characteristic		
	Melting point/freezing point	> - 49 °C		
	Boiling point or initial boiling point and boiling range	150 – 290 °C at 101 kPa		
	Flammability	Flammable liquid and vapour.		
	Lower and upper explosion limit	Not established		
	Flash point	23 - 59 °C at 101 kPa		
	Auto-ignition temperature	> 210 °C at 101 kPa		

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Decomposition temperature pH Kinematic viscosity Solubility Partition coefficient: n-octanol/water (log value) Vapour pressure Density and/or relative density Relative vapour density Particle characteristics

9.2 Other information Upper/lower flammability or explosive limits Not established Not established  $< 7 \text{ mm}^2/\text{s}$  at 40 °C Practically insoluble 3.3 - 6.0 $\leq 1 \text{ kPa}$  at 40°C  $0.77 - 0.85 \text{ g/cm}^3$  at 15 °C 4.7 - 5 (Air = 1)Not established

Vapour may create explosive atmosphere. Flammable Limits (Lower) (%v/v): 0.7 Flammable Limits (Upper) (%v/v): 5

## SECTION 10: STABILITY AND REACTIVITY

10.1	Reactivity	Stable under normal conditions. Reacts with - Strong oxidising agents
10.2	Chemical stability	Stable under normal conditions. Hazardous polymerisation will not occur.
		Product may release Hydrogen Sulphide.
10.3	Possibility of hazardous reactions	Vapours are heavier than air and may travel considerable distances to a source
		of ignition and flashback. Product may release Hydrogen Sulphide.
10.4	Conditions to avoid	Elevated temperature: > 50 °C
		Keep away from heat, sources of ignition and direct sunlight.
10.5	Incompatible materials	Keep away from oxidising agents. Strong acids and Alkalis.
10.6	Hazardous decomposition products	A mixture of solid and liquid particulates and gases including unidentified
		organic and inorganic compounds. Decomposes in a fire giving off toxic fumes:
		COx, H2S, Sox.

# SECTION 11: TOXICOLOGICAL INFORMATION

11.1	Information on hazard classes as defined in	All test data taken from existing ECHA registrations for the substances
	Regulation (EC) No 1272/2008	mentioned.
	Acute toxicity - Ingestion	Based upon the available data, the classification criteria are not met.
		LD50 (oral,rat) mg/kg: >5000 (OECD 420)
	Acute toxicity - Inhalation	Acute Tox. 4: Harmful if inhaled.
		LC50 (inhalation,rat) mg/l/4h: >5.28 No mortality observed (OECD 403)
	Acute toxicity - Skin contact	Based upon the available data, the classification criteria are not met.
		LD50 (skin,rabbit) mg/kg: >2000 (OECD 402)
	Skin corrosion/irritation	Skin Irrit. 2; Causes skin irritation.
		Irritating to skin. (rabbit) (Unnamed, 1986)
	Serious eye damage/irritation	Based upon the available data, the classification criteria are not met.
		Not irritating to eyes. (rabbit) (EPA OTS 798.4500)
	Respiratory or skin sensitisation	Based upon the available data, the classification criteria are not met.
		Sensitisation (guinea pig) – Negative (OECD 406)
	Germ cell mutagenicity	Based upon the available data, the classification criteria are not met.
		In vitro: Negative (OECD 479)
		In vivo: Positive (males) Negative (females) (mouse) (Unnamed, 1988)
	Carcinogenicity	Based upon the available data, the classification criteria are not met.
		Negative (mouse) (OECD 451)
	Reproductive toxicity	Based upon the available data, the classification criteria are not met.
		Reproductive toxicity: Negative (rat) (OECD 415)
		Developmental toxicity: : Negative (rat) (OECD 414)
	STOT - Single Exposure	STOT SE 3; May cause drowsiness and dizziness.
		Weight of evidence approach
	STOT - Repeated Exposure	Based upon the available data, the classification criteria are not met.
	Oral	: NOAEL: 750 mg/kg bw/day (rat) (OECD 408)
	Inhalation	: No adverse effect observed (rat) (OECD 413)
		NOAEL >= 1000 mg/m <sup>3</sup>
	Dermal	: Causes skin irritation. (rat) (OECD 411)
		NOAEL >= 495 mg/kg bw/day (rat)

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#### Aspiration hazard

Asp. Tox. 1; May be fatal if swallowed and enters airways. Kinematic viscosity: < 7 mm<sup>2</sup>/s at 40  $^{\circ}$ C

Aquatic Chronic 2; Toxic to aquatic life with long lasting effects.

Readily biodegradable (according to OECD criteria). (OECD 301F)

The product has potential for bioaccumulation. LogKow 4.0

The product is predicted to have low mobility in soil.

criteria for being regarded as a PBT or vPvB substance.

NOEL (Fish) (96 hour) 2.0 mg/l (OECD 203)

Estimated NOEL: 0.098 mg/l

This product does not contain a substance that has endocrine disrupting properties with respect to humans as no components meets the criteria.

The aquatic toxicity was estimated using the PETROTOX computer model.

Not classified as PBT or vPvB. None of the substances in this product fulfil the

This product does not contain a substance that has endocrine disrupting properties with respect to humans as no components meets the criteria.

- 11.2 Information on other hazards
- **11.2.1** Endocrine disrupting properties
- 11.2.2 Other information

## SECTION 12: ECOLOGICAL INFORMATION

- 12.1 Toxicity Short Term (acute): Long term (chronic):
- 12.2 Persistence and degradability
- 12.3 Bioaccumulative potential
- 12.4 Mobility in soil
- 12.5 Results of PBT and vPvB assessment
- 12.6 Endocrine disrupting properties
- 12.7 Other adverse effects

## SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Dispose of this material and its container as hazardous waste. Do not empty into drains, dispose of this material and its container at hazardous or special waste collection point. Disposal should be in accordance with local, state or national legislation. Containers of this material may be hazardous when empty since they retain product residue. Containers must not be punctured or destroyed by burning, even when empty. Allocation of a waste code number, according to the European Waste Catalogue, should be carried out in agreement with the regional waste disposal company. HP3, HP4, HP14

Waste classification according to Directive 2008/98/EC (Waste Framework Directive)

## **SECTION 14: TRANSPORT INFORMATION**

14.1	UN number or ID number	<b>ADR/RID</b> UN 1863	IMDG/ADN UN 1863
14.2	UN proper shipping name	FUEL, AVIATION, TURBINE ENGINE	FUEL, AVIATION, TURBINE ENGINE
14.3	Transport hazard class(es)	3	3 (N2, F)
14.4	Packing group	III	III
14.5	Environmental hazards	Environmentally hazardous substance	Classified as a Marine Pollutant.
14.6	Special precautions for user	See Section: 2	
14.7	Maritime transport in bulk according to IMO instruments	No information available.	No information available.
14.8	Additional information	HIN: 30	EmS: F-E, S-E
		Tunnel restriction code: 3 D/E Limited Quantity: 5L Special provisions: 664	Limited Quantity: 5L

None known

None known

## SECTION 15: REGULATORY INFORMATION

- 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture
- 15.1.1 EU regulations Seveso

Upper Tier: 25000 tonnes

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#### Lower Tier: 2500 tonnes

15.1.2	National regulations	
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Germany 15.2 Chemical Safety Assessment Water hazard class: 3 A REACH chemical safety assessment (CSA) has been carried out. Refer to annexes for exposure scenarios detailing use specific exposure controls.

## **SECTION 16: OTHER INFORMATION**

The following sections contain revisions or new statements: New SDS Regulation 2020/878 format, all sections have been updated to include new information. Please review SDS with care.

#### **References:**

Existing Safety Data Sheet (SDS). Harmonised Classification(s) for Kerosene (petroleum) sweetened (CAS No. 91770-15-9). Existing ECHA registration(s) for Kerosene (petroleum) sweetened (CAS No. 91770-15-9) and Chemical Safety Report.

EU Classification: This Safety Data Sheet was prepared in accordance with EC Regulation (EC) 1907/2006 (REACH), 1272/2008 (CLP) & 2020/878

Legend		
ADR	ADR: European Agreement concerning the Internation	ional Carriage of Dangerous Goods by Road
CAS	Chemical Abstracts Service	
CLP	Regulation (EC) No 1272/2008 on classification, lab	elling and packaging of substances and mixtures
EC	European Community	
ECHA	European Chemicals Agency	
EU	European Union	
DNEL	Derived no effect level	
IATA	IATA: International Air Transport Association	
ICAO	ICAO: International Civil Aviation Organization	
IMDG	IMDG: International Maritime Dangerous Goods	
LC50	Lethal Concentration at which 50% of the population	n is killed
LD50	Lethal Dose at which 50% of the population is killed	
LTEL	Long term exposure limit	
NOAEL	No Observed Adverse Effect Level	
OECD	Organisation for Economic Cooperation and Develo	pment
PBT	PBT: Persistent, Bioaccumulative and Toxic	
PNEC	Predicted No Effect Concentration	
REACH	Registration, Evaluation, Authorisation and Restricti	on of Chemicals
RID	RID: Regulations concerning the international railwa	ay transport of dangerous goods
STEL	Short term exposure limit	
UN	United Nations	
UVCB	Unknown or Variable Composition, Complex reaction	on products or Biological materials
vPvB	vPvB: very Persistent and very Bioaccumulative	
Hazard classificati	on / Classification code:	Hazard Statement(s)
Flam. Liq. 3; Flamm	able liquid, Category 3	H226: Flammable liquid and vapour.
• <b>–</b> • • • •		

Flam. Liq. 3; Flammable liquid, Category 3	H226: Flammable liquid and vapour.
Asp. Tox. 1; Aspiration hazard, Category 1	H304: May be fatal if swallowed and enters airways.
Skin Irrit. 2; Skin corrosion/irritation, Category 2	H315: Causes skin irritation.
STOT SE 3; Specific Target Organ Toxicity — Single Exposure,	H336: May cause drowsiness or dizziness.
Category 3	
Aquatic Chronic 2; Hazardous to the aquatic environment, Chronic,	H411: Toxic to aquatic life with long lasting effects.
Category 2	
Galegory 2	

Training advice: Consideration should be given to the work procedures involved and the potential extent of exposure as they may determine whether a higher level of protection is required.

#### Disclaimers

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Annex to the extended Safety Data Sheet (eSDS) See below -

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# Kerosene (petroleum) sweetened

CAS No. EC No. 91770-15-9 294-799-5

# **Summary of Parameters**

Physical Paramet	ters		
Vapour pressure (	hPa)		1 – 21 at 37.8 °C Value used for exposure assessment = 1.2E+03 Pa
Partition Coefficier	nt (log K <sub>ow</sub> )		1.99 – 18.02
Aqueous solubility	(mg/l)		Value used for exposure assessment = 3.8E+01 mg/l
Molecular weight			Not applicable m.w. = 128 Value used for exposure assessment
Biodegradability			Inherently biodegradable, not fulfilling criteria
Human Health (D	NEL)		
	Short term	Inhalation (mg/m <sup>3</sup> )	No hazard identified
Workers	Short term	Dermal (mg/kg bw/day)	No hazard identified
WOIKEIS		Inhalation (mg/m <sup>3</sup> )	40 ppm Value used for exposure assessment
	Long Term	Dermal (mg/kg bw/day)	No hazard identified
		Inhalation (mg/m <sup>3</sup> )	40 Value used for exposure assessment
Consumer		Dermal (mg/kg bw/day)	No hazard identified
		Oral (mg/kg bw/day)	18.8

## **Environmental Parameters (PNECs)**

Kerosene (petroleum) sweetened is a hydrocarbon UVCB. The hydrocarbon block method is used in PETRORISK to calculate the environmental toxicity (HC5) of each group of components in the substance. These are used to estimate the environmental risk for the substance. Therefore individual environmental compartments PNECs are not available for this product.

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Exposure scenario 4	Use as a fuel - (Professional)	21
Exposure scenario 5	Use as a fuel - (Consumer)	24

## **Contributing Scenarios**

Workers	
PROC1 Use in closed process, no likelihood of exposure.	
PROC2 Use in closed, continuous process with occasional controlled exposure.	
(Storage) Use in closed, continuous process with occasional controlled exposure, bulk Storage.	
PROC3 Use in closed batch process (synthesis or formulation).	
(Sampling) Use in closed batch process (synthesis or formulation). Sample collection at ventilated sample points	
PROC4 Use in batch and other process (synthesis) where opportunity for exposure arises	
PROC5 Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact)	Mixing or blending
in batch processes for formulation of preparations and articles (multistage and/or significant contact). PROC8a (manual) Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicate	d facilities
Manual transfer/pouring from containers.	u lacilities.
(Maintenance) Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-	dedicated
facilities. Clean down and maintenance of vessels and containers.	ucultated
(Cleaning) Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicate	d facilities. Clean
down and maintenance of vessels and containers.	
(Bulk) Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated fac	ilities. Bulk
transfers (closed systems).	
(Drum/batch transfers) Transfer of substance or preparation (charging/discharging) from/to vessels/large containers	at dedicated
facilities. Drum/batch transfers.	
PROC8b Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	
PROC9 Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	
PROC14 Production of preparations or articles by tabletting, compression, extrusion, pelletisation PROC15 Use as laboratory reagent.	
PROC16 Using material as fuel sources, limited exposure to unburned product to be expected	
Environment	
ERC2 Formulation of preparations	
ERC4 Industrial use of processing aids in processes and products, not becoming part of articles	
ERC5 Industrial use resulting in inclusion into or onto a matrix	
° ·	
ERC6a Industrial use resulting in manufacture of another substance (use of intermediates)	
ERC6b Industrial use of reactive processing aids	
ERC6c Industrial use of monomers for manufacture of thermo-plastics	
ERC6d Industrial use of process regulators for polymerisation processes in production of resins, rubbers, polymers	
ERC7 Industrial use of substances in closed systems	
ERC9a Wide dispersive indoor use of substances in closed systems	
ERC9b Wide dispersive outdoor use of substances in closed systems	
Consumer	
PC13 Fuels.	
(Automotive refuelling).	
(Home heating fuel).	
(Garden equipment use).	
(Cardon organization to fueling)	

(Garden equipment refueling).

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ACCORDING TO EC-REGULATIONS 1907/2006 (REACH), 1272/2008 (CLP) & 2020/878

# JET KEROSENE V3014

## Exposure Scenario 1 – Distribution of Kerosene (petroleum) sweetened (Industrial)

1.0 Contributing Scenarios	
Sector of uses SU	SU3 Industrial uses: Uses of substances as such or in preparations at industrial sites
Process category [PROC]	PROC1 PROC2 PROC2 (Storage) – (Covers PROC1 also (Storage)) PROC3 PROC3 (Sampling) PROC4 PROC8a (Maintenance) PROC8b (Bulk) PROC9 PROC15
Chemical product category [PC]	not applicable
Article Categories [AC]	not applicable
Environmental release categories [ERC]	ERC4 ERC5 ERC6a ERC6b ERC6c ERC6d ERC7
Specific Environmental Release Categories SPERC]	ESVOC SpERC 1.1b.v1

2.0 Operational conditions and risk managed	gement measures
2.1 Control of worker exposure	
Product characteristics	
Substance is complex UVCB. Predominantly	hydrophobic.
Physical form of product	Liquid
Vapour pressure	0.5 - 10 kPa @ STP
Concentration of substance in product	Covers percentage substance in the product up to 100 % (unless stated differently).
Human factors not influenced by risk man	agement
Potential exposure area	Not defined
Frequency and duration of use	
Exposure duration per day	Covers daily exposures up to 8 hours (unless stated differently).
Frequency of use (days per year)	100
Other operational conditions affecting wo	rker exposure
Area of use	All PROC's Indoor
Characteristics of the surroundings	Not defined
General measures applicable to all activiti Assumes use at not more than 20°C above ar is implemented.	<i>les</i> mbient temperature, unless stated differently. Assumes a good basic standard of occupational hygiene
	y potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance n as they occur. Wash off any skin contamination immediately. Provide basic employee training to y skin problems that may develop.
Technical conditions of use	
PROC1, PROC2, PROC3	Handle substance within a closed system
PROC9	Fill containers/cans at dedicated fill points supplied with local extract ventilation. (Efficiency of at least 90 %).
Organisational measures	
PROC8a (Maintenance)	Drain down system prior to equipment break-in or maintenance. (Efficiency of at least 80 %).
Risk management measures related to hu	iman health
Respiratory protection	No special measures are required.
Hand and/or Skin protection	No special measures are required.

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Eye Protection No special measu	ires are required.
Other operational conditions affecting worker exposure	
Ensure material transfers are under containment or extract ventil	ation.(PROC3 (Sampling), PROC8b (Bulk)).
Clear lines prior to de-coupling.(PROC4; PROC8b (Bulk)).	
Handle in a fume cupboard or under extract ventilation. (PROC1	5).
Avoid splashing.(PROC8b (Bulk)).	-)-
Store substance within a closed system. (PROC2 (Storage)).	
Avoid dip sampling. (PROC2 (Storage)).	
Provide extract ventilation to points where emissions occur. (PRC	$\mathcal{T}(4)$
Have the system examined and tested against its performance si	
Retain drain downs in sealed storage pending disposal or for sub	
Clear spills immediately. (PROC8a (Maintenance)).	
Ensure dedicated sample points are provided.(PROC2 (Storage)	
2.2 Control of environmental exposure	).
Amounts used	
Fraction of EU tonnage used in region:	0.1
Regional use tonnage (tons/year):	1.3E+06
Fraction of Regional tonnage used locally: tons/year	2.0E-03
Annual site tonnage (tons/year):	2.7E+03
Average daily use(kg/day)	2.7E+04
Environment factors not influenced by risk management	
Flow rate of receiving surface water (m <sup>3</sup> /d):	Not defined (default = 18,000)
Local freshwater dilution factor:	10
Local marine water dilution factor:	100
Operational conditions	
Emission days (days/year):	100
Release fraction to air from process (initial release prior to	
RMM):	1.0E-03
Release fraction to wastewater from process (initial release prior to RMM):	1.0E-05
Release fraction to soil from process (initial release prior to RMM):	1.0E-05
Technical conditions and measures at process level (source	
Common practices vary across sites thus conservative process r	
Technical onsite conditions and measures to reduce or limit	
If discharging to domestic sewage treatment plant, no onsite was	stewater treatment required.
Treat air emission to provide a typical removal efficiency of (%):	90
Treat onsite wastewater (prior to receiving water discharge) to	57.9
provide the required removal efficiency of (%):	51.5
If discharging to domestic sewage treatment plant, provide the	
required onsite wastewater removal efficiency of (%):	0
Treat soil emission to provide a typical removal efficiency of	
(%):	0
Organisational measures to prevent/limit release from site	1
Do not apply industrial sludge to natural soils. Sludge should be i	incinerated, contained or reclaimed.
Conditions and measures related to municipal sewage treat	
Size of municipal sewage system/treatment plant (m <sup>3</sup> /d)	2.0E+03
Degradation effectiveness (%)	95.0
Conditions and measures related to external treatment of wa	
External treatment and disposal of waste should comply with app	
Conditions and measures related to external recovery of was External recovery and recycling of waste should comply with app	
Substance release quantities after risk management measur	
Release to waste water from process (mg/l)	Not defined
Maximum allowable site tonnage (MSafe) based on release	2.2E+05
following total wastewater treatment removal (kg/d):	

3. Exposure estimation and reference to its source 3.1 Human exposure prediction

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# **JET KEROSENE V3014**

oosure assessment (			,								
			Inhal				Der			(	Combined
Process categor [PROC]		inhalatio exposure (p		Ris character ratio (F	isation	derma exposu (mg/kg bw	re	Risk characteri ratio (R	sation	Risk cha	racterisation ratio (RCR)
PROC1		0.01		0.0	0	0.00		-			0.00
PROC2		10.0		0.2	5	0.00		-			0.25
PROC1/2 (Storage	e)	10.0		0.2	5	0.00		-			0.25
PROC3		25.0		0.6	-	0.00		-			0.63
PROC3 (Sampling	g)	25.0		0.6	3	0.00		-			0.63
PROC4		20.0		0.5	0	0.00		-			0.50
PROC8a (Maintenar	nce)	10.0		0.2		0.00		-			0.25
PROC8b (bulk)		5.0		0.1	-	0.00		-			0.13
PROC9		5.0		0.1	-	0.00		-			0.13
PROC15		10.0		0.2	5	0.00		-			0.25
Environmental exp posure assessment ( rosine is a hydrocarb components in the npartments PNECs a	method/ca on UVCB substance	alculation m 3. The hydro e. These	ocarbor are us	ed to estim	expo nod is use	sure with the d in PETROP	Petroris	<u>sk model.</u> calculate the	environm	ental toxicit	• • • •
oosure assessment ( rosine is a hydrocarb components in the	method/ca on UVCB substance are not av	alculation m 3. The hydro e. These	ocarbor are us his proc	ed to estim	expo nod is use nate the	sure with the d in PETROP	Petroris RISK to c al risk fo	<u>sk model.</u> calculate the	environm tance. Th fresl	ental toxicit	y (HC5) of each g
osure assessment ( osine is a hydrocarb components in the npartments PNECs a Environmental exposure Predicted Environmental Exposure (PEC)	method/ca on UVCB substance are not av	alculation m . The hydro e. These railable for th	ocarbor are us his proc fres	ed to estim duct.	expo nod is use nate the mari	sure with the d in PETROR environmenta	Petroris RISK to c al risk fe	sk model. calculate the or the subst	environm tance. Th frest sed 7.2E-(	ental toxicit perefore inc	y (HC5) of each g lividual environme marine sedime
oosure assessment ( osine is a hydrocarb components in the npartments PNECs a Environmental exposure Predicted Environmental	method/c: on UVCB substanc are not av <b>S</b> 6.7E-0	alculation m B. The hydro ee. These railable for th	ocarbor are us his proc fres 6.9E-	ed to estim duct. hwater	expo nod is use nate the mari 6.7E	sure with the d in PETROF environmenta	Petroris RISK to c al risk fo 2.6E-	sk model. calculate the or the subst soil 03 mg/kg	environm tance. Th fresl sed 7.2E-C	ental toxicit herefore inc hwater liment D2 mg/kg	y (HC5) of each g lividual environme marine sedime 1.1E-03 mg/kg
osure assessment ( osine is a hydrocarb components in the npartments PNECs a <b>Environmental</b> <u>exposure</u> Predicted Environmental <u>Exposure (PEC)</u> Risk characterisation ratio (RCR)	method/c: on UVCB substanc: are not av 6.7E-0 2.4E	alculation m 3. The hydro 3. These vailable for th TP 03 mg/L	ocarbor are us his proc fres 6.9E-	eed to estim duct. hwater -03 mg/L	expo nod is use nate the mari 6.7E	sure with the d in PETROF environmenta ne water -05 mg/L	Petroris RISK to c al risk fo 2.6E-	sk model. calculate the or the subst soil 03 mg/kg ww	environm tance. Th fresl sed 7.2E-C	ental toxicit herefore inc hwater liment D2 mg/kg ww	y (HC5) of each g lividual environme <b>marine sedime</b> 1.1E-03 mg/kg ww
oosure assessment ( oosine is a hydrocarb components in the npartments PNECs a <b>Environmental</b> exposure Predicted Environmental Exposure (PEC) Risk characterisation	method/c: on UVCB substance are not av 6.7E-0 2.4E ction:	alculation m 3. The hydro 3. These vailable for th TP 03 mg/L	bcarbor are us his proc fres 6.9E-	ed to estin duct. -03 mg/L 2E-01	expo nod is use nate the 6.7E	sure with the d in PETROF environmenta ne water -05 mg/L	Petroris RISK to c al risk fo 2.6E-	sk model. calculate the or the subst soil 03 mg/kg ww 7E-04 Risk chara	environm tance. Th <b>fresl</b> sed 7.2E-( 5.3 cterisatio (RCR)	ental toxicit herefore inc hwater liment D2 mg/kg ww BE-02	y (HC5) of each gi lividual environme <b>marine sedime</b> 1.1E-03 mg/kg ww
oosure assessment ( oosine is a hydrocarb components in the npartments PNECs a <b>Environmental</b> <u>exposure</u> Predicted Environmental <u>Exposure (PEC)</u> Risk characterisation ratio (RCR)	method/c. on UVCB substance are not av 6.7E-0 2.4E ction: Route	alculation m a. The hydro a. These railable for th TP 03 mg/L E-03 of Exposur Oral	bcarbor are us his proc fres 6.9E-	ed to estin duct. -03 mg/L 2E-01	expo nod is use nate the 6.7E 1. 55ure (µa	sure with the d in PETROF environmenta -05 mg/L 0E-03 g/kg/Day) 00	Petroris RISK to c al risk fo 2.6E-	sk model. calculate the or the subst soil 03 mg/kg ww 7E-04 Risk chara ( 6	environm tance. Th <b>fresl</b> sed 7.2E-( 5.3 5.3 cterisatio (RCR) .5E-05	ental toxicit herefore inc hwater liment D2 mg/kg ww BE-02	y (HC5) of each g lividual environme marine sedime 1.1E-03 mg/kg ww
oosure assessment ( oosine is a hydrocarb components in the npartments PNECs a <b>Environmental</b> <u>exposure</u> Predicted Environmental <u>Exposure (PEC)</u> Risk characterisation ratio (RCR)	method/c. on UVCB substance are not av 6.7E-0 2.4E ction: Route	alculation m a. The hydro a. These railable for th TP 03 mg/L E-03 of Exposur	bcarbor are us his proc fres 6.9E-	ed to estin duct. -03 mg/L 2E-01	expo nod is use nate the 6.7E 1.	sure with the d in PETROF environmenta -05 mg/L 0E-03 g/kg/Day) 00	Petroris RISK to c al risk fo 2.6E-	sk model. calculate the or the subst soil 03 mg/kg ww 7E-04 Risk chara ( 6	environm tance. Th <b>fresl</b> sed 7.2E-( 5.3 cterisatio (RCR)	ental toxicit herefore inc hwater liment D2 mg/kg ww BE-02	y (HC5) of each gi lividual environme <b>marine sedime</b> 1.1E-03 mg/kg ww

<b>...</b>		
For scaling see	managed to at least equivalent Available hazard data do not s	t Measures/Operational Conditions are adopted, then users should ensure that risks are t levels. upport the need for a DNEL to be established for other health effects. d control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-
Exposure assessment	Workers	ECETOC TRA
instrument/tool/method	Environmental exposure	The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model.

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## Exposure Scenario 2 – Formulation and (re)packing of Kerosene (petroleum) sweetened (Industrial)

1.0 Contributing Scenarios	
Sector of uses SU]	SU3 Industrial uses: Uses of substances as such or in preparations at industrial sites
Process category [PROC]	PROC1 PROC2 PROC2 (Storage) – (Covers PROC1 also (Storage)) PROC3 PROC3 (Sampling) PROC4 PROC5 PROC8a (Maintenance) PROC8a (manual) PROC8b (bulk) PROC8b (bulk) PROC8b (Drum/batch transfers) PROC9 PROC14 PROC15
Chemical product category [PC]	not applicable
Article Categories [AC]	not applicable
Environmental release categories [ERC]	ERC2 Formulation of preparations
Specific Environmental Release Categories SPERC]	ESVOC SpERC 2.2.v1

2.1 Control of worker exposure			
Product characteristics			
Physical form of product	Liquid with moderate	volatility.	
Vapour pressure	0.5 - 10 kPa @ STP		
Concentration of substance in product	Covers percentage	ubstance in the product up to 100 % (unless stated diffe	erently).
Human factors not influenced by risk i	management		
Potential exposure area	Not defined		
Frequency and duration of use			
Exposure duration per day	Covers daily exposu	es up to 8 hours (unless stated differently).	
Frequency of use (days per year)	300		
Other operational conditions affecting	worker exposure		
Area of use	All PROC's	Indoor	
Characteristics of the surroundings	Not defined		
	ove ambient temperature, u	less stated differently. Assumes a good basic standard	l of occupational hygiene
is implemented. <i>General measures (skin irritants)</i> Avoid direct skin contact with product. Ide likely. Clean up contamination/spills as	entify potential areas for inc soon as they occur. Was	rect skin contact. Wear gloves (tested to EN374) if han off any skin contamination immediately. Provide bas	d contact with substance
is implemented. <i>General measures (skin irritants)</i> Avoid direct skin contact with product. Ide	entify potential areas for inc soon as they occur. Was	rect skin contact. Wear gloves (tested to EN374) if han off any skin contamination immediately. Provide bas	d contact with substance
is implemented. General measures (skin irritants) Avoid direct skin contact with product. Ide likely. Clean up contamination/spills as prevent/minimise exposures and to repor Technical conditions of use	entify potential areas for ind soon as they occur. Was t any skin problems that m	rect skin contact. Wear gloves (tested to EN374) if han off any skin contamination immediately. Provide bas y develop.	d contact with substance
is implemented. General measures (skin irritants) Avoid direct skin contact with product. Ide likely. Clean up contamination/spills as prevent/minimise exposures and to report	entify potential areas for ind soon as they occur. Was t any skin problems that m	rect skin contact. Wear gloves (tested to EN374) if han off any skin contamination immediately. Provide bas	d contact with substance
is implemented. General measures (skin irritants) Avoid direct skin contact with product. Ide likely. Clean up contamination/spills as prevent/minimise exposures and to repor Technical conditions of use PROC1, PROC2, PROC3	entify potential areas for ind soon as they occur. Was t any skin problems that m Handle substance w	rect skin contact. Wear gloves (tested to EN374) if han off any skin contamination immediately. Provide bas y develop.	d contact with substance sic employee training to
is implemented. General measures (skin irritants) Avoid direct skin contact with product. Ide likely. Clean up contamination/spills as prevent/minimise exposures and to repor Technical conditions of use PROC1, PROC2, PROC3 Organisational measures	entify potential areas for inc soon as they occur. Was t any skin problems that m Handle substance w Provide extract vent	rect skin contact. Wear gloves (tested to EN374) if han off any skin contamination immediately. Provide bas y develop. hin a closed system.	d contact with substance sic employee training to least 90 %).
is implemented. General measures (skin irritants) Avoid direct skin contact with product. Ide likely. Clean up contamination/spills as prevent/minimise exposures and to repor Technical conditions of use PROC1, PROC2, PROC3 Organisational measures PROC5, PROC8a (Manual), PROC14	entify potential areas for inc soon as they occur. Was t any skin problems that m Handle substance w Provide extract vent Provide extract vent	rect skin contact. Wear gloves (tested to EN374) if han off any skin contamination immediately. Provide bas y develop. hin a closed system. ation to points where emissions occur. (Efficiency of at I	d contact with substance sic employee training to least 90 %).
is implemented. General measures (skin irritants) Avoid direct skin contact with product. Ide likely. Clean up contamination/spills as prevent/minimise exposures and to repor Technical conditions of use PROC1, PROC2, PROC3 Organisational measures PROC5, PROC8a (Manual), PROC14 PROC8b (Drum/batch transfers)	entify potential areas for inc soon as they occur. Was t any skin problems that m Handle substance w Provide extract vent Provide extract vent	rect skin contact. Wear gloves (tested to EN374) if han off any skin contamination immediately. Provide bas y develop. hin a closed system. ation to points where emissions occur. (Efficiency of at I ation to points where emissions occur. (Efficiency of at I	d contact with substance sic employee training to least 90 %).
is implemented. General measures (skin irritants) Avoid direct skin contact with product. Ide likely. Clean up contamination/spills as prevent/minimise exposures and to repor Technical conditions of use PROC1, PROC2, PROC3 Organisational measures PROC5, PROC8a (Manual), PROC14 PROC8b (Drum/batch transfers) Risk management measures related to	entify potential areas for inc soon as they occur. Was t any skin problems that m Handle substance w Provide extract vent Provide extract vent b human health	rect skin contact. Wear gloves (tested to EN374) if han off any skin contamination immediately. Provide bas y develop. hin a closed system. ation to points where emissions occur. (Efficiency of at I ation to points where emissions occur. (Efficiency of at I are required.	d contact with substance sic employee training to least 90 %).
is implemented. General measures (skin irritants) Avoid direct skin contact with product. Ide likely. Clean up contamination/spills as prevent/minimise exposures and to repor Technical conditions of use PROC1, PROC2, PROC3 Organisational measures PROC5, PROC8a (Manual), PROC14 PROC8b (Drum/batch transfers) Risk management measures related to Respiratory protection	entify potential areas for inc soon as they occur. Was t any skin problems that m Handle substance w Provide extract vent Provide extract vent b human health No special measure	rect skin contact. Wear gloves (tested to EN374) if han off any skin contamination immediately. Provide bas y develop. hin a closed system. ation to points where emissions occur. (Efficiency of at I ation to points where emissions occur. (Efficiency of at I are required. are required.	d contact with substance sic employee training to least 90 %).

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Avoid splashing. (PROC5). We drum pumps (PROC64 Drum batch transfers). File ortanes/sease at decidated lipoints supplied with local extract ventilation.(PROC9). Clear splits immediately. (PROC68 (Maintennes)). Store substance warmined and tested against its performance standard - generally at least every 14 months (PROC15). Drain down system prior to captionen threak-in or maintenance. (PROC68 (Maintenance)). Retain drain down system prior to captionen threak-in or maintenance. (PROC68 (Maintenance)). Retain drain down system prior to captionen threak-in or maintenance. (PROC68 (Maintenance)). Retain drain down system prior to captionen threak-in or maintenance. (PROC68 (Maintenance)). Retain drain down system prior to captionen threak-in or maintenance. (PROC68 (Maintenance)). Retain drain down system prior to captionen threak-in or maintenance. (PROC68 (Maintenance)). Retain drain down system prior to captionen threak-in or maintenance. (PROC68 (Maintenance)). Retain drain down system prior to captionen threak-in or maintenance. (PROC68 (Maintenance)). Retain drain down system: Annual site formage (fors)/seat): Retain oral Regional Ionnage used locally: (Ions)/seat: Retain oral Regional Ionnage tors)/seat: Retain oral Retain and Ionnage Ions on Influenced by risk management Flow rate of trackors on Influenced by risk management Retain anive water dilution factor: 100 Departional Conditions Emission days (days)/seat: Retains water dilution factor: 100 Departional Conditions and messures at process (Initial release prior 1 Retains and messures at process (Initial release prior 1 Retains and messions at proves (Initial release prior 1 Retains on allow status to to or receiving water discharge to produce I retained. Terhoring of Undischarge of Angeson Retained Proves from onsite waterwater. If discharging to domestic						
Cikar Ines prior to de-coupling. (PROC15). We drum pumps or caroluly pour from container. (PROC8a (Manuall)): Use drum pumps, (PROC2 (PROC2 Storage)). Avoid dip sampling. (PROC2 Maintenance)). Store substance within a closed system.(PROC2 (Storage)). Avoid dip sampling. (PROC2 (Storage)). Avoid dip sampling. (PROC2 (Storage)). Avoid dip sampling. (PROC2 (Storage)). Evant down signes prior to equipment brask-in or maintenance. (PROC8a (Maintenance)). Ensure declarade sample prioris are provided.(PROC2 (Storage)). Avoid dip sampling. (PROC2 (Storage)). Evant down signes prior to equipment brask-in or maintenance. (PROC8a (Maintenance)). Ensure declarade sample prioris are provided.(PROC2 (Storage)). Anounts used Evant declarade sample prioris are provided.(PROC2 (Storage)). Evant declarade provided.(PROC2 (Storage)). 2.2 Control of environmental exposure Anounts used Fraction of EU tornage used locally: (Inorysear): 2.3 E-04 Avorage daily usekrg/day): 1.0 E-05 Ervironment flaces not influenced by fisk management Eliow rate of reaching surface water (m <sup>3</sup> d): 1.0 E-06 Environment flaces not influenced by fisk management Eliow rate of interior to factor: 100 Operational consolvers): 1.0 E-04 Ensistion days (digsiyagi): 2.2 E-02 Environment flaces water (m <sup>3</sup> d): 1.0 E-04 Ensistion to air from process (initial release prior to 1.0 E-04 Environment flace conditions and measures ar process level (source) to provent release Example conditions and measures ar process level (source) to provent release Environment flace conditions and measures ar process level (source) to provent release Environment flace conditions and measures ar process level (source) to provent release Environment flace conditions and measures ar process level (source) to provent release Environment flace conditions and measures ar process level (source) to provent release Environment flace and the source or initial discharge, ar emissions and releases to soil Terchnical conditions and measures are process leve						
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Emission days (days/year):       300         Release fraction to air from process (initial release prior to RMM):       2.5E-02         Release fraction to wastewater from process (initial release prior to RMM):       2.0E-04         Release fraction to soil from process (initial release prior to RMM):       1.0E-04         Release fraction to soil from process (initial release prior to RMM):       1.0E-04         Technical conditions and measures at process level (source) to prevent release       common practices vary across sites thus conservative process release estimates used.         Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil       Prevent discharge of undiscolved substance to or recover from onsite wastewater. If discharging to domestic sewage treatment plant, no onsite wastewater fracter treatment required.         Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of (%):       0         Treat onsite wastewater removal efficiency of (%):       0         Common practices vary across sites thus conservative process release estimates used. Do not allow uncontrolled discharge of product into the environment. If discharging to domestic sewage treatment plant, no onsite wastewater treatment required.         Organisational measures to prevent/limit release from site       0         Comditions and measures related to municipal sewage treatment plant.       0         Organisational measures to prevent/limit release from site       0 <t< td=""><td>Operational conditions</td><td></td></t<>	Operational conditions					
Release fraction to air from process (initial release prior to RMM);       2.5E-02         Release fraction to vastewater from process (initial release prior to to RMM);       2.0E-04         Release fraction to soil from process (initial release prior to to RMM);       1.0E-04         Release fraction to soil from process (initial release prior to RMM);       1.0E-04         Release fraction to soil from process (initial release prior to RMM);       1.0E-04         Release fraction to soil from process sites thus conservative process release estimates used.       Technical conditions and measures to reduce or limit discharges, air emissions and releases to soil         Prevent discharge of undiscolved substance to or recover from onsite wastewater. If discharging to domestic sewage treatment plant, no onsite wastewater required.       94.8         Treat are mission to provide a typical removal efficiency of (%):       0         Treat soil emission to provide a typical removal efficiency of (%):       0         Treat soil emission to provide a typical removal efficiency of (%):       0         Ormon practices vary across sites thus conservative process release estimates used. Do not allow uncontrolled discharge of product into the environment. If discharging to domestic sewage treatment plant, no onsite wastewater removal efficiency of (%):       0         Organisational measures related to municipal sewage treatment plant, no onsite wastewater reduced.       0         Organisational measures related to the external treatment of waste for disposal       2.0E+0		300				
RIMM):       2.3E-02         Release fraction to wastewater from process (initial release prior to RIMM):       2.0E-04         Release fraction to soil from process (initial release prior to RIMM):       1.0E-04         Technical conditions and measures at process level (source) to prevent release       1.0E-04         Technical conditions and measures to reduce or limit discharges, air emissions and releases to soil       7         Prevent discharge of undissolved substance to or recover from onsite wastewater. If discharging to domestic sewage treatment plant, no onsite wastewater treatment required.       9         Treat are emission to provide a typical removal efficiency of (%):       0       9         Treat onsite wastewater removal efficiency of (%):       0       9         Common practices vary across sites thus conservative process release estimates used. Do not allow uncontrolled discharge of product into the environment. If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of (%):       0         Corrections and measures to prevent/limit release from site       0       0         Corrections and measures to prevent/limit release from site wastewater required.       0       0         Corrections and measures to prevent/limit release from site       0       0       0         Common practices vary across sites thus conservative process release estimates used. Do not allow uncontrolled discharge of product into the environment. If discharging to domestis						
to RMM):       2.0E-04         Release fraction to soil from process (initial release prior to RMM):       1.0E-04         Rommon practices vary across sites thus conservative process release estimates used.       Technical conditions and measures at process felexel (source) to prevent release         Common practices vary across sites thus conservative process release estimates used.       Technical conditions and measures to reduce or limit discharges, air emissions and releases to soil         Prevent discharge of undissolved substance to or recover from onsite wastewater. If discharging to domestic sewage treatment plant, no onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of (%):       0         Treat onsite wastewater (prior to receiving water discharge) to provide the required nereoval efficiency of (%):       94.8         If discharging to domestic sewage treatment plant, provide the required nereoval efficiency of (%):       0         Treat onsite wastewater removal efficiency of (%):       0         Common practices vary across sites thus conservative process release estimates used. Do not allow uncontrolled discharge of product into the environment. If discharging to domestic sewage treatment plant, no onsite wastewater required.         Organisational measures to prevent/limit release from site       2.0E+03         De not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed.       Conditions and measures related to external treatment of waste for disposal         Size of municipal sewage system/treatment plant	RMM):	2.5E-02				
RIMM):       100:04         Technical conditions and measures at process level (source) to prevent release       Common practices vary across sites thus conservative process release estimates used.         Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil         Prevent discharge of undissolved substance to or recover from onsite wastewater. If discharging to domestic sewage treatment plant, no onsite wastewater treatment required.         Treat air emission to provide a typical removal efficiency of (%):       0         Treat soil emission to provide a typical removal efficiency of (%):       94.8         If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of (%):       0         Common practices vary across sites thus conservative process release estimates used. Do not allow uncontrolled discharge of product into the environment. If discharging to domestic sewage treatment plant, no onsite wastewater treatment required.         Organisational measures to prevent/limit release from site       0         Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed.       Conditions and measures related to external treatment plant         Size of municipal sewage system/treatment plant (m <sup>4</sup> /d)       2.0E+03       22.0E+03         Degradation effectiveness (%)       95.0       95.0         Conditions and measures related to external treatment of waste for disposal       Conditions.       Codestance     <	Release fraction to wastewater from process (initial release prior to RMM):	2.0E-04				
Technical conditions and measures at process level (source) to prevent release         Common practices vary across sites thus conservative process release estimates used.         Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil         Prevent discharge of undissolved substance to or recover from onsite wastewater. If discharging to domestic sewage treatment plant, no onsite wastewater treatment required.         Treat ari emission to provide a typical removal efficiency of (%):       0         Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of (%):       94.8         If discharging to domestic sewage treatment plant, provide the required emoval efficiency of (%):       0         Treat onsite wastewater removal efficiency of (%):       0         Common practices vary across sites thus conservative process release estimates used. Do not allow uncontrolled discharge of product into the environment. If discharging to domestic sewage treatment plant, no onsite wastewater treatment required.         Organisational measures to prevent/limit release from site       0         Conditions and measures related to municipal sewage treatment plant       0         Conditions and measures related to external treatment of waste for disposal       2.0E+03         Degradation effectiveness (%)       95.0         Conditions and measures related to external treatment of waste for disposal       External recovery of waste         External receivences (		1.0E-04				
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil         Prevent discharge of undissolved substance to or recover from onsite wastewater. If discharging to domestic sewage treatment plant, no onsite wastewater treatment required.         Treat air emission to provide a typical removal efficiency of (%):       0         Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of (%):       94.8         If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of (%):       0         Treat on provide a typical removal efficiency of (%):       0         Common practices vary across sites thus conservative process release estimates used. Do not allow uncontrolled discharge of product into the environment. If discharging to domestic sewage treatment plant, no onsite wastewater required.         Organisational measures to prevent/limit release from site       0         Conditions and measures related to municipal sewage treatment plant.       0         Size of municipal sewage system/treatment plant (m <sup>3</sup> /d)       2.0E+03         Degradation effectiveness (%)       95.0         Conditions and measures related to external reatment of waste for disposal         External recovery and recycling of waste should comply with applicable local and/or national regulations.         Conditions and measures related to external recovery of waste         External recovery and recycling of waste should comply with applica		to prevent release				
Prevent discharge of undissolved substance to or recover from onsite wastewater. If discharging to domestic sewage treatment plant, no onsite wastewater treatment required.         Treat air emission to provide a typical removal efficiency of (%):       0         Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of (%):       94.8         If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of (%):       0         Treat soil emission to provide a typical removal efficiency of (%):       0         Common practices vary across sites thus conservative process release estimates used. Do not allow uncontrolled discharge of product into the environment. If discharging to domestic sewage treatment plant, no onsite wastewater treatment required.         Organisational measures to prevent/limit release from site       0         Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed.       Conditions and measures related to municipal sewage treatment plant         Size of municipal sewage system/treatment plant (m³/d)       2.0E+03       95.0         Conditions and measures related to external treatment of waste for disposal       External reatment and disposal of waste should comply with applicable local and/or national regulations.         Conditions and measures related to external recovery of waste       External recovery and recycling of waste should comply with applicable local and/or national regulations.         Substance release quantifies after risk manageme	Common practices vary across sites thus conservative process re	lease estimates used.				
wastewater treatment required.       0         Treat air emission to provide a typical removal efficiency of (%):       0         Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of (%):       94.8         If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of (%):       0         Treat soil emission to provide a typical removal efficiency of (%):       0         Common practices vary across sites thus conservative process release estimates used. Do not allow uncontrolled discharge of product into the environment. If discharging to domestic sewage treatment plant, no onsite wastewater treatment required.         Organisational measures to prevent/limit release from site         Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed.         Conditions and measures related to municipal sewage treatment plant         Size of municipal sewage system/treatment plant (m³/d)       2.0E+03         Degradation effectiveness (%)       95.0         Conditions and measures related to external treatment of waste for disposal         External treatment and disposal of waste should comply with applicable local and/or national regulations.         Conditions and measures related to external recovery of waste         External recovery and recycling of waste should comply with applicable local and/or national regulations.         Substance release quantities after risk management measures	Technical onsite conditions and measures to reduce or limit	discharges, air emissions and releases to soil				
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provide the required removal efficiency of (%):       94.8         If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of (%):       0         Treat soil emission to provide a typical removal efficiency of (%):       0         Common practices vary across sites thus conservative process release estimates used. Do not allow uncontrolled discharge of product into the environment. If discharging to domestic sewage treatment plant, no onsite wastewater treatment required.         Organisational measures to prevent/limit release from site         Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed.         Conditions and measures related to municipal sewage treatment plant         Size of municipal sewage system/treatment plant (m³/d)       2.0E+03         Degradation effectiveness (%)       95.0         Conditions and measures related to external treatment of waste for disposal         External treatment and disposal of waste should comply with applicable local and/or national regulations.         Conditions and measures related to external recovery of waste         External recovery and recycling of waste should comply with applicable local and/or national regulations.         Substance release quantities after risk management measures         Release to waste water from process (mg/l)       Not defined         Maximum allowable site tonnage (MSafe) based on release       1.0E+05	Treat air emission to provide a typical removal efficiency of (%):	0				
provide the required removal efficiency of (%):       94.8         If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of (%):       0         Treat soil emission to provide a typical removal efficiency of (%):       0         Common practices vary across sites thus conservative process release estimates used. Do not allow uncontrolled discharge of product into the environment. If discharging to domestic sewage treatment plant, no onsite wastewater treatment required.         Organisational measures to prevent/limit release from site         Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed.         Conditions and measures related to municipal sewage treatment plant         Size of municipal sewage system/treatment plant (m³/d)       2.0E+03         Degradation effectiveness (%)       95.0         Conditions and measures related to external treatment of waste for disposal         External treatment and disposal of waste should comply with applicable local and/or national regulations.         Conditions and measures related to external recovery of waste         External recovery and recycling of waste should comply with applicable local and/or national regulations.         Substance release quantities after risk management measures         Release to waste water from process (mg/l)       Not defined         Maximum allowable site tonnage (MSafe) based on release       1.0E+05	Treat onsite wastewater (prior to receiving water discharge) to					
If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of (%):       0         Treat soil emission to provide a typical removal efficiency of (%):       0         Common practices vary across sites thus conservative process release estimates used. Do not allow uncontrolled discharge of product into the environment. If discharging to domestic sewage treatment plant, no onsite wastewater treatment required.         Organisational measures to prevent/limit release from site         Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed.         Conditions and measures related to municipal sewage treatment plant         Size of municipal sewage system/treatment plant (m³/d)       2.0E+03         Degradation effectiveness (%)       95.0         Conditions and measures related to external treatment of waste for disposal         External treatment and disposal of waste should comply with applicable local and/or national regulations.         Conditions and measures related to external recovery of waste         External recovery and recycling of waste should comply with applicable local and/or national regulations.         Substance release quantities after risk management measures         Release to waste water from process (mg/l)       Not defined         Maximum allowable site tonnage (MSafe) based on release       1.0E+05	provide the required removal efficiency of (%):	94.8				
required onsite wastewater removal efficiency of (%):       1         Treat soil emission to provide a typical removal efficiency of (%):       0         Common practices vary across sites thus conservative process release estimates used. Do not allow uncontrolled discharge of product into the environment. If discharging to domestic sewage treatment plant, no onsite wastewater treatment required.         Organisational measures to prevent/limit release from site         Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed.         Conditions and measures related to municipal sewage treatment plant         Size of municipal sewage system/treatment plant (m³/d)       2.0E+03         Degradation effectiveness (%)       95.0         Conditions and measures related to external treatment of waste for disposal         External treatment and disposal of waste should comply with applicable local and/or national regulations.         Conditions and measures related to external recovery of waste         External recovery and recycling of waste should comply with applicable local and/or national regulations.         Substance release quantities after risk management measures         Release to waste water from process (mg/l)       Not defined         Maximum allowable site tonnage (MSafe) based on release       1.0E+05	If discharging to domestic sewage treatment plant, provide the	0				
Common practices vary across sites thus conservative process release estimates used. Do not allow uncontrolled discharge of product into the environment. If discharging to domestic sewage treatment plant, no onsite wastewater treatment required.         Organisational measures to prevent/limit release from site         Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed.         Conditions and measures related to municipal sewage treatment plant         Size of municipal sewage system/treatment plant (m³/d)       2.0E+03         Degradation effectiveness (%)       95.0         Conditions and measures related to external treatment of waste for disposal         External treatment and disposal of waste should comply with applicable local and/or national regulations.         Conditions and measures related to external recovery of waste         External recovery and recycling of waste should comply with applicable local and/or national regulations.         Substance release quantities after risk management measures         Release to waste water from process (mg/l)       Not defined         Maximum allowable site tonnage (MSafe) based on release       1.0E+05	required onsite wastewater removal efficiency of (%):					
environment. If discharging to domestic sewage treatment plant, no onsite wastewater treatment required.         Organisational measures to prevent/limit release from site         Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed.         Conditions and measures related to municipal sewage treatment plant         Size of municipal sewage system/treatment plant (m³/d)       2.0E+03         Degradation effectiveness (%)       95.0         Conditions and measures related to external treatment of waste for disposal         External treatment and disposal of waste should comply with applicable local and/or national regulations.         Conditions and measures related to external recovery of waste         External recovery and recycling of waste should comply with applicable local and/or national regulations.         Substance release quantities after risk management measures         Release to waste water from process (mg/l)       Not defined         Maximum allowable site tonnage (MSafe) based on release       1.0E+05						
Organisational measures to prevent/limit release from site         Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed.         Conditions and measures related to municipal sewage treatment plant         Size of municipal sewage system/treatment plant (m³/d)       2.0E+03         Degradation effectiveness (%)       95.0         Conditions and measures related to external treatment of waste for disposal         External treatment and disposal of waste should comply with applicable local and/or national regulations.         Conditions and measures related to external recovery of waste         External recovery and recycling of waste should comply with applicable local and/or national regulations.         Substance release quantities after risk management measures         Release to waste water from process (mg/l)       Not defined         Maximum allowable site tonnage (MSafe) based on release       1.0E+05						
Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed.         Conditions and measures related to municipal sewage treatment plant         Size of municipal sewage system/treatment plant (m³/d)       2.0E+03         Degradation effectiveness (%)       95.0         Conditions and measures related to external treatment of waste for disposal         External treatment and disposal of waste should comply with applicable local and/or national regulations.         Conditions and measures related to external recovery of waste         External recovery and recycling of waste should comply with applicable local and/or national regulations.         Substance release quantities after risk management measures         Release to waste water from process (mg/l)       Not defined         Maximum allowable site tonnage (MSafe) based on release       1.0E+05		io onsite wastewater treatment required.				
Conditions and measures related to municipal sewage treatment plant         Size of municipal sewage system/treatment plant (m³/d)       2.0E+03         Degradation effectiveness (%)       95.0         Conditions and measures related to external treatment of waste for disposal         External treatment and disposal of waste should comply with applicable local and/or national regulations.         Conditions and measures related to external recovery of waste         External recovery and recycling of waste should comply with applicable local and/or national regulations.         Substance release quantities after risk management measures         Release to waste water from process (mg/l)       Not defined         Maximum allowable site tonnage (MSafe) based on release       1.0E+05		aineveted, contained or realoimed				
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Degradation effectiveness (%)       95.0         Conditions and measures related to external treatment of waste for disposal         External treatment and disposal of waste should comply with applicable local and/or national regulations.         Conditions and measures related to external recovery of waste         External recovery and recycling of waste should comply with applicable local and/or national regulations.         Substance release quantities after risk management measures         Release to waste water from process (mg/l)       Not defined         Maximum allowable site tonnage (MSafe) based on release       1.0E+05						
Conditions and measures related to external treatment of waste for disposal         External treatment and disposal of waste should comply with applicable local and/or national regulations.         Conditions and measures related to external recovery of waste         External recovery and recycling of waste should comply with applicable local and/or national regulations.         Substance release quantities after risk management measures         Release to waste water from process (mg/l)       Not defined         Maximum allowable site tonnage (MSafe) based on release       1.0E+05						
External treatment and disposal of waste should comply with applicable local and/or national regulations.         Conditions and measures related to external recovery of waste         External recovery and recycling of waste should comply with applicable local and/or national regulations.         Substance release quantities after risk management measures         Release to waste water from process (mg/l)       Not defined         Maximum allowable site tonnage (MSafe) based on release       1.0E+05	•					
Conditions and measures related to external recovery of waste         External recovery and recycling of waste should comply with applicable local and/or national regulations.         Substance release quantities after risk management measures         Release to waste water from process (mg/l)       Not defined         Maximum allowable site tonnage (MSafe) based on release       1.0E+05						
External recovery and recycling of waste should comply with applicable local and/or national regulations.         Substance release quantities after risk management measures         Release to waste water from process (mg/l)       Not defined         Maximum allowable site tonnage (MSafe) based on release       1.0E+05						
Release to waste water from process (mg/l)     Not defined       Maximum allowable site tonnage (MSafe) based on release     1.0E+05	External recovery and recycling of waste should comply with appli	cable local and/or national regulations.				
Maximum allowable site tonnage (MSafe) based on release 1.0E+05						
	Release to waste water from process (mg/l)					
following total wastewater treatment removal (kg/d):	Maximum allowable site tonnage (MSafe) based on release	1.0E+05				
	following total wastewater treatment removal (kg/d):					

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#### ACCORDING TO EC-REGULATIONS 1907/2006 (REACH), 1272/2008 (CLP) & 2020/878

# JET KEROSENE V3014

#### 3. Exposure estimation and reference to its source

#### 3.1 Human exposure prediction

Exposure assessment (method/calculation model)

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

	Inhal	ation	Der	mal	Combined
Process category [PROC]	inhalation exposure (ppm) Risk characterisation ratio (RCR)				Risk characterisation ratio (RCR)
PROC1	0.01	0.00	0.00	-	0.00
PROC2	10.0	0.25	0.00	-	0.25
PROC1/2 (Storage)	10.0	0.25	0.00	-	0.25
PROC3	25.0	0.63	0.00	-	0.63
PROC3 (Sampling)	25.0	0.63	0.00	-	0.63
PROC4	20.0	0.50	0.00	-	0.50
PROC5	5.0	0.13	0.00	-	0.13
PROC8a (Maintenance)	10.0	0.25	0.00	-	0.25
PROC8a (Manual)	5.0	0.13	0.00	-	0.13
PROC8b (bulk)	5.0	0.13	0.00	-	0.13
PROC8b (Drum/batch transfers)	1.50	0.04	0.00	-	0.04
PROC9	5.0	0.13	0.00	-	0.13
PROC14	5.0	0.13	0.00	-	0.13
PROC15	10.0	0.25	0.00	-	0.25

## 3.2 Environmental exposure prediction

Exposure assessment (method/calculation model)

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

Kerosine is a hydrocarbon UVCB. The hydrocarbon block method is used in PETRORISK to calculate the environmental toxicity (HC5) of each group of components in the substance. These are used to estimate the environmental risk for the substance. Therefore individual environmental compartments PNECs are not available for this product.

Environmental exposure	STP	freshwater	marine water	soil	freshwater sediment	marine sediment
Predicted Environmental Exposure (PEC)	5.1E-01 mg/l	5.1E-02 mg/l	5.0E-03 mg/l	5.5E-03 mg/kg ww	8.1E-01 mg/kg ww	8.1E-02 mg/kg ww
Risk characterisation ratio (RCR)	1.8E-01	7.5E-01	7.5E-02	1.6E-02	9.7E-01	9.7E-02

Human exposure prediction:

Route of Exposure	Exposure (µg/kg/Day)	Risk characterisation ratio (RCR)
Oral	6.3E+00	3.3E-04
Inhalation	1.6E+02	8.6E-03

4. Evaluation guidance to downstream user					
For scaling see	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 support the need for a DNEL to be established for other health effects. Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for- industries-libraries.html).				
Exposure assessment	Workers ECETOC TRA				
instrument/tool/method	Environmental exposure	The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model.			

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ACCORDING TO EC-REGULATIONS 1907/2006 (REACH), 1272/2008 (CLP) & 2020/878



## Exposure Scenario 3 – Use as a fuel (Industrial)

1.0 Contributing Scenarios				
Sector of uses SU]	SU3 Industrial uses: Uses of substances as such or in preparations at industrial sites			
	PROC2 (General exposures) – (Covers PROC1 also)			
	PROC2 (Storage) – (Covers PROC1 also(Storage))			
	PROC3			
Process category [PROC]	PROC8a (Maintenance)			
	PROC8a (Cleaning)			
	PROC8b (bulk)			
	PROC8b (Drum/batch transfers)			
	PROC16			
Chemical product category [PC]	not applicable			
Article Categories [AC]	not applicable			
Environmental release categories [ERC]	ERC7 Industrial use of substances in closed systems			
Specific Environmental Release Categories SPERC]	ESVOC SpERC 7.12a.v1			

2.1 Control of worker exposure					
Product characteristics					
Physical form of product	Liquid				
Vapour pressure	0.5 - 10 kPa @ STP	0.5 - 10 kPa @ STP			
Concentration of substance in product	Covers percentage sub	ostance in the product up to 100 % (unless stated differently).			
Human factors not influenced by risk	management				
Potential exposure area	Not defined				
Frequency and duration of use					
Exposure duration per day	Covers daily exposures	s up to 8 hours (unless stated differently).			
Frequency of use (days per year)	300				
Other operational conditions affecting	g worker exposure				
Area of use	PROC8b (bulk)	Outdoor			
Area of use	All other PROC's	Indoor			
Characteristics of the surroundings	Not defined				
Avoid direct skin contact with product. Id		ect skin contact. Wear gloves (tested to EN374) if hand contact with substanc			
Avoid direct skin contact with product. Id likely. Clean up contamination/spills as prevent/minimise exposures and to repo	s soon as they occur. Wash	off any skin contamination immediately. Provide basic employee training t			
Avoid direct skin contact with product. Id likely. Clean up contamination/spills as prevent/minimise exposures and to repo <b>Technical conditions of use</b>	s soon as they occur. Wash	off any skin contamination immediately. Provide basic employee training t			
Avoid direct skin contact with product. Id likely. Clean up contamination/spills as prevent/minimise exposures and to repo <b>Technical conditions of use</b> Not defined <b>Organisational measures</b>	s soon as they occur. Wash	off any skin contamination immediately. Provide basic employee training t			
Avoid direct skin contact with product. Id likely. Clean up contamination/spills as prevent/minimise exposures and to repo <b>Technical conditions of use</b> Not defined <b>Organisational measures</b>	s soon as they occur. Wash rt any skin problems that may	off any skin contamination immediately. Provide basic employee training t			
Avoid direct skin contact with product. Id likely. Clean up contamination/spills as prevent/minimise exposures and to repo <b>Technical conditions of use</b> Not defined <b>Organisational measures</b> PROC8b (Drum/batch transfers) PROC8a (Maintenance)	Provide a good standar of at least 30 %).	off any skin contamination immediately. Provide basic employee training t develop. rd of general ventilation (not less than 3 to 5 air changes per hour). (Efficiency or to equipment break-in or maintenance. (Efficiency of at least 80 %).			
Avoid direct skin contact with product. Id likely. Clean up contamination/spills as prevent/minimise exposures and to repo <b>Technical conditions of use</b> Not defined <b>Organisational measures</b> PROC8b (Drum/batch transfers) PROC8a (Maintenance)	Provide a good standar of at least 30 %).	off any skin contamination immediately. Provide basic employee training t develop. rd of general ventilation (not less than 3 to 5 air changes per hour). (Efficiency			
Avoid direct skin contact with product. Id likely. Clean up contamination/spills as prevent/minimise exposures and to repo <b>Technical conditions of use</b> Not defined <b>Organisational measures</b> PROC8b (Drum/batch transfers) PROC8a (Maintenance) PROC8a (Cleaning)	Provide a good standar of at least 30 %). Drain down system prior Apply vessel entry proc	off any skin contamination immediately. Provide basic employee training t develop. rd of general ventilation (not less than 3 to 5 air changes per hour). (Efficiency or to equipment break-in or maintenance. (Efficiency of at least 80 %).			
Avoid direct skin contact with product. Id likely. Clean up contamination/spills as prevent/minimise exposures and to repo <b>Technical conditions of use</b> Not defined <b>Organisational measures</b> PROC8b (Drum/batch transfers) PROC8a (Maintenance) PROC8a (Cleaning) <b>Risk management measures related t</b>	Provide a good standar of at least 30 %). Drain down system prior Apply vessel entry proc	off any skin contamination immediately. Provide basic employee training t develop. rd of general ventilation (not less than 3 to 5 air changes per hour). (Efficiency or to equipment break-in or maintenance. (Efficiency of at least 80 %). cedures including use of forced supplied air. (Efficiency of at least 90 %).			
Avoid direct skin contact with product. Id likely. Clean up contamination/spills as prevent/minimise exposures and to repo <b>Technical conditions of use</b> Not defined <b>Organisational measures</b> PROC8b (Drum/batch transfers) PROC8a (Maintenance) PROC8a (Cleaning) <b>Risk management measures related to</b> Respiratory protection	Provide a good standar of at least 30 %). Drain down system prio Apply vessel entry proc to human health	off any skin contamination immediately. Provide basic employee training t develop. rd of general ventilation (not less than 3 to 5 air changes per hour). (Efficiency or to equipment break-in or maintenance. (Efficiency of at least 80 %). cedures including use of forced supplied air. (Efficiency of at least 90 %). re required.			
Avoid direct skin contact with product. Id likely. Clean up contamination/spills as prevent/minimise exposures and to repo <b>Technical conditions of use</b> Not defined <b>Organisational measures</b> PROC8b (Drum/batch transfers) PROC8a (Maintenance) PROC8a (Cleaning) <b>Risk management measures related t</b> Respiratory protection Hand and/or Skin protection	Provide a good standar of at least 30 %). Drain down system prio Apply vessel entry proc to human health No special measures a	off any skin contamination immediately. Provide basic employee training t develop. rd of general ventilation (not less than 3 to 5 air changes per hour). (Efficiency or to equipment break-in or maintenance. (Efficiency of at least 80 %). cedures including use of forced supplied air. (Efficiency of at least 90 %). re required. re required.			
Avoid direct skin contact with product. Id likely. Clean up contamination/spills as prevent/minimise exposures and to repo <b>Technical conditions of use</b> Not defined <b>Organisational measures</b> PROC8b (Drum/batch transfers) PROC8a (Maintenance) PROC8a (Cleaning) <b>Risk management measures related t</b> Respiratory protection Hand and/or Skin protection Eye Protection	Provide a good standar of at least 30 %). Drain down system prio Apply vessel entry proc bo human health No special measures a No special measures a No special measures a	off any skin contamination immediately. Provide basic employee training t develop. rd of general ventilation (not less than 3 to 5 air changes per hour). (Efficiency or to equipment break-in or maintenance. (Efficiency of at least 80 %). cedures including use of forced supplied air. (Efficiency of at least 90 %). re required. re required.			
Avoid direct skin contact with product. Id likely. Clean up contamination/spills as prevent/minimise exposures and to repo <b>Technical conditions of use</b> Not defined <b>Organisational measures</b> PROC8b (Drum/batch transfers) PROC8a (Maintenance) PROC8a (Cleaning) <b>Risk management measures related t</b> Respiratory protection Hand and/or Skin protection Eye Protection <b>Other operational conditions affecting</b> Handle substance within a closed syster	Provide a good standar of at least 30 %). Drain down system prio Apply vessel entry proc o human health No special measures a No special measures a	off any skin contamination immediately. Provide basic employee training t develop. rd of general ventilation (not less than 3 to 5 air changes per hour). (Efficiency or to equipment break-in or maintenance. (Efficiency of at least 80 %). cedures including use of forced supplied air. (Efficiency of at least 90 %). re required. re required. re required.			
Avoid direct skin contact with product. Id likely. Clean up contamination/spills as prevent/minimise exposures and to repo <b>Technical conditions of use</b> Not defined <b>Organisational measures</b> PROC8b (Drum/batch transfers) PROC8a (Maintenance) PROC8a (Cleaning) <b>Risk management measures related t</b> Respiratory protection Hand and/or Skin protection Eye Protection <b>Other operational conditions affecting</b> Handle substance within a closed syster	Provide a good standar of at least 30 %). Drain down system prio Apply vessel entry proc o human health No special measures a No special measures a	off any skin contamination immediately. Provide basic employee training t develop. rd of general ventilation (not less than 3 to 5 air changes per hour). (Efficiency or to equipment break-in or maintenance. (Efficiency of at least 80 %). cedures including use of forced supplied air. (Efficiency of at least 90 %). re required. re required. re required.			
Avoid direct skin contact with product. Id likely. Clean up contamination/spills as prevent/minimise exposures and to repo <b>Technical conditions of use</b> Not defined <b>Organisational measures</b> PROC8b (Drum/batch transfers) PROC8a (Maintenance) PROC8a (Cleaning) <b>Risk management measures related t</b> Respiratory protection Hand and/or Skin protection Eye Protection <b>Other operational conditions affecting</b> Handle substance within a closed syster Ensure operation is undertaken outdoors	Provide a good standar of at least 30 %). Drain down system prio Apply vessel entry proc to human health No special measures a No special measures a No special measures a gworker exposure m. (PROC2 (General exposure s. (PROC8b (Bulk)).	off any skin contamination immediately. Provide basic employee training t develop. rd of general ventilation (not less than 3 to 5 air changes per hour). (Efficiency or to equipment break-in or maintenance. (Efficiency of at least 80 %). cedures including use of forced supplied air. (Efficiency of at least 90 %). re required. re required. re required. s); PROC3; PROC16).			
likely. Clean up contamination/spills as prevent/minimise exposures and to repo	Provide a good standar of at least 30 %). Drain down system prio Apply vessel entry proc o human health No special measures a No special measures a No special measures a No special measures a Reference and the system m. (PROC2 (General exposure s. (PROC8b (Bulk)). tainment or extract ventilation. b (Bulk)).	off any skin contamination immediately. Provide basic employee training t develop. rd of general ventilation (not less than 3 to 5 air changes per hour). (Efficiency or to equipment break-in or maintenance. (Efficiency of at least 80 %). cedures including use of forced supplied air. (Efficiency of at least 90 %). re required. re required. re required. s); PROC3; PROC16).			

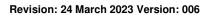
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Avoid spillage when withdrawing pump. (PROC8b (Drum/batch tra	anofare))				
Clear spills immediately. (PROC8a (Maintenance)).					
Store substance within a closed system. (PROC2 (Storage)).					
Avoid dip sampling. (PROC2 (Storage)).					
Ensure operatives are trained to minimise exposures. (PROC8b (Bulk); PROC8b (Drum/batch transfers)).					
	is from doors, windows etc. Controlled ventilation means air is supplied or				
removed by a powered fan. (PROC8b (Drum/batch transfers)).					
Retain drain downs in sealed storage pending disposal or for subs	sequent recycle (PBOC8a (Maintenance): PBOC8a (Cleaning)).				
Transfer via enclosed lines. (PROC8a (Cleaning)).					
Ensure dedicated sample points are provided.(PROC2 (Storage)).					
2.2 Control of environmental exposure					
Amounts used					
Fraction of EU tonnage used in region:	0.1				
Regional use tonnage (tons/year):	5.4E+05				
Fraction of Regional tonnage used locally: (tons/year):	1.0E+00				
Annual site tonnage (tons/year):	5.4E+05				
Average daily use(kg/day)	1.8E+06				
Environment factors not influenced by risk management	1.02700				
Flow rate of receiving surface water (m <sup>3</sup> /d):	Not defined (default = 18 000)				
Local freshwater dilution factor:	Not defined (default = 18,000)				
	10				
Local marine water dilution factor:	100				
Operational conditions	000				
Emission days (days/year):	300				
Release fraction to air from process (initial release prior to RMM):	5.0E-02				
Release fraction to wastewater from process (initial release prior to RMM):	1.0E-05				
Release fraction to soil from process (initial release prior to RMM):	0				
Technical conditions and measures at process level (source)	to prevent release				
Common practices vary across sites thus conservative process re					
Technical onsite conditions and measures to reduce or limit	discharges, air emissions and releases to soil				
Risk from environmental exposure is driven by freshwater sedime	nt.				
If discharging to domestic sewage treatment plant, no onsite wast	ewater treatment required.				
Treat air emission to provide a typical removal efficiency of (%):	95				
Treat onsite wastewater (prior to receiving water discharge) to					
provide the required removal efficiency of (%):	94.2				
If discharging to domestic sewage treatment plant, provide the					
required onsite wastewater removal efficiency of (%):	0				
Treat soil emission to provide a typical removal efficiency of (%):	Not defined				
Common practices vary across sites thus conservative process re	lease estimates used. If discharging to domestic sewage treatment plant, no onsite				
wastewater treatment required.					
Organisational measures to prevent/limit release from site					
Do not apply industrial sludge to natural soils. Sludge should be in	cinerated, contained or reclaimed.				
Conditions and measures related to municipal sewage treatment plant					
Size of municipal sewage system/treatment plant (m <sup>3</sup> /d)	2000				
Degradation effectiveness (%) 95					
Conditions and measures related to external treatment of was					
	ols. Combustion emissions considered in regional exposure assessment. External				
treatment and disposal of waste should comply with applicable loc	5				
Substance release quantities after risk management measure					
	Not defined				
Release to waste water from process (mg/l)     Not defined       Maximum allowable site tonnage (MSafe) based on release     2.1E+06					
following total wastewater treatment removal (kg/d):					
ionoming total mastemater treatment territoral (Ny/U).					

3. Exposure estimation and reference to its source	
3.1 Human exposure prediction	
Exposure assessment (method/calculation model)	ECETOC TRA



### ACCORDING TO EC-REGULATIONS 1907/2006 (REACH), 1272/2008 (CLP) & 2020/878



	Inha	ation	Der	mal	Combined
Process category [PROC]	inhalation Risk exposure characterisation (mg/m <sup>3</sup> ) ratio (RCR)		dermal exposure(mg/kg bw/day)	Risk characterisation ratio (RCR)	Risk characterisation ratio (RCR)
PROC1/2 (General exposures)	10.0	0.25	0.00	-	0.25
PROC1/2 (Storage)	10.0	0.25	0.00	-	0.25
PROC3	25.0	0.63	0.00	-	0.63
PROC8a (Maintenance)	10.0	0.25	0.00	-	0.25
PROC8a (Cleaning)	5.00	0.13	0.00	-	0.13
PROC8b (bulk)	35.0	0.88	0.00	-	0.88
PROC8b (Drum/batch transfers)	35.0	0.88	0.00	-	0.88
PROC16	5.00	0.13	0.00	-	0.13

#### 3.2 Environmental exposure prediction

Exposure assessment (method/calculation model)

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

Kerosine is a hydrocarbon UVCB. The hydrocarbon block method is used in PETRORISK to calculate the environmental toxicity (HC5) of each group of components in the substance. These are used to estimate the environmental risk for the substance. Therefore individual environmental compartments PNECs are not available for this product.

Environmental exposure	STP	freshwater	marine water	soil	freshwater sediment	marine sediment
Predicted Environmental Exposure (PEC)	4.5E-01 mg/l	4.5E-02 mg/l	4.5E-03 mg/l	9.7E-03 mg/kg ww	7.3E-01 mg/kg ww	7.3E-02 mg/kg ww
Risk characterisation ratio (RCR)	1.6E-01	6.7E-01	6.7E-02	2.8E-02	8.6E-01	8.6E-02

Human exposure prediction:

Route of Exposure	Exposure (µg/kg/Day)	Risk characterisation ratio (RCR)
Oral	6.5E+00	3.4E-04
Inhalation	2.9E+02	1.5E-02

4. Evaluation guidance to	downstream user	
For scaling see	are managed to at least equiva Available hazard data do not s	It Measures/Operational Conditions are adopted, then users should ensure that risks alent levels. upport the need for a DNEL to be established for other health effects. control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-
Exposure assessment	Workers	ECETOC TRA
instrument/tool/method	Environmental exposure	The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model.

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## Exposure Scenario 4 – Use as a fuel (Professional)

1.0 Contributing Scenarios	
Sector of uses SU]	SU22 Professional uses: Public domain (administration, education, entertainment, services, craftsmen)Click or tap here to enter text.
Process category [PROC]	PROC2 (General exposures) PROC2 (Storage) – (Covers PROC1 also (Storage)) PROC3 PROC8a (Maintenance) PROC8a (Cleaning) PROC8b (bulk) PROC8b (Drum/batch transfers) PROC16
Chemical product category [PC]	not applicable
Article Categories [AC]	not applicable
Environmental release categories [ERC]	ERC9a Wide dispersive indoor use of substances in closed systems ERC9b Wide dispersive outdoor use of substances in closed systems
Specific Environmental Release Categories SPERC]	ESVOC SpERC 9.12b.v1

2.1 Control of worker exposure					
Product characteristics					
Physical form of product	Liquid				
Vapour pressure	0.5 - 10 kPa @ STP				
Concentration of substance in product	Covers percentage su	ostance in the product up to 100 % (unless stated differently).			
Human factors not influenced by risk	management				
Potential exposure area	Not defined				
Frequency and duration of use	·				
Exposure duration per day	Covers daily exposure	s up to 8 hours (unless stated differently).			
Frequency of use (days per year)	365				
Other operational conditions affecting	g worker exposure				
Area of use	PROC8b (bulk)	Outdoor			
Area of use	All other PROC's	Indoor			
Characteristics of the surroundings	Not defined				
General measures applicable to all ac Assumes use at not more than 20°C ab is implemented. General measures (skin irritants) Avoid direct skin contact with product. Ic	ctivities hove ambient temperature, unle	ess stated differently. Assumes a good basic standard of occupational hygier ect skin contact. Wear gloves (tested to EN374) if hand contact with substance			
General measures applicable to all ac Assumes use at not more than 20°C ab is implemented. General measures (skin irritants) Avoid direct skin contact with product. Ic	ctivities hove ambient temperature, unle dentify potential areas for indire s soon as they occur. Wash	ect skin contact. Wear gloves (tested to EN374) if hand contact with substand off any skin contamination immediately. Provide basic employee training			
General measures applicable to all ac Assumes use at not more than 20°C ab is implemented. General measures (skin irritants) Avoid direct skin contact with product. Ic likely. Clean up contamination/spills as	ctivities hove ambient temperature, unle dentify potential areas for indire s soon as they occur. Wash	ect skin contact. Wear gloves (tested to EN374) if hand contact with substand off any skin contamination immediately. Provide basic employee training			
General measures applicable to all ac Assumes use at not more than 20°C ab is implemented. General measures (skin irritants) Avoid direct skin contact with product. Id likely. Clean up contamination/spills as prevent/minimise exposures and to repo	ctivities hove ambient temperature, unle dentify potential areas for indire s soon as they occur. Wash	ect skin contact. Wear gloves (tested to EN374) if hand contact with substand off any skin contamination immediately. Provide basic employee training			
General measures applicable to all ac Assumes use at not more than 20°C ab is implemented. General measures (skin irritants) Avoid direct skin contact with product. Ic likely. Clean up contamination/spills as prevent/minimise exposures and to repor Technical conditions of use Not defined Organisational measures	ctivities hove ambient temperature, unle dentify potential areas for indire s soon as they occur. Wash ort any skin problems that may	ect skin contact. Wear gloves (tested to EN374) if hand contact with substand off any skin contamination immediately. Provide basic employee training develop.			
General measures applicable to all ac Assumes use at not more than 20°C ab is implemented. General measures (skin irritants) Avoid direct skin contact with product. Ic likely. Clean up contamination/spills as prevent/minimise exposures and to repor Technical conditions of use Not defined Organisational measures PROC8b (Bulk)	ctivities hove ambient temperature, unle dentify potential areas for indire s soon as they occur. Wash ort any skin problems that may Ensure operatives are	ect skin contact. Wear gloves (tested to EN374) if hand contact with substance off any skin contamination immediately. Provide basic employee training develop.			
General measures applicable to all ac Assumes use at not more than 20°C ab is implemented. General measures (skin irritants) Avoid direct skin contact with product. Ic likely. Clean up contamination/spills as prevent/minimise exposures and to report Technical conditions of use Not defined Organisational measures PROC8b (Bulk)	ctivities hove ambient temperature, unle dentify potential areas for indire s soon as they occur. Wash ort any skin problems that may Ensure operatives are	ect skin contact. Wear gloves (tested to EN374) if hand contact with substand off any skin contamination immediately. Provide basic employee training develop.			
General measures applicable to all ac Assumes use at not more than 20°C ab is implemented. General measures (skin irritants) Avoid direct skin contact with product. Ic likely. Clean up contamination/spills as prevent/minimise exposures and to report Technical conditions of use Not defined Organisational measures PROC8b (Bulk) PROC8b (Drum/batch transfers) PROC8a (Maintenance)	ctivities hove ambient temperature, unle dentify potential areas for indire s soon as they occur. Wash bort any skin problems that may Ensure operatives are Provide a good standa of at least 30 %). Drain down system pri	ect skin contact. Wear gloves (tested to EN374) if hand contact with substant off any skin contamination immediately. Provide basic employee training develop. trained to minimise exposures.(Efficiency of at least 15%) rd of general ventilation (not less than 3 to 5 air changes per hour). (Efficience or to equipment break-in or maintenance. (Efficiency of at least 80 %).			
General measures applicable to all ac Assumes use at not more than 20°C ab is implemented. General measures (skin irritants) Avoid direct skin contact with product. Ic likely. Clean up contamination/spills as prevent/minimise exposures and to repor Technical conditions of use Not defined Organisational measures	ctivities hove ambient temperature, unle dentify potential areas for indire s soon as they occur. Wash bort any skin problems that may Ensure operatives are Provide a good standa of at least 30 %). Drain down system pri	ect skin contact. Wear gloves (tested to EN374) if hand contact with substant off any skin contamination immediately. Provide basic employee training develop. trained to minimise exposures.(Efficiency of at least 15%) rd of general ventilation (not less than 3 to 5 air changes per hour). (Efficienc			
General measures applicable to all ac Assumes use at not more than 20°C ab is implemented. General measures (skin irritants) Avoid direct skin contact with product. Ic likely. Clean up contamination/spills as prevent/minimise exposures and to report Technical conditions of use Not defined Organisational measures PROC8b (Bulk) PROC8b (Drum/batch transfers) PROC8a (Maintenance)	ctivities hove ambient temperature, unle dentify potential areas for indire s soon as they occur. Wash bort any skin problems that may Ensure operatives are Provide a good standa of at least 30 %). Drain down system pri Apply vessel entry pro-	ect skin contact. Wear gloves (tested to EN374) if hand contact with substant off any skin contamination immediately. Provide basic employee training develop. trained to minimise exposures.(Efficiency of at least 15%) rd of general ventilation (not less than 3 to 5 air changes per hour). (Efficience or to equipment break-in or maintenance. (Efficiency of at least 80 %).			
General measures applicable to all ac Assumes use at not more than 20°C ab is implemented. General measures (skin irritants) Avoid direct skin contact with product. Ic likely. Clean up contamination/spills as prevent/minimise exposures and to report Technical conditions of use Not defined Organisational measures PROC8b (Bulk) PROC8b (Drum/batch transfers) PROC8a (Maintenance) PROC8a (Cleaning)	ctivities love ambient temperature, unle dentify potential areas for indire s soon as they occur. Wash ort any skin problems that may Ensure operatives are Provide a good standa of at least 30 %). Drain down system pri Apply vessel entry pro to human health No special measures a	ect skin contact. Wear gloves (tested to EN374) if hand contact with substand off any skin contamination immediately. Provide basic employee training develop. trained to minimise exposures.(Efficiency of at least 15%) rd of general ventilation (not less than 3 to 5 air changes per hour). (Efficience or to equipment break-in or maintenance. (Efficiency of at least 80 %). cedures including use of forced supplied air. (Efficiency of at least 80 %). re required.			
General measures applicable to all ac Assumes use at not more than 20°C ab is implemented. General measures (skin irritants) Avoid direct skin contact with product. Ic likely. Clean up contamination/spills as prevent/minimise exposures and to report Technical conditions of use Not defined Organisational measures PROC8b (Bulk) PROC8b (Drum/batch transfers) PROC8a (Maintenance) PROC8a (Cleaning) Risk management measures related to	ctivities hove ambient temperature, unleadentify potential areas for indires soon as they occur. Wash ort any skin problems that may Ensure operatives are Provide a good standa of at least 30 %). Drain down system pri Apply vessel entry pro to human health	ect skin contact. Wear gloves (tested to EN374) if hand contact with substand off any skin contamination immediately. Provide basic employee training develop. trained to minimise exposures.(Efficiency of at least 15%) rd of general ventilation (not less than 3 to 5 air changes per hour). (Efficience or to equipment break-in or maintenance. (Efficiency of at least 80 %). cedures including use of forced supplied air. (Efficiency of at least 80 %). re required.			

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Use drum pumps or carefully pour from container. (PROC8b (Drun Avoid spillage when withdrawing pump. (PROC8b (Drum/batch tra	
	สเราะง/).
Clear spills immediately. (PROC8a (Maintenance)).	
Transfer via enclosed lines. (PROC8a (Cleaning)). Store substance within a closed system. (PROC2 (Storage)).	
Avoid dip sampling.(PROC2 (Storage)).	
	is from doors, windows etc. Controlled ventilation means air is supplied or
removed by a powered fan. (PROC8b (Drum/batch transfers)).	is non doors, windows etc. Controlled ventilation means all is supplied of
Retain drain downs in sealed storage pending disposal or for subs	sequent recycle (PBOC8a (Maintenance): PBOC8a (Cleaning))
Ensure dedicated sample points are provided.(PROC2 (Storage))	
2.2 Control of environmental exposure	
Amounts used	
Fraction of EU tonnage used in region:	0.1
Regional use tonnage (tons/year):	7.1E+05
Fraction of Regional tonnage used locally: (tons/year):	5.0E-04
Annual site tonnage (tons/year):	3.6E+02
Average daily use(kg/day)	9.8E+02
Environment factors not influenced by risk management	
Flow rate of receiving surface water (m <sup>3</sup> /d):	Not defined (default = 18,000)
Local freshwater dilution factor:	
Local marine water dilution factor:	100
Operational conditions	100
Emission days (days/year):	365
Release fraction to air from wide dispersive use (regional only):	1.0E-03
Release fraction to wastewater from wide dispersive use:	1.0E-05
Release fraction to soil from wide dispersive use (regional only):	0.00001
Technical conditions and measures at process level (source)	to prevent release
Common practices vary across sites thus conservative process re	lease estimates used.
Technical onsite conditions and measures to reduce or limit	discharges, air emissions and releases to soil
Risk from environmental exposure is driven by freshwater. If disch	narging to domestic sewage treatment plant, no onsite wastewater treatment
required.	
required. Treat air emission to provide a typical removal efficiency of (%):	0
Treat air emission to provide a typical removal efficiency of (%): Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of (%):	0 54.2
Treat air emission to provide a typical removal efficiency of (%): Treat onsite wastewater (prior to receiving water discharge) to	54.2
Treat air emission to provide a typical removal efficiency of (%): Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of (%):	
Treat air emission to provide a typical removal efficiency of (%): Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of (%): If discharging to domestic sewage treatment plant, provide the	54.2
Treat air emission to provide a typical removal efficiency of (%): Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of (%): If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of (%):	54.2 0 0
Treat air emission to provide a typical removal efficiency of (%): Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of (%): If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of (%): Treat soil emission to provide a typical removal efficiency of (%):	54.2 0 0
Treat air emission to provide a typical removal efficiency of (%): Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of (%): If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of (%): Treat soil emission to provide a typical removal efficiency of (%): Common practices vary across sites thus conservative process re <b>Organisational measures to prevent/limit release from site</b> Do not apply industrial sludge to natural soils. Sludge should be in	54.2 0 0 lease estimates used. ncinerated, contained or reclaimed.
Treat air emission to provide a typical removal efficiency of (%): Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of (%): If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of (%): Treat soil emission to provide a typical removal efficiency of (%): Common practices vary across sites thus conservative process re <b>Organisational measures to prevent/limit release from site</b>	54.2 0 0 lease estimates used. ncinerated, contained or reclaimed.
Treat air emission to provide a typical removal efficiency of (%): Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of (%): If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of (%): Treat soil emission to provide a typical removal efficiency of (%): Common practices vary across sites thus conservative process re <b>Organisational measures to prevent/limit release from site</b> Do not apply industrial sludge to natural soils. Sludge should be in <b>Conditions and measures related to municipal sewage treatment</b> Size of municipal sewage system/treatment plant (m³/d)	54.2 0 0 lease estimates used. ncinerated, contained or reclaimed.
Treat air emission to provide a typical removal efficiency of (%): Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of (%): If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of (%): Treat soil emission to provide a typical removal efficiency of (%): Common practices vary across sites thus conservative process re <b>Organisational measures to prevent/limit release from site</b> Do not apply industrial sludge to natural soils. Sludge should be in <b>Conditions and measures related to municipal sewage treatment</b>	54.2 0 0 lease estimates used. ncinerated, contained or reclaimed. nent plant
Treat air emission to provide a typical removal efficiency of (%): Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of (%): If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of (%): Treat soil emission to provide a typical removal efficiency of (%): Common practices vary across sites thus conservative process re <b>Organisational measures to prevent/limit release from site</b> Do not apply industrial sludge to natural soils. Sludge should be in <b>Conditions and measures related to municipal sewage treatment</b> Size of municipal sewage system/treatment plant (m³/d) Degradation effectiveness (%) <b>Conditions and measures related to external treatment of was</b>	54.2         0         0         0         olease estimates used.         ncinerated, contained or reclaimed.         nent plant         2000         95.0         ste for disposal
Treat air emission to provide a typical removal efficiency of (%): Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of (%): If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of (%): Treat soil emission to provide a typical removal efficiency of (%): Common practices vary across sites thus conservative process re <b>Organisational measures to prevent/limit release from site</b> Do not apply industrial sludge to natural soils. Sludge should be in <b>Conditions and measures related to municipal sewage treatment</b> Size of municipal sewage system/treatment plant (m³/d) Degradation effectiveness (%) <b>Conditions and measures related to external treatment of was</b> Combustion emissions limited by required exhaust emission contr	54.2         0         0         0         olease estimates used.         ncinerated, contained or reclaimed.         nent plant         2000         95.0         ste for disposal         ols. Combustion emissions considered in regional exposure assessment. External
Treat air emission to provide a typical removal efficiency of (%): Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of (%): If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of (%): Treat soil emission to provide a typical removal efficiency of (%): Common practices vary across sites thus conservative process re <b>Organisational measures to prevent/limit release from site</b> Do not apply industrial sludge to natural soils. Sludge should be in <b>Conditions and measures related to municipal sewage treatment</b> Size of municipal sewage system/treatment plant (m³/d) Degradation effectiveness (%) <b>Conditions and measures related to external treatment of was</b>	54.2         0         0         0         olease estimates used.         ncinerated, contained or reclaimed.         nent plant         2000         95.0         ste for disposal         ols. Combustion emissions considered in regional exposure assessment. External
Treat air emission to provide a typical removal efficiency of (%): Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of (%): If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of (%): Treat soil emission to provide a typical removal efficiency of (%): Common practices vary across sites thus conservative process re <b>Organisational measures to prevent/limit release from site</b> Do not apply industrial sludge to natural soils. Sludge should be in <b>Conditions and measures related to municipal sewage treatment</b> Size of municipal sewage system/treatment plant (m³/d) Degradation effectiveness (%) <b>Conditions and measures related to external treatment of was</b> Combustion emissions limited by required exhaust emission contr treatment and disposal of waste should comply with applicable loo <b>Conditions and measures related to external recovery of was</b>	54.2         0         0         0         lease estimates used.         neinerated, contained or reclaimed.         nent plant         2000         95.0         ste for disposal         ools. Combustion emissions considered in regional exposure assessment. External cal and/or national regulations.         te
Treat air emission to provide a typical removal efficiency of (%): Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of (%): If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of (%): Treat soil emission to provide a typical removal efficiency of (%): Common practices vary across sites thus conservative process re <b>Organisational measures to prevent/limit release from site</b> Do not apply industrial sludge to natural soils. Sludge should be in <b>Conditions and measures related to municipal sewage treatment</b> Size of municipal sewage system/treatment plant (m³/d) Degradation effectiveness (%) <b>Conditions and measures related to external treatment of was</b> Combustion emissions limited by required exhaust emission contr treatment and disposal of waste should comply with applicable log <b>Conditions and measures related to external recovery of wass</b> This substance is consumed during use and no waste of the substance	54.2         0         0         0         olease estimates used.         neinerated, contained or reclaimed.         nement plant         2000         95.0         ste for disposal         rols. Combustion emissions considered in regional exposure assessment. External cal and/or national regulations.         te         tance is generated.
Treat air emission to provide a typical removal efficiency of (%): Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of (%): If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of (%): Treat soil emission to provide a typical removal efficiency of (%): Common practices vary across sites thus conservative process re <b>Organisational measures to prevent/limit release from site</b> Do not apply industrial sludge to natural soils. Sludge should be in <b>Conditions and measures related to municipal sewage treatm</b> Size of municipal sewage system/treatment plant (m³/d) Degradation effectiveness (%) <b>Conditions and measures related to external treatment of was</b> Combustion emissions limited by required exhaust emission contr treatment and disposal of waste should comply with applicable loo <b>Conditions and measures related to external recovery of was</b> This substance is consumed during use and no waste of the subs <b>Substance release quantities after risk management measures</b>	54.2         0         0         0         olease estimates used.         neinerated, contained or reclaimed.         nement plant         2000         95.0         ste for disposal         ools. Combustion emissions considered in regional exposure assessment. External cal and/or national regulations.         te         tance is generated.         es
Treat air emission to provide a typical removal efficiency of (%): Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of (%): If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of (%): Treat soil emission to provide a typical removal efficiency of (%): Common practices vary across sites thus conservative process re <b>Organisational measures to prevent/limit release from site</b> Do not apply industrial sludge to natural soils. Sludge should be in <b>Conditions and measures related to municipal sewage treatm</b> Size of municipal sewage system/treatment plant (m³/d) Degradation effectiveness (%) <b>Conditions and measures related to external treatment of was</b> Combustion emissions limited by required exhaust emission contr treatment and disposal of waste should comply with applicable loo <b>Conditions and measures related to external recovery of was</b> This substance is consumed during use and no waste of the subs <b>Substance release quantities after risk management measures</b> Release to waste water from process (mg/l)	54.2         0
Treat air emission to provide a typical removal efficiency of (%): Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of (%): If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of (%): Treat soil emission to provide a typical removal efficiency of (%): Common practices vary across sites thus conservative process re <b>Organisational measures to prevent/limit release from site</b> Do not apply industrial sludge to natural soils. Sludge should be in <b>Conditions and measures related to municipal sewage treatm</b> Size of municipal sewage system/treatment plant (m³/d) Degradation effectiveness (%) <b>Conditions and measures related to external treatment of was</b> Combustion emissions limited by required exhaust emission contr treatment and disposal of waste should comply with applicable loo <b>Conditions and measures related to external recovery of was</b> This substance is consumed during use and no waste of the subs <b>Substance release quantities after risk management measures</b>	54.2         0         0         0         olease estimates used.         neinerated, contained or reclaimed.         nement plant         2000         95.0         ste for disposal         ools. Combustion emissions considered in regional exposure assessment. External cal and/or national regulations.         te         tance is generated.         es

3. Exposure estimation and reference to its source	
3.1 Human exposure prediction	
Exposure assessment (method/calculation model)	ECETOC TRA

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	Inhal	ation	Der	mal	Combined	
Process category [PROC]	inhalation exposure (ppm)	Risk characterisation ratio (RCR)	dermal exposure (mg/kg bw/day)	Risk characterisation ratio (RCR)	Risk characterisation ratio (RCR)	
PROC2 (General exposures)	20.0	0.50	0.00	-	0.50	
PROC1/2 (Storage)	20.0	0.50	0.00	-	0.50	
PROC3	25.0	0.63	0.00	-	0.63	
PROC8a (Maintenance)	20.0	0.50	0.00	-	0.50	
PROC8a (Cleaning)	20.0	0.50	0.00	-	0.50	
PROC8b (bulk)	29.8	0.74	0.00	-	0.74	
PROC8b (Drum/batch transfers)	35.0	0.88	0.00	-	0.88	
PROC16	10.0	0.25	0.00	-	0.25	

#### 3.2 Environmental exposure prediction

Exposure assessment (method/calculation model)

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

Kerosine is a hydrocarbon UVCB. The hydrocarbon block method is used in PETRORISK to calculate the environmental toxicity (HC5) of each group of components in the substance. These are used to estimate the environmental risk for the substance. Therefore individual environmental compartments PNECs are not available for this product.

Environmental exposure	STP	freshwater	marine water	soil	freshwater sediment	marine sediment
Predicted Environmental Exposure (PEC)	2.5E-04 mg/l	6.2E-03 mg/l	2.8E-05 mg/l	2.7E-03 mg/kg ww	6.2E-02 mg/kg ww	6.8E-04 mg/kg ww
Risk characterisation ratio (RCR)	8.9E-05	1.1E-01	4.9E-04	7.9E-04	4.1E-02	1.6E-04

Human exposure prediction

Route of Exposure	Exposure (µg/kg/Day)	Risk characterisation ratio (RCR)
Oral	1.2E+00	6.4E-05
Inhalation	7.1E-01	3.7E-05

4. Evaluation guidance to a	downstream user	
For scaling see	are managed to at least equivale Available hazard data do not sup	Measures/Operational Conditions are adopted, then users should ensure that risks nt levels. port the need for a DNEL to be established for other health effects. ntrol technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-
Exposure assessment	Workers	ECETOC TRA
instrument/tool/method	Environmental exposure	The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model.

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## Exposure Scenario 5 – Use as a fuel (Consumer)

1.0 Contributing Scenarios	
Sector of uses SU]	SU21 Consumer uses: Private households (= general public = consumers)
Process category [PROC]	not applicable
	PC13 (Automotive refuelling)
Chemical product category [PC]	PC13 (Home heating fuel)
Chemical product category [FO]	PC13 (Garden equipment use)
	PC13 (Garden equipment refueling)
Article Categories [AC]	not applicable
Environmental release categories [ERC]	ERC9a Wide dispersive indoor use of substances in closed systems
	ERC9b Wide dispersive outdoor use of substances in closed systems
Specific Environmental Release Categories SPERC	ESVOC SpERC 9.12c.v1

2.0 Operational conditions and risk man	agement measures		
2.1 Control of worker exposure			
Product characteristics			
Physical form of product	Liquid		
Vapour pressure	>10Pa (STP)		
Concentration of substance in product	Covers percentage substance i	n the product up to 100 % (unless stat	ed differently).
Human factors not influenced by risk m	anagement	· · · · ·	
	Chemical product category [PC]	Category	Skin Contact (cm <sup>2</sup> )
		Automotive refuelling	210
	PC13	Home heating fuel	210
Potential exposure area	FCI3	Garden equipment use	-
		Garden equipment refueling	420
Frequency and duration of use	Chemical product category [PC]	Category	Duration
		Automotive refuelling	0.05
	Do10	Home heating fuel	0.03
Exposure duration (hours/Event)	PC13	Garden equipment use	2.00
		Garden equipment refueling	0.03
	Chemical product category [PC]	Category	Frequency of use
		Automotive refuelling	52
	Do10	Home heating fuel	365
Frequency of use (days per year)	PC13 -	Garden equipment use	26
		Garden equipment refueling	26
	Chemical product	Category	Mass
	category [PC]	• •	
		Automotive refuelling	50,000
Amounts used (g/Event)	PC13	Home heating fuel	1,500
		Garden equipment use	1,000
		Garden equipment refueling	1,000
Operational conditions			
Area of use	Not defined		
Characteristics of the surroundings			

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	Chemical p	product	<b>0</b> ·	
	category		Category	Room size (m <sup>3</sup> )
			Automotive refuelling	100, or: outdoor
	PC1:	3	Home heating fuel	20
			Garden equipment use	100, or: outdoor
			Garden equipment refueling	34
Risk management measures				
Respiratory protection	No specific measu			
Hand/Skin protection	No specific measu			
Eye Protection	No specific measu	res identified.		
2.2 Control of environmental exposure Amounts used				
Fraction of EU tonnage used in region:		0.1		
Regional use tonnage (tons/year):		7.6E+04		
Fraction of Regional tonnage used locally: (tor	ns/vear).	5.0E-04		
Annual site tonnage (tons/year):	10, j 001 j.	3.8E+01		
Maximum daily site tonnage (kg/day):		1.0E+02		
Environment factors not influenced by risk	management			
Flow rate of receiving surface water (m <sup>3</sup> /d):		Not defined	(default = 18,000)	
Local freshwater dilution factor:		10		
Local marine water dilution factor:		100		
Operational conditions				
Emission days (days/year):		365		
Release fraction to air from wide dispersive us	e (regional only):	1.0E-03		
Release fraction to wastewater from wide disp		1.0E-05		
Release fraction to soil from wide dispersive u		1.0E-05	-	
Technical conditions and measures at proc	cess level (source)	to prevent re	lease	
Not defined				
Technical onsite conditions and measures			r emissions and releases to soil	
Treat air emission to provide a typical removal	etticiency of (%)	0		
		0		
Treat onsite wastewater (prior to receiving wat	er discharge) to	-		
Treat onsite wastewater (prior to receiving wat provide the required removal efficiency of (%):	er discharge) to	54.0		
Treat onsite wastewater (prior to receiving wat	er discharge) to	54.0		
Treat onsite wastewater (prior to receiving wat provide the required removal efficiency of (%):	er discharge) to lant, provide the	-		
Treat onsite wastewater (prior to receiving wat provide the required removal efficiency of (%): If discharging to domestic sewage treatment p	lant, provide the of (%):	54.0		
Treat onsite wastewater (prior to receiving wat provide the required removal efficiency of (%): If discharging to domestic sewage treatment p required onsite wastewater removal efficiency	er discharge) to lant, provide the of (%): al efficiency of (%):	54.0 0		
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Treat onsite wastewater (prior to receiving wat provide the required removal efficiency of (%): If discharging to domestic sewage treatment p required onsite wastewater removal efficiency Treat soil emission to provide a typical remova <b>Organisational measures to prevent/limit re</b> Do not apply industrial sludge to natural soils. <b>Conditions and measures related to munice</b> Size of municipal sewage system/treatment pla Degradation effectiveness (%) <b>Conditions and measures related to externe</b> Combustion emissions limited by required exh	er discharge) to lant, provide the of (%): al efficiency of (%): elease from site ipal sewage treatm ant (m³/d) al treatment of was aust emission contro y with applicable loc al recovery of wast	54.0 0 0 ent plant 2000 95.0 ste for dispos ols. Combustic al and/or natic te	n emissions considered in regional ex nal regulations.	posure assessment. Externa
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Treat onsite wastewater (prior to receiving wat provide the required removal efficiency of (%): If discharging to domestic sewage treatment p required onsite wastewater removal efficiency Treat soil emission to provide a typical remova <b>Organisational measures to prevent/limit re</b> Do not apply industrial sludge to natural soils. <b>Conditions and measures related to munice</b> Size of municipal sewage system/treatment pla Degradation effectiveness (%) <b>Conditions and measures related to extern</b> Combustion emissions limited by required exh treatment and disposal of waste should comple <b>Conditions and measures related to extern</b> This substance is consumed during use and n <b>Substance release quantities after risk mar</b>	er discharge) to lant, provide the of (%): al efficiency of (%): elease from site ipal sewage treatm ant (m³/d) al treatment of was aust emission contro y with applicable loc al recovery of wasi o waste of the subst hagement measure	54.0 0 0 ent plant 2000 95.0 ste for dispos ols. Combustic al and/or natic te ance is genera s	n emissions considered in regional ex nal regulations.	posure assessment. Externa

## 3. Exposure estimation and reference to its source

3.1 Human exposure prediction

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Exposure assessment (method/calculation model)	ECETOC TRA

Yearly Use (Chronic):

	Inhalation		Dermal		Combined
Process category [PROC]	inhalation exposure (mg/m³)	Risk characterisation ratio (RCR)	dermal exposure (mg/kg bw/day)	Risk characterisation ratio (RCR)	Risk characterisation ratio (RCR)
PROC13 (Automotive refuelling)	0.29	0.01	0.50	0.00	0.01
PROC13 (Home heating fuel)	2.04	0.05	3.50	0.00	0.05

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PROC13 (Garden equipment use)	0.68	0.02	0.00	0.00	0.02
PROC13 (Garden equipment refueling)	0.08	0.00	0.49	0.00	0.00

#### 3.2 Environmental exposure prediction

Exposure assessment (method/calculation model)

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

Kerosine is a hydrocarbon UVCB. The hydrocarbon block method is used in PETRORISK to calculate the environmental toxicity (HC5) of each group of components in the substance. These are used to estimate the environmental risk for the substance. Therefore individual environmental compartments PNECs are not available for this product.

Environmental exposure	STP	freshwater	marine water	soil	freshwater sediment	marine sediment
Predicted Environmental Exposure (PEC)	2.6E-05 mg/l	6.2E-03 mg/l	2.5E-05 mg/l	2.6E-03 mg/kg ww	6.1E-02 mg/kg ww	6.5E-04 mg/kg ww
Risk characterisation ratio (RCR)	9.5E-06	1.1E-01	4.6E-04	4.1E-04	4.0E-02	1.2E-04

Human exposure prediction:

Route of Exposure	Exposure (µg/kg/Day)	Risk characterisation ratio (RCR)
Oral	1.2E+00	6.4E-05
Inhalation	7.1E-01	3.7E-05

4. Evaluation guidance to downstream user				
For scaling see	Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for- industries-libraries.html).			
Exposure assessment	Workers	ECETOC TRA		
instrument/tool/method	Environmental exposure	The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model.		