

KEROSENE

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830
 Date of issue: 6/6/2017 Supersedes: 10/10/2015 Version: 10.1

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

1.1. Product identifier

Product form : Mixture
 Product name : KEROSENE
 EC No : 265-184-9 ; 294-799-5
 CAS No : 64742-81-0 ; 91770-15-9
 REACH registration No : TOTAL RAFFINAGE FRANCE (01-2119462828-25-0020 / 01-2119502385-46-0036) - ZEELAND REFINERY (01-2119462828-25-0027 / 01-2119502385-46-0044) - TOTAL LINDSAY OIL REFINERY (01-2119462828-25-0039 / 01-2119502385-46-0022)
 Synonyms : 64742-81-0 ; 91770-15-9
 Product group : -

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

1.2.1. Relevant identified uses

Main use category : Professional use
 Use of the substance/mixture : Manufacture of substances
 Formulation & (re)packing of substances and mixtures
 Distribution of substance
 Use as a fuel.
 For the detailed uses of the product see annex of the safety data sheet

1.2.2. Uses advised against

No additional information available

1.3. Details of the supplier of the safety data sheet

REFINING & CHEMICALS BRANCH
 TOTAL LINDSEY OIL REFINERY Ltd
 DN40 3LW KILLINGHOLME - UNITED KINGDOM
 T +44 (0) 1469 563300 - F +44 (0) 1469 563766
rm.gb-msds@total.co.uk - www.total.com

1.4. Emergency telephone number

Emergency number : Emergency call Carechem 24 International :
 • for English speaking countries: +44 (0) 1235 239 670
 • for Europe (in local languages): + 33 1 49 00 00 49
 • for Africa and Middle East: + 44 (0) 1235 239 671 • for China:
 + 86 10 5100 3039
 • for Asia Pacific (Hong-Kong, Singapore, Taiwan, Philippines, India, Vietnam, Sri Lanka, Japan, Korea, Malaysia, Indonesia, Thailand) :
 + 65 3158 1074

Country	Organisation/Company	Address	Emergency number	Comment
	National Poisons Emergency number		08 45 46 47	
Ireland	National Poisons Information Centre Beaumont Hospital	PO Box 1297 Beaumont Road 9 Dublin	+353 1 809 2566 (Healthcare professionals-24/7) +353 1 809 2166 (public, 8am - 10pm, 7/7)	

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP]

Flammable liquids, Category 3 H226
 Skin corrosion/irritation, Category 2 H315
 Specific target organ toxicity — Single exposure, Category 3, Narcosis H336
 Aspiration hazard, Category 1 H304
 Hazardous to the aquatic environment — Chronic Hazard, Category 2 H411

Full text of H statements : see section 16

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Adverse physicochemical, human health and environmental effects

Flammable liquid and vapour. May be fatal if swallowed and enters airways. Causes skin irritation. May cause drowsiness or dizziness. Toxic to aquatic life with long lasting effects.

2.2. Label elements

Labelling according to Regulation (EC) No. 1272/2008 [CLP]

Hazard pictograms (CLP) :



Signal word (CLP) :

Danger

Hazard statements (CLP) :

H226 - Flammable liquid and vapour
H304 - May be fatal if swallowed and enters airways
H315 - Causes skin irritation
H336 - May cause drowsiness or dizziness
H411 - Toxic to aquatic life with long lasting effects

Precautionary statements (CLP) :

P201 - Obtain special instructions before use
P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking
P243 - Take precautionary measures against static discharge
P260 - Do not breathe dust/fume/gas/mist/vapours/spray
P273 - Avoid release to the environment
P281 - Use personal protective equipment as required
P301+P310 - IF SWALLOWED: Immediately call a POISON CENTER or doctor
P303+P361+P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower
P309+P311 - IF exposed or if you feel unwell: Call a POISON CENTER or doctor/physician
P331 - Do NOT induce vomiting
P403+P235 - Store in a well-ventilated place. Keep cool

2.3. Other hazards

Other hazards not contributing to the classification :

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. Contact with hot material - prevent serious burns. In use, may form flammable/explosive vapour-air mixture. Handling this product may result in electrostatic accumulation. Use proper grounding procedures.

SECTION 3: Composition/information on ingredients

3.1. Substance

Not applicable

3.2. Mixture

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
Kerosine (petroleum), hydrodesulfurized	(CAS No) 64742-81-0 (EC No) 265-184-9	< 100	Flam. Liq. 3, H226 Skin Irrit. 2, H315 STOT SE 3, H336 Asp. Tox. 1, H304 Aquatic Chronic 2, H411
Kerosine (petroleum)	(CAS No) 91770-15-9 (EC No) 294-799-5	< 100	Flam. Liq. 3, H226 Skin Irrit. 2, H315 STOT SE 3, H336 Asp. Tox. 1, H304 Aquatic Chronic 2, H411
Hydrogen sulfide (traces)	(CAS No) 7783-06-4 (EC No) 231-977-3 (EC Index No) 016-001-00-4		Flam. Gas 1, H220 Press. Gas Acute Tox. 2 (Inhalation), H330 Aquatic Acute 1, H400
Additive			Not classified

Full text of H-statements: see section 16

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SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general	: Get medical advice/attention if you feel unwell.
First-aid measures after inhalation	: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a physician immediately. If breathing is difficult, give oxygen. If breathing stops, give artificial respiration. Place under medical observation.
First-aid measures after skin contact	: Remove/Take off immediately all contaminated clothing. Wash off immediately and plentifully with water for at least 20 minutes. Exposure to splashing of hot product: Treat the affected part with cold water (by spraying or immersion). Get medical advice/attention.
First-aid measures after eye contact	: Immediately rinse with water for a prolonged period while holding the eyelids wide open. Consult an eye specialist.
First-aid measures after ingestion	: Do not give anything to drink. Do not induce vomiting. Take immediately victim to hospital. If swallowed, rinse mouth with water (only if the person is conscious).

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

Symptoms/effects	: Refer to § 11 for more details on effects.
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4.3. Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media	: Carbon dioxide. Dry powder. Foam.
Unsuitable extinguishing media	: Do not use a solid water stream as it may scatter and spread fire.

5.2. Special hazards arising from the substance or mixture

Explosion hazard	: Heavier than air, vapours may travel long distances along ground, ignite and flash back to source. Heat may build pressure, rupturing closed containers, spreading fire and increasing risk of burns and injuries.
Hazardous decomposition products in case of fire	: Toxic fumes. Carbon oxides (CO, CO ₂). Aldehydes. Polycyclic-aromatic hydrocarbons (PAH). Carbon (C). Ketones.

5.3. Advice for firefighters

Protection during firefighting	: Complete protective clothing. Do not enter fire area without proper protective equipment, including respiratory protection.
Other information	: Notify fire brigade and environmental authorities. Evacuate unnecessary personnel. Use water spray or fog for cooling exposed containers.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures	: No flames, no sparks. Eliminate all sources of ignition. Do not smoke. Use special care to avoid static electric charges. Prevent any contact with hot surfaces.
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6.1.1. For non-emergency personnel

Protective equipment	: Do not attempt to take action without suitable protective equipment. Gloves. Safety glasses.
Emergency procedures for non-emergency personnel	: Avoid contact with skin and eyes.

6.1.2. For emergency responders

Protective equipment	: Do not attempt to take action without suitable protective equipment. Breathing apparatus.
Emergency procedures for emergency responders	: Evacuate unnecessary personnel. Eliminate all ignition sources if safe to do so.

6.2. Environmental precautions

Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters.

6.3. Methods and material for containment and cleaning up

For containment	: If spilled, may cause the floor to be slippery. Sweep up or vacuum up the product. Dike for recovery or absorb with appropriate material. Take up liquid spill into absorbent material, e.g.: sand, saw dust. On water, recover/skim from surface and pour out in disposal container.
Other information	: Dispose of contaminated material at an authorized site. Notify authorities if product enters sewers or public waters.

6.4. Reference to other sections

For further information refer to section 13.

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SECTION 7: Handling and storage

7.1. Precautions for safe handling

- Precautions for safe handling : Ensure good ventilation of the work station. In use, may form flammable/explosive vapour-air mixture. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Take precautionary measures against static discharge during blending and transfer operations. Explosion-free electrical equipment and lighting with earth.
- Hygiene measures : Do not eat, drink or smoke when using this product. Keep away from food and drink. Always wash hands after handling the product. Take off contaminated clothing and wash before reuse.

7.2. Conditions for safe storage, including any incompatibilities

- Technical measures : Proper grounding procedures to avoid static electricity should be followed.
- Storage conditions : 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. Store in a well-ventilated place. Keep container tightly closed. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Containers (tanks) should be grounded and provided with adequate pressure relief valve. Explosive vapour/air mixtures may be formed.
- Storage area : Store away from heat. Earth the equipment. Store in a well-ventilated place.
- Packaging materials : Stainless steel.

7.3. Specific end use(s)

Recommended to professional users.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

KEROSENE (64742-81-0 ; 91770-15-9)		
USA - ACGIH	ACGIH TWA (mg/m ³)	200 mg/m ³
Hydrogen sulfide (7783-06-4)		
EU	IOELV TWA (mg/m ³)	7 mg/m ³
EU	IOELV TWA (ppm)	5 ppm
EU	IOELV STEL (mg/m ³)	14 mg/m ³
EU	IOELV STEL (ppm)	10 ppm
Ireland	OEL (8 hours ref) (mg/m ³)	7 mg/m ³
Ireland	OEL (8 hours ref) (ppm)	5 ppm
Ireland	OEL (15 min ref) (mg/m ³)	14 mg/m ³
Ireland	OEL (15 min ref) (ppm)	10 ppm
United Kingdom	WEL TWA (mg/m ³)	7 mg/m ³
United Kingdom	WEL TWA (ppm)	5 ppm
United Kingdom	WEL STEL (mg/m ³)	14 mg/m ³
United Kingdom	WEL STEL (ppm)	10 ppm
USA - ACGIH	ACGIH TWA (ppm)	1 ppm
USA - ACGIH	ACGIH STEL (ppm)	5 ppm

KEROSENE (64742-81-0 ; 91770-15-9)	
DNEL/DMEL (General population)	
Long-term - systemic effects,oral	19 mg/kg bodyweight/day

8.2. Exposure controls

Appropriate engineering controls:

The substance is flammable and therefore the following conditions must be met to ensure safe use: "Risks are controlled by storage and use under conditions which avoid all ignition sources."
. Ensure adequate ventilation. Safety shower. Eye fountain.

Personal protective equipment:

Gas mask with filter type A.

Hand protection:

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hydrocarbons resistant gloves. In case of repeated or prolonged contact wear gloves. recommended material: fluorinated polymer. polyvinyl alcohol. Layer thickness : all thicknesses. Breakthrough time : > 480 min. EN 374-3. In the event of contact with the liquid: Nitrile rubber gloves. Layer thickness : > 0,30 mm. Breakthrough time : > 60 min. EN 374-3. Gloves may degrade in contact with this chemical.

• Carefully check the glove for cracks or damage before reusing it, dispose of gloves where the penetration time is exceeded. • The penetration time depends on temperature, glove material, thickness and construction. Penetration time is measured against EN 374 in laboratory conditions corresponding to permanent static contact and is not necessarily representative of the risk in the workplace. Contact the gloves' supplier for further information on the selection and resistance of gloves.

Eye protection:

Safety glasses. Do not wear contact lenses

Skin and body protection:

Wear suitable protective clothing. Safety foot-wear

Respiratory protection:

Where exposure through inhalation may occur from use, respiratory protection equipment is recommended



Environmental exposure controls:

Avoid release to the environment. Assure that emissions are compliant with all applicable air pollution control regulations.

Other information:

Handle in accordance with good industrial hygiene and safety procedures. Do not eat, drink or smoke during use.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Liquid
Colour	: colourless to yellow.
Odour	: Hydrocarbon.
Odour threshold	: No data available
pH	: No data available
Relative evaporation rate (butylacetate=1)	: No data available
Melting point	: No data available
Freezing point	: No data available
Boiling point	: 90 - 320 °C
Flash point	: 29 - 70 °C
Auto-ignition temperature	: > 230 °C
Decomposition temperature	: No data available
Flammability (solid, gas)	: No data available
Vapour pressure	: 10 - 37 hPa (37.8°C)
Relative vapour density at 20 °C	: > 1
Relative density	: No data available
Density	: 775 - 840 kg/m ³
Solubility	: insoluble.
Log Pow	: No data available
Viscosity, kinematic	: < 7 mm ² /s (40°C)
Viscosity, dynamic	: No data available
Explosive properties	: No data available
Oxidising properties	: No data available
Explosive limits	: 1.2 - 8.8 vol %

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

Flammable liquid and vapour.

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10.2. Chemical stability

Stable at ambient temperature and under normal conditions of use.

10.3. Possibility of hazardous reactions

Flammable.

10.4. Conditions to avoid

No flames, no sparks. Eliminate all sources of ignition. High temperature. Heat.

10.5. Incompatible materials

No additional information available

10.6. Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Not classified

Additional information : Inhalation may affect the nervous system causing headache, possibly dizziness, nausea, weakness, loss of coordination and unconsciousness
May release poisonous hydrogen sulfide

KEROSENE (64742-81-0 ; 91770-15-9)	
LD50 oral rat	> 5000 mg/kg
LD50 dermal rabbit	> 2000 mg/kg
LC50 inhalation rat	> 5.28 mg/l/4h

Hydrogen sulfide (7783-06-4)	
LC50 inhalation rat	820 mg/m ³

Skin corrosion/irritation : Causes skin irritation.

Serious eye damage/irritation : Not classified

Additional information : May cause eye irritation

Respiratory or skin sensitisation : Not classified

Additional information : Based on available data, the classification criteria are not met

Germ cell mutagenicity : Not classified

Based on available data, the classification criteria are not met

Carcinogenicity : Not classified

Additional information : Based on available data, the classification criteria are not met

Reproductive toxicity : Not classified

Additional information : Based on available data, the classification criteria are not met

Specific target organ toxicity (single exposure) : May cause drowsiness or dizziness.

Specific target organ toxicity (repeated exposure) : Not classified

Aspiration hazard : May be fatal if swallowed and enters airways.

Additional information : In case of accidental swallowing, due to its low viscosity, the product may be aspirated into the lung and induce a chemical pneumonitis developing over a few hours

KEROSENE (64742-81-0 ; 91770-15-9)	
Viscosity, kinematic	< 7 mm ² /s (40°C)

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general : Toxic to aquatic life with long lasting effects. Do not allow product to spread into the environment.

Ecology - air : Product evaporates when in contact with the air.

Ecology - water : the product spreads out on the surface of the water, a small fraction of the constituents may be dissolved.

Hydrogen sulfide (7783-06-4)	
LC50 fish 1	0.0448 mg/l
LC50 fish 2	0.016 mg/l

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12.2. Persistence and degradability

KEROSENE (64742-81-0 ; 91770-15-9)

Persistence and degradability : Inherently biodegradable.

12.3. Bioaccumulative potential

Hydrogen sulfide (7783-06-4)

Log Pow : 0.45 (25°C)

12.4. Mobility in soil

KEROSENE (64742-81-0 ; 91770-15-9)

Ecology - soil : Avoid sub-soil penetration. it may pass through the soil and is likely to contaminate ground water.

12.5. Results of PBT and vPvB assessment

No additional information available

12.6. Other adverse effects

No additional information available

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste treatment methods : Hazardous waste. Dispose of in accordance with relevant local regulations. Use only registered transporters. Do not discharge the product into the environment. Empty containers should be taken for recycling, recovery or waste in accordance with local regulation.

Additional information : Handle empty containers with care because residual vapours are flammable.

SECTION 14: Transport information

In accordance with ADR / RID / IMDG / IATA / ADN

ADR	IMDG	IATA	ADN	RID
14.1. UN Number				
1223	1223	1223	1223	1223
14.2. UN proper shipping name				
KEROSENE	KEROSENE	Kerosene	KEROSENE	KEROSENE
Transport document description				
UN 1223 KEROSENE, 3, III, (D/E), ENVIRONMENTALLY HAZARDOUS	UN 1223 KEROSENE, 3, III, MARINE POLLUTANT/ENVIRONMENTALLY HAZARDOUS	UN 1223 Kerosene, 3, III, ENVIRONMENTALLY HAZARDOUS	UN 1223 KEROSENE, 3, III, ENVIRONMENTALLY HAZARDOUS	UN 1223 KEROSENE, 3, III, ENVIRONMENTALLY HAZARDOUS
14.3. Transport hazard class(es)				
3	3	3	3	3
14.4. Packing Group				
III	III	III	III	III
14.5. Environmental hazards				
Dangerous for the environment : Yes	Dangerous for the environment : Yes Marine Pollutant : Yes	Dangerous for the environment : Yes	Dangerous for the environment : Yes	Dangerous for the environment : Yes
No supplementary information available				

14.6. Special precautions for user

- Overland transport

Classification code (ADR) : F1
 Special provisions (ADR) : 363, 664
 Limited quantities (ADR) : 5I
 Excepted quantities (ADR) : E1
 Packing instructions (ADR) : P001, IBC03, LP01, R001
 Mixed packing provisions (ADR) : MP19
 Portable tank and bulk container instructions (ADR) : T2

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Portable tank and bulk container special provisions (ADR) : TP2
Tank code (ADR) : LGBF
Vehicle for tank carriage : FL
Transport category (ADR) : 3
Special provisions for carriage - Packages (ADR) : V12
Special provisions for carriage - Operation (ADR) : S2
Hazard identification number (Kemler No.) : 30
Orange plates :



Tunnel restriction code (ADR) : D/E
EAC code : 3Y

- Transport by sea (IMDG)

Special provisions (IMDG) : 363
Limited quantities (IMDG) : 5 L
Excepted quantities (IMDG) : E1
Packing instructions (IMDG) : P001, LP01
IBC packing instructions (IMDG) : IBC03
Tank instructions (IMDG) : T2
Tank special provisions (IMDG) : TP2
EmS-No. (Fire) : F-E
EmS-No. (Spillage) : S-E
Stowage category (IMDG) : A

- Air transport (IATA)

PCA Excepted quantities (IATA) : E1
PCA Limited quantities (IATA) : Y344
PCA limited quantity max net quantity (IATA) : 10L
PCA packing instructions (IATA) : 355
PCA max net quantity (IATA) : 60L
CAO packing instructions (IATA) : 366
CAO max net quantity (IATA) : 220L
Special provisions (IATA) : A324
ERG code (IATA) : 3L

- Inland waterway transport

Classification code (ADN) : F1
Special provisions (ADN) : 363
Limited quantities (ADN) : 5 L
Excepted quantities (ADN) : E1
Carriage permitted (ADN) : T
Equipment required (ADN) : PP, EX, A
Ventilation (ADN) : VE01
Number of blue cones/lights (ADN) : 0

- Rail transport

Classification code (RID) : F1
Special provisions (RID) : 363
Limited quantities (RID) : 5L
Excepted quantities (RID) : E1
Packing instructions (RID) : P001, IBC03, LP01, R001
Mixed packing provisions (RID) : MP19
Portable tank and bulk container instructions (RID) : T2
Portable tank and bulk container special provisions (RID) : TP2

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Tank codes for RID tanks (RID)	: LGBF
Transport category (RID)	: 3
Special provisions for carriage – Packages (RID)	: W12
Colis express (express parcels) (RID)	: CE4
Hazard identification number (RID)	: 30

14.7. Transport in bulk according to Annex II of MARPOL and the IBC Code

Not applicable

SECTION 15: Regulatory information

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

15.1.1. EU-Regulations

Contains no REACH substances with Annex XVII restrictions

Contains no substance on the REACH candidate list

Contains no REACH Annex XIV substances

15.1.2. National regulations

Listed on ELINCS (European List of Notified Chemical Substances)

Listed on the Korean ECL (Existing Chemicals List)

Complies the United States TSCA (Toxic Substances Control Act) inventory

Listed on the Canadian DSL (Domestic Substances List)

Listed on the AICS (Australian Inventory of Chemical Substances)

Listed on the Philippines Inventory of Chemicals and Chemical Substances (PICCS)

Listed on the China Inventory of Existing Chemical Substances (IECSC)

Listed on NZIoC (New Zealand Inventory of Chemicals)

15.2. Chemical safety assessment

A chemical safety assessment has been carried out

SECTION 16: Other information

Training advice : Training staff on good practice. Manipulations are to be done only by qualified and authorised persons.

Other information : Use good personal hygiene practices.

Full text of H- and EUH-statements:

Acute Tox. 2 (Inhalation)	Acute toxicity (inhal.), Category 2
Aquatic Acute 1	Hazardous to the aquatic environment — Acute Hazard, Category 1
Aquatic Chronic 2	Hazardous to the aquatic environment — Chronic Hazard, Category 2
Asp. Tox. 1	Aspiration hazard, Category 1
Flam. Gas 1	Flammable gases, Category 1
Flam. Liq. 3	Flammable liquids, Category 3
Press. Gas	Gases under pressure
Skin Irrit. 2	Skin corrosion/irritation, Category 2
STOT SE 3	Specific target organ toxicity — Single exposure, Category 3, Narcosis
H220	Extremely flammable gas
H226	Flammable liquid and vapour
H304	May be fatal if swallowed and enters airways
H315	Causes skin irritation
H330	Fatal if inhaled
H336	May cause drowsiness or dizziness
H400	Very toxic to aquatic life
H411	Toxic to aquatic life with long lasting effects

SDS EU (REACH Annex II)

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This information applies to the PRODUCT AS SUCH and conforming to specifications of TOTAL.

In case of formulations or mixtures, it is necessary to ascertain that a new danger will not appear.

The information contained is based on our knowledge of the product, at the date of publishing and it is given quite sincerely. However the revision of some data is in progress.

Users are advised of possible additional hazards when the product is used in applications for which it was not intended. This sheet shall only be used and reproduced for prevention and security purposes.

The references to legislative, regulatory and codes of practice documents cannot be considered as exhaustive.

It is the responsibility of the person receiving the product to refer to the totality of the official documents concerning the use, the possession and the handling of the product.

It is also the responsibility of the handlers of the product to pass on to any subsequent persons who will come into contact with the product. (usage, storage, cleaning of containers, other processes)

the totality of the information contained within this safety data sheet and necessary for safety at work, the protection of health and the protection of environment.

ES03001

Version 1.0

Trade name / designation Kerosine

1. Exposure scenario

Manufacture of substance, Industrial.

Use Descriptor

Sector of use

SU3 - Industrial Manufacturing (all)

SU8 - Manufacture of bulk, large scale chemicals (including petroleum products)

SU9 - Manufacture of fine chemicals

Process Category

PROC1 - Use in closed process, no likelihood of exposure

PROC2 - Use in closed, continuous process with occasional controlled exposure

PROC3 - Use in closed batch process (synthesis or formulation)

PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises

PROC8a - Transfer of substance or mixture (charging/discharging) from/to vessels/large containers at non dedicated facilities

PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities

PROC15 - Use as a laboratory reagent

Environmental Release Category

ERC1 - Manufacture of substances

ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles

Specific Environmental Release Category

ESVOC SpERC 1.1.v1.

Processes, tasks, activities covered

Manufacture of the substance or use as a process chemical or extraction agent. Includes recycling/ recovery, material transfers, storage, maintenance and loading (including marine vessel/barge, road/rail car and bulk container), sampling and associated laboratory activities.

2. Operational conditions and risk management measures

2.1. Control of environmental exposure

Product characteristics

Substance is complex UVCB. Predominantly hydrophobic.

Amounts used

:

Fraction of EU tonnage used in region: 0.1

Regional use tonnage (tonnes/year): 5.4E+6

Fraction of Regional tonnage used locally: 0.11

Annual site tonnage (tonnes/year): 6.0E+5

Maximum daily site tonnage (kg/day): 2.0E+6

Frequency and duration of use

 Continuous release

Emission Days (days/year): 300

Environment factors not influenced by risk management -

Local freshwater dilution factor: 10

Local marine water dilution factor: 100

Other operational conditions of use affecting environmental exposure -

Release fraction to air from process (initial release prior to RMM): 1.0E-2



Release fraction to wastewater from process (initial release prior to RMM): 3.0E-4

Release fraction to soil from process (initial release prior to RMM): 0.0001

Technical conditions and measures at process level to prevent release

Common practices vary across sites thus conservative process release estimates used.

Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil

Risk from environmental exposure is driven by freshwater sediment

Prevent discharge of undissolved substance to or recover from onsite wastewater

Onsite wastewater treatment required

Treat air emission to provide a typical removal efficiency of (%): 90

Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of (%): ≥ 97.7

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of (%): ≥ 56.1

Organizational measures to prevent/limit release from the site

Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed.

Conditions and measures related to municipal sewage treatment plant :

Estimated substance removal from wastewater via domestic sewage treatment (%): 94.7

Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%): 97.7

Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal (kg/d): 2.0E+6

Assumed domestic sewage treatment plant flow (m³/d): 10000

Conditions and measures related to external treatment of waste for disposal

During manufacturing no waste of the substance is generated.

Conditions and measures related to external recovery of waste

During manufacturing no waste of the substance is generated

Remarks

Additional information on the basis for the allocation of the identified OCs (operating conditions) and RMMs (Risk Management Measures) is contained in Petrorisk file

2.2. Control of exposure - Workers / Consumers

Product characteristics

Physical State

Liquid, vapour pressure 0.5 - 10 kPa at STP

Concentration of substance in product

Covers percentage substance in the product up to 100 % (unless stated differently).

Frequency and duration of use

Covers daily exposures up to 8 hours (unless stated differently).

Other operational conditions affecting exposure

Operation is carried out at elevated temperature ($> 20^{\circ}\text{C}$ above ambient temperature). Assumes a good basic standard of occupational hygiene is implemented.

2.2a. Control of worker exposure	
Contributing Scenarios	Operational conditions and risk management measures.
General measures (skin irritants)	Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop.
General exposures (closed systems)	No other specific measures identified.
General exposures (open systems)	No other specific measures identified.
Bulk transfers	No other specific measures identified.
Process sampling	No other specific measures identified.
Laboratory activities	No other specific measures identified.
Equipment cleaning and maintenance	No other specific measures identified.
Storage	No other specific measures identified.

2.2b. Control of consumer exposure	
Product Category(ies)	Operational conditions and risk management measures.
Not applicable	

3. Exposure estimation and references

Health

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

Environment

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

4. Guidance for Downstream User to check compliance with the Exposure scenario

Health

Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. Risk Management Measures are based on qualitative risk characterisation. Available hazard data do not support the need for a DNEL to be established for other health effects. Users are advised to consider national Occupational Exposure Limits or other equivalent values. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Environment

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination. Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination. Further details on scaling and control technologies are provided in SpERC factsheet (<http://cefic.org/en/reach-for-industries-libraries.html>). Scaled local assessments for EU refineries have been performed using site-specific data and are attached in PETRORISK file – “Site-Specific Production” worksheet.



ES03003

Version 1.0

Trade name / designation Kerosine

1. Exposure scenario

Industrial, Distribution of substance.

Use Descriptor

Sector of use

SU3 - Industrial Manufacturing (all)

Process Category

PROC1 - Use in closed process, no likelihood of exposure

PROC2 - Use in closed, continuous process with occasional controlled exposure

PROC3 - Use in closed batch process (synthesis or formulation)

PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises

PROC8a - Transfer of substance or mixture (charging/discharging) from/to vessels/large containers at non dedicated facilities

PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities

PROC9 - Transfer of substance or mixture into small containers (dedicated filling line, including weighing)

PROC15 - Use as a laboratory reagent

Environmental Release Category

ERC1 - Manufacture of substances

ERC2 - Formulation of mixtures

ERC3 - Formulation in materials

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 thermoplastics

ERC6d - Industrial use of process regulators for polymerization processes in production of resins, rubbers, polymers

ERC7 - Industrial use of substances in closed systems

Specific Environmental Release Category

ESVOC SpERC 1.1b. v1.

Processes, tasks, activities covered

Loading (including marine vessel/barge, rail/road car and IBC loading) and repacking (including drums and small packs) of substance, including its sampling, storage, unloading distribution and associated laboratory activities.

2. Operational conditions and risk management measures

2.1. Control of environmental exposure

Product characteristics

Substance is complex UVCB. Predominantly hydrophobic.

Amounts used

:

Fraction of EU tonnage used in region: 0.1

Regional use tonnage (tonnes/year): 5.4E+6

Fraction of Regional tonnage used locally: 2.0E-3

Annual site tonnage (tonnes/year): 1.1E+4

Maximum daily site tonnage (kg/day): 3.6E+4

Frequency and duration of use

Continuous release

Emission Days (days/year): 300



Environment factors not influenced by risk management -

Local freshwater dilution factor: 10
Local marine water dilution factor: 100

Release fraction to air from process (initial release prior to RMM): 1.0E-3
Release fraction to wastewater from process (initial release prior to RMM): 1.0E-5
Release fraction to soil from process (initial release prior to RMM): 0.00001

Technical conditions and measures at process level to prevent release

Common practices vary across sites thus conservative process release estimates used.

Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil

Risk from environmental exposure is driven by freshwater
No wastewater treatment required
Treat air emission to provide a typical removal efficiency of (%): 90
Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of (%): >=0
If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of (%): >=0

Organizational measures to prevent/limit release from the site

Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed.

Conditions and measures related to municipal sewage treatment plant :

Estimated substance removal from wastewater via domestic sewage treatment (%): 94.7
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%): 94.7
Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal (kg/d): 2.6E+6
Assumed domestic sewage treatment plant flow (m3/d): 2000

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 treatment and disposal of waste should comply with applicable local and/or national regulations

Remarks

Additional information on the basis for the allocation of the identified OCs (operating conditions) and RMMs (Risk Management Measures) is contained in Petrorisk file

2.2. Control of exposure - Workers / Consumers

Product characteristics

Physical State

Liquid, vapour pressure 0.5 - 10 kPa at STP

Concentration of substance in product

Covers percentage substance in the product up to 100 % (unless stated differently).

Amounts used

not applicable.

Frequency and duration of use

Covers daily exposures up to 8 hours (unless stated differently).

Human factors not influenced by risk management

not applicable

Other operational conditions affecting exposure

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

2.2a. Control of worker exposure	
Contributing Scenarios	Operational conditions and risk management measures.
General measures (skin irritants)	Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop.
General exposures (closed systems)	No other specific measures identified.
General exposures (open systems)	No other specific measures identified.
Process sampling	No other specific measures identified.
Laboratory activities	No other specific measures identified.
Bulk transfers	No other specific measures identified.
Drum and small package filling	No other specific measures identified.
Equipment cleaning and maintenance	No other specific measures identified.
Bulk product storage	No other specific measures identified.

2.2b. Control of consumer exposure	
Product Category(ies)	Operational conditions and risk management measures.
Not applicable	

3. Exposure estimation and references

Health

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

Environment

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

4. Guidance for Downstream User to check compliance with the Exposure scenario

Health

Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. Risk Management Measures are based on qualitative risk characterisation. Available hazard data do not support the need for a DNEL to be established for other health effects. Users are advised to consider national Occupational Exposure Limits or other equivalent values. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Environment

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination. Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination. Further details on scaling and control technologies are provided in SpERC factsheet (<http://cefic.org/en/reach-for-industries-libraries.html>). Further details on scaling and control technologies are provided in SpERC factsheet (<http://cefic.org/en/reach-for-industries-libraries.html>).



ES03004

Version 1.0

Trade name / designation Kerosine

1. Exposure scenario

Formulation & (re)packing of substances and mixtures, Industrial.

Use Descriptor

Sector of use

SU3 - Industrial Manufacturing (all)

SU10 - Formulation [mixing] of preparations and/or re-packaging (excluding alloys)

Process Category

PROC1 - Use in closed process, no likelihood of exposure

PROC2 - Use in closed, continuous process with occasional controlled exposure

PROC3 - Use in closed batch process (synthesis or formulation)

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)

PROC8a - Transfer of substance or mixture (charging/discharging) from/to vessels/large containers at non dedicated facilities

PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities

PROC9 - Transfer of substance or mixture into small containers (dedicated filling line, including weighing)

PROC14 - Production of mixtures or articles by tableting, compression, extrusion, pelletization

PROC15 - Use as a laboratory reagent

Environmental Release Category

ERC2 - Formulation of mixtures

Specific Environmental Release Category

ESVOC SpERC 2.2.v1.

Processes, tasks, activities covered

Formulation, packing and re-packing of the substance and its mixtures in batch or continuous operations, including storage, materials transfers, mixing, tableting, compression, pelletisation, extrusion, large and small scale packing, sampling, maintenance and associated laboratory activities.

2. Operational conditions and risk management measures

2.1. Control of environmental exposure

Product characteristics

Substance is complex UVCB. Predominantly hydrophobic.

Amounts used

:

Fraction of EU tonnage used in region: 0.1

Regional use tonnage (tonnes/year): 5.2E+6

Fraction of Regional tonnage used locally: 5.8E-3

Annual site tonnage (tonnes/year): 3.0E+4

Maximum daily site tonnage (kg/day): 1.0E+5

Frequency and duration of use

 Continuous release

Emission Days (days/year): 300

Environment factors not influenced by risk management

 -

Local freshwater dilution factor: 10

Local marine water dilution factor: 100

Release fraction to air from process (initial release prior to RMM): 1.0E-2



Release fraction to wastewater from process (initial release prior to RMM): 2.0E-4
Release fraction to soil from process (initial release prior to RMM): 0.0001

Technical conditions and measures at process level to prevent release

Common practices vary across sites thus conservative process release estimates used.

Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil

Risk from environmental exposure is driven by freshwater sediment

Prevent discharge of undissolved substance to or recover from onsite wastewater

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 (%): ≥ 86

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of (%): ≥ 0

Organizational measures to prevent/limit release from the site

Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed.

Conditions and measures related to municipal sewage treatment plant :

Estimated substance removal from wastewater via domestic sewage treatment (%): 94.7

Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%): 94.7

Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal (kg/d): 2.6E+5

Assumed domestic sewage treatment plant flow (m3/d): 2000

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 treatment and disposal of waste should comply with applicable local and/or national regulations

Remarks

Additional information on the basis for the allocation of the identified OCs (operating conditions) and RMMs (Risk Management Measures) is contained in Petrorisk file

2.2. Control of exposure - Workers / Consumers

Product characteristics

Physical State

Liquid, vapour pressure 0.5 - 10 kPa at STP

Concentration of substance in product

Covers percentage substance in the product up to 100 % (unless stated differently).

Amounts used

not applicable.

Frequency and duration of use

Covers daily exposures up to 8 hours (unless stated differently).

Human factors not influenced by risk management

not applicable

Other operational conditions affecting exposure

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

2.2a. Control of worker exposure	
Contributing Scenarios	Operational conditions and risk management measures.
General measures (skin irritants)	Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop.
General exposures (closed systems)	No other specific measures identified.
General exposures (open systems)	No other specific measures identified.
Product sampling	No other specific measures identified.
Laboratory activities	No other specific measures identified.
Bulk transfers	No other specific measures identified.
Mixing operations (open systems)	No other specific measures identified.
Manual: Transfer from/pouring from containers	No other specific measures identified.
Drum/batch transfers	No other specific measures identified.
Tabletting, compression, extrusion or pelletisation	No other specific measures identified.
Drum and small package filling	No other specific measures identified.
Equipment cleaning and maintenance	No other specific measures identified.
Bulk product storage	No other specific measures identified.

2.2b. Control of consumer exposure	
Product Category(ies)	Operational conditions and risk management measures.
Not applicable	

3. Exposure estimation and references

Health

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

Environment

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

4. Guidance for Downstream User to check compliance with the Exposure scenario

Health

Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. Risk Management Measures are based on qualitative risk characterisation. Available hazard data do not support the need for a DNEL to be established for other health effects. Users are advised to consider national Occupational Exposure Limits or other equivalent values. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

**Environment**

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination. Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination. Further details on scaling and control technologies are provided in SpERC factsheet (<http://cefic.org/en/reach-for-industries-libraries.html>).



ES03022
Version 1.0

1. Exposure scenario

Use as a fuel, Industrial.

Use Descriptor

Sector of use

SU3 - Industrial Manufacturing (all)

Process Category

PROC1 - Use in closed process, no likelihood of exposure

PROC2 - Use in closed, continuous process with occasional controlled exposure

PROC3 - Use in closed batch process (synthesis or formulation)

PROC8a - Transfer of substance or mixture (charging/discharging) from/to vessels/large containers at non dedicated facilities

PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities

PROC16 - Using material as fuel sources, limited exposure to unburned product to be expected

Environmental Release Category

ERC7 - Industrial use of substances in closed systems

Specific Environmental Release Category

ESVOC SpERC 7.12a.v1.

Processes, tasks, activities covered

Covers the use as a fuel (or fuel additives and additive components) and includes activities associated with its transfer, use, equipment maintenance and handling of waste.

2. Operational conditions and risk management measures

2.1. Control of environmental exposure

Product characteristics

Substance is complex UVCB. Predominantly hydrophobic.

Amounts used

:

Fraction of EU tonnage used in region: 0.1

Regional use tonnage (tonnes/year): 5.5E+5

Fraction of Regional tonnage used locally: 1

Annual site tonnage (tonnes/year): 5.5E+5

Maximum daily site tonnage (kg/day): 1.8E+6

Frequency and duration of use

Continuous release

Emission Days (days/year): 300

Environment factors not influenced by risk management

Local freshwater dilution factor: 10

Local marine water dilution factor: 100

Other operational conditions of use affecting environmental exposure

Release fraction to air from process (initial release prior to RMM): 5.0E-3

Release fraction to wastewater from process (initial release prior to RMM): 0.00001

Release fraction to soil from process (initial release prior to RMM): 0

Technical conditions and measures at process level to prevent release

Common practices vary across sites thus conservative process release estimates used.

Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil

Risk from environmental exposure is driven by freshwater sediment
 If discharging to domestic sewage treatment plant, no onsite wastewater 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 (%): >=84.6
 If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of (%): >=0

Organizational measures to prevent/limit release from the site

Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed.

Conditions and measures related to municipal sewage treatment plant

Estimated substance removal from wastewater via domestic sewage treatment (%): 94.7
 Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%): 94.7
 Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal (kg/d): 5.3E+6
 Assumed domestic sewage treatment plant flow (m3/d): 2000

Conditions and measures related to external treatment of waste for disposal

Combustion emissions limited by required exhaust emission controls. Combustion emissions considered in regional exposure assessment.

Conditions and measures related to external recovery of waste

This substance is consumed during use and no waste of the substance is generated

Remarks

Additional information on the basis for the allocation of the identified OCs (operating conditions) and RMMs (Risk Management Measures) is contained in Petrorisk file

2.2. Control of exposure - Workers / Consumers

Product characteristics

Physical State

Liquid, vapour pressure 0.5 - 10 kPa at STP

Concentration of substance in product

Covers percentage substance in the product up to 100 % (unless stated differently).

Frequency and duration of use

Covers daily exposures up to 8 hours (unless stated differently).

Other operational conditions affecting exposure

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

2.2a. Control of worker exposure	
Contributing Scenarios	Operational conditions and risk management measures.
General exposures (closed systems)	No specific measures identified.
General measures (skin irritants)	Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop.
Bulk transfers	No other specific measures identified.
Drum/batch transfers	No other specific measures identified.
Use as a fuel (closed systems)	No other specific measures identified.
Equipment cleaning and maintenance	No other specific measures identified.
Bulk product storage	No other specific measures identified.



2.2b. Control of consumer exposure

Product Category(ies)	Operational conditions and risk management measures.
Not applicable	

3. Exposure estimation and references

Health

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

Environment

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

4. Guidance for Downstream User to check compliance with the Exposure scenario

Health

Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. Risk Management Measures are based on qualitative risk characterisation. Available hazard data do not support the need for a DNEL to be established for other health effects. Users are advised to consider national Occupational Exposure Limits or other equivalent values. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Environment

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination. Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination. Further details on scaling and control technologies are provided in SpERC factsheet (<http://cefic.org/en/reach-for-industries-libraries.html>).



ES03023
Version 1.0

1. Exposure scenario

Use as a fuel, Professional.

Use Descriptor

Sector of use

SU22 - Professional uses: Public domain (administration, education, entertainment, services, craftsmen)

Process Category

PROC1 - Use in closed process, no likelihood of exposure

PROC2 - Use in closed, continuous process with occasional controlled exposure

PROC3 - Use in closed batch process (synthesis or formulation)

PROC8a - Transfer of substance or mixture (charging/discharging) from/to vessels/large containers at non dedicated facilities

PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities

PROC16 - Using material as fuel sources, limited exposure to unburned product to be expected

Environmental Release Category

ERC9a - Wide dispersive indoor use of substances in closed systems

ERC9b - Wide dispersive outdoor use of substances in closed systems

Specific Environmental Release Category

ESVOC SpERC 9.12b.v1.

Processes, tasks, activities covered

Covers the use as a fuel (or fuel additives and additive components) and includes activities associated with its transfer, use, equipment maintenance and handling of waste.

2. Operational conditions and risk management measures

2.1. Control of environmental exposure

Product characteristics

Substance is complex UVCB. Predominantly hydrophobic.

Amounts used

:

Fraction of EU tonnage used in region: 0.1

Regional use tonnage (tonnes/year): 4.4E+6

Fraction of Regional tonnage used locally: 5.0E-4

Annual site tonnage (tonnes/year): 2.2E+3

Maximum daily site tonnage (kg/day): 6.1E+3

Frequency and duration of use

Continuous release

Emission Days (days/year): 365

Environment factors not influenced by risk management

Local freshwater dilution factor: 10

Local marine water dilution factor: 100

Other operational conditions of use affecting environmental exposure

Release fraction to air from process (initial release prior to RMM): 1.0E-3

Release fraction to wastewater from process (initial release prior to RMM): 0.00001

Release fraction to soil from process (initial release prior to RMM): 0.00001

Technical conditions and measures at process level to prevent release

Common practices vary across sites thus conservative process release estimates used.

Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil

Risk from environmental exposure is driven by freshwater
 No wastewater treatment required
 Treat air emission to provide a typical removal efficiency of (%): N/A
 Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of (%): >=0
 If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of (%): >=0

Organizational measures to prevent/limit release from the site

Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed.

Conditions and measures related to municipal sewage treatment plant :

Estimated substance removal from wastewater via domestic sewage treatment (%): 94.7
 Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%): 94.7
 Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal (kg/d): 6.9E+5
 Assumed domestic sewage treatment plant flow (m3/d): 2000

Conditions and measures related to external treatment of waste for disposal

Combustion emissions limited by required exhaust emission controls. Combustion emissions considered in regional exposure assessment.

Conditions and measures related to external recovery of waste

This substance is consumed during use and no waste of the substance is generated

Remarks

Additional information on the basis for the allocation of the identified OCs (operating conditions) and RMMs (Risk Management Measures) is contained in Petrorisk file

2.2. Control of exposure - Workers / Consumers

Product characteristics

Physical State

Liquid, vapour pressure 0.5 - 10 kPa at STP

Concentration of substance in product

Covers percentage substance in the product up to 100 % (unless stated differently).

Frequency and duration of use

Covers daily exposures up to 8 hours (unless stated differently).

Other operational conditions affecting exposure

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

2.2a. Control of worker exposure	
Contributing Scenarios	Operational conditions and risk management measures.
General exposures (closed systems)	No specific measures identified.
General measures (skin irritants)	Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop.
Bulk transfers	No other specific measures identified.
Use as a fuel (closed systems)	No other specific measures identified.
Equipment cleaning and maintenance	No other specific measures identified.
Bulk product storage	No other specific measures identified.
Transfer from/pouring from containers	No other specific measures identified.



2.2b. Control of consumer exposure

Product Category(ies)	Operational conditions and risk management measures.
Not applicable	

3. Exposure estimation and references

Health

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

Environment

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

4. Guidance for Downstream User to check compliance with the Exposure scenario

Health

Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. Risk Management Measures are based on qualitative risk characterisation. Available hazard data do not support the need for a DNEL to be established for other health effects. Users are advised to consider national Occupational Exposure Limits or other equivalent values. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Environment

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination. Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination. Further details on scaling and control technologies are provided in SpERC factsheet (<http://cefic.org/en/reach-for-industries-libraries.html>).



ES03024
Version 1.0

1. Exposure scenario

Use as a fuel, Consumer.

Use Descriptor
Sector of use
SU21 - Consumer uses

Product Category
PC13 - Fuels

Environmental Release Category
ERC9a - Wide dispersive indoor use of substances in closed systems
ERC9b - Wide dispersive outdoor use of substances in closed systems
Specific Environmental Release Category
ESVOC SpERC 9.12c.v1.

Processes, tasks, activities covered
Covers consumer uses in liquid fuels.

2. Operational conditions and risk management measures

2.1. Control of environmental exposure

Product characteristics
Substance is complex UVCB. Predominantly hydrophobic.

Amounts used
:
Fraction of EU tonnage used in region: 0.1
Regional use tonnage (tonnes/year): 1.8E+5
Fraction of Regional tonnage used locally: 0.0005
Annual site tonnage (tonnes/year): 89
Maximum daily site tonnage (kg/day): 245

Frequency and duration of use Continuous release
Emission Days (days/year): 365

Environment factors not influenced by risk management -
Local freshwater dilution factor: 10
Local marine water dilution factor: 100

Other operational conditions of use affecting environmental exposure -
Release fraction to air from wide dispersive use (regional only): 1.0E-3
Release fraction to wastewater from wide dispersive use: 0.00001

Release fraction to soil from wide dispersive use (regional only): 0.00001

Conditions and measures related to municipal sewage treatment plant Risk from environmental exposure is driven by freshwater
Estimated substance removal from wastewater via domestic sewage treatment (%): 94.7
Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal (kg/d): 3.1E+4
Assumed domestic sewage treatment plant flow (m3/d): 2000



Conditions and measures related to external treatment of waste for disposal

Combustion emissions limited by required exhaust emission controls. Combustion emissions considered in regional exposure assessment.

Conditions and measures related to external recovery of waste

This substance is consumed during use and no waste of the substance is generated

Remarks

Additional information on the basis for the allocation of the identified OCs (operating conditions) and RMMs (Risk Management Measures) is contained in Petrorisk file

2.2. Control of exposure - Workers / Consumers

Product characteristics

Physical State

Liquid, vapour pressure 0.5 - 10 kPa at STP

Concentration of substance in product

Unless otherwise stated. Covers concentrations up to (%):100.

Amounts used

Unless otherwise stated. Covers use amounts up to (g) : 50000 . Covers skin contact area up to (cm2): 420.

Frequency and duration of use

Unless otherwise stated. Covers use up to (times/day of use):0.143 . Covers exposure up to (hours/event):2.

Other operational conditions affecting exposure

Unless otherwise stated. Covers use up to (times/day of use):0.143. Assumes use at ambient temperature. Assumes use in a 20 m3 room. Assumes use with typical ventilation.

2.2a. Control of worker exposure

Contributing Scenarios	Operational conditions and risk management measures.
not applicable	

2.2b. Control of consumer exposure	
Product Category(ies)	Operational conditions and risk management measures.
PC13 - Fuels Liquid: Automotive Refuelling	<p>Unless otherwise stated Covers concentrations up to (%):100 Covers use up to (days/year):52 Covers use up to (times/day of use):1 Covers skin contact area up to (cm2): 210 For each use event, covers use amounts up to (g):50000 Covers outdoor use Covers use in room size of (m3):100 For each use event Covers exposure up to (hours/event):0.05</p> <p>Risk Management Measures. No specific risk management measure identified beyond those operational conditions stated</p>
PC13 - Fuels Liquid Garden Equipment - Use	<p>Unless otherwise stated Covers concentrations up to (%):100 Covers use up to (days/year):26 Covers use up to (times/day of use):1 For each use event, covers use amounts up to (g):1000 Covers outdoor use Covers use in room size of (m3):100 For each use event Covers exposure up to (hours/event):2.0 Risk Management Measures No specific risk management measure identified beyond those operational conditions stated</p>
PC13 - Fuels Liquid: Garden Equipment - Refueling	<p>Unless otherwise stated Covers concentrations up to (%): 100 Covers use up to (times/day of use):1 Covers use up to (days/year):26 Covers skin contact area up to (cm2): 420 For each use event, covers use amounts up to (g):1000 Covers use in a one car garage (34 m3) under typical ventilation Covers use in room size of (m3):34 For each use event Covers exposure up to (hours/event):0.03 Risk Management Measures No specific risk management measure identified beyond those operational conditions stated</p>
PC13 - Fuels Liquid: Home space heater fuel	<p>Unless otherwise stated Covers concentrations up to (%):100 Covers use up to (days/year):365 Covers use up to (times/day of use):1 Covers skin contact area up to (cm2): 210.00 For each use event, covers use amounts up to (g):1500 Covers use under typical household ventilation Covers use in room size of (m3):20 For each use event Covers exposure up to (hours/event):0.03 Risk Management Measures No specific risk management measure identified beyond those operational conditions stated</p>



3. Exposure estimation and references

Health

The ECETOC TRA tool has been used to estimate consumer exposures, consistent with the content of ECETOC report #107 and the Chapter R15 of the IR&CSA TGD. Where exposure determinants differ to these sources, then they are indicated.

Environment

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

4. Guidance for Downstream User to check compliance with the Exposure scenario

Health

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Environment

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Further details on scaling and control technologies are provided in SpERC factsheet (<http://cefic.org/en/reach-for-industries-libraries.html>).