Safety Data Sheet

Safety Data Sheet according to Regulation (EC) No. 1907/2006 (REACH)



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

1.1. Product identifier

Substance name:

Other means of identification Safety Data Sheet Number: MARPOL Annex I Category

REACH Registration Number:

Jet A

Jet A-1; Avtur 814601 Kerosenes

01-2119485517-27-0006

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

Relevant identified uses

Aviation Turbine Fuel

Uses advised against

Uses other than those covered by the exposure scenarios appended to this Safety Data Sheet are not supported.

1.3. Details of the supplier of the safety data sheet

Manufacturer/Supplier

Irving Oil Whitegate Refinery Limited Whitegate, Midleton, Co. Cork, Ireland

SDS Information

Email: esds@irvingoil.com

1.4. Emergency telephone number

+ 353 21 4622 200

SECTION 2: Hazard identification

2.1. Classification of the substance or mixture

CLP Classification (EC No 1272/2008)

H226 - Flammable liquids -- Category 3 H304 -- Aspiration Hazard -- Category 1

H315 -- Skin corrosion/irritation -- Category 2

H336 -- Specific target organ toxicity (single exposure) -- Category 3

H411 -- Hazardous to the aquatic environment, chronic toxicity -- Category 2

2.2. Label elements



DANGER

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

P102 - Keep out of reach of children

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

Issue Date: 09-Sep-2016

Page 2/28 Status: FINAL

P331 - Do NOT induce vomiting

2.3. Other hazards

Electrostatic charge may be generated during pumping and other operations

Does not meet the criteria for persistent, bioaccumulative and toxic (PBT) or very persistent, very bioaccumulative (vPvB) substances.

SECTION 3: Composition/information on ingredients

3.1. Substances

Chemical Name	CASRN	EINECS	REACH Registration No.	Concentration ¹	Classification ²
Kerosine, petroleum	8008-20-6	232-366-4	01-2119485517-27	100	H226, H304, H315, H336, H411
Naphthalene	91-20-3	202-049-5	Not applicable	<1	H351,H302,H410

¹ All concentrations are percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

SECTION 4: First aid measures

4.1. Description of first aid measures

Eye Contact: If irritation or redness develops from exposure, flush eyes with clean water. If symptoms persist, seek medical attention.

Skin Contact: Remove contaminated shoes and clothing, and flush affected area(s) with large amounts of water. If skin surface is damaged, apply a clean dressing and seek medical attention. If skin surface is not damaged, cleanse affected area(s) thoroughly by washing with mild soap and water or a waterless hand cleaner. If irritation or redness develops, seek medical attention. Wash contaminated clothing before reuse.

Inhalation: First aid is not normally required. If breathing difficulties develop, move victim away from source of exposure and into fresh air in a position comfortable for breathing. Seek immediate medical attention.

Ingestion: Aspiration hazard: Do not induce vomiting or give anything by mouth because this material can enter the lungs and cause severe lung damage. If victim is drowsy or unconscious and vomiting, place on the left side with the head down. If possible, do not leave victim unattended and observe closely for adequacy of breathing. Seek medical attention.

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

While significant vapour concentrations are not likely, high concentrations can cause minor respiratory irritation, headache, drowsiness, dizziness, loss of coordination, disorientation and fatigue. Ingestion can cause irritation of the digestive tract, nausea, diarrhea, and vomiting. Prolonged or repeated contact may dry skin and cause irritation.

4.3. Indication of any immediate medical attention and special treatment needed

SECTION 5: Firefighting measures

5.1. Extinguishing media

Dry chemical, carbon dioxide, or foam is recommended. Water spray is recommended to cool or protect exposed materials or structures. Carbon dioxide can displace oxygen. Use caution when applying carbon dioxide in confined spaces. Simultaneous use of foam and water on the same surface is to be avoided as water destroys the foam. Water may be ineffective for extinguishment, unless used under favorable conditions by experienced fire fighters.

5.2. Special hazards arising from the substance or mixture

Unusual Fire & Explosion Hazards: Flammable. This material can be ignited by heat, sparks, flames, or other sources of ignition (e.g., static electricity, pilot lights, mechanical/electrical equipment, and electronic devices such as cell phones, computers, calculators, and pagers which have not been certified as intrinsically safe) Vapours may travel considerable distances to a source of ignition where they can ignite, flash back, or explode. May create vapour/air explosion hazard indoors, in confined spaces, outdoors, or in sewers. This product will float and can be reignited on surface water. Vapours are heavier

² Regulation EC 1272/2008.

Page 3/28 Issue Date: 09-Sep-2016 Status: FINAL

than air and can accumulate in low areas. If container is not properly cooled, it can rupture in the heat of a fire.

Hazardous Combustion Products: Combustion may yield smoke, carbon monoxide, and other products of incomplete combustion. Oxides of nitrogen and sulphur may also be formed.

5.3. Special protective actions for fire-fighters

For fires beyond the initial stage, emergency responders in the immediate hazard area should wear protective clothing. When the potential chemical hazard is unknown, in enclosed or confined spaces, a self contained breathing apparatus should be worn. In addition, wear other appropriate protective equipment as conditions warrant (see Section 8) Isolate the hazard area and deny entry to unnecessary and unprotected personnel Stop spill/release if it can be done safely Move undamaged containers from immediate hazard area if it can be done safely Water spray may be useful in minimizing or dispersing vapours and to protect personnel Avoid spreading burning liquid with water used for cooling purposes Cool equipment exposed to fire with water, if it can be done safely

See Section 9 for Flammable Properties including Flash Point and Flammable (Explosive) Limits

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Flammable. Spillages of liquid product will create a fire hazard and may form an explosive atmosphere. Keep all sources of ignition and hot metal surfaces away from spill/release if safe to do so. The use of explosion-proof electrical equipment is recommended. Stay upwind and away from spill/release. Avoid direct contact with material. For large spillages, notify persons down wind of the spill/release, isolate immediate hazard area and keep unauthorised personnel out. Wear appropriate protective equipment, including respiratory protection, as conditions warrant (see Section 8). See Sections 2 and 7 for additional information on hazards and precautionary measures.

6.2. Environmental precautions

Stop and contain spill/release if it can be done safely. Prevent spilled material from entering sewers, storm drains, other unauthorised drainage systems, and natural waterways. Use foam on spills to minimise vapours Use water sparingly to minimize environmental contamination and reduce disposal requirements. If spill occurs on water notify appropriate authorities and advise shipping of any hazard.

6.3. Methods and material for containment and cleaning up

Notify relevant authorities in accordance with all applicable regulations. Immediate cleanup of any spill is recommended. Dike far ahead of spill for later recovery or disposal. Absorb spill with inert material such as sand or vermiculite, and place in suitable container for disposal. If spilled on water remove with appropriate methods (e.g. skimming, booms or absorbents). In case of soil contamination, remove contaminated soil for remediation or disposal, in accordance with local regulations.

Recommended measures are based on the most likely spillage scenarios for this material; however local conditions and regulations may influence or limit the choice of appropriate actions to be taken.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Wear protective gloves/protective clothing/eye protection/face protection. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Take precautionary measures against static discharge. Use only non-sparking tools. Wash thoroughly after handling. Use good personal hygiene practices and wear appropriate personal protective equipment (see section 8).

Flammable. Open container slowly to relieve any pressure. Electrostatic charge may accumulate and create a hazardous condition when handling or processing this material. To avoid fire or explosion, dissipate static electricity during transfer by grounding and bonding containers and equipment before transferring material. The use of explosion-proof electrical equipment is recommended and may be required (see appropriate fire codes for specific bonding/grounding requirements). Do not enter confined spaces such as tanks or pits without following proper entry procedures. Do not wear contaminated clothing or shoes. Keep contaminated clothing away from sources of ignition such as sparks or open flames. May vaporize easily at ambient temperatures. The vapour is heavier than air and may create an explosive mixture of vapor and air. Beware of accumulation in confined spaces and low lying areas.

The use of hydrocarbon fuel in an area without adequate ventilation may result in hazardous levels of incomplete combustion

Page 4/28 Issue Date: 09-Sep-2016 Status: FINAL

products (e.g. carbon monoxide, oxides of sulphur and nitrogen, benzene and other hydrocarbons) and/or dangerously low oxygen levels.

7.2. Conditions for safe storage, including any incompatibilities

Keep container(s) tightly closed and properly labeled. Use and store this material in cool, dry, well-ventilated areas away from heat, direct sunlight, hot metal surfaces, and all sources of ignition. Store only in approved containers. Post area "No Smoking or Open Flame." Keep away from any incompatible material (see Section 10). Protect container(s) against physical damage.

"Empty" containers retain residue and may be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, or other sources of ignition. They may explode and cause injury or death. "Empty" drums should be completely drained, properly bunged, and promptly shipped to the supplier or a drum reconditioner. All containers should be disposed of in an environmentally safe manner and in accordance with governmental regulations. Before working on or in tanks which contain or have contained this material, refer to appropriate guidance pertaining to cleaning, repairing, welding, or other contemplated operations. Outdoor or detached storage is preferred. Indoor storage should meet Country or Committee standards and appropriate fire codes.

7.3. Specific end use(s)

Refer to supplemental exposure scenarios if attached.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Occupational Exposure Limits		
Chemical Name	ACGIH	Ireland
Kerosine, petroleum	TWA: 200 mg/m³ total hydrocarbon vapor Skin	
Naphthalene	TWA: 10 ppm Skin	TWA: 10 ppm TWA: 50 mg/m³ STEL: 15 ppm STEL: 75 mg/m³

STEL = Short Term Exposure Limit (15 minutes); TWA = Time Weighted Average (8 hours); --- = No Occupational Exposure Limit

Biological Limit Values		
Chemical Name	ACGIH	European Union
Naphthalene	1-Naphthol with hydrolysis plus 2-Naphthol with hydrolysis in:, end of shift (nonquantitative, nonspecific)	

Consumer Derived No-Effect Level (DNEL)

Relevant DNEL and PNEC:

Worker Derived No-Effect Level (DNEL) Inhalation: Not applicable

Inhalation: Not applicable Dermal: Not applicable Dermal: Not applicable Ingestion: 18.8 mg/kgbw/day

Environmental Predicted No-Effect Concentration (PNEC): No information available

8.2. Exposure controls

Engineering controls: If current ventilation practices are not adequate to maintain airborne concentrations below the established exposure limits, additional engineering controls may be required.

Eye/Face Protection: The use of eye protection that meets or exceeds EN 166 is recommended to protect against potential eye contact, irritation, or injury. Depending on conditions of use, close fitting eye protection and a face shield may be necessary.

Skin/Hand Protection: The use of gloves impervious to the specific material handled that comply with EN 374 is advised to prevent skin contact. Users should check with manufacturers to confirm the breakthrough performance of their products. Depending on exposure and use conditions, additional protection may be necessary to prevent skin contact including use of items such as chemical resistant boots, aprons, arm covers, hoods, coveralls, or encapsulated suits. Suggested protective

Page 5/28 Issue Date: 09-Sep-2016 Status: FINAL

materials: Nitrile

Respiratory Protection: Where there is potential for airborne exposure above the exposure limit an approved air purifying respirator equipped with Type A, organic gases and vapour filters (as specified by the manufacturer) may be used.

A respiratory protection programme that follows recommendations for the selection, use, care and maintenance of respiratory protective devices in EN 529:2005 should be followed whenever workplace conditions warrant a respirator's use. Air purifying respirators provide limited protection and cannot be used in atmospheres that exceed the maximum use concentration (as directed by regulation or the manufacturer's instructions), in oxygen deficient (less than 19.5 percent oxygen) situations, or under conditions that are immediately dangerous to life and health.

Other Protective Equipment: Eye wash and quick-drench shower facilities should be available in the work area. Thoroughly clean shoes and wash contaminated clothing before reuse.

Environmental Exposure Controls: Refer to Sections 6, 7, 12 and 13.

Suggestions provided in this section for exposure control and specific types of protective equipment are based on readily available information. Users should consult with the specific manufacturer to confirm the performance of their protective equipment. Specific situations may require consultation with industrial hygiene, safety, or engineering professionals.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Data represent typical values and are not intended to be specifications. N/A = Not Applicable; N/D = Not Determined

Appearance:

Physical Form:

Odour:

Odour Threshold:

pH:

Melting/Freezing Point:

Initial Boiling Point/Range:

Flash Point:

Evaporation Rate (nBuAc=1):

Flammability (solid, gas):

Upper Explosive Limits (vol % in air): Lower Explosive Limits (vol % in air):

Vapour Pressure:

Relative Vapour Density (air=1):

Relative Density (water=1):

Solubility (ies):

Partition Coefficient (n-octanol/water) (Kow):

Decomposition Temperature:

Viscosity:

Oxidising Properties:

Auto-ignition Temperature:

Explosive Properties:

Colourless

Liquid

Mild paraffinic

N/D N/A

N/D 150 - 290 °C

> 38 °C N/D

Flammable.

6.0

0.5

3 kPa @20°C

0.77-0.82 @ 15°C

Solubility in water: Negligible

N/D 250 °C N/D

1.0-2.0 mm²/s @ 20°C

N/D N/D

9.2. Other information

Pour Point:

> -25 °C

SECTION 10: Stability and reactivity

10.1. Reactivity

Not chemically reactive.

10.2. Chemical stability

Stable under normal ambient and anticipated conditions of use.

10.3. Possibility of hazardous reactions

Hazardous reactions not anticipated.

10.4. Conditions to avoid

Avoid high temperatures and all sources of ignition. Prevent vapour accumulation.

10.5. Incompatible materials

Avoid contact with strong oxidizing agents and strong reducing

Page 6/28 Status: FINAL

agents.

10.6. Hazardous decomposition products

Not anticipated under normal conditions of use.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Substance / Mixture

Acute Toxicity	Hazard	Additional Information	LC50/LD50 Data
Inhalation	Unlikely to be harmful		>5.3 mg/L (mist) (rat)
Dermal	Unlikely to be harmful		> 2 g/kg (rabbit)
Oral	Unlikely to be harmful		> 5 g/kg (rat)

Aspiration Hazard: May be fatal if swallowed and enters airways

Skin Corrosion/Irritation: Causes skin irritation. Repeated exposure may cause skin dryness or cracking.

Serious Eye Damage/Irritation: Causes mild eye irritation.

Skin Sensitisation: Not expected to be a skin sensitizer.

Respiratory Sensitisation: No information available.

Specific Target Organ Toxicity (Single Exposure): May cause drowsiness and dizziness.

Specific Target Organ Toxicity (Repeated Exposure): Not expected to cause organ effects from repeated exposure.

Carcinogenicity: Not expected to cause cancer.

Germ Cell Mutagenicity: Not expected to cause heritable genetic effects.

Reproductive Toxicity: Not expected to cause reproductive toxicity. Hydrodesulphurized kerosene applied to the skin of female rats at 494, 330, or 165 mg/kg daily for 7 consecutive weeks (premating, mating, and gestation), or for 8 consecutive weeks in males did not result in systemic, reproductive, or developmental toxicity.

11.2 Information on Hazardous Components

Naphthalene

Carcinogenicity: Naphthalene has been evaluated in two year inhalation studies in both rats and mice. The US National Toxicology Programme (NTP) concluded that there is clear evidence of carcinogenicity in male and female rats based on increased incidences of respiratory epithelial adenomas and olfactory epithelial neuroblastomas of the nose. NTP found some evidence of carcinogenicity in female mice (alveolar adenomas) and no evidence of carcinogenicity in male mice. Naphthalene has been identified as a carcinogen by IARC and NTP.

SECTION 12: Ecological information

12.1. Toxicity

Acute aquatic toxicity studies on samples of jet fuel and kerosine streams show acute toxicity values greater than 1 mg/L and mostly in the range 1-100 mg/L. These tests were carried out on water accommodated fractions, in closed systems to prevent evaporative loss. Results are consistent with the predicted aquatic toxicity of these substances based on their hydrocarbon composition. Kerosines should be regarded as toxic to aquatic organisms, with the potential to cause long term adverse effects in the aquatic environment.

12.2. Persistence and degradability

The hydrocarbons in this material are not readily biodegradable but are regarded as inherently biodegradable since their hydrocarbon components can be degraded by microorganisms.

Persistence per IOPC Fund definition: Non-Persistent

Page 7/28 Status: FINAL

12.3. Bioaccumulative potential

Hydrocarbon constituents of kerosine show measured or predicted Log Kow values ranging from 3 to 6 and above and therefore would be regarded as having the potential to bioaccumulate. In practise, metabolic processes may reduce bioconcentration.

12.4. Mobility in soil

On release to water, hydrocarbons will float on the surface and since they are sparingly soluble, the only significant loss is volatilisation to air. It is possible that some of the higher molecular weight hydrocarbons will be adsorbed on sediment. Biodegradation in water is a minor loss process. In air, these hydrocarbons are photodegraded by reaction with hydroxyl radicals with half lives varying from 0.1 to 0.7 days.

12.5. Results of PBT and vPvB assessment

Not a PBT or vPvB substance.

12.6. Other adverse effects

None anticipated.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

European Waste Code: 13 07 03* other fuels (including mixtures)

This material, if discarded as produced, would be considered as hazardous waste pursuant to Directive 2008/98/EC on hazardous waste, and subject to the provisions of that Directive unless Article 1(5) of that Directive applies. This code has been assigned based upon the most common uses for this material and may not reflect contaminants resulting from actual use. Waste generators/producers are responsible for assessing the actual process used when generating the waste and it's contaminants in order to assign the proper waste disposal code.

Disposal must be in accordance with Directive 2008/98/EC and other applicable national or regional provisions, and based upon material characteristics at time of disposal. For incineration of waste, follow Directive 2000/76/EC. For landfill of waste, follow Directive 1999/31/EC. Product is suitable for burning in an enclosed controlled burner for fuel value if >5000 BTU, or disposal by supervised incineration at very high temperatures to prevent formation of undesirable combustion products. Follow Directive 2000/76/EC.

Empty Containers: Container contents should be completely used and containers emptied prior to discard. Empty drums should be properly sealed and promptly returned to a drum reconditioner. All containers should be disposed of in an environmentally safe manner and in accordance with applicable regulations.

SECTION 14: Transport information

14.1. UN number UN1863 14.2. UN proper shipping name FUEL, AVIATION, TURBINE ENGINE 14.3. Transport hazard class(es) 3 14.4. Packing group Ш 14.5. Environmental hazards Marine pollutant - Environmentally Hazardous 14.6. Special precautions for user If transported in bulk by marine vessel in international waters, product is being carried under the scope of MARPOL Annex I.

14.7. Transport in bulk according to Annex II of MARPOL

73/78 and the IBC Code

Not applicable

SECTION 15: Regulatory information

Page 8/28 Issue Date: 09-Sep-2016 Status: FINAL

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

EC 1272/2008 - Classification, labelling and packaging of substances and mixtures

EN166:2002 Eye Protection

EN 529:2005 Respiratory Protective devices

BS EN 374-1:2003 Protective gloves against chemicals and micro-organisms

Occupational Exposure Limits, Health and Safety Authority

Directive 2008/98/EC (Waste Framework Directive)

Directive 2000/76/EC on incineration of waste

Directive 1999/31/EC on landfill of waste

Export Rating: NLR (No Licence Required)

15.2. Chemical safety assessment

A chemical safety assessment has been carried out for the substance/mixture.

SECTION 16: Other information

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Previous Issue Date: 23-May-2011 Revised Sections or Basis for Revision: New SDS

Safety Data Sheet Number: 814601 Language: BE

List of Relevant Hazard Statements:

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

H302 - Harmful if swallowed

H351 - Suspected of causing cancer

H410 - Very toxic to aquatic life with long lasting effects

EUH066 - Repeated exposure may cause skin dryness or cracking

Regulatory Basis of Classification

CLP Classification (EC No 1272/2008) Regulatory Basis H226 - Flammable liquids -- Category 3 Based on test data H304 -- Aspiration Hazard -- Category 1 Based on test data

H315 -- Skin corrosion/irritation -- Category 2 Based on component information. H336 -- Specific target organ toxicity (single exposure) -- Category 3 Based on component information. H411 -- Hazardous to the aquatic environment, chronic toxicity -- Category 2 Based on component information.

Guide to Abbreviations:

ACGIH = American Conference of Governmental Industrial Hygienists; ADR = Agreement on Dangerous Goods by Road; BMGV = Biological Monitoring Guidance Value; CASRN = Chemical Abstracts Service Registry Number; CEILING = Ceiling Limit; EINECS - European Inventory of Existing Commercial Chemical Substances; EPA = [US] Environmental Protection Agency; Germany-TRGS = Technical Rules for Dangerous Substances; IARC = International Agency for Research on Cancer; ICAO/IATA = International Civil Aviation Organisation / International Air Transport Association; INSHT = National Institute for Health and Safety at Work; IMDG = International Maritime Dangerous Goods; Irland-HSA = Ireland's National Health and Safety Authority; LEL = Lower Explosive Limit; MARPOL = Marine Pollution; N/A = Not Applicable; N/D = Not Determined; NTP = [US] National Toxicology Programme; PBT = Persistent, Bioaccumulative and Toxic; RID = Regulations Concerning the International Transport of Dangerous Goods by Rail; STEL = Short Term Exposure Limit; TLV = Threshold Limit Value; TRGS 903 = Technical rules for hazardous substances; TWA = Time Weighted Average; UEL = Upper Explosive Limit; UK-EH40 = United Kingdom EH40/2005 OEL; vPvB = very Persistent, very Bioaccumulative

Disclaimer of Expressed and implied Warranties:

The information presented in this Safety Data Sheet is based on data believed to be accurate as of the date this Safety Data Sheet was prepared. HOWEVER, NO WARRANTY OF MERCHANTABILITY, FITNESS FOR ANY PARTICULAR PURPOSE, OR ANY OTHER WARRANTY IS EXPRESSED OR IS TO BE IMPLIED REGARDING THE ACCURACY OR COMPLETENESS OF THE INFORMATION PROVIDED ABOVE, THE RESULTS TO BE OBTAINED FROM THE USE OF THIS INFORMATION OR THE PRODUCT, THE SAFETY OF THIS PRODUCT, OR THE HAZARDS RELATED TO ITS USE. No responsibility is assumed for any damage or injury resulting from abnormal use or from any failure to adhere to recommended practices. The information provided above, and the product, are furnished on the condition that the person receiving them shall make their own determination as to the suitability of the product for their particular purpose and on the condition that they assume the risk of their use. In addition, no authorisation is given nor implied to practice any patented invention without a licence.



Page 10/28 Status: FINAL



Kerosine

1 Manufacture of substance - Industrial

Stated differently.	Section 1 Exposure Scenario Kerosenes	
Use Descriptor Sector(s) of use 3, 8, 9 Process category/(les) 1, 2, 3, 4, 8a, 8b, 15 Environmental release category 1, 4 Specific Environmental Release Category ESVOC SpERC 1.1.v1 Specific Process Specific Release Specif		Manufacture of substance
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2.1 Control of worker exposure Product characteristics Physical form of product Concentration of substance in product Concentration of substance in product Covers percentage substance in the product up to 100 % (un stated differently). Frequency and duration of use Covers daily exposures up to 8 hours (unless stated differently). Contributing Scenarios / Product Category General measures (skin irritants) General exposures (closed systems) Mo other specific measures identified Process sampling No other specific measures identified Laboratory activities Geupment cleaning and maintenance Bulk product storage Kerosene exhibits irritation to the skin and is classified R38 (irritating to skin) accordingly. The available data for this adverse efforts or the product of this adverse efforts or product of this adverse efforts or product of the SDS for the necessary RMMs. Product characteristics Substance is complex UVCB Predominantly hydrophobic Amounts used Frequency and duration of use Contributing variance in the product up to 100 % (unser specific measures identified to 100 miles) and the product storage Frequency and duration of use Contributing variance in the product of the SDS for the necessary RMMs. Product characteristics Substance is complex UVCB Predominantly hydrophobic Amounts used Fraction of regional tonage used in region Frequency and duration of use Contributing variance in the product of the SDS for the necessary RMMs. 10 11	laboratory activities	sel/barge, road/rail car and bulk container), sampling and associated
Product characteristics Physical form of product Concentration of substance in product Concentration of substance in product Covers percentage substance in the product up to 100 % (un stated differently). Frequency and duration of use Covers daily exposures up to 8 hours (unless stated different Operation is carried out at elevated temperature (>20°C abov ambient temperature). Assumes a good basic standard of occupational hygiene is implemented Contributing Scenarios / Product Category Specific Risk Management Measures & Operating Conditions 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/splits as soon as they occur. Wash off an skin contamination immediately. Provide basic employed training to prevent / minimise exposures and to report are 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 Laboratory activities No other specific measures identified No other specific measures i	Section 2 Operational conditions and risk managem	ent measures
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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 an skin contamination immediately. Provide basic employed training to prevent / minimise exposures and to report are skin problems that may develop. General exposures (closed systems) General exposures (open systems) No other specific measures identified Bulk transfers No other specific measures identified Process sampling Laboratory activities No other specific measures identified Avoid the specific measures identified Duit transfers No other specific measures identified Process sampling Laboratory activities No other specific measures identified Bulk product storage No other specific measures identified Regulpment cleaning and maintenance No other specific measures identified No other specific measures id	Other operational conditions affecting exposure	Operation is carried out at elevated temperature (>20°C above ambient temperature). Assumes a good basic standard of
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 an skin contamination immediately. Provide basic employed training to prevent / minimise exposures and to report are skin problems that may develop. General exposures (closed systems) General exposures (open systems) No other specific measures identified Bulk transfers No other specific measures identified Process sampling No other specific measures identified No other specific measures identified Laboratory activities No other specific measures identified Equipment cleaning and maintenance No other specific measures identified Laboratory activities No other specific measures identified Identified to the specific measures identified No other specific measures identified Identified to the specific measures		Specific Risk Management Measures & Operating Conditions
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General exposures (open systems) No other specific measures identified Bulk transfers No other specific measures identified Process sampling No other specific measures identified Aboratory activities Roother specific measures identified Bulk product cleaning and maintenance Bulk product storage No other specific measures identified No other specific measur	General exposures (closed systems)	No other specific measures identified
Bulk transfers Process sampling No other specific measures identified Laboratory activities No other specific measures identified Equipment cleaning and maintenance No other specific measures identified Bulk product storage No other specific measures identified No other specific measures identifie	General exposures (open systems)	No other specific measures identified
Process sampling Laboratory activities No other specific measures identified Equipment cleaning and maintenance No other specific measures identified Rerosene exhibits irritation to the skin and is classified R38 (Irritating to skin) accordingly. The available data for this adverse efformation, but there exists toxicity data appropriate to allow a qualitative risk characterisation; please see section 2 of the SDS for the necessary RMMs. 2.2 Control of environmental exposure Product characteristics Substance is complex UVCB Predominantly hydrophobic Amounts used Fraction of EU tonnage used in region Q.1 Regional use tonnage (tonnes/year) S.4e6 Fraction of regional tonnage used locally Trequency and duration of use Continuous release Emission days (days/year) S.00 Environmental factors not influenced by risk management Local freshwater dilution factor	Bulk transfers	
Laboratory activities Equipment cleaning and maintenance Requipment cleaning and maintenance No other specific measures identified Kerosene exhibits irritation to the skin and is classified R38 (Irritating to skin) accordingly. The available data for this adverse efformation and provide quantitative dose-response information, but there exists toxicity data appropriate to allow a qualitative risk characterisation; please see section 2 of the SDS for the necessary RMMs. 2.2 Control of environmental exposure Product characteristics Substance is complex UVCB Predominantly hydrophobic Amounts used Fraction of EU tonnage used in region Regional use tonnage (tonnes/year) Fraction of regional tonnage used locally Fraquency and duration of use Continuous release mission days (days/year) Indicators not influenced by risk management Local freshwater dilution factor	Process sampling	
Equipment cleaning and maintenance Bulk product storage Kerosene exhibits irritation to the skin and is classified R38 (Irritating to skin) accordingly. The available data for this adverse efform to provide quantitative dose-response information, but there exists toxicity data appropriate to allow a qualitative risk characterisation; please see section 2 of the SDS for the necessary RMMs. 2.2 Control of environmental exposure Product characteristics Substance is complex UVCB Predominantly hydrophobic Amounts used Fraction of EU tonnage used in region Regional use tonnage (tonnes/year) Fraction of regional tonnage used locally 1.0 Prequency and duration of use Continuous release Emission days (days/year) Solution of Influenced by risk management Local freshwater dilution factor	Laboratory activities	No other specific measures identified
Bulk product storage Kerosene exhibits irritation to the skin and is classified R38 (Irritating to skin) accordingly. The available data for this adverse ef do not provide quantitative dose-response information, but there exists toxicity data appropriate to allow a qualitative risk characterisation; please see section 2 of the SDS for the necessary RMMs. 2.2 Control of environmental exposure Product characteristics Substance is complex UVCB Predominantly hydrophobic Amounts used Fraction of EU tonnage used in region Regional use tonnage (tonnes/year) Fraction of regional tonnage used locally O.11 Frequency and duration of use Continuous release mission days (days/year) In available data for this adverse ef does not influenced by risk management Local freshwater dilution factor	Equipment cleaning and maintenance	
Kerosene exhibits irritation to the skin and is classified R38 (Irritating to skin) accordingly. The available data for this adverse ef do not provide quantitative dose-response information, but there exists toxicity data appropriate to allow a qualitative risk characterisation; please see section 2 of the SDS for the necessary RMMs. 2.2 Control of environmental exposure Product characteristics Substance is complex UVCB Predominantly hydrophobic Amounts used Fraction of EU tonnage used in region Regional use tonnage (tonnes/year) Fraction of regional tonnage used locally Frequency and duration of use Continuous release mission days (days/year) In available data for this adverse ef deviced by risk management ocal freshwater dilution factor		
Product characteristics Substance is complex UVCB Predominantly hydrophobic Amounts used Fraction of EU tonnage used in region 0.1 Regional use tonnage (tonnes/year) 5.4e6 Fraction of regional tonnage used locally 0.11 Frequency and duration of use Continuous release Emission days (days/year) 300 Environmental factors not influenced by risk management Local freshwater dilution factor	characterisation; please see section 2 of the SDS for the	38 (Irritating to skin) accordingly. The available data for this adverse effect
raction of EU tonnage used in region Regional use tonnage (tonnes/year) raction of regional tonnage used locally requency and duration of use Continuous release mission days (days/year) and analysis management ocal freshwater dilution factor 0.1 3.466 0.11 3.00 3.00 3.00 3.00 3.00 3.00		
Regional use tonnage (tonnes/year) Fraction of regional tonnage used locally Frequency and duration of use Continuous release Emission days (days/year) Finding to the state of the st		
Regional use tonnage (tonnes/year) Fraction of regional tonnage used locally Frequency and duration of use Continuous release Emission days (days/year) Frequency and duration of use Continuous release Emission days (days/year) Frequency and duration of use Continuous release Frequency and duration of use Total continuous release	raction of EU tonnage used in region	0.1
raction of regional tonnage used locally Frequency and duration of use Continuous release Emission days (days/year) Environmental factors not influenced by risk management ocal freshwater dilution factor	Regional use tonnage (tonnes/year)	
Frequency and duration of use Continuous release Emission days (days/year) Environmental factors not influenced by risk management Cocal freshwater dilution factor		
Emission days (days/year) 300 Environmental factors not influenced by risk management Local freshwater dilution factor 10	Frequency and duration of use Continuous release	Per i i
Environmental factors not influenced by risk management ocal freshwater dilution factor	Emission days (days/year)	300
ocal freshwater dilution factor	Environmental factors not influenced by risk manager	ment
	ocal freshwater dilution factor	
Local marine water dilution factor	ocal marine water dilution factor	

Page 11/28 Status: FINAL

Other given operational conditions affecting environmental exposure	
Release fraction to air from process (initial release prior to RMM)	14.0 - 2
Release fraction to wastewater from process (initial release prior to RMM)	1.0e-2
Release fraction to soil from process (initial release prior to RMM)	3.0e-4
Technical conditions and measures at process level (source) to prevent release	0.0001
Common practices vary across sites thus conservative process release estimates used	
Technical onsite conditions and measures to reduce or limit discharges, air omicol	one and valence to sall
Risk from environmental exposure is driven by freshwater sediment Prevent discharge of onsite wastewater Onsite wastewater treatment required	undissolved substance to or recover fro
Treat air emission to provide a typical removal efficiency of (%):	90
Treat onsite wastewater (prior to receiving water discharge) to provide the required remov	90
emclency >= (%):	
If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of \geq (%):	56.1
Organisation measures to prevent/limit release from site	
Do not apply industrial sludge to natural soils Sludge should be incinerated, contained or reclaimed	
Estimated substance removed from weekeysters is described.	
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	2.0e6
reatment removal (kg/d):	
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	
Section 3 Exposure Estimation	
3.1 Health	
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise	indicated
5.2 Environment	
The Hydrocarbon Block Method has been used to calculate environmental exposure with t	he Petrorisk model
bection 4 Guidance to check compliance with the Exposure Scenario	
4.1 Health	
wailable hazard data does not enable the derivation of a DNEL for dermal irritant effects F	Risk management measures are based
" good to the cital actelization Available 1979(0 0919 under not elimport the need for a F	MEI to be established for other in the
mode opera are advised to consider national Occupational Exposure I imits or other equiv	ralant valuas Mhans ather dele
indragoriteric measures/operational conditions are adopted, then users should ensure that	risks are managed to at least equivale
34010	g = io ai iodoi oquivalo
.2 Environment	
Guidance is based on assumed operating conditions which may not be applicable to all site	es: thus, scaling may be necessary to
come appropriate site-specific lisk management measures Required removal efficiency for	r wastowator can be achieved with a
insite/offsite technologies, either alone or in combination Required removal efficiency for a	ir can be achieved using an eite

2 Use of substance as an intermediate - Industrial

site-specific data and are attached in PETRORISK file – "Site-Specific Production" worksheet

Section 1 Exposure Scenario Kerosenes	
Title	Use as an intermediate
Use Descriptor	and do diffilled into diato
Sector(s) of use	3, 8, 9
Process category(ies)	1, 2, 3, 4, 8a, 8b, 15
Environmental release category(ies)	6a
Specific Environmental Release Category	ESVOC SpERC 6.1a.v1
	120.000 00.10.41
Processes, tasks, activities covered	

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

Use of substance as an intermediate (not related to Strictly Controlled Conditions). Includes recycling/recovery, material transfers, storage, sampling, associated laboratory activities, maintenance and loading (including marine vessel/barge, road/rail car and bulk container)

Section 2 Operational conditions and risk management measures

Page 12/28 Status: FINAL Issue Date: 09-Sep-2016

2.1 Control of worker exposure		
Product characteristics		
Physical form of product	Liquid, vapour pressure 0.5 - 10 kPa at STP	
Concentration of substance in product	Covers percentage substance in the product up to 100 % (unle 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°C above	
	ambient temperature). Assumes a good basic standard of	
	occupational hygiene is implemented	
Contibution Constitution		
Contributing Scenarios / Product Category	Specific Risk Management Measures & Operating Conditions	
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 an	
	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 profile manner (d. 100)	
Bulk product storage	No other specific measures identified No other specific measures identified	
	(Invitation to alia) assessing the Theory is the late of the continued	
do not provide quantitative dose-response information, but	(Irritating to skin) accordingly. The available data for this adverse effect	
characterisation; please see section 2 of the SDS for the ne	there exists toxicity data appropriate to allow a qualitative risk	
2.2 Control of environmental exposure	ecessary Rivilvis.	
Product characteristics		
Substance is complex UVCB Predominantly hydrophobic Amounts used		
Fraction of EU tonnage used in region	0.1	
Regional use tonnage (tonnes/year)	1.8e5	
Fraction of regional tonnage used locally	8.3e-2	
Frequency and duration of use		
Continuous release		
Emission days (days/year)	300	
Environmental factors not influenced by risk managem	ent	
Local freshwater dilution factor	10	
Local marine water dilution factor	100	
Other given operational conditions affecting environme	ental exposure	
Release fraction to air from process (initial release prior to F	RMM) 1.0e-3	
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 (so	Ource) to provent release	
Common practices vary across sites thus conservative productions	Pess release estimates used	
Technical onsite conditions and measures to reduce or	limit discharges of amining and adverse to the	
Risk from environmental exposure is driven by freshwater s	sediment Prevent discharge of undissolved substance to or recover from	
onsite wastewater If discharging to domestic sewage treatment	sent plant, no operato was towater treetment required	
Treat air emission to provide a typical removal efficiency of	/o/ \-	
reat onsite wastewater (prior to receiving water discharge)	(%): 80	
efficiency >= (%):	to provide the required removal 81.4	
f discharging to domestic sewage treatment plant, provide temoval efficiency of >= (%):	the required onsite wastewater 0	
Organisation measures to prevent/limit release from sit	e	
Oo not apply industrial sludge to natural soils		
Sludge should be incinerated, contained or reclaimed		
Estimated substance removal from wastewater via domestic sewage treatment (%): 94.7		
Total efficiency of removal from wastewater after onsite and	d offsite (domestic treatment 94.7	
olant) RMMs (%):		

Page 13/28 Status: FINAL

Maximum allowable site tonnage (Msafe) based on release following total wastewater treatment removal (kg/d):	1.8e5
Assumed domestic sewage treatment plant flow (m³/d):	2000
Conditions and measures related to external treatment of waste for disposal	
This substance is consumed during use and no waste of the substance is generated	
Conditions and measures related to external recovery of waste	
This substance is consumed during use and no waste of the substance is generated	
Section 3 Exposure Estimation	
3.1 Health	
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise	e indicated
3.2 Environment	
The Hydrocarbon Block Method has been used to calculate environmental exposure with	the Petrorisk model
Section 4 Guidance to check compliance with the Exposure Scenario	
4.1 Health	
Available hazard data does not enable the derivation of a DNEL for dermal irritant effects	Risk management measures are based
on qualitative risk characterization Available hazard data does 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 equ	ivalent values Where other risk
management measures/operational conditions are adopted, then users should ensure that	at risks are managed to at least equivalent
levels	in note the managed to at least equivalent
4.2 Environment	
Guidance is based on assumed operating conditions which may not be applicable to all si	ites: thus, scaling may be necessary to
define appropriate site-specific risk management measures Required removal efficiency f	or 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.	logics are provided in SpEDC feetablest
(http://cefic.org/en/reach-for-industries-libraries.html)	ogies are provided in SpERC racisfieed
With the second of the decision in the decisio	

3 Distribution of substance - Industrial

Section 1 Exposure Scenario Kerosenes	
Title	Distribution of substance
Use Descriptor	
Sector(s) of use	3
Process category(ies)	1, 2, 3, 4, 8a, 8b, 9, 15
Environmental release category(ies)	1, 2, 3, 4, 5, 6a, 6b, 6c, 6d, 7
Specific Environmental Release Category	ESVOC SpERC 1.1b.v1
Processes, tasks, activities covered	
substance, including its sampling, storage, unloading dis	d IBC loading) and repacking (including drums and small packs) of stribution and associated laboratory activities
Section 2 Operational conditions and risk managem	nent measures
2.1 Control of worker exposure	
Product characteristics	
Physical form of product	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
Contributing Scenarios / Product Category	Specific Risk Management Measures & Operating Conditions
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

Page 14/28 Status: FINAL Issue Date: 09-Sep-2016

Laboratory activities	No other specific m	neasures identified
	No other specific m	
	No other specific m	
quipment cleaning and maintenance No other specific measures identified		
	No other specific m	
Kerosene exhibits irritation to the skin and is classified R38 (Irritating to	ekin) accordingly. T	he eveilable date for this advance effect
do not provide quantitative dose-response information, but there exists to	ovicity data annoni	riete to allow a qualitativo rick
characterisation; please see section 2 of the SDS for the necessary RMI	uala appiopi	late to allow a qualitative risk
2.2 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)		5.4e6
Fraction of regional tonnage used locally		2.0e-3
Frequency and duration of use		2.06-3
Continuous release		
Emission days (days/year)		300
Environmental factors not influenced by risk management		000
Local freshwater dilution factor		10
Local marine water dilution factor		100
Other given operational conditions affecting environmental exposu	ro	1100
Release fraction to air from process (initial release prior to RMM)	16	1.0e-3
Release fraction to wastewater from process (initial release prior to RMM	1)	1.0e-5
Release fraction to soil from process (initial release prior to RMM)	1)	
Release fraction to soil from process (initial release prior to RMM) Technical conditions and measures at process level (source) to prevent release		
Common practices vary across sites thus conservative process release a	estimates used	
Technical onsite conditions and measures to reduce or limit discha	raes air emission	e and rologene to coil
Risk from environmental exposure is driven by freshwater No wastewate	r treatment require	d and releases to soli
Treat air emission to provide a typical removal efficiency of (%):		90
Treat onsite wastewater (prior to receiving water discharge) to provide the required removal 0		
efficiency >= (%):		
If discharging to domestic sewage treatment plant, provide the required of	onsite wastewater	0
removal efficiency of >= (%):		
Organisation measures to prevent/limit release from site		
Do not apply industrial sludge to natural soils		
Sludge should be incinerated, contained or reclaimed		
Estimated substance removal from wastewater via domestic sewage treat	atment (%):	94.7
Total efficiency of removal from wastewater after onsite and offsite (dome	estic treatment	94.7
plant) RMMs (%):		
Maximum allowable site tonnage (Msafe) based on release following total wastewater 2.6e6		2.6e6
treatment removal (kg/d):		
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 I	ocal and/or nationa	l regulations
Conditions and measures related to external recovery of waste		
During manufacturing no waste of the substance is generated		
Section 3 Exposure Estimation		
3.1 Health		
The ECETOC TRA tool has been used to estimate workplace exposures	unless otherwise in	ndicated
3.2 Environment		
The Hydrocarbon Block Method has been used to calculate environment	al exposure with the	e Petrorisk model
Section 4 Guidance to check compliance with the Exposure Scenar	rio	
4.1 Health		
Available hazard data does not enable the derivation of a DNEL for derm	al irritant effects Ri	sk management measures are based
on qualitative risk characterization Available hazard data does not suppo	rt the need for a DN	IEL to be established for other health
effects Users are advised to consider national Occupational Exposure Lie	mits or other equiva	lent values Where other risk
management measures/operational conditions are adopted, then users s	hould ensure that r	isks are managed to at least equivalent
levels		

4.2 Environment

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures Required removal efficiency for wastewater can be achieved using

Page 15/28 Issue Date: 09-Sep-2016 Status: FINAL

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)

4 Formulation & (Re)packing of substance - Industrial

Section 1 Exposure Scenario	
Kerosenes	
Title	Formulation & (re)packing of substances and mixtures
Use Descriptor	3 A
Sector(s) of use	3, 10
Process category(ies)	1, 2, 3, 4, 5, 8a, 8b, 9, 14, 15
Environmental release category(ies)	2
Specific Environmental Release Category	ESVOC SpERC 2.2.v1
Processes, tasks, activities covered	
materials transters, mixing, tableting, compression, pelleti and associated laboratory activities	d its mixtures in batch or continuous operations, including storage, isation, extrusion, large and small scale packing, sampling, maintenance
Section 2 Operational conditions and risk manageme	ent measures
2.1 Control of worker exposure	
Product characteristics	
Physical form of product	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
Contributing Scenarios / Product Category	Specific Risk Management Measures & Operating Conditions
	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
_aboratory 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
Production or preparation or articles by tabletting, compresextrusion or pelletisation	ssion, 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
Kerosene exhibits irritation to the skin and is classified R3	8 (Irritating to skin) accordingly. The available data for this adverse effect
do not provide quantitative dose-response information, but characterisation; please see section 2 of the SDS for the r	t there exists toxicity data appropriate to allow a qualitative risk
2.2 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)	
Fraction of regional tonnage used locally	5.2e6
Frequency and duration of use	5.8e-3

Page 16/28 Issue Date: 09-Sep-2016 Status: FINAL

Continuous release		
Emission days (days/year)	300	
Environmental factors not influenced by risk management		
Local freshwater dilution factor	10	
Local marine water dilution factor	100	
Other given operational conditions 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)	2.0e-4	
Release fraction to soil from process (initial release prior to RMM)	0.0001	
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 emission	ns and releases to soil	
Risk from environmental exposure is driven by freshwater sediment Prevent discharge of un	ndissolved 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 remova	86.0	
efficiency >= (%):		
If discharging to domestic sewage treatment plant, provide the required onsite wastewater	0	
removal efficiency of >= (%):		
Organisation measures to prevent/limit release from site		
Do not apply industrial sludge to natural soils		
Sludge should be incinerated, contained or reclaimed		
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	2.6e5	
treatment removal (kg/d):		
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	al 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		
Section 3 Exposure Estimation		
3.1 Health		
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated		
3.2 Environment		
The Hydrocarbon Block Method has been used to calculate environmental exposure with th	e Petrorisk model	
Section 4 Guidance to check compliance with the Exposure Scenario		
4.1 Health		
Available hazard data does not enable the derivation of a DNEL for dermal irritant effects R	sk management measures are based	
on qualitative risk characterization Available hazard data does not support the need for a DI	VEL 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 r	isks are managed to at least equivalen	
levels		
4.2 Environment		
Guidance is based on assumed operating conditions which may not be applicable to all site	s; 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)		

5 Use of substance in Metal working fluids / rolling oils - Industrial

(http://cefic.org/en/reach-for-industries-libraries.html)

Section 1 Exposure Scenario Kerosenes	
Title	Metal working fluids/rolling oils
Use Descriptor	. V. V
Sector(s) of use	3
Process category(ies)	1, 2, 3, 4, 5, 7, 8a, 8b, 9, 10, 13, 17
Environmental release category(ies)	4
Specific Environmental Release Category	ESVOC SpERC 4.7a.v1
Processes, tasks, activities covered	

Page 17/28 Status: FINAL

Covers the use in formulated MM/Ea/relling ails including two	for an early and the second se	
activities, automated and manual application of corrosion prote	offer operations, rolling and annealing activities, cutting/machining	
maintenance, draining and disposal of waste oils	ections (including brushing, dipping and spraying), equipment	
Section 2 Operational conditions and risk management m	703curae	
2.1 Control of worker exposure	leasures	
Product characteristics		
Physical form of product	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 difference of the control of		
Other operational conditions affecting exposure	Assumes use at not more than 20°C above ambient	
	temperature, unless stated differently Assumes a good basic	
	standard of occupational hygiene is implemented	
Contributing Scenarios / Product Category	Specific Risk Management Measures & Operating	
	Conditions	
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. Other skin protection measures such as impervious suits and face shields may	
	be required during high dispersion activities which are	
	likely to lead to substantial aerosol release, e.g. spraying	
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	
Filling / preparation of equipment from drums or containers	No other specific measures identified	
Process sampling	No other specific measures identified	
Metal machining operations	No other specific measures identified	
Treatment by dipping and pouring	No other specific measures identified	
Spraying	No other specific measures identified	
Manual Roller, spreader, flow application	No other specific measures identified	
Automated metal rolling/forming	No other specific measures identified	
Semi-automated metal rolling/forming	No other specific measures identified	
Equipment cleaning and maintenance Dedicated facility	No other specific measures identified	
Equipment cleaning and maintenance Non-dedicated facility	No other specific measures identified	
Storage	No other specific measures identified	
Kerosene exhibits irritation to the skin and is classified R38 (Irr	itating to skin) accordingly. The available data for this adverse effect	
do not provide quantitative dose-response information, but ther	re exists toxicity data appropriate to allow a qualitative risk	
characterisation; please see section 2 of the SDS for the neces	ssary RMMs.	
2.2 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)	5.5e2	
Fraction of regional tonnage used locally	0.18	
Frequency and duration of use		
Continuous release		
Emission days (days/year)	20	
Environmental factors not influenced by risk management Local freshwater dilution factor		
Local marine water dilution factor	10	
	100	
Other given operational conditions affecting environmenta Release fraction to air from process (initial release prior to RMN		
Release fraction to air from process (initial release prior to RMI Release fraction to wastewater from process (initial release prior		
Release fraction to wastewater from process (initial release prior to RM	or to RMM) 3.0e-5	
Technical conditions and measures at process level (source)	IM) 0	
Common practices vary across sites thus conservative process	c release octimates used	
- silver produced vary dordes silve trius conservative process	release estimates asea	

Page 18/28 Status: FINAL

Technical onsite conditions and measures to reduce or limit discharges, air emission	ns and releases to soil	
Risk from environmental exposure is driven by freshwater Prevent discharge of undissolved	d substance to or recover from onsite	
wastewater No wastewater treatment required Treat air emission to provide a typical removal efficiency of (%):	170	
Treat an emission to provide a typical removal emiciency of (%):	70	
Treat onsite wastewater (prior to receiving water discharge) to provide the required remova efficiency >= (%):	0	
If discharging to domestic sewage treatment plant, provide the required onsite wastewater	0	
removal efficiency of >= (%):	0	
Organisation measures to prevent/limit release from site		
Do not apply industrial sludge to natural soils		
Sludge should be incinerated, contained or reclaimed		
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	4.9e5	
treatment removal (kg/d):		
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	al regulations	
Conditions and measures related to external recovery of waste		
External recovery and recycling of waste should comply with applicable local and/or national	l regulations	
Section 3 Exposure Estimation		
3.1 Health		
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise i	ndicated	
3.2 Environment		
The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model		
Section 4 Guidance to check compliance with the Exposure Scenario		
4.1 Health		
Available hazard data does not enable the derivation of a DNEL for dermal irritant effects R	sk management measures are based	
on qualitative risk characterization Available hazard data does not support the need for a DNFL to be established for other health		
effects Users are advised to consider national Occupational Exposure Limits or other equiva-	alent values Where other risk	
management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalen		
levels		
4.2 Environment		
Guidance is based on assumed operating conditions which may not be applicable to all site	s; 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 technolog (http://cefic.org/en/reach-for-industries-libraries.html)	lies are provided in SpERC factsheet	
(http://oene.org/en/reach-for-industries-indranes.html)		

6 Use of substance in Metal working fluids / rolling oils - Professional

Section 1 Exposure Scenario Kerosenes	
Title	Metal working fluids/rolling oils
Use Descriptor	· · · · · · · · · · · · · · · · · · ·
Sector(s) of use	3
Process category(ies)	1, 2, 3, 5, 8a, 8b, 9, 10, 11, 13, 17
Environmental release category(ies)	8a, 8d
Specific Environmental Release Category	ESVOC SpERC 8.7c.v1
Processes, tasks, activities covered	
manual application of corrosion protections, draining ar	operations, open and contained cutting/machining activities, automated and not working on contaminated/reject articles, and disposal of waste oils
Section 2 Operational conditions and risk manage	ment measures
2.1 Control of worker exposure	
Product characteristics	
Physical form of product	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

Page 19/28 Status: FINAL

stand	dard of occupational hygiene is implemented
Contributing Scenarios / Product Category	Specific Risk Management Measures & Operating Conditions
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 ar skin contamination immediately. Provide basic employe training to prevent / minimise exposures and to report a skin problems that may develop. Other skin protection measures such as impervious suits and face shields make the required during high dispersion activities which are likely to lead to substantial aerosol release, e.g. spraying
General exposures (closed systems)	No other specific measures identified
Bulk transfers	No other specific measures identified
Filling / preparation of equipment from drums or containers Dedicated	No other specific measures identified
facility	·
Filling / preparation of equipment from drums or containers Non-dedicated facility	No other specific measures identified
Process sampling	No other specific measures identified
Metal machining operations	No other specific measures identified
Manual Roller, spreader, flow application	No other specific measures identified
Spraying	No other specific measures identified
Equipment cleaning and maintenance Dedicated facility	No other specific measures identified
Equipment cleaning and maintenance Non-dedicated facility	No other specific measures identified
Treatment by dipping and pouring	No other specific measures identified
Storage Kerosene exhibits irritation to the skin and is classified R38 (Irritating to	No other specific measures identified
2.2 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)	
traction of regional tonnage used lecelly	5.5e2
	5.5e2 5.0e-4
Frequency and duration of use	
Fraction of regional tonnage used locally Frequency and duration of use Continuous release Emission days (days/year)	5.0e-4
Frequency and duration of use Continuous release Emission days (days/year)	
Frequency and duration of use Continuous release Emission days (days/year) Environmental factors not influenced by risk management	5.0e-4 365
Frequency and duration of use Continuous release Emission days (days/year) Environmental factors not influenced by risk management Local freshwater dilution factor	
Frequency and duration of use Continuous release Emission days (days/year) Environmental factors not influenced by risk management Local freshwater dilution factor Local marine water dilution factor	5.0e-4 365 10 100
Frequency and duration of use Continuous release Emission days (days/year) Environmental factors not influenced by risk management Local freshwater dilution factor Local marine water dilution factor Other given operational conditions affecting environmental exposi	365 10 100 ure
Frequency and duration of use Continuous release Emission days (days/year) Environmental factors not influenced by risk management Local freshwater dilution factor Local marine water dilution factor Other given operational conditions affecting environmental expositelease fraction to air from process (initial release prior to RMM)	365 10 100 100 ure 0.15
Frequency and duration of use Continuous release Emission days (days/year) Environmental factors not influenced by risk management Local freshwater dilution factor Local marine water dilution factor Other given operational conditions affecting environmental expose Release fraction to air from process (initial release prior to RMM) Release fraction to wastewater from process (initial release prior to RM)	365 10 100 ure 0.15 M) 0.05
Frequency and duration of use Continuous release Emission days (days/year) Environmental factors not influenced by risk management Local freshwater dilution factor Local marine water dilution factor Other given operational conditions affecting environmental expose Release fraction to air from process (initial release prior to RMM) Release fraction to wastewater from process (initial release prior to RMM) Release fraction to soil from process (initial release prior to RMM) Fechnical conditions and measures at process level (source) to pr	5.0e-4 365 10 100 ure 0.15 M) 0.05 event release
Frequency and duration of use Continuous release Emission days (days/year) Environmental factors not influenced by risk management Local freshwater dilution factor Local marine water dilution factor Other given operational conditions affecting environmental expose Release fraction to air from process (initial release prior to RMM) Release fraction to wastewater from process (initial release prior to RMM) Release fraction to soil from process (initial release prior to RMM) Fechnical conditions and measures at process level (source) to process reconservative process release estimates used	365 10 100
Frequency and duration of use Continuous release Emission days (days/year) Environmental factors not influenced by risk management Local freshwater dilution factor Local marine water dilution factor Other given operational conditions affecting environmental expose Release fraction to air from process (initial release prior to RMM) Release fraction to wastewater from process (initial release prior to RMM) Release fraction to soil from process (initial release prior to RMM) Release fraction to soil from process (initial release prior to RMM) Fechnical conditions and measures at process level (source) to processing the process release estimates used Fechnical onsite conditions and measures to reduce or limit disch	365 10 100
Frequency and duration of use Continuous release Emission days (days/year) Environmental factors not influenced by risk management Local freshwater dilution factor Local marine water dilution factor Other given operational conditions affecting environmental expose Release fraction to air from process (initial release prior to RMM) Release fraction to wastewater from process (initial release prior to RMM) Release fraction to soil from process (initial release prior to RMM) Release fraction to soil from process (initial release prior to RMM) Fechnical conditions and measures at process level (source) to processing the process release estimates used Fechnical onsite conditions and measures to reduce or limit disches a from environmental exposure is driven by freshwater No wastewater	365 10 100
Frequency and duration of use Continuous release Emission days (days/year) Environmental factors not influenced by risk management Local freshwater dilution factor Local marine water dilution factor Other given operational conditions affecting environmental expose Release fraction to air from process (initial release prior to RMM) Release fraction to wastewater from process (initial release prior to RMM) Release fraction to soil from process (initial release prior to RMM) Release fraction to soil from process (initial release prior to RMM) Technical conditions and measures at process level (source) to procentical conditions and measures at process level (source) to prevent conservative process release estimates used Technical onsite conditions and measures to reduce or limit disched in the process of the process of the process of the process of the process release estimates used Technical onsite conditions and measures to reduce or limit disched in the process of the	365 10 100
Frequency and duration of use Continuous release Emission days (days/year) Environmental factors not influenced by risk management Local freshwater dilution factor Local marine water dilution factor Cother given operational conditions affecting environmental expose Release fraction to air from process (initial release prior to RMM) Release fraction to wastewater from process (initial release prior to RMM) Release fraction to soil from process (initial release prior to RMM) Release fraction to soil from process (initial release prior to RMM) Fechnical conditions and measures at process level (source) to procentical conditions and measures at process level (source) to prevent conservative process release estimates used Fechnical onsite conditions and measures to reduce or limit disched in the process of the	365 10 100
Frequency and duration of use Continuous release Emission days (days/year) Environmental factors not influenced by risk management Local freshwater dilution factor Local marine water dilution factor Other given operational conditions affecting environmental exposurable elease fraction to air from process (initial release prior to RMM) Release fraction to wastewater from process (initial release prior to RMM) Release fraction to soil from process (initial release prior to RMM) Technical conditions and measures at process level (source) to processivative process release estimates used Technical onsite conditions and measures to reduce or limit disched in the conditions and measures to reduce or limit disched in the conditions in the conditions and measures to reduce or limit disched in the conditions in the conditions is driven by freshwater No wastewater (preat air emission to provide a typical removal efficiency of (%): Treat onsite wastewater (prior to receiving water discharge) to provide the efficiency >= (%): If discharging to domestic sewage treatment plant, provide the required	365 10 100
Frequency and duration of use Continuous release Emission days (days/year) Environmental factors not influenced by risk management Local freshwater dilution factor Local marine water dilution factor Other given operational conditions affecting environmental expose Release fraction to air from process (initial release prior to RMM) Release fraction to wastewater from process (initial release prior to RMM) Release fraction to soil from process (initial release prior to RMM) Technical conditions and measures at process level (source) to processivative process release estimates used Technical onsite conditions and measures to reduce or limit disches (reat air emission to provide a typical removal efficiency of (%): Treat onsite wastewater (prior to receiving water discharge) to provide the efficiency >= (%): If discharging to domestic sewage treatment plant, provide the required removal efficiency of >= (%):	365 10 100
Frequency and duration of use Continuous release Emission days (days/year) Environmental factors not influenced by risk management Local freshwater dilution factor Local marine water dilution factor Other given operational conditions affecting environmental expose Release fraction to air from process (initial release prior to RMM) Release fraction to wastewater from process (initial release prior to RMM) Release fraction to soil from process (initial release prior to RMM) Release fraction to soil from process (initial release prior to RMM) Fechnical conditions and measures at process level (source) to processivative process release estimates used Fechnical onsite conditions and measures to reduce or limit disched in the process release estimates used Fechnical onsite conditions and measures to reduce or limit disched in the process release estimates used Fechnical onsite conditions and measures to reduce or limit disched in the process release estimates used Fechnical onsite wastewater (prior to receiving water discharge) to provide the reduced to the process release estimates used Fechnical onsite wastewater (prior to receiving water discharge) to provide the reduced to the process release estimates used Fechnical onsite wastewater (prior to receiving water discharge) to provide the reduced encoded efficiency of (%): Ferat onsite wastewater (prior to receiving water discharge) to provide the required emoval efficiency of >= (%): Formula of the process release estimates to prevent/limit release from site	365 10 100
Continuous release Emission days (days/year) Environmental factors not influenced by risk management Local freshwater dilution factor Local marine water dilution factor Cother given operational conditions affecting environmental expose Release fraction to air from process (initial release prior to RMM) Release fraction to wastewater from process (initial release prior to RMM) Release fraction to soil from process (initial release prior to RMM) Fechnical conditions and measures at process level (source) to proceed to procee	365 10 100

Page 20/28 Status: FINAL

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	90
treatment removal (kg/d):	
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 nation	nal regulations
Conditions and measures related to external recovery of waste	
External recovery and recycling of waste should comply with applicable local and/or nation	nal regulations
Section 3 Exposure Estimation	
3.1 Health	
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise	indicated
3.2 Environment	
The Hydrocarbon Block Method has been used to calculate environmental exposure with	he Petrorisk model
Section 4 Guidance to check compliance with the Exposure Scenario	
4.1 Health	
Available hazard data does not enable the derivation of a DNEL for dermal irritant effects I	Risk management measures are based
on qualitative risk characterization Available hazard data does not support the need for a I	ONEL to be established for other health
effects Users are advised to consider national Occupational Exposure Limits or other equi	valent values Where ether riels
management measures/operational conditions are adopted then upon should once equi	valent values where other risk
management measures/operational conditions are adopted, then users should ensure that levels	risks are managed to at least equivaler
4.2 Environment	
Guidance is based on assumed operating conditions which may not be applicable to all sit	es; thus, scaling may be necessary to
define appropriate site-specific risk management measures Required removal efficiency for	r wastewater can be achieved using
onsite/offsite technologies, either alone or in combination Required removal efficiency for a	air can be achieved using on-site
technologies, either alone or in combination Further details on scaling and control technologies	ogies are provided in SnFRC factshoot
(http://cefic.org/en/reach-for-industries-libraries.html)	See and brought opento idolonicel

7 Use of substance as Release agents or binders - Industrial

(http://cefic.org/en/reach-for-industries-libraries.html)

Section 1 Exposure Scenario Kerosenes		
Title	Use as binders and release agents	
Use Descriptor	good do bilidolo dila folodoc agonta	
Sector(s) of use	3	
Process category(ies)	1, 2, 3, 4, 6, 7, 8b, 10, 13, 14	
Environmental release category(ies)	4	
Specific Environmental Release Category	ESVOC SpERC 4.10a.v1	
Processes, tasks, activities covered		
mold forming and casting, and handling of waste	material transfers, mixing, application (including spraying and brushing),	
Section 2 Operational conditions and risk managem	nent measures	
2.1 Control of worker exposure		
Product characteristics		
Physical form of product	Liquid, vapour pressure 0.5 - 10 kPa at STP	
Concentration of substance in product	Covers percentage substance in the product up to 100 % (ustated differently).	
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differ	
Other operational conditions affecting exposure	Assumes use at not more than 20°C above ambient temperature, unless stated differently Assumes a good basic standard of occupational hygiene is implemented	
Contributing Scenarios / Product Category	Specific Risk Management Measures & Operating Conditions	
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. Other skin protection measures such as impervious suits and face shields may	

Page 21/28 Status: FINAL

	be required during h	igh dispersion activities which are
	likely to lead to subs	stantial aerosol release, e.g. spraying
Bulk transfers	No other specific me	easures identified
	No other specific measures identified	
	No other specific measures identified	
Mixing operations (open systems)	No other specific measures identified	
	No other specific measures identified	
	No other specific measures identified	
	No other specific measures identified	
	No other specific measures identified	
Manual Rolling, Brushing No other specific measures identified		
Dipping, immersion and pouring No other specific measures identified		
Bulk product storage	No other specific me	easures identified
Kerosene exhibits irritation to the skin and is classified R38 (Irritating to	skin) accordingly. The	e available data for this adverse effect
do not provide quantitative dose-response information, but there exists to	oxicity data appropria	ate to allow a qualitative risk
characterisation; please see section 2 of the SDS for the necessary RMN 2.2 Control of environmental exposure	AS.	
Product characteristics		
Substance is complex UVCB Predominantly hydrophobic		
Amounts used		
Fraction of EU tonnage used in region	10	
Regional use tonnage (tonnes/year)		0.1
Fraction of regional tonnage used locally	8	3.0e2
Frequency and duration of use		
Continuous release		
Emission days (days/year)		20
Environmental factors not influenced by risk management		
Local freshwater dilution factor	14	0
Local marine water dilution factor		
Local marine water dilution factor 100 Other given operational conditions affecting environmental exposure		
Release fraction to air from process (initial release prior to RMM)		
Release fraction to wastewater from process (initial release prior to RMM)		.0 3.0e-6
Release fraction to soil from process (initial release prior to RMM)		
Technical conditions and measures at process level (source) to prevent release		
Common practices vary across sites thus conservative process release e	stimates used	
Technical onsite conditions and measures to reduce or limit discha-	rges, air emissions	and releases to soil
Risk from environmental exposure is driven by freshwater Prevent discha	arge of undissolved s	substance to or recover from onsite
wastewater no wastewater treatment required	•	and the second monitorions
Treat air emission to provide a typical removal efficiency of (%):		
Treat onsite wastewater (prior to receiving water discharge) to provide the required removal 0		
efficiency >= (%):		
If discharging to domestic sewage treatment plant, provide the required of	nsite wastewater 0	
removal efficiency of >= (%):		
Organisation measures to prevent/limit release from site		
Do not apply industrial sludge to natural soils		
Sludge should be incinerated, contained or reclaimed		
Estimated substance removal from wastewater via domestic sewage treatment (%): 94.		
Total efficiency of removal from wastewater after onsite and offsite (dome plant) RMMs (%):	estic treatment 9	4.7
Maximum allowable cite tennage (Meete) heard on release fellowing to		
Maximum allowable site tonnage (Msafe) based on release following total wastewater 4.1e6		
treatment removal (kg/d): Assumed domestic sewage treatment plant flow (m³/d):		
Conditions and measures related to external treatment of worts for the second		000
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	odi anu/or national i	eguiations
External recovery and recycling of waste should comply with applicable to	and and/or notice at	
Section 3 Exposure Estimation	cai and/or national r	eguiations
3.1 Health		
The ECETOC TRA tool has been used to estimate workplace exposures	unless otherwise ind	licated
3.2 Environment	urness outerwise ind	licated
The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model		
Section 4 Guidance to check compliance with the Exposure Scenario		
The state of the s		

Page 22/28 Status: FINAL

4.1 Health

Available hazard data does not enable the derivation of a DNEL for dermal irritant effects Risk management measures are based on qualitative risk characterization Available hazard data does 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

4.2 Environment

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

8 Use of substance as Release agents or binders - Professional

Title	Use as binders and release agents	
Use Descriptor	ose as billoers and release agents	
Sector(s) of use	22	
Process category(ies)	1, 2, 3, 4, 6, 8a, 8b, 10, 11, 14	
Environmental release category(ies)	8a. 8d	
Specific Environmental Release Category	ESVOC SpERC 8.10b.v1	
Processes, tasks, activities covered	[20 v 00 0pErto 0.10b.v]	
Covers the use as binders and release agents including	g material transfers, mixing, application by spraying, brushing, and handlin	
of waste		
Section 2 Operational conditions and risk manager 2.1 Control of worker exposure	ment measures	
Product characteristics		
Physical form of product	les or as a second	
Concentration of substance in product	Liquid, vapour pressure 0.5 - 10 kPa at STP	
· ·	Covers percentage substance in the product up to 100 % (un stated differently).	
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently)	
Other operational conditions affecting exposure	Assumes use at not more than 20°C above ambient	
	temperature, unless stated differently Assumes a good basic	
	standard of occupational hygiene is implemented	
Contributing Scenarios / Product Category		
	Specific Risk Management Measures & Operating Conditions	
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. Other skin protection measures such as impervious suits and face shields may be required during high dispersion activities which are likely to lead to substantial aerosol release, e.g. spraying	
Bulk transfers	No other specific measures identified	
Orum/batch transfers	No other specific measures identified	
Mixing operations (closed systems)	No other specific measures identified	
Mixing operations (open systems)	No other specific measures identified	
Mould forming	No other specific measures identified	
Casting operations	No other specific measures identified	
Machine Spraying	No other specific measures identified	
Manual Spraying	No other specific measures identified	
Rolling, Brushing	No other specific measures identified	
Dipping, immersion and pouring Bulk product storage	No other specific measures identified	

Issue Date: 09-Sep-2016

Page 23/28 Status: FINAL

characterisation; please see section 2 of the SDS for the necessary RMMs.	
2.2 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)	8.0e2
Fraction of regional tonnage used locally	5e-4
Frequency and duration of use Continuous release	
Emission days (days/year)	lees
Environmental factors not influenced by risk management	365
Local freshwater dilution factor	lan.
Local marine water dilution factor	10
Other given operational conditions affecting environmental exposure	100
Release fraction to air from process (initial release prior to RMM)	0.95
Release fraction to wastewater from process (initial release prior to RMM)	0.025
Release fraction to soil from process (initial release prior to RMM)	0.025
Technical conditions and measures at process level (source) to prevent release	0.020
Common practices vary across sites thus conservative process release estimates used	
Technical onsite conditions and measures to reduce or limit discharges, air emission	s and releases to soil
Risk from environmental exposure is driven by freshwater No wastewater treatment require	d
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	0
efficiency >= (%):	
If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of >= (%):	0
Organisation measures to prevent/limit release from site	
Do not apply industrial sludge to natural soils	
Sludge should be incinerated, contained or reclaimed	
Estimated substance removal from wastewater via domestic sewage treatment (%):	94.7
plant) RMMs (%):	94.7
treatment removal (kg/d):	130
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 nationa	l regulations
Conditions and measures related to external recovery of waste	
External recovery and recycling of waste should comply with applicable local and/or national	l regulations
Section 3 Exposure Estimation	
3.1 Health	
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise in	ndicated
to commute workplace exposures unless otherwise in	Idioated
3.2 Environment	
3.2 Environment The Hydrocarbon Block Method has been used to calculate environmental exposure with the	
3.2 Environment The Hydrocarbon Block Method has been used to calculate environmental exposure with the Section 4 Guidance to check compliance with the Exposure Scenario	
3.2 Environment The Hydrocarbon Block Method has been used to calculate environmental exposure with the Section 4 Guidance to check compliance with the Exposure Scenario 1.1 Health	e Petrorisk model
B.2 Environment The Hydrocarbon Block Method has been used to calculate environmental exposure with the Exposure Scenario 1.1 Health Available hazard data does not enable the derivation of a DNEL for carcinogenic effects Risi	e Petrorisk model
3.2 Environment The Hydrocarbon Block Method has been used to calculate environmental exposure with the Section 4 Guidance to check compliance with the Exposure Scenario 1.1 Health Available hazard data does not enable the derivation of a DNEL for carcinogenic effects Rislandiative risk characterization Available hazard data does not support the need for a DNEL	e Petrorisk model k management measures are based o
The Hydrocarbon Block Method has been used to calculate environmental exposure with the Exposure Scenario 1.1 Health 1.2 Health 1.3 Health 1.4 Health 1.5 Health 1.6 Health 1.7 Health 1.8 Health 1.9 Health 1.9 Health 1.9 Health 1.9 Health 1.9 Health 1.9 Health 1.0 Hea	e Petrorisk model k management measures are based of to be established for other health
The Hydrocarbon Block Method has been used to calculate environmental exposure with the Exposure Scenario 1.1 Health 1.2 Available hazard data does not enable the derivation of a DNEL for carcinogenic effects Rise in a property of the need for a DNEL in the need for a DNEL	e Petrorisk model k management measures are based o to be established for other health
The Hydrocarbon Block Method has been used to calculate environmental exposure with the Exposure Scenario 1.1 Health 1.2 Available hazard data does not enable the derivation of a DNEL for carcinogenic effects Ris qualitative risk characterization Available hazard data does not support the need for a DNEL effects Users are advised to consider national Occupational Exposure Limits or other equivalentagement measures/operational conditions are adopted, then users should ensure that risks. 1.2 Environment	e Petrorisk model k management measures are based o to be established for other health lent values Where other risk sks are managed to at least equivaler
The Hydrocarbon Block Method has been used to calculate environmental exposure with the Exposure Scenario 1.1 Health Available hazard data does not enable the derivation of a DNEL for carcinogenic effects Risqualitative risk characterization Available hazard data does not support the need for a DNEL effects Users are advised to consider national Occupational Exposure Limits or other equivalentagement measures/operational conditions are adopted, then users should ensure that risevels 1.2 Environment Suidance is based on assumed operating conditions which may not be applicable to all sites define appropriate site-specific risk management measures Required removal efficiency for the section of the sec	e Petrorisk model k management measures are based of to be established for other health lent values Where other risk sks are managed to at least equivaler styles, scaling may be necessary to wastewater can be achieved using
The Hydrocarbon Block Method has been used to calculate environmental exposure with the Exposure Scenario 1.1 Health 1.2 Health 1.3 Health 1.4 Health 1.5 Health 1.6 Health 1.6 Health 1.7 Health 1.8 Health 1.9 Health 1.9 Health 1.9 Health 1.9 Health 1.0 Health 1.0 Health 1.0 Health 1.1 Health 1.1 Health 1.2 Health 1.3 Health 1.4 Health 1.5 Health 1.6 Health 1.7 Health 1.8 Health 1.8 Health 1.8 Health 1.9 Health 1.9 Health 1.0 Hea	e Petrorisk model k management measures are based of to be established for other health lent values Where other risk sks are managed to at least equivaler styles, scaling may be necessary to wastewater can be achieved using can be achieved u
The Hydrocarbon Block Method has been used to calculate environmental exposure with the Section 4 Guidance to check compliance with the Exposure Scenario 1.1 Health Available hazard data does not enable the derivation of a DNEL for carcinogenic effects Risl qualitative risk characterization Available hazard data does not support the need for a DNEL effects Users are advised to consider national Occupational Exposure Limits or other equivary nanagement measures/operational conditions are adopted, then users should ensure that rise evels 1.2 Environment Guidance is based on assumed operating conditions which may not be applicable to all sites define appropriate site-specific risk management measures Required removal efficiency for a positic offsite technologies, either alone or in combination Required removal efficiency for air echnologies, either alone or in combination Further details on scaling and control technologies, http://cefic.org/en/reach-for-industries-libraries.html)	e Petrorisk model k management measures are based of to be established for other health lent values Where other risk sks are managed to at least equivaler styles, scaling may be necessary to wastewater can be achieved using can be achieved u

9 Use of substance as a Fuel - Industrial

Page 24/28 Status: FINAL

Varaganas		
Kerosenes Title		
Use Descriptor	Use as a fuel	
Sector(s) of use		
Process category(ies)	3	
Environmental release category(ies)	1, 2, 3, 8a, 8b, 16	
Specific Environmental Release Category	ESVOC SEEDS 7.4204	
Processes, tasks, activities covered	ESVOC SpERC 7.12a.v1	
Covers the use as a fuel (or fuel additive) and includes activities	associated with its transfer use aguinment maintenance and	
handling of waste	s associated with its transfer, use, equipment maintenance and	
Section 2 Operational conditions and risk management me	asures	
2.1 Control of worker exposure		
Product characteristics		
Physical form of product	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	
Contributing Security / Durdant Set		
Contributing Scenarios / Product Category	Specific Risk Management Measures & Operating Conditions	
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.		
Use as a fuel (closed systems)	No other specific measures identified No other specific measures identified	
Bulk transfers	No other specific measures identified	
Drum/batch transfers	No other specific measures identified	
Equipment cleaning and maintenance	No other specific measures identified	
Bulk product storage	No other specific measures identified	
Kerosene exhibits irritation to the skin and is classified R38 (Irritating to skin) accordingly. The available data for this adverse effective and the skin and t		
po not provide quantitative dose-response information, but there	exists toxicity data appropriate to allow a qualitative rick	
characterisation; please see section 2 of the SDS for the necess	sary RMMs.	
2.2 Control of environmental exposure		
Product characteristics		
Substance is complex UVCB Predominantly hydrophobic		
Amounts used	.	
Fraction of EU tonnage used in region Regional use tonnage (tonnes/year)	0.1	
Fraction of regional tonnage used locally	5.5e5	
Frequency and duration of use	11	
Continuous release	9:	
Emission days (days/year)	300	
Environmental factors not influenced by risk management	300	
Local freshwater dilution factor		
Local marine water dilution factor	100	
Other given operational conditions 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 (source	e) to prevent release	
Common practices vary across sites thus conservative process r	release estimates used	
Technical onsite conditions and measures to reduce or limit	t discharges, air emissions and releases to soil	
Risk from environmental exposure is driven by freshwater sedime	ent If discharging to domestic sewage treatment plant, no onsite	
wastewater treatment required		
Freat air emission to provide a typical removal efficiency of (%):		

Page 25/28 Status: FINAL Issue Date: 09-Sep-2016

Treat onsite wastewater (prior to receiving water discharge) to provide the required remova	84.6			
efficiency >= (%):				
If discharging to domestic sewage treatment plant, provide the required onsite wastewater	0			
removal efficiency of >= (%):				
Organisation measures to prevent/limit release from site				
Do not apply industrial sludge to natural soils				
Sludge should be incinerated, contained or reclaimed				
Estimated substance removal from wastewater via domestic sewage treatment (%):	94.7			
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment	94.7			
plant) RMMs (%):				
Maximum allowable site tonnage (Msafe) based on release following total wastewater	5.3e6			
treatment removal (kg/d):				
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				
Section 3 Exposure Estimation				
3.1 Health				
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated				
3.2 Environment				
The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model				
Section 4 Guidance to check compliance with the Exposure Scenario				
4.1 Health				
Available hazard data does not enable the derivation of a DNEL for carcinogenic effects Ris	k management measures are bood on			
qualitative risk characterization Available hazard data does 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 levels				
4.2 Environment				
Guidance is based on assumed operating conditions which may not be applicable to all site	s: 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)				

10 Use of substance as a Fuel - Professional

Section 1 Exposure Scenario Kerosenes			
Title	Use as a fuel		
Use Descriptor			
Sector(s) of use	22		
Process category(ies)	1, 2, 3, 8a, 8b, 16		
Environmental release category(ies)	9a, 9b		
Specific Environmental Release Category	ESVOC SpERC 9.12b.v1		
Processes, tasks, activities covered			
Covers the use as a fuel (or fuel additive) and includes	activities associated with its transfer, use, equipment maintenance and		
handling of waste	and an analysis of the state of		
Section 2 Operational conditions and risk manager	ment measures		
2.1 Control of worker exposure			
Product characteristics			
Physical form of product	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		
Contributing Scenarios / Product Category	Specific Risk Management Measures & Operating		

Page 26/28 Status: FINAL

Conditions				
	Conditions			
areas for indi EN374) if har contamination skin contamin training to pre	kin contact with product. Identify potential rect skin contact. Wear gloves (tested to ad contact with substance likely. Clean up n/spills as soon as they occur. Wash off any lation immediately. Provide basic employee event / minimise exposures and to report any			
posures (closed systems) Skin problems	s that may develop.			
1.000.00	cific measures identified			
110 02101 0300	No other specific measures identified			
INO Other spec	No other specific measures identified			
	No other specific measures identified No other specific measures identified			
710 011101 0100				
pyhihits irritation to the skip and is classified B29 (Imitation t	cific measures identified			
exhibits irritation to the skin and is classified R38 (Irritating to skin) according to a quantitative dose-response information, but there exists toxicity data approximation of the skin and is classified R38 (Irritating to skin) according to the skin and is classified R38 (Irritating to skin) according to the skin and is classified R38 (Irritating to skin) according to the skin and is classified R38 (Irritating to skin) according to the skin and is classified R38 (Irritating to skin) according to the skin and is classified R38 (Irritating to skin) according to the skin and is classified R38 (Irritating to skin) according to the skin and is classified R38 (Irritating to skin) according to the skin and is classified R38 (Irritating to skin) according to the skin and is classified R38 (Irritating to skin) according to the skin and is classified R38 (Irritating to skin) according to the skin and is classified R38 (Irritating to skin) according to the skin a	gly. The available data for this adverse effect			
ation; please see section 2 of the SDS for the necessary RMMs.	propriate to allow a qualitative risk			
of environmental exposure				
paracteristics				
is complex UVCB Predominantly hydrophobic				
ised				
EU tonnage used in region	0.4			
se tonnage (tonnes/year)	0.1 4.4e6			
regional tonnage used locally				
and duration of use	5.0e-4			
release				
ays (days/year)	265			
ental factors not influenced by risk management	365			
water dilution factor	140			
e water dilution factor	10			
n operational conditions affecting environmental exposure	100			
ction to air from process (initial release prior to RMM)	4.0.0			
ction to wastewater from process (initial release prior to RMM)	1.0e-3			
ction to soil 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 (source) to prevent release				
ractices vary across sites thus conservative process release estimates used	1			
onsite conditions and measures to reduce or limit discharges, air emis				
nvironmental exposure is driven by freshwater No wastewater treatment re	ssions and releases to soil			
hission to provide a typical removal efficiency of (%):				
e wastewater (prior to receiving water discharge) to provide the required ren	N/A			
= (%):	lovallo			
ng to domestic sewage treatment plant, provide the required onsite wastewa	oton 0			
ciency of >= (%):	ater U			
Organisation measures to prevent/limit release from site				
y industrial sludge to natural soils				
uld be incinerated, contained or reclaimed				
ubstance removal from wastewater via domestic sewage treatment (%):	94.7			
ncy of removal from wastewater after onsite and offsite (domestic treatmen	94.7			
s (%):	04.7			
flowable site tonnage (Msafe) based on release following total wastewater	6.9e5			
emoval (kg/d):	0.000			
omestic sewage treatment plant flow (m³/d):	2000			
conditions and measures related to external treatment of waste for disposal				
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				
Section 3 Exposure Estimation				
3.1 Health				
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated				
3.2 Environment				
he Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model				
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Page 27/28 Issue Date: 09-Sep-2016 Status: FINAL

Section 4 Guidance to check compliance with the Exposure Scenario

4.1 Health

Available hazard data does not enable the derivation of a DNEL for dermal irritant effects Risk management measures are based on qualitative risk characterization Available hazard data does 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

4.2 Environment

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

11 Use of substance as a Fuel - Consumer

Kerosenes Title			
Use Descriptor	Use as a fuel		
Sector(s) of use			
Product category(ies)	21		
Environmental release category(ies)	13		
Specific Environmental Release Category	9a, 9b		
Processes, tasks, activities covered	ESVOC SpERC 9.12c.v1		
Covers consumer uses in liquid fuels			
Section 2 Operational conditions and risk managem 2.1 Control of consumer exposure	ient measures		
Product characteristics			
Physical form of product	0.5.4018		
Concentration of substance in product	Liquid, vapour pressure 0.5 - 10 kPa at STP		
·	Covers percentage substance in the product up to 100 % (unles stated differently).		
Amounts used	For each use event, covers use amounts up to (g): 50000. Covers skin contact area up to (cm2): 420.		
Frequency and duration of use	Covers use up to (times/day of use): 0.143 Covers exposure up to (hours/event): 2		
Other operational conditions affecting exposure	Covers use at ambient temperatures Covers use in room size of (m3): 20. Covers use under typical household ventilation		
	(110). 20. Govers ase affact typical floasefiold vertiliation		
Contributing Scenarios / Product Category	Specific Risk Management Measures & Operating Conditions		
Liquid: Automotive Refuelling	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): 210.00. For each use event, covers use amounts up to (g): 50000. Covers outdoor use Covers use in room size of (m³): 100. Covers exposure up to (hours/event): 0.05. No specific risk management measure identified beyond those operations conditions stated		
Liquid: home space heater fuel	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. Covers exposure up to (hours/event): 0.03. No specific risk management measure identified beyond those operational conditions stated		
iquid Garden Equipment - Use	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. Covers exposure up to (hours/event): 2.00. No specific		

Page 28/28 Status: FINAL

	1			
	operational cond			
Liquid: garden equipment - refuelling	(days/year): 26. (Covers skin contuse event, covers use in a one care to (hours/event): measure identifiestated	ations up to (%): 100%. Covers use up to Covers use up to (times/day of use): 1. act area up to (cm2): 420.00. For each is use amounts up to (g): 1000. Covers garage (34 m³) under typical ventilation. om size of (m³): 34. Covers exposure up 0.03. No specific risk management ad beyond those operational conditions		
Kerosene exhibits irritation to the skin and is classified R38 (Irritating	to skin) accordingly.	The available data for this adverse effect		
do not provide quantitative dose-response information, but there exicharacterisation; please see section 2 of the SDS for the necessary	sts toxicity data appro	priate to allow a qualitative risk		
2.2 Control of environmental exposure	KIVIIVIS.			
Product characteristics				
Substance is complex UVCB Predominantly hydrophobic				
Amounts used				
Fraction of EU tonnage used in region		0.1		
Regional use tonnage (tonnes/year)		1.8e5		
Fraction of regional tonnage used locally		0.0005		
Frequency and duration of use				
Continuous release				
Emission days (days/year)		365		
Environmental factors not influenced by risk management		- H		
Local freshwater dilution factor		10		
Local marine water dilution factor		100		
Other given operational conditions affecting environmental exp	osure			
Release fraction to air from process (initial release prior to RMM)		1.0e-3		
Release fraction to wastewater from process (initial release prior to F	RMM)	0.00001		
Release fraction to soil from process (initial release prior to RMM)		0.00001		
Conditions and measures related to municipal sewage treatment Risk from environmental exposure is driven by freshwater				
Estimated substance removal from wastewater via domestic sewage	treatment (%):	94.7 3.1e4		
treatment removal (kg/d):	eximum allowable site tonnage (Msafe) based on release following total wastewater			
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 substan Section 3 Exposure Estimation	ce is generated			
3.1 Health				
The ECETOC TRA tool has been used to estimate consumer exposure the Chapter R15 of the IR&CSA TGD, Where exposure determinents	res, consistent with the	he content of ECETOC report #107 and		
the Chapter R15 of the IR&CSA TGD. Where exposure determinants 3.2 Environment	differ to these source	es, then they are indicated.		
	ontal avacaura with t	ha Datus dalam adal		
The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model Section 4 Guidance to check compliance with the Exposure Scenario				
4.1 Health	ilaitU			
	or other equivalent	raluge Whore other risk man and the		
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				
4.2 Environment	are that have are filal	raged to at least equivalent levels		
Guidance is based on assumed operating conditions which may not l	ne applicable to all sit	es: thus scaling may be personned		
define appropriate site-specific risk management measures Further of SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.htm	etails on scaling and	control technologies are provided in		