

SAFETY DATA SHEET



HEATING OIL (DYED)

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

1.1 Product identifier

Product name : HEATING OIL (DYED)
UFI : 993P-429E-4005-X58N
Product description : Hydrocarbons and Additives
Other means of identification : AUTODIESEL 50PPM S; ESSO FIOUL PLUS; ESSO GAS OIL; ESSO GASOIL CHAUFFAGE; ESSO GASOIL HEATING OIL; ESSO GASOIL LS; ESSO GASOIL PLUS; ESSO GASOIL PLUS (HEATING OIL); ESSO GASOIL QUALITE BELGE; ESSO GASOLIE; ESSO GASOLIE BELG. KWALITEIT; ESSO GASOLIE BELG. KWALITEIT; ESSO GASOLIE PLUS; ESSO HEATING OIL EXTRA LIGHT EURO QUALITY DYED; ESSO HEIZOEL EXTRA LEICHT; ESSO HEIZOEL EXTRA LEICHT SCHWEFELARM; ESSO HEIZOEL EXTRA-LEICHT EUROQUALITAET GEFAERBT; ESSO HEIZÖL SCHWEFELARM; ESSO MARINE GAS OIL (LOCAL); ESSO OPTIPLUS; ESSO OPTIPLUS HEIZÖL SCHWEFELARM; ESSO OPTIPLUS SCHWEFELFREI; ESSO ULTRA LOW SULPHUR GAS OIL; FUEL OIL DOMESTIQUE; FUEL OIL DOMESTIQUE SPEC; GAS OIL 1000 PPM S 0/-11; GAS OIL ULS; GASOIL; GASOIL 60 BNL 403/404; GASOIL 60 BNL 411/412; GASOIL BELG. QUALITY; GASOIL EXTRA RED DYE + SHELL ADD.; GASOIL QUALITE BELGE; GASOLIO RISCALDAMENTO; GASOLIO RISCALDAMENTO PREMIUM OPTIPLUS; HEATING OIL; HEATING OIL F30; LSGO; RED DIN HEATING OIL; ULSHO .001%S DYED GASOIL :BE ; ULSHO .005% DYED GASOIL BNL

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

Intended Use : Diesel engine fuel, Heating Oil

Identified uses
Manufacture of substance Distribution of substance Use as an intermediate Formulation and (re)packing of substances and mixtures Lubricants - Industrial Use as a fuel - Industrial Functional fluids - Industrial Use as a fuel - Professional Use as a fuel - Consumer

1.3 Details of the supplier of the safety data sheet

Supplier : Esso Ireland Ltd
Joint Fuels Terminal
Alexandra Road
DUBLIN 1
Ireland
Supplier General Contact : (UK) (+44) (0) 1372 222 000
e-mail address of person responsible for this SDS : SDS-DS@exxonmobil.com
SDS Internet Address : www.sds.exxonmobil.com

1.4 Emergency telephone number

National advisory body/ Poison Centre : (IE) (+353)1 809 2166 (8am - 10pm every day)

HEATING OIL (DYED)

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

24 Hour Emergency Telephone : +353 1 901 4670 / +1-703-527-3887 (CHEMTREC)

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Product definition : Mixture

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

Flam. Liq. 3, H226

Acute Tox. 4, H332

Skin Irrit. 2, H315

Carc. 2, H351

STOT RE 2, H373 (bone marrow, liver, thymus)

Asp. Tox. 1, H304

Aquatic Chronic 2, H411

The product is classified as hazardous according to Regulation (EC) 1272/2008 as amended.

See Section 16 for the full text of the H statements declared above.

See Section 11 for more detailed information on health effects and symptoms.

2.2 Label elements

Hazard pictograms :



Signal word : Danger

Hazard statements :

- H226 - Flammable liquid and vapour.
- H304 - May be fatal if swallowed and enters airways.
- H315 - Causes skin irritation.
- H332 - Harmful if inhaled.
- H351 - Suspected of causing cancer.
- H373 - May cause damage to organs through prolonged or repeated exposure. (bone marrow, liver, thymus)
- H411 - Toxic to aquatic life with long lasting effects.

Precautionary statements

Prevention :

- P201 - Obtain special instructions before use.
- P202 - Do not handle until all safety precautions have been read and understood.
- P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
- P233 - Keep container tightly closed.
- P240 - Ground and bond container and receiving equipment.
- P241 - Use explosion-proof electrical, ventilating or lighting equipment.
- P242 - Use non-sparking tools.
- P243 - Take action to prevent static discharges.
- P260 - Do not breathe vapour.
- P264 - Wash thoroughly after handling.
- P271 - Use only outdoors or in a well-ventilated area.
- P273 - Avoid release to the environment.
- P280 - Wear protective gloves, protective clothing, eye protection, face protection, or hearing protection.

HEATING OIL (DYED)

SECTION 2: Hazards identification

Response	: P301 + P310, P331 - IF SWALLOWED: Immediately call a POISON CENTER or doctor. Do NOT induce vomiting. P302 + P352 - IF ON SKIN: Wash with plenty of water. P303 + P361 + P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower. P304 + P312, P340 - IF INHALED: Call a POISON CENTER or doctor if you feel unwell. Remove person to fresh air and keep comfortable for breathing. P308 + P313 - IF exposed or concerned: Get medical advice or attention. P332 + P313 - If skin irritation occurs: Get medical advice/attention. P362 + P364 - Take off contaminated clothing and wash it before reuse. P370 + P378 - In case of fire: Use water fog, foam, dry chemical or carbon dioxide (CO2) to extinguish flames. P391 - Collect spillage.
Storage	: P403 + P235 - Store in a well-ventilated place. Keep cool. P405 - Store locked up.
Disposal	: P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.
Hazardous ingredients	: fuels, diesel
Supplemental label elements	: Not applicable.
Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles	: None.

2.3 Other hazards

Product meets the criteria for PBT or vPvB according to Regulation (EC) No. 1907/2006, Annex XIII	: This mixture does not contain any substances that are assessed to be a PBT or a vPvB.
Other hazards which do not result in classification	: None known.
Nota	: This material should not be used for any other purpose than the intended use in Section 1 without expert advice. Health studies have shown that chemical exposure may cause potential human health risks which may vary from person to person.

SECTION 3: Composition/information on ingredients

3.2 Mixtures	: Mixture
--------------	-----------

Product/ingredient name	Identifiers	% by weight	Classification	Specific Conc. Limits, M-factors and ATEs	Type
fuels, diesel	REACH #: 01-2119484664-27 EC: 269-822-7 CAS: 68334-30-5	>69	Flam. Liq. 3, H226 Acute Tox. 4, H332 Skin Irrit. 2, H315 Carc. 2, H351 STOT RE 2, H373 (bone marrow, liver, thymus) Asp. Tox. 1, H304 Aquatic Chronic 2, H411	ATE [Inhalation (vapours)] = 11 mg/l	[1] [2]

HEATING OIL (DYED)					
SECTION 3: Composition/information on ingredients					
			See Section 16 for the full text of the H statements declared above.		

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment, are PBTs, vPvBs or Substances of equivalent concern, or have been assigned a workplace exposure limit and hence require reporting in this section.

Type
[1] Substance classified with a physical, health or environmental hazard
[2] Substance with a workplace exposure limit
Occupational exposure limits, if available, are listed in Section 8.
Nota :
Composition may contain up to 0.5% performance additives and / or dyes.

SECTION 4: First aid measures

4.1 Description of first aid measures

- Eye contact

: Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention.
- Inhalation

: Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention. If necessary, call a poison center or physician. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
- Skin contact

: Remove contaminated clothing. Dry wipe exposed skin and cleanse with waterless hand cleaner and follow by washing thoroughly with soap and water. For those providing assistance, avoid further skin contact to yourself or others. Wear impervious gloves. Launder contaminated clothing separately before reuse. Discard contaminated articles that cannot be laundered. If product is injected into or under the skin, or into any part of the body, regardless of the appearance of the wound or its size, the individual should be evaluated immediately by a physician as a surgical emergency. Even though initial symptoms from high pressure injection may be minimal or absent, early surgical treatment within the first few hours may significantly reduce the ultimate extent of injury. Wash clothing before reuse. Clean shoes thoroughly before reuse. Continue to rinse for at least 10 minutes. Get medical attention.
- Ingestion

: Get medical attention immediately. Call a poison center or physician. Wash out mouth with water. Remove dentures if any. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Aspiration hazard if swallowed. Can enter lungs and cause damage. Do not induce vomiting. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
- Protection of first-aiders

: No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

4.2 Most important symptoms and effects, both acute and delayed

Over-exposure signs/symptoms

HEATING OIL (DYED)

SECTION 4: First aid measures

Eye contact	: Adverse symptoms may include the following: pain or irritation watering redness
Inhalation	: No specific data.
Skin contact	: Adverse symptoms may include the following: irritation redness Local necrosis as evidenced by delayed onset of pain and tissue damage a few hours after injection.
Ingestion	: Adverse symptoms may include the following: nausea or vomiting

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician	: If ingested, material may be aspirated into the lungs and cause chemical pneumonitis. Treat appropriately.
Specific treatments	: No specific treatment.

See toxicological information (Section 11)

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media	: Use dry chemical, CO ₂ , water spray (fog) or foam.
Unsuitable extinguishing media	: Do not use water jet.

5.2 Special hazards arising from the substance or mixture

Specific hazards arising from the chemical	: Flammable liquid and vapour. Runoff to sewer may create fire or explosion hazard. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. This material is toxic to aquatic life with long lasting effects. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.
Hazardous combustion products	: Aldehydes, Incomplete combustion products, Oxides of carbon, Smoke, Fume, sulfur oxides

5.3 Advice for firefighters

Special protective actions for fire-fighters	: Use standard firefighting procedures and consider the hazards of other involved materials. Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool. Assure an extended cooling down period to prevent re-ignition. Prevent run-off from fire control or dilution from entering streams, sewers or drinking water supply. No action shall be taken involving any personal risk or without suitable training.
Special protective equipment for fire-fighters	: Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

SECTION 6: Accidental release measures

NOTIFICATION PROCEDURES

In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable regulations.

6.1 Personal precautions, protective equipment and emergency procedures

- For non-emergency personnel** : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Put on appropriate personal protective equipment. Avoid breathing vapour or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate.
- For emergency responders** : If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

6.2 Environmental precautions

- : Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Water polluting material. May be harmful to the environment if released in large quantities. Collect spillage.

6.3 Methods and material for containment and cleaning up

- Small spill** : Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.
- Large spill** : Stop leak if without risk. Eliminate all ignition sources. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Approach the release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilt product. If the Flash Point does not exceed the Ambient Air Temperature by at least 10C, use booms as a barrier to protect shorelines and allow material to evaporate. If the Flash Point exceeds the Ambient Temperature by 10 deg C or more, use containment booms and remove from the surface by skimming or with suitable absorbents when conditions permit. Seek the advice of a specialist before using dispersants. Warn other shipping. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Water spill and land spill recommendations are based on the most likely spill scenario for this material; however, geographic conditions, wind, temperature, (and in the case of a water spill) wave and current direction and speed may greatly influence the appropriate action to be taken. For this reason, local experts should be consulted. Note: Local regulations may prescribe or limit action to be taken.

6.4 Reference to other sections

- : See Section 1 for emergency contact information.
See Section 8 for information on appropriate personal protective equipment.
See Section 13 for additional waste treatment information.

SECTION 7: Handling and storage

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

7.1 Precautions for safe handling

HEATING OIL (DYED)

SECTION 7: Handling and storage

- Protective measures

: Put on appropriate personal protective equipment (see Section 8). Avoid exposure - obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not breathe vapour or mist. Do not swallow. Avoid release to the environment. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use only non-sparking tools. Take precautionary measures against electrostatic discharges. To avoid fire or explosion, dissipate static electricity during transfer by earthing and bonding containers and equipment before transferring material. Empty containers retain product residue and can be hazardous. Do not reuse container. It is dangerous and/or unlawful to put petrol into unapproved containers. Do not fill container while it is in or on a vehicle. Static electricity may ignite vapour and cause fire. Place container on ground when filling and keep nozzle in contact with container. Do not use electronic devices (including but not limited to cellular phones, computers, calculators, pagers or other electronic devices, etc.) during safety critical tasks, such as bulk fuel loading or unloading operations, or in storage areas where vapours may be present, unless the devices are certified intrinsically safe by an approved national testing agency and to the safety standards required by national and/or local laws and regulations. For use as a motor fuel only. Do not siphon by mouth.
- Advice on general occupational hygiene

: Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.
- Static Accumulator

: This material is a static accumulator. A liquid is typically considered a nonconductive, static accumulator if its conductivity is below 100 pS/m (100x10E-12 Siemens per meter) and is considered a semiconductive, static accumulator if its conductivity is below 10,000 pS/m. Whether a liquid is nonconductive or semiconductive, the precautions are the same. A number of factors, for example liquid temperature, presence of contaminants, anti-static additives and filtration can greatly influence the conductivity of a liquid.

7.2 Conditions for safe storage, including any incompatibilities

Store in accordance with local regulations. Store in a segregated and approved area. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Eliminate all ignition sources. Separate from oxidising materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.

Seveso Directive - Reporting thresholds

Named substances		
Name	Notification and MAPP threshold	Safety report threshold
Petroleum products and alternative fuels (a) gasolines and naphthas, (b) kerosenes (including jet fuels), (c) gas oils (including diesel fuels, home heating oils and gas oil blending streams) (d) heavy fuel oils (e) alternative fuels serving the same purposes and with similar properties as regards flammability and environmental hazards as the products referred to in points (a) to (d)	2500 tonne	25000 tonne

Danger criteria

HEATING OIL (DYED)

SECTION 7: Handling and storage

Category	Notification and MAPP threshold	Safety report threshold
P5c E2	5000 tonne 200 tonne	50000 tonne 500 tonne

7.3 Specific end use(s)

Recommendations : Not available.
Industrial sector specific solutions : Not available.

SECTION 8: Exposure controls/personal protection

The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

8.1 Control parameters

Occupational exposure limits

Product/ingredient name	Exposure limit values
fuels, diesel	ACGIH TLV (United States, 1/2023). [Diesel Fuel] Absorbed through skin. TWA: 100 mg/m³, (measured as total hydrocarbons) 8 hours. Form: Inhalable fraction and vapor ExxonMobil (Company). Absorbed through skin. TWA: 5 mg/m³ 8 hours. Form: Stable Aerosol. TWA: 200 mg/m³ 8 hours. Form: Vapour.

NOTE: Limits/standards shown for guidance only. Follow applicable regulations.

Recommended monitoring procedures : Reference should be made to monitoring standards, such as the following:
European Standard EN 689 (Workplace atmospheres - Guidance for the assessment of exposure by inhalation to chemical agents for comparison with limit values and measurement strategy)
European Standard EN 14042 (Workplace atmospheres - Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents)
European Standard EN 482 (Workplace atmospheres - General requirements for the performance of procedures for the measurement of chemical agents)
Reference to national guidance documents for methods for the determination of hazardous substances will also be required.

DNELs/DMELs

Product/ingredient name	Type	Exposure	Value	Population	Effects
fuels, diesel	DNEL	Long term Dermal	1.3 mg/kg bw/day	General population	Systemic
	DNEL	Long term Inhalation	20 mg/m³	General population	Systemic
	DNEL	Long term Dermal	2.9 mg/kg bw/day	Workers	Systemic
	DNEL	Long term Inhalation	68 mg/m³	Workers	Systemic

PNECs

No PNECs available

8.2 Exposure controls

SECTION 8: Exposure controls/personal protection

- Appropriate engineering controls** : Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapour or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.
- Environmental exposure controls** : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.
- Individual protection measures**
- Hygiene measures** : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.
- Eye/face protection** : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles.
- Skin protection**
- Hand protection** : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated. > 8 hours (breakthrough time): Nitrile, minimum 0.38 mm thickness or comparable protective barrier material
CEN standards EN 420 and EN 374 provide general requirements and lists of glove types.
- Body protection** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. When there is a risk of ignition from static electricity, wear anti-static protective clothing. For the greatest protection from static discharges, clothing should include anti-static overalls, boots and gloves.
- Other skin protection** : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Respiratory protection** : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use. Recommended: organic vapour (Type A) and particulate filter
European Committee for Standardization (CEN) standards EN 136, 140 and 405 provide respirator masks and EN 149 and 143 provide filter recommendations.
- Environmental exposure controls** : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

HEATING OIL (DYED)

Section 9. Physical and chemical properties and safety characteristics

Note: Physical and chemical properties are provided for safety, health and environmental considerations only and may not fully represent product specifications. Contact the Supplier for additional information.

The conditions of measurement of all properties are at standard temperature and pressure unless otherwise indicated.

9.1 Information on basic physical and chemical properties

Appearance

Physical state	: Liquid.
Colour	: Clear (May Be Dyed)
Odour	: Petroleum/Solvent
Odour threshold	: Not available.
pH	: Not applicable.
Melting point/freezing point	: Not available.
Boiling point, initial boiling point, and boiling range	: >180°C (>356°F)
Flash point	: Closed cup: 56 to 60°C (132.8 to 140°F) [ASTM D-93]
Evaporation rate	: Not available.
Flammability	: Flammable liquids - Category 3
Lower and upper explosion limit	: Lower: 0.6% Upper: 7%
Vapour pressure	: <0.3 mm Hg [20 °C]
Relative vapour density	: Not available.
Relative density	: 0.8 to 0.91
Solubility in water	: Negligible
Partition coefficient: n-octanol/ water	: >3.5
Auto-ignition temperature	: >250°C (>482°F)
Decomposition temperature	: Not available.
Viscosity	: 2 to 5 cSt [40 °C]
Particle characteristics	
Median particle size	: Not applicable.

9.2 Other information

No data available

SECTION 10: Stability and reactivity

10.1 Reactivity	: No specific test data related to reactivity available for this product or its ingredients.
10.2 Chemical stability	: The product is stable.
10.3 Possibility of hazardous reactions	: Under normal conditions of storage and use, hazardous reactions will not occur.
10.4 Conditions to avoid	: Avoid all possible sources of ignition (spark or flame). Do not pressurise, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition. High Temperatures.
10.5 Incompatible materials	: Reactive or incompatible with the following materials: oxidising materials, Halogens, acids, Alkalies, Strong oxidisers

HEATING OIL (DYED)

SECTION 10: Stability and reactivity

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

SECTION 11: Toxicological information

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

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
HEATING OIL (DYED)	LC50 Inhalation Dusts and mists	Rat	4100 mg/m³	4 hours
	LD50 Dermal	Rabbit	>5000 mg/kg	-
	LD50 Oral	Rat	>5000 mg/kg	-

Conclusion/Summary

- Inhalation : Moderately toxic. Data available. Based on test data for structurally similar materials. Test(s) equivalent or similar to OECD Guideline 403
- Dermal : Minimally Toxic. Data available. Based on test data for structurally similar materials. Test(s) equivalent or similar to OECD Guideline 434
- Oral : Minimally Toxic. Data available. Based on test data for structurally similar materials. Test(s) equivalent or similar to OECD Guideline 401

Acute toxicity estimates

Product/ingredient name	Oral (mg/kg)	Dermal (mg/kg)	Inhalation (gases) (ppm)	Inhalation (vapours) (mg/l)	Inhalation (dusts and mists) (mg/l)
HEATING OIL (DYED) fuels, diesel	N/A N/A	N/A N/A	N/A N/A	14.3 11	2.0 1.5

Irritation/Corrosion

Conclusion/Summary

- Skin : Irritating to the skin. Data available. Based on test data for structurally similar materials. Test(s) equivalent or similar to OECD Guideline 404
- Eyes : May cause mild, short-lasting discomfort to eyes. Data available. Based on test data for structurally similar materials. Test(s) equivalent or similar to OECD Guideline 405
- Respiratory : Negligible hazard at ambient/normal handling temperatures. No end point data for material. Elevated temperatures or mechanical action may form vapours, mist, or fumes which may be irritating to the eyes, nose, throat, or lungs.

Sensitisation

Conclusion/Summary

- Skin : Not expected to be a skin sensitizer. Data available. Based on test data for structurally similar materials. Test(s) equivalent or similar to OECD Guideline 406
- Respiratory : Not expected to be a respiratory sensitizer. No end point data for material.

Mutagenicity

Conclusion/Summary

- : Not expected to be a germ cell mutagen. Data available. Based on test data for structurally similar materials. Test(s) equivalent or similar to OECD Guideline 471 475

Carcinogenicity

Conclusion/Summary

- : May cause cancer. Data available. Based on test data for structurally similar materials. Test(s) equivalent or similar to OECD Guideline 451

Reproductive toxicity

Conclusion/Summary

- : Not expected to be a reproductive toxicant. Data available. Based on test data for structurally similar materials. Test(s) equivalent or similar to OECD Guideline 414

Specific target organ toxicity (single exposure)

HEATING OIL (DYED)

SECTION 11: Toxicological information

Conclusion/Summary : Not expected to cause organ damage from a single exposure. No end point data for material.

Specific target organ toxicity (repeated exposure)

Product/ingredient name	Category	Target organs
HEATING OIL (DYED)	Category 2	bone marrow, liver, thymus

Conclusion/Summary : May cause damage to organs through prolonged or repeated exposure. Data available. Based on test data for structurally similar materials. Test(s) equivalent or similar to OECD Guideline 410 413

Aspiration hazard

Product/ingredient name	Result
HEATING OIL (DYED)	Category 1

Conclusion/Summary : May be fatal if swallowed and enters airways. Based on physico-chemical properties of the material. Data available.

Information on likely routes of exposure : Not available.

11.2 Information on other hazards

11.2.1 Endocrine disrupting properties

Contains no substance(s) known to have endocrine disrupting properties that affect human health

11.2.2 Other information

Product : Vapour concentrations above recommended exposure levels are irritating to the eyes and the respiratory tract, may cause headaches and dizziness, are anaesthetic and may have other central nervous system effects. Diesel fuel: Carcinogenic in animal tests. Caused mutations in-vitro. Repeated dermal exposures to high concentrations in test animals resulted in reduced litter size and litter weight, and increased fetal resorptions at maternally toxic doses. Dermal exposure to high concentrations resulted in severe skin irritation with weight loss and some mortality. Inhalation exposure to high concentrations resulted in respiratory tract irritation, lung changes/infiltration/accumulation, and reduction in lung function. Small amounts of liquid aspirated into the lungs during ingestion or from vomiting may cause chemical pneumonitis or pulmonary edema.

Section 12. Ecological information

The information given is based on data for the material, components of the material, or for similar materials, through the application of bridging principals.

12.1 Toxicity

Product/ingredient name	Duration	Species	Result
HEATING OIL (DYED)	72 hours	Algae - Pseudokirchneriella subcapitata	Acute EL50 1 to 100 mg/l data for similar materials
	48 hours	daphnia - Daphnia magna	Acute EL50 1 to 1000 mg/l data for similar materials
	96 hours	Fish - Fish	Acute LL50 1 to 100 mg/l data for similar materials
	72 hours	Algae - Pseudokirchneriella subcapitata	Chronic NOEL 1 to 10 mg/l data for similar materials

Conclusion/Summary

Acute toxicity : Toxic to aquatic life.
Chronic toxicity : Toxic to aquatic life with long lasting effects.

HEATING OIL (DYED)

Section 12. Ecological information

12.2 Persistence and degradability

Product/ingredient name	Test	Result	Qualifier	Media
HEATING OIL (DYED)	Ready Biodegradability	<60 % - 28 days	data for similar materials	water

- Biodegradability** : Material -- Expected to be inherently biodegradable
- Atmospheric Oxidation** : Majority of components -- Expected to degrade rapidly in air

12.3 Bioaccumulative potential

- Conclusion/Summary** : Majority of components -- Has the potential to bioaccumulate, however metabolism or physical properties may reduce the bioconcentration or limit bioavailability.

12.4 Mobility in soil

- Mobility** : Less volatile component -- Expected to partition to sediment and wastewater solids. Low solubility and floats and is expected to migrate from water to the land. Majority of components -- Low potential to migrate through soil. More volatile component -- Highly volatile, will partition rapidly to air. Not expected to partition to sediment and wastewater solids.

12.5 Results of PBT and vPvB assessment

This mixture does not contain any substances that are assessed to be a PBT or a vPvB.

12.6 Endocrine disrupting properties

Contains no substance(s) known to have endocrine disrupting properties that affect the environment

12.7 Other adverse effects

- Other adverse effects** : No known significant effects or critical hazards.

SECTION 13: Disposal considerations

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

13.1 Waste treatment methods

- Product**
- Methods of disposal** : The generation of waste should be avoided or minimised wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction.
- Hazardous waste** : Yes.
- European waste catalogue (EWC)**

Waste code	Waste designation
13 07 01*	fuel oil and diesel

NOTE: These codes are assigned based upon the most common uses for this material and may not reflect contaminants resulting from actual use. Waste producers need to assess the actual process used when generating the waste and its contaminants in order to assign the proper waste disposal code(s).

Packaging





- Methods of disposal** : The generation of waste should be avoided or minimised wherever possible. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible.

HEATING OIL (DYED)

SECTION 13: Disposal considerations

Special precautions : Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Empty Container Warning (where applicable): Empty containers may contain residue and can be dangerous. Do not attempt to refill or clean containers without proper instructions. Empty drums should be completely drained and safely stored until appropriately reconditioned or disposed. Empty containers should be taken for recycling, recovery, or disposal through suitably qualified or licensed contractor and in accordance with governmental regulations. DO NOT PRESSURISE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND, OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCES OF IGNITION. THEY MAY EXPLODE AND CAUSE INJURY OR DEATH.

SECTION 14: Transport information

	ADR/RID	ADN	IMDG	IATA
14.1 UN number or ID number	UN1202	UN1202	UN1202	UN1202
14.2 UN proper shipping name	Not available.	Not available.	Not available.	Not available.
14.3 Transport hazard class(es)	3	3	3	3
Label(s) / Mark(s)				
14.4 Packing group	III	III	III	III
14.5 Environmental hazards	Yes.	Yes.	Yes.	Yes. The environmentally hazardous substance mark is not required.

Additional information

ADR/RID : The environmentally hazardous substance mark is not required when transported in sizes of ≤5 L or ≤5 kg.

ADN : The environmentally hazardous substance mark is not required when transported in sizes of ≤5 L or ≤5 kg.
F, N2

IMDG : The marine pollutant mark is not required when transported in sizes of ≤5 L or ≤5 kg.
Flash point 56 - 60 °C C.C.

IATA : The environmentally hazardous substance mark may appear if required by other transportation regulations.

14.6 Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

14.7 Maritime transport in bulk according to IMO instruments : Not applicable.

HEATING OIL (DYED)

SECTION 15: Regulatory information

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

EU Regulation (EC) No. 1907/2006 (REACH)

Annex XIV - List of substances subject to authorisation

Annex XIV

None of the components are listed.

Substances of very high concern

None of the components are listed.

Annex XVII - Restrictions : None.
on the manufacture,
placing on the market
and use of certain
dangerous substances,
mixtures and articles

Other EU regulations

Seveso Directive

This product is controlled under the Seveso Directive.

Named substances

Name
Petroleum products and alternative fuels (a) gasolines and naphthas, (b) kerosenes (including jet fuels), (c) gas oils (including diesel fuels, home heating oils and gas oil blending streams) (d) heavy fuel oils (e) alternative fuels serving the same purposes and with similar properties as regards flammability and environmental hazards as the products referred to in points (a) to (d)

Danger criteria

Category
P5c E2

National regulations

Inventory list

Australia inventory (AIRC)	: All components are listed or exempted.
Canada inventory (DSL-NDSL)	: All components are listed or exempted.
China inventory (IECSC)	: All components are listed or exempted.
Japan inventory (CSCL)	: All components are listed or exempted.
Japan inventory (Industrial Safety and Health Act)	: Not determined.
New Zealand Inventory of Chemicals (NZIoC)	: All components are listed or exempted.
Philippines inventory (PICCS)	: All components are listed or exempted.
Korea inventory (KECI)	: All components are listed or exempted.
Taiwan Chemical Substances Inventory (TCSI)	: All components are listed or exempted.
United States inventory (TSCA 8b)	: All components are active or exempted.

15.2 Chemical safety assessment : This product contains substances for which Chemical Safety Assessments are still required.

HEATING OIL (DYED)

SECTION 16: Other information

Indicates information that has changed from previously issued version.

Abbreviations and acronyms

: ATE = Acute Toxicity Estimate
CLP = Classification, Labelling and Packaging Regulation [Regulation (EC) No. 1272/2008]
DMEL = Derived Minimal Effect Level
DNEL = Derived No Effect Level
EUH statement = CLP-specific Hazard statement
N/A = Not available
PBT = Persistent, Bioaccumulative and Toxic
PNEC = Predicted No Effect Concentration
RRN = REACH Registration Number
SGG = Segregation Group
vPvB = Very Persistent and Very Bioaccumulative

Procedure used to derive the classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

Classification	Justification
Flam. Liq. 3, H226	On basis of test data
Acute Tox. 4, H332	Calculation method
Skin Irrit. 2, H315	Calculation method
Carc. 2, H351	Calculation method
STOT RE 2, H373 (bone marrow, liver, thymus)	Calculation method
Asp. Tox. 1, H304	Calculation method
Aquatic Chronic 2, H411	Calculation method

Full text of abbreviated H statements

H226	Flammable liquid and vapour.
H304	May be fatal if swallowed and enters airways.
H315	Causes skin irritation.
H332	Harmful if inhaled.
H351	Suspected of causing cancer.
H373	May cause damage to organs through prolonged or repeated exposure.
H411	Toxic to aquatic life with long lasting effects.

Full text of classifications [CLP/GHS]

Acute Tox. 4	ACUTE TOXICITY - Category 4
Aquatic Chronic 2	LONG-TERM (CHRONIC) AQUATIC HAZARD - Category 2
Asp. Tox. 1	ASPIRATION HAZARD - Category 1
Carc. 2	CARCINOGENICITY - Category 2
Flam. Liq. 3	FLAMMABLE LIQUIDS - Category 3
Skin Irrit. 2	SKIN CORROSION/IRRITATION - Category 2
STOT RE 2	SPECIFIC TARGET ORGAN TOXICITY - REPEATED EXPOSURE - Category 2

Date of issue/ Date of revision : 25 January 2024

Date of previous issue : 18 September 2023

Version : 2.01

Product code : 1162403_13798390

Notice to reader

"The information and recommendations contained herein are, to the best of ExxonMobil's knowledge and belief, accurate and reliable as of the date issued. You can contact ExxonMobil to insure that this document is the most current available from ExxonMobil. The information and recommendations are offered for the user's consideration and examination. It is the user's responsibility to satisfy itself that the product is suitable for the intended use. If buyer repackages this product, it is the user's responsibility to insure proper health, safety and other necessary information is included with and/or on the container. Appropriate warnings and safe-handling procedures should be provided to handlers and users. Alteration of this document is strictly prohibited. Except to the extent required by law, re-publication or retransmission of this document, in whole or in part, is not permitted. The term, "ExxonMobil" is used for convenience, and may include any one or more of ExxonMobil Chemical Company, Exxon Mobil Corporation, or any affiliates in which they directly or indirectly hold any interest."

Annex to the extended Safety Data Sheet (eSDS)

Industrial

Identification of the substance or mixture

Product definition : Mixture
Code : 1162403_13798390
Product name : HEATING OIL (DYED)

Section 1 - Title

Short title of the exposure scenario : Manufacture of substance

List of use descriptors : **Identified use name:** Manufacture of substance
Process Category: PROC01, PROC02, PROC03, PROC04, PROC08a, PROC08b, PROC15
Sector of end use: SU03, SU08, SU09, SU10
Subsequent service life relevant for that use: No.
Environmental Release Category: ERC01

Environmental contributing scenarios : **General exposures** - ERC01

Health Contributing scenarios : **General measures applicable to all activities** - PROC01, PROC02, PROC03, PROC04, PROC08a, PROC08b, PROC15
General exposures (closed systems) - PROC01, PROC02, PROC03
General exposures (open systems) - PROC04
Process sampling - PROC03
Laboratory activities - PROC15
Bulk transfers - PROC08b
Equipment cleaning and maintenance - PROC08a
Bulk product storage - PROC01, PROC02

Processes and activities covered by the exposure scenario : Manufacture of the substance or use as an intermediate, process chemical or extracting agent. Includes recycling/ recovery, material transfers, storage, maintenance and loading (including marine vessel/barge, road/rail car and bulk container).

Section 2 - Exposure controls

Contributing scenario controlling environmental exposure for 1: General exposures

Product characteristics : Predominantly hydrophobic
Substance is complex UVCB.

Amounts used : Annual site tonnage (tonnes/year): 600 000 tonnes/year
Fraction of EU tonnage used in region: 0.1
Fraction of Regional tonnage used locally: 0.022
Maximum daily site tonnage (kg/day): 2 000 000 kg/day
Regional use tonnage (tonnes/year): 27 000 000 tonnes/year

Frequency and duration of use : Continuous release
Emission days (days per year): 300 days per year

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

Other conditions affecting environmental exposure : Release fraction to air from process (initial release prior to RMM): 0.01
Release fraction to soil from process (initial release prior to RMM): 0.0001
Release fraction to wastewater from process (initial release prior to RMM): 0.0000025

Technical conditions and measures at process level (source) to prevent release : Common practices vary across sites thus conservative process release estimates used.

Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil	: If discharging to municipal sewage treatment plant, no on-site wastewater treatment required. If discharging to municipal sewage treatment plant, provide the required on-site wastewater removal efficiency of: $\geq 0\%$ Risk from environmental exposure is driven by freshwater sediment. Treat air emission to provide a typical removal efficiency of: 90% Treat on-site wastewater (prior to receiving water discharge) to provide the required removal efficiency of: $\geq 90.3\%$
Organisational measures to prevent/limit release from site	: Do not apply industrial sludge to natural soils. Prevent discharge of undissolved substance to or recover from onsite wastewater. Sewage sludge should be incinerated, contained or reclaimed.
Conditions and measures related to sewage treatment plant	: Assumed domestic sewage treatment plant flow: $10\,000\text{ m}^3/\text{day}$ Estimated substance removal from wastewater via municipal sewage treatment: 94.5% Maximum allowable site tonnage (MSafe) [Assumed domestic sewage treatment plant flow]: $3\,600\,000\text{ kg/day}$ Total efficiency of removal from wastewater after on-site and off-site (municipal treatment plant) RMMs: 94.5%
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.

Contributing scenario controlling worker exposure for 2: General measures applicable to all activities

General measures applicable to all activities

Control any potential exposure using measures such as contained or enclosed systems, properly designed and maintained facilities and a good standard of general ventilation. Drain down systems and transfer lines prior to breaking containment. Drain down and flush equipment where possible prior to maintenance.

Where there is potential for exposure: Ensure relevant staff are informed of the nature of exposure and aware of basic actions to minimise exposures; ensure suitable personal protective equipment is available; clear up spills and dispose of waste in accordance with regulatory requirements; monitor effectiveness of control measures; consider the need for health surveillance; identify and implement corrective actions.

General measures (flammability)

Risks from the physicochemical hazards of substances, such as flammability or explosiveness can be controlled by implementing risk management measures at the workplace. It is recommended to follow the Dangerous Substances and Explosion Atmospheres Regulations (DSEAR) and The Equipment and Protective Systems Intended for use in Potentially Explosive Atmosphere Regulations (EPS). Based on the implementation of a selection of handling and storage risk management measures for the identified uses, the risk can be regarded as controlled to an acceptable level.

Use in contained systems. Keep away from sources of ignition - No smoking. Handle in well ventilated area to prevent formation of explosive atmosphere. Use equipment and protective systems approved for flammable substances. Restrict line velocity during pumping to avoid generation of electrostatic discharge. Ground/bond container and receiving equipment. Use non-sparking tools. Refer to relevant technical standards EU regulations/national regulations. Review SDS for additional advice..

General measures (aspiration)

The H304 risk phrase (May be fatal if swallowed and enters airways) relates to potential for aspiration, a non-quantifiable hazard determined by physico-chemical properties (i.e. viscosity) that can occur during ingestion and also if it is vomited following ingestion. A DNEL cannot be derived. Risks from the physicochemical hazards of substances can be controlled by implementing risk management measures. For substances classified as H304, the following measures need to be implemented to control the aspiration hazard.

Product safety-related measures: Do not ingest. If swallowed then seek immediate medical assistance. Do not induce vomiting.

General measures (skin irritants)

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN 374) 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.

Product characteristics : Liquid

HEATING OIL (DYED)		Manufacture of substance
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100%
Frequency and duration of use/exposure	:	Covers daily exposures up to 8 hours (unless stated differently)
Other conditions affecting workers exposure	:	Operation is carried out at elevated temperature (> 20°C above ambient temperature)
Conditions and measures related to personal protection, hygiene and health evaluation		
Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Contributing scenario controlling worker exposure for 3: General exposures (closed systems)		
Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100%
Frequency and duration of use/exposure	:	Covers daily exposures up to 8 hours (unless stated differently)
Other conditions affecting workers exposure	:	Operation is carried out at elevated temperature (> 20°C above ambient temperature)
Technical conditions and measures at process level (source) to prevent release	:	Handle substance within a closed system.
Conditions and measures related to personal protection, hygiene and health evaluation		
Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Contributing scenario controlling worker exposure for 4: General exposures (open systems)		
Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100%
Frequency and duration of use/exposure	:	Covers daily exposures up to 8 hours (unless stated differently)
Other conditions affecting workers exposure	:	Operation is carried out at elevated temperature (> 20°C above ambient temperature)
Conditions and measures related to personal protection, hygiene and health evaluation		
Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear suitable gloves tested to EN374.
Contributing scenario controlling worker exposure for 5: Process sampling		
Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100%
Frequency and duration of use/exposure	:	Covers daily exposures up to 8 hours (unless stated differently)
Other conditions affecting workers exposure	:	Operation is carried out at elevated temperature (> 20°C above ambient temperature)
Conditions and measures related to personal protection, hygiene and health evaluation		
Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 6: Laboratory activities

Product characteristics	: Liquid
Concentration of substance in mixture or article	: Covers percentage substance in the product up to 100%
Frequency and duration of use/exposure	: Covers daily exposures up to 8 hours (unless stated differently)
Other conditions affecting workers exposure	: Operation is carried out at elevated temperature (> 20°C above ambient temperature)
Conditions and measures related to personal protection, hygiene and health evaluation	
Advice on general occupational hygiene	: Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 7: Bulk transfers

Closed systems / Open systems

Product characteristics	: Liquid
Concentration of substance in mixture or article	: Covers percentage substance in the product up to 100%
Frequency and duration of use/exposure	: Covers daily exposures up to 8 hours (unless stated differently)
Other conditions affecting workers exposure	: Operation is carried out at elevated temperature (> 20°C above ambient temperature)
Technical conditions and measures at process level (source) to prevent release	: Handle substance within a closed system.
Conditions and measures related to personal protection, hygiene and health evaluation	
Advice on general occupational hygiene	: Assumes a good basic standard of occupational hygiene is implemented
Personal protection	: Wear suitable gloves tested to EN374.

Contributing scenario controlling worker exposure for 8: Equipment cleaning and maintenance

Product characteristics	: Liquid
Concentration of substance in mixture or article	: Covers percentage substance in the product up to 100%
Frequency and duration of use/exposure	: Covers daily exposures up to 8 hours (unless stated differently)
Other conditions affecting workers exposure	: Operation is carried out at elevated temperature (> 20°C above ambient temperature)
Technical conditions and measures at process level (source) to prevent release	: Drain down system prior to equipment break-in or maintenance.
Conditions and measures related to personal protection, hygiene and health evaluation	
Advice on general occupational hygiene	: Assumes a good basic standard of occupational hygiene is implemented
Personal protection	: Wear chemical-resistant gloves (tested to EN374) in combination with 'basic' employee training.

Contributing scenario controlling worker exposure for 9: Bulk product storage

Product characteristics	: Liquid
Concentration of substance in mixture or article	: Covers percentage substance in the product up to 100%
Frequency and duration of use/exposure	: Covers daily exposures up to 8 hours (unless stated differently)
Other conditions affecting workers exposure	: Operation is carried out at elevated temperature (> 20°C above ambient temperature)

HEATING OIL (DYED)		Manufacture of substance
Technical conditions and measures at process level (source) to prevent release	: Store substance within a closed system.	
Conditions and measures related to personal protection, hygiene and health evaluation		
Advice on general occupational hygiene	: Assumes a good basic standard of occupational hygiene is implemented	

Section 3 - Exposure estimation and reference to its source

Website:		: Not applicable.
Exposure estimation and reference to its source - Environment: 1: General exposures		
Exposure assessment (environment):	: Hydrocarbon Block Method (Petrorisk)	
Exposure estimation and reference to its source	: ESVOC SPERC 1.1.v1	
Exposure estimation and reference to its source - Workers: 2: General measures applicable to all activities		
Exposure assessment (human):	: The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.	
Exposure estimation and reference to its source	: Not available.	
Exposure estimation and reference to its source - Workers: 3: General exposures (closed systems)		
Exposure assessment (human):	: The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.	
Exposure estimation and reference to its source	: Not available.	
Exposure estimation and reference to its source - Workers: 4: General exposures (open systems)		
Exposure assessment (human):	: The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.	
Exposure estimation and reference to its source	: Not available.	
Exposure estimation and reference to its source - Workers: 5: Process sampling		
Exposure assessment (human):	: The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.	
Exposure estimation and reference to its source	: Not available.	
Exposure estimation and reference to its source - Workers: 6: Laboratory activities		
Exposure assessment (human):	: The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.	
Exposure estimation and reference to its source	: Not available.	
Exposure estimation and reference to its source - Workers: 7: Bulk transfers		
Exposure assessment (human):	: The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.	
Exposure estimation and reference to its source	: Not available.	
Exposure estimation and reference to its source - Workers: 8: Equipment cleaning and maintenance		
Exposure assessment (human):	: The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.	
Exposure estimation and reference to its source	: Not available.	

Exposure estimation and reference to its source - Workers: 9: Bulk product storage

Exposure assessment (human):	: The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.
Exposure estimation and reference to its source	: Not available.

Section 4 - Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Environment	<p>: Further details on scaling and control technologies are provided in SPERC factsheet. 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.</p> <p>If scaling reveals a condition of unsafe use (i.e., RCRs > 1), additional RMMs or a site-specific chemical safety assessment is required.</p> <p>Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination.</p> <p>Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.</p> <p>Scaled local assessments for EU refineries have been performed using site-specific data and are attached in PETRORISK file - "Site-Specific Production" worksheet.</p>
Health	<p>: Available hazard data do not enable the derivation of a DNEL for dermal irritant effects.</p> <p>Available hazard data do not support the need for a DNEL to be established for other health effects.</p> <p>Predicted exposures are not expected to exceed the DN(M)EL when the risk management measures/operational conditions outlined in section 2 are implemented.</p> <p>Risk management measures are based on qualitative risk characterisation.</p> <p>Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.</p>

Additional good practice advice beyond the REACH CSA

Environment	: Not available.
Health	: Not available.

Annex to the extended Safety Data Sheet (eSDS)

Industrial

Identification of the substance or mixture

Product definition : Mixture
Code : 1162403_13798390
Product name : HEATING OIL (DYED)

Section 1 - Title

Short title of the exposure scenario : Distribution of substance

List of use descriptors : **Identified use name:** Distribution of substance
Process Category: PROC01, PROC02, PROC03, PROC04, PROC08a, PROC08b, PROC09, PROC15
Sector of end use: SU03, SU08, SU09
Subsequent service life relevant for that use: No.
Environmental Release Category: ERC04, ERC05, ERC06a, ERC06b, ERC06c, ERC06d, ERC07

Environmental contributing scenarios : **General exposures** - ERC04, ERC05, ERC06a, ERC06b, ERC06c, ERC06d, ERC07

Health Contributing scenarios : **General measures applicable to all activities** - PROC01, PROC02, PROC03, PROC04, PROC08a, PROC08b, PROC09, PROC15
General exposures (closed systems) - PROC01, PROC02, PROC03
General exposures (open systems) - PROC04
Process sampling - PROC03
Laboratory activities - PROC15
Bulk transfers - PROC08b
Drum and small package filling - PROC09
Equipment cleaning and maintenance - PROC08a
Storage - PROC01, PROC02

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

Section 2 - Exposure controls

Contributing scenario controlling environmental exposure for 1: General exposures

Product characteristics : Predominantly hydrophobic
Substance is complex UVCB.

Amounts used : Annual site tonnage (tonnes/year): 67 000 tonnes/year
Fraction of EU tonnage used in region: 0.1
Fraction of Regional tonnage used locally: 0.002
Maximum daily site tonnage (kg/day): 220 000 kg/day
Regional use tonnage (tonnes/year): 34 000 000 tonnes/year

Frequency and duration of use : Continuous release
Emission days (days per year): 300 days per year

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

Other conditions affecting environmental exposure : Release fraction to air from process (initial release prior to RMM): 0.001
Release fraction to soil from process (initial release prior to RMM): 0.00001
Release fraction to wastewater from process (initial release prior to RMM): 0.000001

Technical conditions and measures at process level (source) to prevent release : Common practices vary across sites thus conservative process release estimates used.

Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil	: If discharging to municipal sewage treatment plant, no on-site wastewater treatment required. If discharging to municipal sewage treatment plant, provide the required on-site wastewater removal efficiency of: 0 % No secondary wastewater treatment required. Risk from environmental exposure is driven by freshwater sediment. Treat air emission to provide a typical removal efficiency of: 90 % Treat on-site wastewater (prior to receiving water discharge) to provide the required removal efficiency of: 75.3 %
Organisational measures to prevent/limit release from site	: Do not apply industrial sludge to natural soils. Sewage sludge should be incinerated, contained or reclaimed.
Conditions and measures related to sewage treatment plant	: Assumed domestic sewage treatment plant flow: 2 000 m ³ /day Estimated substance removal from wastewater via municipal sewage treatment: 94.5 % Maximum allowable site tonnage (MSafe) [Assumed domestic sewage treatment plant flow]: 1 000 000 kg/day Total efficiency of removal from wastewater after on-site and off-site (municipal treatment plant) RMMs: 94.5 %
Conditions and measures related to external treatment of waste for disposal	: External treatment and disposal of waste should comply with applicable local and/or national regulations.
Conditions and measures related to external recovery of waste	: External recovery and recycling of waste should comply with applicable local and/or national regulations.

Contributing scenario controlling worker exposure for 2: General measures applicable to all activities

General measures applicable to all activities

Control any potential exposure using measures such as contained or enclosed systems, properly designed and maintained facilities and a good standard of general ventilation. Drain down systems and transfer lines prior to breaking containment. Drain down and flush equipment where possible prior to maintenance.

Where there is potential for exposure: Ensure relevant staff are informed of the nature of exposure and aware of basic actions to minimise exposures; ensure suitable personal protective equipment is available; clear up spills and dispose of waste in accordance with regulatory requirements; monitor effectiveness of control measures; consider the need for health surveillance; identify and implement corrective actions.

General measures (flammability)

Risks from the physicochemical hazards of substances, such as flammability or explosiveness can be controlled by implementing risk management measures at the workplace. It is recommended to follow the Dangerous Substances and Explosion Atmospheres Regulations (DSEAR) and The Equipment and Protective Systems Intended for use in Potentially Explosive Atmosphere Regulations (EPS). Based on the implementation of a selection of handling and storage risk management measures for the identified uses, the risk can be regarded as controlled to an acceptable level.

Use in contained systems. Keep away from sources of ignition - No smoking. Handle in well ventilated area to prevent formation of explosive atmosphere. Use equipment and protective systems approved for flammable substances. Restrict line velocity during pumping to avoid generation of electrostatic discharge. Ground/bond container and receiving equipment. Use non-sparking tools. Refer to relevant technical standards EU regulations/national regulations. Review SDS for additional advice..

General measures (aspiration)

The H304 risk phrase (May be fatal if swallowed and enters airways) relates to potential for aspiration, a non-quantifiable hazard determined by physico-chemical properties (i.e. viscosity) that can occur during ingestion and also if it is vomited following ingestion. A DNEL cannot be derived. Risks from the physicochemical hazards of substances can be controlled by implementing risk management measures. For substances classified as H304, the following measures need to be implemented to control the aspiration hazard.

Product safety-related measures: Do not ingest. If swallowed then seek immediate medical assistance. Do not induce vomiting.

General measures (skin irritants)

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN 374) 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.

Product characteristics : Liquid

HEATING OIL (DYED)		Distribution of substance
Concentration of substance in mixture or article	: Covers percentage substance in the product up to 100%	
Frequency and duration of use/exposure	: Covers daily exposures up to 8 hours (unless stated differently)	
Other conditions affecting workers exposure	: Assumes use at not more than 20°C above ambient temperature.	
Conditions and measures related to personal protection, hygiene and health evaluation		
Advice on general occupational hygiene	: Assumes a good basic standard of occupational hygiene is implemented	
Contributing scenario controlling worker exposure for 3: General exposures (closed systems)		
Product characteristics	: Liquid	
Concentration of substance in mixture or article	: Covers percentage substance in the product up to 100%	
Frequency and duration of use/exposure	: Covers daily exposures up to 8 hours (unless stated differently)	
Other conditions affecting workers exposure	: Assumes use at not more than 20°C above ambient temperature.	
Technical conditions and measures at process level (source) to prevent release	: Handle substance within a closed system.	
Conditions and measures related to personal protection, hygiene and health evaluation		
Advice on general occupational hygiene	: Assumes a good basic standard of occupational hygiene is implemented	
Contributing scenario controlling worker exposure for 4: General exposures (open systems)		
Product characteristics	: Liquid	
Concentration of substance in mixture or article	: Covers percentage substance in the product up to 100%	
Frequency and duration of use/exposure	: Covers daily exposures up to 8 hours (unless stated differently)	
Other conditions affecting workers exposure	: Assumes use at not more than 20°C above ambient temperature.	
Conditions and measures related to personal protection, hygiene and health evaluation		
Advice on general occupational hygiene	: Assumes a good basic standard of occupational hygiene is implemented	
Personal protection	: Wear suitable gloves tested to EN374.	
Contributing scenario controlling worker exposure for 5: Process sampling		
Product characteristics	: Liquid	
Concentration of substance in mixture or article	: Covers percentage substance in the product up to 100%	
Frequency and duration of use/exposure	: Covers daily exposures up to 8 hours (unless stated differently)	
Other conditions affecting workers exposure	: Assumes use at not more than 20°C above ambient temperature.	
Conditions and measures related to personal protection, hygiene and health evaluation		
Advice on general occupational hygiene	: Assumes a good basic standard of occupational hygiene is implemented	

HEATING OIL (DYED)		Distribution of substance
Contributing scenario controlling worker exposure for 6: Laboratory activities		
Product characteristics	: Liquid	
Concentration of substance in mixture or article	: Covers percentage substance in the product up to 100%	
Frequency and duration of use/exposure	: Covers daily exposures up to 8 hours (unless stated differently)	
Other conditions affecting workers exposure	: Assumes use at not more than 20°C above ambient temperaure.	
Conditions and measures related to personal protection, hygiene and health evaluation		
Advice on general occupational hygiene	: Assumes a good basic standard of occupational hygiene is implemented	
Contributing scenario controlling worker exposure for 7: Bulk transfers		
Closed systems / Open systems		
Product characteristics	: Liquid	
Concentration of substance in mixture or article	: Covers percentage substance in the product up to 100%	
Frequency and duration of use/exposure	: Covers daily exposures up to 8 hours (unless stated differently)	
Other conditions affecting workers exposure	: Assumes use at not more than 20°C above ambient temperaure.	
Technical conditions and measures at process level (source) to prevent release	: Handle substance within a closed system.	
Conditions and measures related to personal protection, hygiene and health evaluation		
Advice on general occupational hygiene	: Assumes a good basic standard of occupational hygiene is implemented	
Personal protection	: Wear suitable gloves tested to EN374.	
Contributing scenario controlling worker exposure for 8: Drum and small package filling		
Product characteristics	: Liquid	
Concentration of substance in mixture or article	: Covers percentage substance in the product up to 100%	
Frequency and duration of use/exposure	: Covers daily exposures up to 8 hours (unless stated differently)	
Other conditions affecting workers exposure	: Assumes use at not more than 20°C above ambient temperaure.	
Conditions and measures related to personal protection, hygiene and health evaluation		
Advice on general occupational hygiene	: Assumes a good basic standard of occupational hygiene is implemented	
Personal protection	: Wear suitable gloves tested to EN374.	
Contributing scenario controlling worker exposure for 9: Equipment cleaning and maintenance		
Product characteristics	: Liquid	
Concentration of substance in mixture or article	: Covers percentage substance in the product up to 100%	
Frequency and duration of use/exposure	: Covers daily exposures up to 8 hours (unless stated differently)	
Other conditions affecting workers exposure	: Assumes use at not more than 20°C above ambient temperaure.	
Technical conditions and measures at process level (source) to prevent release	: Drain down system prior to equipment break-in or maintenance.	
Conditions and measures related to personal protection, hygiene and health evaluation		
Date of issue/Date of revision	: 4/4/2023	

26/73

HEATING OIL (DYED)		Distribution of substance
Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear chemical-resistant gloves (tested to EN374) in combination with 'basic' employee training.
Contributing scenario controlling worker exposure for 10: Storage		
Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100%
Frequency and duration of use/exposure	:	Covers daily exposures up to 8 hours (unless stated differently)
Other conditions affecting workers exposure	:	Assumes use at not more than 20°C above ambient temperature.
Technical conditions and measures at process level (source) to prevent release	:	Handle substance within a closed system.
Conditions and measures related to personal protection, hygiene and health evaluation		
Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Section 3 - Exposure estimation and reference to its source

Website:	: Not applicable.
Exposure estimation and reference to its source - Environment: 1: General exposures	
Exposure assessment (environment):	: Hydrocarbon Block Method (Petrisk)
Exposure estimation and reference to its source	: ESVOC SPERC 1.1b.v1
Exposure estimation and reference to its source - Workers: 2: General measures applicable to all activities	
Exposure assessment (human):	: The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.
Exposure estimation and reference to its source	: Not available.
Exposure estimation and reference to its source - Workers: 3: General exposures (closed systems)	
Exposure assessment (human):	: The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.
Exposure estimation and reference to its source	: Not available.
Exposure estimation and reference to its source - Workers: 4: General exposures (open systems)	
Exposure assessment (human):	: The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.
Exposure estimation and reference to its source	: Not available.
Exposure estimation and reference to its source - Workers: 5: Process sampling	
Exposure assessment (human):	: The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.
Exposure estimation and reference to its source	: Not available.
Exposure estimation and reference to its source - Workers: 6: Laboratory activities	
Exposure assessment (human):	: The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.
Exposure estimation and reference to its source	: Not available.

HEATING OIL (DYED)		Distribution of substance
Exposure estimation and reference to its source - Workers: 7: Bulk transfers		
Exposure assessment (human):	:	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.
Exposure estimation and reference to its source	:	Not available.
Exposure estimation and reference to its source - Workers: 8: Drum and small package filling		
Exposure assessment (human):	:	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.
Exposure estimation and reference to its source	:	Not available.
Exposure estimation and reference to its source - Workers: 9: Equipment cleaning and maintenance		
Exposure assessment (human):	:	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.
Exposure estimation and reference to its source	:	Not available.
Exposure estimation and reference to its source - Workers: 10: Storage		
Exposure assessment (human):	:	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.
Exposure estimation and reference to its source	:	Not available.

Section 4 - Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Environment	:	Further details on scaling and control technologies are provided in SPERC factsheet. 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 air can be achieved using on-site technologies, either alone or in combination. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.
Health	:	Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. Available hazard data do not support the need for a DNEL to be established for other health effects. Predicted exposures are not expected to exceed the DN(M)EL when the risk management measures/operational conditions outlined in section 2 are implemented. Risk management measures are based on qualitative risk characterisation. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Additional good practice advice beyond the REACH CSA

Environment	:	Not available.
Health	:	Not available.

Annex to the extended Safety Data Sheet (eSDS)

Industrial

Identification of the substance or mixture

Product definition : Mixture
Code : 1162403_13798390
Product name : HEATING OIL (DYED)

Section 1 - Title

Short title of the exposure scenario : Use as an intermediate

List of use descriptors : **Identified use name:** Use as an intermediate
Process Category: PROC01, PROC02, PROC03, PROC04, PROC08a, PROC08b, PROC15
Sector of end use: SU03, SU08, SU09
Subsequent service life relevant for that use: No.
Environmental Release Category: ERC06a

Environmental contributing scenarios : **General exposures - ERC06a**

Health Contributing scenarios : **General measures applicable to all activities - PROC01, PROC02, PROC03, PROC04, PROC08a, PROC08b, PROC15**
General exposures (closed systems) - PROC01, PROC02, PROC03
General exposures (open systems) - PROC04
Process sampling - PROC03
Laboratory activities - PROC15
Bulk transfers - PROC08b
Equipment cleaning and maintenance - PROC08a
Bulk product storage - PROC01, PROC02

Processes and activities covered by the exposure scenario : 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 - Exposure controls

Contributing scenario controlling environmental exposure for 1: General exposures

Product characteristics : Predominantly hydrophobic
Substance is complex UVCB.

Amounts used : Annual site tonnage (tonnes/year): 15 000 tonnes/year
Fraction of EU tonnage used in region: 0.1
Fraction of Regional tonnage used locally: 0.0091
Maximum daily site tonnage (kg/day): 50 000 kg/day
Regional use tonnage (tonnes/year): 1 700 000 tonnes/year

Frequency and duration of use : Continuous release
Emission days (days per year): 300 days per year

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

Other conditions affecting environmental exposure : Release fraction to air from process (initial release prior to RMM): 0.001
Release fraction to soil from process (initial release prior to RMM): 0.001
Release fraction to wastewater from process (initial release prior to RMM): 0.00003

Technical conditions and measures at process level (source) to prevent release : Common practices vary across sites thus conservative process release estimates used.

Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil	: If discharging to municipal sewage treatment plant, no on-site wastewater treatment required. If discharging to municipal sewage treatment plant, provide the required on-site wastewater removal efficiency of: 0 % Risk from environmental exposure is driven by freshwater sediment. Treat air emission to provide a typical removal efficiency of: 80 % Treat on-site wastewater (prior to receiving water discharge) to provide the required removal efficiency of: 93 %
Organisational measures to prevent/limit release from site	: Do not apply industrial sludge to natural soils. Prevent discharge of undissolved substance to or recover from onsite wastewater. Sewage sludge should be incinerated, contained or reclaimed.
Conditions and measures related to sewage treatment plant	: Assumed domestic sewage treatment plant flow: 2 000 m ³ /day Estimated substance removal from wastewater via municipal sewage treatment: 94.5 % Not applicable as there is no release to wastewater. Maximum allowable site tonnage (MSafe) [Assumed domestic sewage treatment plant flow]: 64 000 kg/day Total efficiency of removal from wastewater after on-site and off-site (municipal treatment plant) RMMs: 94.5 %
Conditions and measures related to external treatment of waste for disposal	: This substance is consumed during use and no waste from the substance is generated.
Conditions and measures related to external recovery of waste	: This substance is consumed during use and no waste from the substance is generated.

Contributing scenario controlling worker exposure for 2: General measures applicable to all activities

General measures applicable to all activities

Control any potential exposure using measures such as contained or enclosed systems, properly designed and maintained facilities and a good standard of general ventilation. Drain down systems and transfer lines prior to breaking containment. Drain down and flush equipment where possible prior to maintenance.

Where there is potential for exposure: Ensure relevant staff are informed of the nature of exposure and aware of basic actions to minimise exposures; ensure suitable personal protective equipment is available; clear up spills and dispose of waste in accordance with regulatory requirements; monitor effectiveness of control measures; consider the need for health surveillance; identify and implement corrective actions.

General measures (flammability)

Risks from the physicochemical hazards of substances, such as flammability or explosiveness can be controlled by implementing risk management measures at the workplace. It is recommended to follow the Dangerous Substances and Explosion Atmospheres Regulations (DSEAR) and The Equipment and Protective Systems Intended for use in Potentially Explosive Atmosphere Regulations (EPS). Based on the implementation of a selection of handling and storage risk management measures for the identified uses, the risk can be regarded as controlled to an acceptable level.

Use in contained systems. Keep away from sources of ignition - No smoking. Handle in well ventilated area to prevent formation of explosive atmosphere. Use equipment and protective systems approved for flammable substances. Restrict line velocity during pumping to avoid generation of electrostatic discharge. Ground/bond container and receiving equipment. Use non-sparking tools. Refer to relevant technical standards EU regulations/national regulations. Review SDS for additional advice. .

General measures (aspiration)

The H304 risk phrase (May be fatal if swallowed and enters airways) relates to potential for aspiration, a non-quantifiable hazard determined by physico-chemical properties (i.e. viscosity) that can occur during ingestion and also if it is vomited following ingestion. A DNEL cannot be derived. Risks from the physicochemical hazards of substances can be controlled by implementing risk management measures. For substances classified as H304, the following measures need to be implemented to control the aspiration hazard.

Product safety-related measures: Do not ingest. If swallowed then seek immediate medical assistance. Do not induce vomiting.

General measures (skin irritants)

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN 374) 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.

Product characteristics : Liquid

HEATING OIL (DYED)		Use as an intermediate
Concentration of substance in mixture or article	: Covers percentage substance in the product up to 100%	
Frequency and duration of use/exposure	: Covers daily exposures up to 8 hours (unless stated differently)	
Other conditions affecting workers exposure	: Operation is carried out at elevated temperature (> 20°C above ambient temperature)	
Conditions and measures related to personal protection, hygiene and health evaluation		
Advice on general occupational hygiene	: Assumes a good basic standard of occupational hygiene is implemented	
Contributing scenario controlling worker exposure for 3: General exposures (closed systems)		
Product characteristics	: Liquid	
Concentration of substance in mixture or article	: Covers percentage substance in the product up to 100%	
Frequency and duration of use/exposure	: Covers daily exposures up to 8 hours (unless stated differently)	
Other conditions affecting workers exposure	: Operation is carried out at elevated temperature (> 20°C above ambient temperature)	
Technical conditions and measures at process level (source) to prevent release	: Handle substance within a closed system.	
Conditions and measures related to personal protection, hygiene and health evaluation		
Advice on general occupational hygiene	: Assumes a good basic standard of occupational hygiene is implemented	
Contributing scenario controlling worker exposure for 4: General exposures (open systems)		
Product characteristics	: Liquid	
Concentration of substance in mixture or article	: Covers percentage substance in the product up to 100%	
Frequency and duration of use/exposure	: Covers daily exposures up to 8 hours (unless stated differently)	
Other conditions affecting workers exposure	: Operation is carried out at elevated temperature (> 20°C above ambient temperature)	
Conditions and measures related to personal protection, hygiene and health evaluation		
Advice on general occupational hygiene	: Assumes a good basic standard of occupational hygiene is implemented	
Personal protection	: Wear suitable gloves tested to EN374.	
Contributing scenario controlling worker exposure for 5: Process sampling		
Product characteristics	: Liquid	
Concentration of substance in mixture or article	: Covers percentage substance in the product up to 100%	
Frequency and duration of use/exposure	: Covers daily exposures up to 8 hours (unless stated differently)	
Other conditions affecting workers exposure	: Operation is carried out at elevated temperature (> 20°C above ambient temperature)	
Conditions and measures related to personal protection, hygiene and health evaluation		
Advice on general occupational hygiene	: Assumes a good basic standard of occupational hygiene is implemented	

Contributing scenario controlling worker exposure for 6: Laboratory activities

Product characteristics	: Liquid
Concentration of substance in mixture or article	: Covers percentage substance in the product up to 100%
Frequency and duration of use/exposure	: Covers daily exposures up to 8 hours (unless stated differently)
Other conditions affecting workers exposure	: Operation is carried out at elevated temperature (> 20°C above ambient temperature)
Conditions and measures related to personal protection, hygiene and health evaluation	
Advice on general occupational hygiene	: Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 7: Bulk transfers

Closed systems / Open systems

Product characteristics	: Liquid
Concentration of substance in mixture or article	: Covers percentage substance in the product up to 100%
Frequency and duration of use/exposure	: Covers daily exposures up to 8 hours (unless stated differently)
Other conditions affecting workers exposure	: Operation is carried out at elevated temperature (> 20°C above ambient temperature)
Technical conditions and measures at process level (source) to prevent release	: Handle substance within a closed system.
Conditions and measures related to personal protection, hygiene and health evaluation	
Advice on general occupational hygiene	: Assumes a good basic standard of occupational hygiene is implemented
Personal protection	: Wear suitable gloves tested to EN374.

Contributing scenario controlling worker exposure for 8: Equipment cleaning and maintenance

Product characteristics	: Liquid
Concentration of substance in mixture or article	: Covers percentage substance in the product up to 100%
Frequency and duration of use/exposure	: Covers daily exposures up to 8 hours (unless stated differently)
Other conditions affecting workers exposure	: Operation is carried out at elevated temperature (> 20°C above ambient temperature)
Technical conditions and measures at process level (source) to prevent release	: Drain down system prior to equipment break-in or maintenance.
Conditions and measures related to personal protection, hygiene and health evaluation	
Advice on general occupational hygiene	: Assumes a good basic standard of occupational hygiene is implemented
Personal protection	: Wear chemical-resistant gloves (tested to EN374) in combination with 'basic' employee training.

Contributing scenario controlling worker exposure for 9: Bulk product storage

Product characteristics	: Liquid
Concentration of substance in mixture or article	: Covers percentage substance in the product up to 100%
Frequency and duration of use/exposure	: Covers daily exposures up to 8 hours (unless stated differently)
Other conditions affecting workers exposure	: Operation is carried out at elevated temperature (> 20°C above ambient temperature)

HEATING OIL (DYED)		Use as an intermediate
Technical conditions and measures at process level (source) to prevent release	: Store substance within a closed system.	
Conditions and measures related to personal protection, hygiene and health evaluation		
Advice on general occupational hygiene	: Assumes a good basic standard of occupational hygiene is implemented	

Section 3 - Exposure estimation and reference to its source

Website:		: Not applicable.
Exposure estimation and reference to its source - Environment: 1: General exposures		
Exposure assessment (environment):	:	Hydrocarbon Block Method (Petrorisk)
Exposure estimation and reference to its source	:	ESVOC SPERC 6.1a.v1
Exposure estimation and reference to its source - Workers: 2: General measures applicable to all activities		
Exposure assessment (human):	:	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.
Exposure estimation and reference to its source	:	Not available.
Exposure estimation and reference to its source - Workers: 3: General exposures (closed systems)		
Exposure assessment (human):	:	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.
Exposure estimation and reference to its source	:	Not available.
Exposure estimation and reference to its source - Workers: 4: General exposures (open systems)		
Exposure assessment (human):	:	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.
Exposure estimation and reference to its source	:	Not available.
Exposure estimation and reference to its source - Workers: 5: Process sampling		
Exposure assessment (human):	:	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.
Exposure estimation and reference to its source	:	Not available.
Exposure estimation and reference to its source - Workers: 6: Laboratory activities		
Exposure assessment (human):	:	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.
Exposure estimation and reference to its source	:	Not available.
Exposure estimation and reference to its source - Workers: 7: Bulk transfers		
Exposure assessment (human):	:	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.
Exposure estimation and reference to its source	:	Not available.
Exposure estimation and reference to its source - Workers: 8: Equipment cleaning and maintenance		
Exposure assessment (human):	:	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.
Exposure estimation and reference to its source	:	Not available.

Exposure estimation and reference to its source - Workers: 9: Bulk product storage

Exposure assessment (human):	: The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.
Exposure estimation and reference to its source	: Not available.

Section 4 - Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Environment	: Further details on scaling and control technologies are provided in SPERC factsheet. 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 air can be achieved using on-site technologies, either alone or in combination. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.
Health	: Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. Available hazard data do not support the need for a DNEL to be established for other health effects. Predicted exposures are not expected to exceed the DN(M)EL when the risk management measures/operational conditions outlined in section 2 are implemented. Risk management measures are based on qualitative risk characterisation. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Additional good practice advice beyond the REACH CSA

Environment	: Not available.
Health	: Not available.

Annex to the extended Safety Data Sheet (eSDS)

Industrial

Identification of the substance or mixture

Product definition : Mixture
Code : 1162403_13798390
Product name : HEATING OIL (DYED)

Section 1 - Title

Short title of the exposure scenario : Formulation and (re)packing of substances and mixtures

List of use descriptors : **Identified use name:** Formulation and (re)packing of substances and mixtures
Process Category: PROC01, PROC02, PROC03, PROC04, PROC05, PROC08a, PROC08b, PROC09, PROC14, PROC15
Sector of end use: SU03, SU10
Subsequent service life relevant for that use: No.
Environmental Release Category: ERC02

Environmental contributing scenarios : **General exposures - ERC02**

Health Contributing scenarios : **General measures applicable to all activities -** PROC01, PROC02, PROC03, PROC04, PROC05, PROC08a, PROC08b, PROC09, PROC14, PROC15
General exposures (closed systems) - PROC01, PROC02, PROC03
General exposures (open systems) - PROC04
Process sampling - PROC03
Laboratory activities - PROC15
Bulk transfers - PROC08b
Mixing operations (open systems) - PROC05
Drum/batch transfers - PROC08b
Production of preparation or articles by tableting, compression, extrusion or pelletisation - PROC14
Drum and small package filling - PROC09
Equipment cleaning and maintenance - PROC08a
Storage - PROC01, PROC02

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

Section 2 - Exposure controls

Contributing scenario controlling environmental exposure for 1: General exposures

Product characteristics : Predominantly hydrophobic
Substance is complex UVCB.

Amounts used : Annual site tonnage (tonnes/year): 30 000 tonnes/year
Fraction of EU tonnage used in region: 0.1
Fraction of Regional tonnage used locally: 0.00094
Maximum daily site tonnage (kg/day): 100 000 tonnes/year
Regional use tonnage (tonnes/year): kg/day 32 000 000

Frequency and duration of use : Continuous release
Emission days (days per year): 300 days per year

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

Other conditions affecting environmental exposure : Release fraction to air from process (after typical onsite RMMs consistent with EU Solvent Emissions Directive requirements): 0.01
Release fraction to soil from process (initial release prior to RMM): 0.0001
Release fraction to wastewater from process (initial release prior to RMM): 0.000018

Date of issue/Date of revision : 4/4/2023

35/73

Technical conditions and measures at process level (source) to prevent release	: Common practices vary across sites thus conservative process release estimates used.
Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil	: If discharging to municipal sewage treatment plant, no on-site wastewater treatment required. If discharging to municipal sewage treatment plant, provide the required on-site wastewater removal efficiency of: $\geq 0\%$ Risk from environmental exposure is driven by freshwater sediment. Treat air emission to provide a typical removal efficiency of: 0% Treat on-site wastewater (prior to receiving water discharge) to provide the required removal efficiency of: $\geq 94\%$
Organisational measures to prevent/limit release from site	: Do not apply industrial sludge to natural soils. Prevent discharge of undissolved substance to or recover from onsite wastewater. Sewage sludge should be incinerated, contained or reclaimed.
Conditions and measures related to sewage treatment plant	: Assumed domestic sewage treatment plant flow: $2\,000\text{ m}^3/\text{day}$ Estimated substance removal from wastewater via municipal sewage treatment: 94.5% Not applicable as there is no release to wastewater. Maximum allowable site tonnage (MSafe) [Assumed domestic sewage treatment plant flow]: $110\,000\text{ kg/day}$ Total efficiency of removal from wastewater after on-site and off-site (municipal treatment plant) RMMs: 94.5%
Conditions and measures related to external treatment of waste for disposal	: External treatment and disposal of waste should comply with applicable local and/or national regulations.
Conditions and measures related to external recovery of waste	: External recovery and recycling of waste should comply with applicable local and/or national regulations.

Contributing scenario controlling worker exposure for 2: General measures applicable to all activities

General measures applicable to all activities

Control any potential exposure using measures such as contained or enclosed systems, properly designed and maintained facilities and a good standard of general ventilation. Drain down systems and transfer lines prior to breaking containment. Drain down and flush equipment where possible prior to maintenance.

Where there is potential for exposure: Ensure relevant staff are informed of the nature of exposure and aware of basic actions to minimise exposures; ensure suitable personal protective equipment is available; clear up spills and dispose of waste in accordance with regulatory requirements; monitor effectiveness of control measures; consider the need for health surveillance; identify and implement corrective actions.

General measures (flammability)

Risks from the physicochemical hazards of substances, such as flammability or explosiveness can be controlled by implementing risk management measures at the workplace. It is recommended to follow the Dangerous Substances and Explosion Atmospheres Regulations (DSEAR) and The Equipment and Protective Systems Intended for use in Potentially Explosive Atmosphere Regulations (EPS). Based on the implementation of a selection of handling and storage risk management measures for the identified uses, the risk can be regarded as controlled to an acceptable level.

Use in contained systems. Keep away from sources of ignition - No smoking. Handle in well ventilated area to prevent formation of explosive atmosphere. Use equipment and protective systems approved for flammable substances. Restrict line velocity during pumping to avoid generation of electrostatic discharge. Ground/bond container and receiving equipment. Use non-sparking tools. Refer to relevant technical standards EU regulations/national regulations. Review SDS for additional advice..

General measures (aspiration)

The H304 risk phrase (May be fatal if swallowed and enters airways) relates to potential for aspiration, a non-quantifiable hazard determined by physico-chemical properties (i.e. viscosity) that can occur during ingestion and also if it is vomited following ingestion. A DNEL cannot be derived. Risks from the physicochemical hazards of substances can be controlled by implementing risk management measures. For substances classified as H304, the following measures need to be implemented to control the aspiration hazard.

Product safety-related measures: Do not ingest. If swallowed then seek immediate medical assistance. Do not induce vomiting.

General measures (skin irritants)

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN 374) 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.

Product characteristics : Liquid

Concentration of substance in mixture or article : Covers percentage substance in the product up to 100%

Frequency and duration of use/exposure : Covers daily exposures up to 8 hours (unless stated differently)

Other conditions affecting workers exposure : Assumes use at not more than 20°C above ambient temperature.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene : Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 3: General exposures (closed systems)

Product characteristics : Liquid

Concentration of substance in mixture or article : Covers percentage substance in the product up to 100%

Frequency and duration of use/exposure : Covers daily exposures up to 8 hours (unless stated differently)

Other conditions affecting workers exposure : Assumes use at not more than 20°C above ambient temperature.

Technical conditions and measures at process level (source) to prevent release : Handle substance within a closed system.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene : Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 4: General exposures (open systems)

Product characteristics : Liquid

Concentration of substance in mixture or article : Covers percentage substance in the product up to 100%

Frequency and duration of use/exposure : Covers daily exposures up to 8 hours (unless stated differently)

Other conditions affecting workers exposure : Assumes use at not more than 20°C above ambient temperature.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene : Assumes a good basic standard of occupational hygiene is implemented

Personal protection : Wear suitable gloves tested to EN374.

Contributing scenario controlling worker exposure for 5: Process sampling

Product characteristics : Liquid

Concentration of substance in mixture or article : Covers percentage substance in the product up to 100%

Frequency and duration of use/exposure : Covers daily exposures up to 8 hours (unless stated differently)

Other conditions affecting workers exposure : Assumes use at not more than 20°C above ambient temperature.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene : Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 6: Laboratory activities

Product characteristics	: Liquid
Concentration of substance in mixture or article	: Covers percentage substance in the product up to 100%
Frequency and duration of use/exposure	: Covers daily exposures up to 8 hours (unless stated differently)
Other conditions affecting workers exposure	: Assumes use at not more than 20°C above ambient temperature.
Conditions and measures related to personal protection, hygiene and health evaluation	
Advice on general occupational hygiene	: Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 7: Bulk transfers

Product characteristics	: Liquid
Concentration of substance in mixture or article	: Covers percentage substance in the product up to 100%
Frequency and duration of use/exposure	: Covers daily exposures up to 8 hours (unless stated differently)
Other conditions affecting workers exposure	: Assumes use at not more than 20°C above ambient temperature.
Technical conditions and measures at process level (source) to prevent release	: Use drum pumps or carefully pour from container.
Conditions and measures related to personal protection, hygiene and health evaluation	
Advice on general occupational hygiene	: Assumes a good basic standard of occupational hygiene is implemented
Personal protection	: Wear chemical-resistant gloves (tested to EN374) in combination with 'basic' employee training.

Contributing scenario controlling worker exposure for 8: Mixing operations (open systems)

Product characteristics	: Liquid
Concentration of substance in mixture or article	: Covers percentage substance in the product up to 100%
Frequency and duration of use/exposure	: Covers daily exposures up to 8 hours (unless stated differently)
Other conditions affecting workers exposure	: Assumes use at not more than 20°C above ambient temperature.
Ventilation control measures	: Provide extract ventilation to points where emissions occur.
Conditions and measures related to personal protection, hygiene and health evaluation	
Advice on general occupational hygiene	: Assumes a good basic standard of occupational hygiene is implemented
Personal protection	: Wear chemical-resistant gloves (tested to EN374) in combination with 'basic' employee training.

Contributing scenario controlling worker exposure for 9: Drum/batch transfers

Product characteristics	: Liquid
Concentration of substance in mixture or article	: Covers percentage substance in the product up to 100%
Frequency and duration of use/exposure	: Covers daily exposures up to 8 hours (unless stated differently)
Other conditions affecting workers exposure	: Assumes use at not more than 20°C above ambient temperature.
Conditions and measures related to personal protection, hygiene and health evaluation	

HEATING OIL (DYED)		Formulation and (re)packing of substances and mixtures
Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear suitable gloves tested to EN374.
Contributing scenario controlling worker exposure for 10: Production of preparation or articles by tableting, compression, extrusion or pelletisation		
Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100%
Frequency and duration of use/exposure	:	Covers daily exposures up to 8 hours (unless stated differently)
Other conditions affecting workers exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Conditions and measures related to personal protection, hygiene and health evaluation		
Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear suitable gloves tested to EN374.
Contributing scenario controlling worker exposure for 11: Drum and small package filling		
Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100%
Frequency and duration of use/exposure	:	Covers daily exposures up to 8 hours (unless stated differently)
Other conditions affecting workers exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Conditions and measures related to personal protection, hygiene and health evaluation		
Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear suitable gloves tested to EN374.
Contributing scenario controlling worker exposure for 12: Equipment cleaning and maintenance		
Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100%
Frequency and duration of use/exposure	:	Covers daily exposures up to 8 hours (unless stated differently)
Other conditions affecting workers exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Technical conditions and measures at process level (source) to prevent release	:	Drain down system prior to equipment break-in or maintenance.
Conditions and measures related to personal protection, hygiene and health evaluation		
Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear chemical-resistant gloves (tested to EN374) in combination with 'basic' employee training.

Contributing scenario controlling worker exposure for 13: Storage

Product characteristics	: Liquid
Concentration of substance in mixture or article	: Covers percentage substance in the product up to 100%
Frequency and duration of use/exposure	: Covers daily exposures up to 8 hours (unless stated differently)
Other conditions affecting workers exposure	: Assumes use at not more than 20°C above ambient temperature.
Technical conditions and measures at process level (source) to prevent release	: Store substance within a closed system.
Conditions and measures related to personal protection, hygiene and health evaluation	
Advice on general occupational hygiene	: Assumes a good basic standard of occupational hygiene is implemented

Section 3 - Exposure estimation and reference to its source

Website: : Not applicable.

Exposure estimation and reference to its source - Environment: 1: General exposures

Exposure assessment (environment):	: Hydrocarbon Block Method (Petrisk)
Exposure estimation and reference to its source	: ESVOC SPERC 2.2.v1

Exposure estimation and reference to its source - Workers: 2: General measures applicable to all activities

Exposure assessment (human):	: The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.
Exposure estimation and reference to its source	: Not available.

Exposure estimation and reference to its source - Workers: 3: General exposures (closed systems)

Exposure assessment (human):	: The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.
Exposure estimation and reference to its source	: Not available.

Exposure estimation and reference to its source - Workers: 4: General exposures (open systems)

Exposure assessment (human):	: The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.
Exposure estimation and reference to its source	: Not available.

Exposure estimation and reference to its source - Workers: 5: Process sampling

Exposure assessment (human):	: The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.
Exposure estimation and reference to its source	: Not available.

Exposure estimation and reference to its source - Workers: 6: Laboratory activities

Exposure assessment (human):	: The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.
Exposure estimation and reference to its source	: Not available.

Exposure estimation and reference to its source - Workers: 7: Bulk transfers

Exposure assessment (human):	: The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.
Exposure estimation and reference to its source	: Not available.

HEATING OIL (DYED)		Formulation and (re)packing of substances and mixtures
Exposure estimation and reference to its source - Workers: 8: Mixing operations (open systems)		
Exposure assessment (human):	:	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.
Exposure estimation and reference to its source	:	Not available.
Exposure estimation and reference to its source - Workers: 9: Drum/batch transfers		
Exposure assessment (human):	:	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.
Exposure estimation and reference to its source	:	Not available.
Exposure estimation and reference to its source - Workers: 10: Production of preparation or articles by tableting, compression, extrusion or pelletisation		
Exposure assessment (human):	:	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.
Exposure estimation and reference to its source	:	Not available.
Exposure estimation and reference to its source - Workers: 11: Drum and small package filling		
Exposure assessment (human):	:	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.
Exposure estimation and reference to its source	:	Not available.
Exposure estimation and reference to its source - Workers: 12: Equipment cleaning and maintenance		
Exposure assessment (human):	:	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.
Exposure estimation and reference to its source	:	Not available.
Exposure estimation and reference to its source - Workers: 13: Storage		
Exposure assessment (human):	:	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.
Exposure estimation and reference to its source	:	Not available.

Section 4 - Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Environment	:	Further details on scaling and control technologies are provided in SPERC factsheet. 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 air can be achieved using on-site technologies, either alone or in combination. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.
Health	:	Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. Available hazard data do not support the need for a DNEL to be established for other health effects. Predicted exposures are not expected to exceed the DN(M)EL when the risk management measures/operational conditions outlined in section 2 are implemented. Risk management measures are based on qualitative risk characterisation. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Additional good practice advice beyond the REACH CSA

Environment	:	Not available.
Health	:	Not available.

Annex to the extended Safety Data Sheet (eSDS)

Industrial

Identification of the substance or mixture

Product definition : Mixture
Code : 1162403_13798390
Product name : HEATING OIL (DYED)

Section 1 - Title

Short title of the exposure scenario : Lubricants - Industrial

List of use descriptors : **Identified use name:** Lubricants - Industrial
Process Category: PROC01, PROC02, PROC03, PROC04, PROC07, PROC08a, PROC08b, PROC09, PROC10, PROC13, PROC17, PROC18
Sector of end use: SU03
Subsequent service life relevant for that use: No.
Environmental Release Category: ERC04, ERC07

Environmental contributing scenarios : **General exposures** - ERC04, ERC07

Health Contributing scenarios : **General measures applicable to all activities** - PROC01, PROC02, PROC03, PROC04, PROC07, PROC08a, PROC08b, PROC09, PROC10, PROC13, PROC17, PROC18
General exposures (closed systems) - PROC01, PROC02, PROC03
General exposures (open systems) - PROC04
Bulk transfers - PROC08b
Filling/preparation of equipment from drums or containers. - PROC08a, PROC08b
Initial factory fill of equipment - PROC09
Operation and lubrication of high energy open equipment - PROC17, PROC18
Roller application or brushing - PROC10
Treatment by dipping and pouring - PROC13
Spraying - PROC07
Maintenance (of larger plant items) and machine set-up. - PROC08b
Maintenance of small items - PROC08a
Remanufacture of reject articles - PROC09
Storage - PROC01, PROC02

Processes and activities covered by the exposure scenario : Covers the use of formulated lubricants in closed and open systems including transfer operations, operation of machinery/engines and similar articles, reworking on reject articles, equipment maintenance and disposal of wastes.

Section 2 - Exposure controls

Contributing scenario controlling environmental exposure for 1: General exposures

Product characteristics : Predominantly hydrophobic
Substance is complex UVCB.

Amounts used : Annual site tonnage (tonnes/year): 100 tonnes/year
Fraction of EU tonnage used in region: 0.1
Fraction of Regional tonnage used locally: 0.028
Maximum daily site tonnage (kg/day): 5 000 kg/day
Regional use tonnage (tonnes/year): 3 500 tonnes/year

Frequency and duration of use : Continuous release
Emission days (days per year): 20 days per year

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

Other conditions affecting environmental exposure	: Release fraction to air from process (initial release prior to RMM): 0.005 Release fraction to soil from process (initial release prior to RMM): 0.001 Release fraction to wastewater from process (initial release prior to RMM): 0.000003
Technical conditions and measures at process level (source) to prevent release	: Common practices vary across sites thus conservative process release estimates used.
Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil	: If discharging to municipal sewage treatment plant, no on-site wastewater treatment required. If discharging to municipal sewage treatment plant, provide the required on-site wastewater removal efficiency of: $\geq 0\%$ Risk from environmental exposure is driven by freshwater sediment. Treat air emission to provide a typical removal efficiency of: 70 % Treat on-site wastewater (prior to receiving water discharge) to provide the required removal efficiency of: $\geq 57.9\%$
Organisational measures to prevent/limit release from site	: Do not apply industrial sludge to natural soils. Prevent discharge of undissolved substance to or recover from onsite wastewater. Sewage sludge should be incinerated, contained or reclaimed.
Conditions and measures related to sewage treatment plant	: Assumed domestic sewage treatment plant flow: 2 000 m ³ /day Estimated substance removal from wastewater via municipal sewage treatment: 94.5 % Not applicable as there is no release to wastewater. Maximum allowable site tonnage (MSafe) [Assumed domestic sewage treatment plant flow]: 39 000 kg/day Total efficiency of removal from wastewater after on-site and off-site (municipal treatment plant) RMMs: 94.5 %
Conditions and measures related to external treatment of waste for disposal	: External treatment and disposal of waste should comply with applicable local and/or national regulations.
Conditions and measures related to external recovery of waste	: External recovery and recycling of waste should comply with applicable local and/or national regulations.

Contributing scenario controlling worker exposure for 2: General measures applicable to all activities

General measures applicable to all activities

Control any potential exposure using measures such as contained or enclosed systems, properly designed and maintained facilities and a good standard of general ventilation. Drain down systems and transfer lines prior to breaking containment. Drain down and flush equipment where possible prior to maintenance.

Where there is potential for exposure: Ensure relevant staff are informed of the nature of exposure and aware of basic actions to minimise exposures; ensure suitable personal protective equipment is available; clear up spills and dispose of waste in accordance with regulatory requirements; monitor effectiveness of control measures; consider the need for health surveillance; identify and implement corrective actions.

General measures (flammability)

Risks from the physicochemical hazards of substances, such as flammability or explosiveness can be controlled by implementing risk management measures at the workplace. It is recommended to follow the Dangerous Substances and Explosion Atmospheres Regulations (DSEAR) and The Equipment and Protective Systems Intended for use in Potentially Explosive Atmosphere Regulations (EPS). Based on the implementation of a selection of handling and storage risk management measures for the identified uses, the risk can be regarded as controlled to an acceptable level.

Use in contained systems. Keep away from sources of ignition - No smoking. Handle in well ventilated area to prevent formation of explosive atmosphere. Use equipment and protective systems approved for flammable substances. Restrict line velocity during pumping to avoid generation of electrostatic discharge. Ground/bond container and receiving equipment. Use non-sparking tools. Refer to relevant technical standards EU regulations/national regulations. Review SDS for additional advice..

General measures (aspiration)

The H304 risk phrase (May be fatal if swallowed and enters airways) relates to potential for aspiration, a non-quantifiable hazard determined by physico-chemical properties (i.e. viscosity) that can occur during ingestion and also if it is vomited following ingestion. A DNEL cannot be derived. Risks from the physicochemical hazards of substances can be controlled by implementing risk management measures. For substances classified as H304, the following measures need to be implemented to control the aspiration hazard.

Product safety-related measures: Do not ingest. If swallowed then seek immediate medical assistance. Do not induce vomiting.

General measures (skin irritants)

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN 374)

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.

Product characteristics	: Liquid
Concentration of substance in mixture or article	: Covers percentage substance in the product up to 100%
Frequency and duration of use/exposure	: Covers daily exposures up to 8 hours (unless stated differently)
Other conditions affecting workers exposure	: Assumes use at not more than 20°C above ambient temperature.
Conditions and measures related to personal protection, hygiene and health evaluation	
Advice on general occupational hygiene	: Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 3: General exposures (closed systems)

Product characteristics	: Liquid
Concentration of substance in mixture or article	: Covers percentage substance in the product up to 100%
Frequency and duration of use/exposure	: Covers daily exposures up to 8 hours (unless stated differently)
Other conditions affecting workers exposure	: Assumes use at not more than 20°C above ambient temperature.
Technical conditions and measures at process level (source) to prevent release	: Handle substance within a closed system.
Conditions and measures related to personal protection, hygiene and health evaluation	
Advice on general occupational hygiene	: Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 4: General exposures (open systems)

Product characteristics	: Liquid
Concentration of substance in mixture or article	: Covers percentage substance in the product up to 100%
Frequency and duration of use/exposure	: Covers daily exposures up to 8 hours (unless stated differently)
Other conditions affecting workers exposure	: Assumes use at not more than 20°C above ambient temperature.
Ventilation control measures	: Provide extract ventilation to points where emissions occur.
Conditions and measures related to personal protection, hygiene and health evaluation	
Advice on general occupational hygiene	: Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 5: Bulk transfers

Product characteristics	: Liquid
Concentration of substance in mixture or article	: Covers percentage substance in the product up to 100%
Frequency and duration of use/exposure	: Covers daily exposures up to 8 hours (unless stated differently)
Other conditions affecting workers exposure	: Assumes use at not more than 20°C above ambient temperature.
Technical conditions and measures at process level (source) to prevent release	: Handle substance within a closed system.

Conditions and measures related to personal protection, hygiene and health evaluation

- Advice on general occupational hygiene** : Assumes a good basic standard of occupational hygiene is implemented
- Personal protection** : Wear suitable gloves tested to EN374.

Contributing scenario controlling worker exposure for 6: Filling/preparation of equipment from drums or containers.

- Product characteristics** : Liquid
- Concentration of substance in mixture or article** : Covers percentage substance in the product up to 100%
- Frequency and duration of use/exposure** : Covers daily exposures up to 8 hours (unless stated differently)
- Other conditions affecting workers exposure** : Assumes use at not more than 20°C above ambient temperature.

Conditions and measures related to personal protection, hygiene and health evaluation

- Advice on general occupational hygiene** : Assumes a good basic standard of occupational hygiene is implemented
- Personal protection** : Wear suitable gloves tested to EN374.

Contributing scenario controlling worker exposure for 7: Initial factory fill of equipment

- Product characteristics** : Liquid
- Concentration of substance in mixture or article** : Covers percentage substance in the product up to 100%
- Frequency and duration of use/exposure** : Covers daily exposures up to 8 hours (unless stated differently)
- Other conditions affecting workers exposure** : Assumes use at not more than 20°C above ambient temperature.

Conditions and measures related to personal protection, hygiene and health evaluation

- Advice on general occupational hygiene** : Assumes a good basic standard of occupational hygiene is implemented
- Personal protection** : Wear suitable gloves tested to EN374.

Contributing scenario controlling worker exposure for 8: Operation and lubrication of high energy open equipment

- Product characteristics** : Liquid
- Concentration of substance in mixture or article** : Covers percentage substance in the product up to 100%
- Frequency and duration of use/exposure** : Covers daily exposures up to 8 hours (unless stated differently)
- Other conditions affecting workers exposure** : Assumes use at not more than 20°C above ambient temperature.
- Technical conditions and measures at process level (source) to prevent release** : Restrict area of openings to equipment.
- Ventilation control measures** : Provide extract ventilation to points where emissions occur.

Conditions and measures related to personal protection, hygiene and health evaluation

- Advice on general occupational hygiene** : Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 9: Roller application or brushing

Product characteristics	: Liquid
Concentration of substance in mixture or article	: Covers percentage substance in the product up to 100%
Frequency and duration of use/exposure	: Covers daily exposures up to 8 hours (unless stated differently)
Other conditions affecting workers exposure	: Assumes use at not more than 20°C above ambient temperature.
Conditions and measures related to personal protection, hygiene and health evaluation	
Advice on general occupational hygiene	: Assumes a good basic standard of occupational hygiene is implemented
Personal protection	: Wear chemical-resistant gloves (tested to EN374) in combination with 'basic' employee training.

Contributing scenario controlling worker exposure for 10: Treatment by dipping and pouring

Product characteristics	: Liquid
Concentration of substance in mixture or article	: Covers percentage substance in the product up to 100%
Frequency and duration of use/exposure	: Covers daily exposures up to 8 hours (unless stated differently)
Other conditions affecting workers exposure	: Assumes use at not more than 20°C above ambient temperature.
Conditions and measures related to personal protection, hygiene and health evaluation	
Advice on general occupational hygiene	: Assumes a good basic standard of occupational hygiene is implemented
Personal protection	: Wear suitable gloves tested to EN374.

Contributing scenario controlling worker exposure for 11: Spraying

Product characteristics	: Liquid
Concentration of substance in mixture or article	: Covers percentage substance in the product up to 100%
Frequency and duration of use/exposure	: Covers daily exposures up to 8 hours (unless stated differently)
Other conditions affecting workers exposure	: Assumes use at not more than 20°C above ambient temperature.
Technical conditions and measures at process level (source) to prevent release	: Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings.
Conditions and measures related to personal protection, hygiene and health evaluation	
Advice on general occupational hygiene	: Assumes a good basic standard of occupational hygiene is implemented
Personal protection	: Wear suitable gloves tested to EN374., Coveralls must be worn. Use suitable eye protection.

Contributing scenario controlling worker exposure for 12: Maintenance (of larger plant items) and machine set-up.

Product characteristics	: Liquid
Concentration of substance in mixture or article	: Covers percentage substance in the product up to 100%
Frequency and duration of use/exposure	: Covers daily exposures up to 8 hours (unless stated differently)
Other conditions affecting workers exposure	: Operation is carried out at elevated temperature (> 20°C above ambient temperature)

Ventilation control measures : Provide extract ventilation to emission points when contact with warm (>50°C) lubricant is likely.
Ensure material transfers are under containment or extract ventilation.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene : Assumes a good basic standard of occupational hygiene is implemented

Personal protection : Wear suitable gloves tested to EN374.

Contributing scenario controlling worker exposure for 13: Maintenance of small items

Product characteristics : Liquid

Concentration of substance in mixture or article : Covers percentage substance in the product up to 100%

Frequency and duration of use/exposure : Covers daily exposures up to 8 hours (unless stated differently)

Other conditions affecting workers exposure : Assumes use at not more than 20°C above ambient temperature.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene : Assumes a good basic standard of occupational hygiene is implemented

Personal protection : Wear chemical-resistant gloves (tested to EN374) in combination with 'basic' employee training.

Contributing scenario controlling worker exposure for 14: Remanufacture of reject articles

Product characteristics : Liquid

Concentration of substance in mixture or article : Covers percentage substance in the product up to 100%

Frequency and duration of use/exposure : Covers daily exposures up to 8 hours (unless stated differently)

Other conditions affecting workers exposure : Assumes use at not more than 20°C above ambient temperature.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene : Assumes a good basic standard of occupational hygiene is implemented

Personal protection : Wear chemical-resistant gloves (tested to EN374) in combination with 'basic' employee training.

Contributing scenario controlling worker exposure for 15: Storage

Product characteristics : Liquid

Concentration of substance in mixture or article : Covers percentage substance in the product up to 100%

Frequency and duration of use/exposure : Covers daily exposures up to 8 hours (unless stated differently)

Other conditions affecting workers exposure : Assumes use at not more than 20°C above ambient temperature.

Technical conditions and measures at process level (source) to prevent release : Store substance within a closed system.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene : Assumes a good basic standard of occupational hygiene is implemented

Section 3 - Exposure estimation and reference to its source

Website:	: Not applicable.
Exposure estimation and reference to its source - Environment: 1: General exposures	
Exposure assessment (environment):	: Hydrocarbon Block Method (Petrorisk)
Exposure estimation and reference to its source	: ESVOC SPERC 4.6a.v1
Exposure estimation and reference to its source - Workers: 2: General measures applicable to all activities	
Exposure assessment (human):	: The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.
Exposure estimation and reference to its source	: Not available.
Exposure estimation and reference to its source - Workers: 3: General exposures (closed systems)	
Exposure assessment (human):	: The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.
Exposure estimation and reference to its source	: Not available.
Exposure estimation and reference to its source - Workers: 4: General exposures (open systems)	
Exposure assessment (human):	: The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.
Exposure estimation and reference to its source	: Not available.
Exposure estimation and reference to its source - Workers: 5: Bulk transfers	
Exposure assessment (human):	: The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.
Exposure estimation and reference to its source	: Not available.
Exposure estimation and reference to its source - Workers: 6: Filling/preparation of equipment from drums or containers.	
Exposure assessment (human):	: The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.
Exposure estimation and reference to its source	: Not available.
Exposure estimation and reference to its source - Workers: 7: Initial factory fill of equipment	
Exposure assessment (human):	: The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.
Exposure estimation and reference to its source	: Not available.
Exposure estimation and reference to its source - Workers: 8: Operation and lubrication of high energy open equipment	
Exposure assessment (human):	: The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.
Exposure estimation and reference to its source	: Not available.
Exposure estimation and reference to its source - Workers: 9: Roller application or brushing	
Exposure assessment (human):	: The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.
Exposure estimation and reference to its source	: Not available.

Exposure estimation and reference to its source - Workers: 10: Treatment by dipping and pouring

Exposure assessment (human):	: The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.
Exposure estimation and reference to its source	: Not available.

Exposure estimation and reference to its source - Workers: 11: Spraying

Exposure assessment (human):	: The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.
Exposure estimation and reference to its source	: Not available.

Exposure estimation and reference to its source - Workers: 12: Maintenance (of larger plant items) and machine set-up.

Exposure assessment (human):	: The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.
Exposure estimation and reference to its source	: Not available.

Exposure estimation and reference to its source - Workers: 13: Maintenance of small items

Exposure assessment (human):	: The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.
Exposure estimation and reference to its source	: Not available.

Exposure estimation and reference to its source - Workers: 14: Remanufacture of reject articles

Exposure assessment (human):	: The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.
Exposure estimation and reference to its source	: Not available.

Exposure estimation and reference to its source - Workers: 15: Storage

Exposure assessment (human):	: The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.
Exposure estimation and reference to its source	: Not available.

Section 4 - Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Environment	: Further details on scaling and control technologies are provided in SPERC factsheet. 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 air can be achieved using on-site technologies, either alone or in combination. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.
Health	: Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. Available hazard data do not support the need for a DNEL to be established for other health effects. Predicted exposures are not expected to exceed the DN(M)EL when the risk management measures/operational conditions outlined in section 2 are implemented. Risk management measures are based on qualitative risk characterisation. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Additional good practice advice beyond the REACH CSA

Environment	: Not available.
Health	: Not available.

Annex to the extended Safety Data Sheet (eSDS)

Industrial

Identification of the substance or mixture

Product definition : Mixture
Code : 1162403_13798390
Product name : HEATING OIL (DYED)

Section 1 - Title

Short title of the exposure scenario : Use as a fuel - Industrial

List of use descriptors : **Identified use name:** Use as a fuel - Industrial
Process Category: PROC01, PROC02, PROC03, PROC08a, PROC08b, PROC16
Sector of end use: SU03
Subsequent service life relevant for that use: No.
Environmental Release Category: ERC07

Environmental contributing scenarios : **General exposures - ERC07**

Health Contributing scenarios : **General measures applicable to all activities - PROC01, PROC02, PROC03, PROC08a, PROC08b, PROC16**
Bulk transfers - PROC08b
Drum/batch transfers - PROC08b
Equipment cleaning and maintenance - PROC08a
Vessel container cleaning - PROC08a
Storage - PROC01, PROC02
Use as a fuel - PROC01, PROC02, PROC03, PROC16

Processes and activities covered by the exposure scenario : Covers the use as a fuel (or fuel additive) and includes activities associated with its transfer, use, equipment maintenance and handling of waste.

Section 2 - Exposure controls

Contributing scenario controlling environmental exposure for 1: General exposures

Product characteristics : Predominantly hydrophobic
Substance is complex UVCB.

Amounts used : Annual site tonnage (tonnes/year): 1 500 000 tonnes/year
Fraction of EU tonnage used in region: 0.1
Fraction of Regional tonnage used locally: 0.35
Maximum daily site tonnage (kg/day): 5 000 000 kg/day
Regional use tonnage (tonnes/year): 4 300 000 tonnes/year

Frequency and duration of use : Continuous release
Emission days (days per year): 300 days per year

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

Other conditions affecting environmental exposure : Release fraction to air from process (initial release prior to RMM): 0.005
Release fraction to soil from process (initial release prior to RMM): 0
Release fraction to wastewater from process (initial release prior to RMM): 0.00001

Technical conditions and measures at process level (source) to prevent release : Common practices vary across sites thus conservative process release estimates used.

Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil	: If discharging to municipal sewage treatment plant, no on-site wastewater treatment required. If discharging to municipal sewage treatment plant, provide the required on-site wastewater removal efficiency of: $\geq 0\%$ Risk from environmental exposure is driven by freshwater sediment. Treat air emission to provide a typical removal efficiency of: 95% Treat on-site wastewater (prior to receiving water discharge) to provide the required removal efficiency of: $\geq 62.4\%$
Organisational measures to prevent/limit release from site	: Do not apply industrial sludge to natural soils. Sewage sludge should be incinerated, contained or reclaimed.
Conditions and measures related to sewage treatment plant	: Assumed domestic sewage treatment plant flow: $2\,000\text{ m}^3/\text{day}$ Estimated substance removal from wastewater via municipal sewage treatment: 94.5% Not applicable as there is no release to wastewater. Maximum allowable site tonnage (MSafe) [Assumed domestic sewage treatment plant flow]: $34\,000\,000\text{ kg/day}$ Total efficiency of removal from wastewater after on-site and off-site (municipal treatment plant) RMMs: 94.5%
Conditions and measures related to external treatment of waste for disposal	: Combustion emissions considered in regional exposure assessment. Combustion emissions limited by required exhaust emission controls. External treatment and disposal of waste should comply with applicable local and/or national regulations.
Conditions and measures related to external recovery of waste	: This substance is consumed during use and no waste from the substance is generated.

Contributing scenario controlling worker exposure for 2: General measures applicable to all activities

General measures applicable to all activities

Control any potential exposure using measures such as contained or enclosed systems, properly designed and maintained facilities and a good standard of general ventilation. Drain down systems and transfer lines prior to breaking containment. Drain down and flush equipment where possible prior to maintenance.

Where there is potential for exposure: Ensure relevant staff are informed of the nature of exposure and aware of basic actions to minimise exposures; ensure suitable personal protective equipment is available; clear up spills and dispose of waste in accordance with regulatory requirements; monitor effectiveness of control measures; consider the need for health surveillance; identify and implement corrective actions.

General measures (flammability)

Risks from the physicochemical hazards of substances, such as flammability or explosiveness can be controlled by implementing risk management measures at the workplace. It is recommended to follow the Dangerous Substances and Explosion Atmospheres Regulations (DSEAR) and The Equipment and Protective Systems Intended for use in Potentially Explosive Atmosphere Regulations (EPS). Based on the implementation of a selection of handling and storage risk management measures for the identified uses, the risk can be regarded as controlled to an acceptable level.

Use in contained systems. Keep away from sources of ignition - No smoking. Handle in well ventilated area to prevent formation of explosive atmosphere. Use equipment and protective systems approved for flammable substances. Restrict line velocity during pumping to avoid generation of electrostatic discharge. Ground/bond container and receiving equipment. Use non-sparking tools. Refer to relevant technical standards EU regulations/national regulations. Review SDS for additional advice..

General measures (aspiration)

The H304 risk phrase (May be fatal if swallowed and enters airways) relates to potential for aspiration, a non-quantifiable hazard determined by physico-chemical properties (i.e. viscosity) that can occur during ingestion and also if it is vomited following ingestion. A DNEL cannot be derived. Risks from the physicochemical hazards of substances can be controlled by implementing risk management measures. For substances classified as H304, the following measures need to be implemented to control the aspiration hazard.

Product safety-related measures: Do not ingest. If swallowed then seek immediate medical assistance. Do not induce vomiting.

General measures (skin irritants)

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN 374) 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.

Product characteristics : Liquid

Concentration of substance in mixture or article	: Covers percentage substance in the product up to 100%
Frequency and duration of use/exposure	: Covers daily exposures up to 8 hours (unless stated differently)
Other conditions affecting workers exposure	: Assumes use at not more than 20°C above ambient temperature.
Conditions and measures related to personal protection, hygiene and health evaluation	
Advice on general occupational hygiene	: Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 3: Bulk transfers

Product characteristics	: Liquid
Concentration of substance in mixture or article	: Covers percentage substance in the product up to 100%
Frequency and duration of use/exposure	: Covers daily exposures up to 8 hours (unless stated differently)
Other conditions affecting workers exposure	: Assumes use at not more than 20°C above ambient temperature.
Conditions and measures related to personal protection, hygiene and health evaluation	
Advice on general occupational hygiene	: Assumes a good basic standard of occupational hygiene is implemented
Personal protection	: Wear suitable gloves tested to EN374.

Contributing scenario controlling worker exposure for 4: Drum/batch transfers

Product characteristics	: Liquid
Concentration of substance in mixture or article	: Covers percentage substance in the product up to 100%
Frequency and duration of use/exposure	: Covers daily exposures up to 8 hours (unless stated differently)
Other conditions affecting workers exposure	: Assumes use at not more than 20°C above ambient temperature.
Conditions and measures related to personal protection, hygiene and health evaluation	
Advice on general occupational hygiene	: Assumes a good basic standard of occupational hygiene is implemented
Personal protection	: Wear suitable gloves tested to EN374.

Contributing scenario controlling worker exposure for 5: Equipment cleaning and maintenance

Product characteristics	: Liquid
Concentration of substance in mixture or article	: Covers percentage substance in the product up to 100%
Frequency and duration of use/exposure	: Covers daily exposures up to 8 hours (unless stated differently)
Other conditions affecting workers exposure	: Assumes use at not more than 20°C above ambient temperature.
Technical conditions and measures at process level (source) to prevent release	: Drain down system prior to equipment break-in or maintenance.
Conditions and measures related to personal protection, hygiene and health evaluation	
Advice on general occupational hygiene	: Assumes a good basic standard of occupational hygiene is implemented
Personal protection	: Wear chemical-resistant gloves (tested to EN374) in combination with 'basic' employee training.

Contributing scenario controlling worker exposure for 6: Vessel container cleaning

Product characteristics	: Liquid
Concentration of substance in mixture or article	: Covers percentage substance in the product up to 100%
Frequency and duration of use/exposure	: Covers daily exposures up to 8 hours (unless stated differently)
Other conditions affecting workers exposure	: Assumes use at not more than 20°C above ambient temperature.
Organisational measures to prevent/limit releases, dispersion and exposure	: Apply vessel entry procedures including use of forced supplied air.
Conditions and measures related to personal protection, hygiene and health evaluation	
Advice on general occupational hygiene	: Assumes a good basic standard of occupational hygiene is implemented
Personal protection	: Wear chemical-resistant gloves (tested to EN374) in combination with 'basic' employee training.

Contributing scenario controlling worker exposure for 7: Storage

Product characteristics	: Liquid
Concentration of substance in mixture or article	: Covers percentage substance in the product up to 100%
Frequency and duration of use/exposure	: Covers daily exposures up to 8 hours (unless stated differently)
Other conditions affecting workers exposure	: Assumes use at not more than 20°C above ambient temperature.
Technical conditions and measures at process level (source) to prevent release	: Store substance within a closed system.
Conditions and measures related to personal protection, hygiene and health evaluation	
Advice on general occupational hygiene	: Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 8: Use as a fuel

Closed systems

Product characteristics	: Liquid
Concentration of substance in mixture or article	: Covers percentage substance in the product up to 100%
Frequency and duration of use/exposure	: Covers daily exposures up to 8 hours (unless stated differently)
Other conditions affecting workers exposure	: Assumes use at not more than 20°C above ambient temperature.
Conditions and measures related to personal protection, hygiene and health evaluation	
Advice on general occupational hygiene	: Assumes a good basic standard of occupational hygiene is implemented

Section 3 - Exposure estimation and reference to its source**Website:** : Not applicable.**Exposure estimation and reference to its source - Environment: 1: General exposures**

Exposure assessment (environment):	: Hydrocarbon Block Method (Petrisk)
Exposure estimation and reference to its source	: ESVOC SPERC 7.12a.v1

Exposure estimation and reference to its source - Workers: 2: General measures applicable to all activities

Exposure assessment (human):	: The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.
Exposure estimation and reference to its source	: Not available.

Exposure estimation and reference to its source - Workers: 3: Bulk transfers

Exposure assessment (human):	: The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.
Exposure estimation and reference to its source	: Not available.

Exposure estimation and reference to its source - Workers: 4: Drum/batch transfers

Exposure assessment (human):	: The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.
Exposure estimation and reference to its source	: Not available.

Exposure estimation and reference to its source - Workers: 5: Equipment cleaning and maintenance

Exposure assessment (human):	: The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.
Exposure estimation and reference to its source	: Not available.

Exposure estimation and reference to its source - Workers: 6: Vessel container cleaning

Exposure assessment (human):	: The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.
Exposure estimation and reference to its source	: Not available.

Exposure estimation and reference to its source - Workers: 7: Storage

Exposure assessment (human):	: The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.
Exposure estimation and reference to its source	: Not available.

Exposure estimation and reference to its source - Workers: 8: Use as a fuel

Exposure assessment (human):	: The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.
Exposure estimation and reference to its source	: Not available.

Section 4 - Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Environment	: Further details on scaling and control technologies are provided in SPERC factsheet. 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 air can be achieved using on-site technologies, either alone or in combination. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.
Health	: Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. Available hazard data do not support the need for a DNEL to be established for other health effects. Predicted exposures are not expected to exceed the DN(M)EL when the risk management measures/operational conditions outlined in section 2 are implemented. Risk management measures are based on qualitative risk characterisation. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Additional good practice advice beyond the REACH CSA**Environment** : Not available.**Health** : Not available.

Annex to the extended Safety Data Sheet (eSDS)

Industrial

Identification of the substance or mixture

Product definition : Mixture
Code : 1162403_13798390
Product name : HEATING OIL (DYED)

Section 1 - Title

Short title of the exposure scenario : Functional fluids - Industrial

List of use descriptors : **Identified use name:** Functional fluids - Industrial
Process Category: PROC01, PROC02, PROC03, PROC04, PROC08a, PROC08b, PROC09
Sector of end use: SU03
Subsequent service life relevant for that use: No.
Environmental Release Category: ERC07

Environmental contributing scenarios : **General exposures** - ERC07

Health Contributing scenarios : **General measures applicable to all activities** - PROC01, PROC02, PROC03, PROC04, PROC08a, PROC08b, PROC09
Bulk transfers - PROC01, PROC02, PROC03
Drum/batch transfers - PROC08b
Filling of articles/equipment - PROC09
Filling/preparation of equipment from drums or containers. - PROC08a
General exposures (closed systems) - PROC02
General exposures (open systems) - PROC04
Remanufacture of reject articles - PROC09
Equipment maintenance - PROC08a
Storage - PROC01, PROC02

Processes and activities covered by the exposure scenario : Use as functional fluids e.g. cable oils, transfer oils, coolants, insulators, refrigerants, hydraulic fluids in industrial equipment including maintenance and related material transfers.

Section 2 - Exposure controls

Contributing scenario controlling environmental exposure for 1: General exposures

Product characteristics : Predominantly hydrophobic
Substance is complex UVCB.

Amounts used : Annual site tonnage (tonnes/year): 10 tonnes/year
Fraction of EU tonnage used in region: 0.1
Fraction of Regional tonnage used locally: 0.76
Maximum daily site tonnage (kg/day): 500 kg/day
Regional use tonnage (tonnes/year): 13 tonnes/year

Frequency and duration of use : Continuous release
Emission days (days per year): 20 days per year

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

Other conditions affecting environmental exposure : Release fraction to air from process (initial release prior to RMM): 0.005
Release fraction to soil from process (initial release prior to RMM): 0.001
Release fraction to wastewater from process (initial release prior to RMM): 0.000003

Technical conditions and measures at process level (source) to prevent release : Common practices vary across sites thus conservative process release estimates used.

Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil	: If discharging to municipal sewage treatment plant, no on-site wastewater treatment required. If discharging to municipal sewage treatment plant, provide the required on-site wastewater removal efficiency of: $\geq 0\%$ Risk from environmental exposure is driven by freshwater sediment. Treat air emission to provide a typical removal efficiency of: 0% Treat on-site wastewater (prior to receiving water discharge) to provide the required removal efficiency of: $\geq 55.9\%$
Organisational measures to prevent/limit release from site	: Do not apply industrial sludge to natural soils. Prevent discharge of undissolved substance to or recover from onsite wastewater. Sewage sludge should be incinerated, contained or reclaimed.
Conditions and measures related to sewage treatment plant	: Assumed domestic sewage treatment plant flow: $2\,000\text{ m}^3/\text{day}$ Estimated substance removal from wastewater via municipal sewage treatment: 94.5% Maximum allowable site tonnage (MSafe) [Assumed domestic sewage treatment plant flow]: $4\,000\text{ kg/day}$ Total efficiency of removal from wastewater after on-site and off-site (municipal treatment plant) RMMs: 94.5%
Conditions and measures related to external treatment of waste for disposal	: External treatment and disposal of waste should comply with applicable local and/or national regulations.
Conditions and measures related to external recovery of waste	: External recovery and recycling of waste should comply with applicable local and/or national regulations.

Contributing scenario controlling worker exposure for 2: General measures applicable to all activities

General measures applicable to all activities

Control any potential exposure using measures such as contained or enclosed systems, properly designed and maintained facilities and a good standard of general ventilation. Drain down systems and transfer lines prior to breaking containment. Drain down and flush equipment where possible prior to maintenance.

Where there is potential for exposure: Ensure relevant staff are informed of the nature of exposure and aware of basic actions to minimise exposures; ensure suitable personal protective equipment is available; clear up spills and dispose of waste in accordance with regulatory requirements; monitor effectiveness of control measures; consider the need for health surveillance; identify and implement corrective actions.

General measures (flammability)

Risks from the physicochemical hazards of substances, such as flammability or explosiveness can be controlled by implementing risk management measures at the workplace. It is recommended to follow the Dangerous Substances and Explosion Atmospheres Regulations (DSEAR) and The Equipment and Protective Systems Intended for use in Potentially Explosive Atmosphere Regulations (EPS). Based on the implementation of a selection of handling and storage risk management measures for the identified uses, the risk can be regarded as controlled to an acceptable level.

Use in contained systems. Keep away from sources of ignition - No smoking. Handle in well ventilated area to prevent formation of explosive atmosphere. Use equipment and protective systems approved for flammable substances. Restrict line velocity during pumping to avoid generation of electrostatic discharge. Ground/bond container and receiving equipment. Use non-sparking tools. Refer to relevant technical standards EU regulations/national regulations. Review SDS for additional advice.

General measures (aspiration)

The H304 risk phrase (May be fatal if swallowed and enters airways) relates to potential for aspiration, a non-quantifiable hazard determined by physico-chemical properties (i.e. viscosity) that can occur during ingestion and also if it is vomited following ingestion. A DNEL cannot be derived. Risks from the physicochemical hazards of substances can be controlled by implementing risk management measures. For substances classified as H304, the following measures need to be implemented to control the aspiration hazard.

Product safety-related measures: Do not ingest. If swallowed then seek immediate medical assistance. Do not induce vomiting.

General measures (skin irritants)

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN 374) 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.

Product characteristics : Liquid

HEATING OIL (DYED)		Functional fluids - Industrial
Concentration of substance in mixture or article	: Covers percentage substance in the product up to 100%	
Frequency and duration of use/exposure	: Covers daily exposures up to 8 hours (unless stated differently)	
Other conditions affecting workers exposure	: Assumes use at not more than 20°C above ambient temperature.	
Conditions and measures related to personal protection, hygiene and health evaluation		
Advice on general occupational hygiene	: Assumes a good basic standard of occupational hygiene is implemented	
Contributing scenario controlling worker exposure for 3: Bulk transfers		
Closed systems		
Product characteristics	: Liquid	
Concentration of substance in mixture or article	: Covers percentage substance in the product up to 100%	
Frequency and duration of use/exposure	: Covers daily exposures up to 8 hours (unless stated differently)	
Other conditions affecting workers exposure	: Assumes use at not more than 20°C above ambient temperature.	
Conditions and measures related to personal protection, hygiene and health evaluation		
Advice on general occupational hygiene	: Assumes a good basic standard of occupational hygiene is implemented	
Contributing scenario controlling worker exposure for 4: Drum/batch transfers		
Product characteristics	: Liquid	
Concentration of substance in mixture or article	: Covers percentage substance in the product up to 100%	
Frequency and duration of use/exposure	: Covers daily exposures up to 8 hours (unless stated differently)	
Other conditions affecting workers exposure	: Assumes use at not more than 20°C above ambient temperature.	
Conditions and measures related to personal protection, hygiene and health evaluation		
Advice on general occupational hygiene	: Assumes a good basic standard of occupational hygiene is implemented	
Personal protection	: Wear suitable gloves tested to EN374.	
Contributing scenario controlling worker exposure for 5: Filling of articles/equipment		
Closed systems		
Product characteristics	: Liquid	
Concentration of substance in mixture or article	: Covers percentage substance in the product up to 100%	
Frequency and duration of use/exposure	: Covers daily exposures up to 8 hours (unless stated differently)	
Other conditions affecting workers exposure	: Assumes use at not more than 20°C above ambient temperature.	
Technical conditions and measures at process level (source) to prevent release	: Transfer via enclosed lines.	
Conditions and measures related to personal protection, hygiene and health evaluation		
Advice on general occupational hygiene	: Assumes a good basic standard of occupational hygiene is implemented	

Contributing scenario controlling worker exposure for 6: Filling/preparation of equipment from drums or containers.

Product characteristics	: Liquid
Concentration of substance in mixture or article	: Covers percentage substance in the product up to 100%
Frequency and duration of use/exposure	: Covers daily exposures up to 8 hours (unless stated differently)
Other conditions affecting workers exposure	: Assumes use at not more than 20°C above ambient temperature.
Conditions and measures related to personal protection, hygiene and health evaluation	
Advice on general occupational hygiene	: Assumes a good basic standard of occupational hygiene is implemented
Personal protection	: Wear suitable gloves tested to EN374.

Contributing scenario controlling worker exposure for 7: General exposures (closed systems)

Product characteristics	: Liquid
Concentration of substance in mixture or article	: Covers percentage substance in the product up to 100%
Frequency and duration of use/exposure	: Covers daily exposures up to 8 hours (unless stated differently)
Other conditions affecting workers exposure	: Assumes use at not more than 20°C above ambient temperature.
Organisational measures to prevent/limit releases, dispersion and exposure	: Ensure operatives are trained to minimise exposures.
Conditions and measures related to personal protection, hygiene and health evaluation	
Advice on general occupational hygiene	: Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 8: General exposures (open systems)

Product characteristics	: Liquid
Concentration of substance in mixture or article	: Covers percentage substance in the product up to 100%
Frequency and duration of use/exposure	: Covers daily exposures up to 8 hours (unless stated differently)
Other conditions affecting workers exposure	: Operation is carried out at elevated temperature (> 20°C above ambient temperature)
Technical conditions and measures at process level (source) to prevent release	: Use dry-break couplings for material transfer.
Conditions and measures related to personal protection, hygiene and health evaluation	
Advice on general occupational hygiene	: Assumes a good basic standard of occupational hygiene is implemented
Personal protection	: Wear suitable gloves tested to EN374.

Contributing scenario controlling worker exposure for 9: Remanufacture of reject articles

Product characteristics	: Liquid
Concentration of substance in mixture or article	: Covers percentage substance in the product up to 100%
Frequency and duration of use/exposure	: Covers daily exposures up to 8 hours (unless stated differently)
Other conditions affecting workers exposure	: Assumes use at not more than 20°C above ambient temperature.
Conditions and measures related to personal protection, hygiene and health evaluation	

HEATING OIL (DYED)		Functional fluids - Industrial
Advice on general occupational hygiene	: Assumes a good basic standard of occupational hygiene is implemented	
Personal protection	: Wear suitable gloves tested to EN374.	
Contributing scenario controlling worker exposure for 10: Equipment maintenance		
Product characteristics	: Liquid	
Concentration of substance in mixture or article	: Covers percentage substance in the product up to 100%	
Frequency and duration of use/exposure	: Covers daily exposures up to 8 hours (unless stated differently)	
Other conditions affecting workers exposure	: Assumes use at not more than 20°C above ambient tempereature.	
Conditions and measures related to personal protection, hygiene and health evaluation		
Advice on general occupational hygiene	: Assumes a good basic standard of occupational hygiene is implemented	
Personal protection	: Wear chemical-resistant gloves (tested to EN374) in combination with 'basic' employee training.	
Contributing scenario controlling worker exposure for 11: Storage		
Product characteristics	: Liquid	
Concentration of substance in mixture or article	: Covers percentage substance in the product up to 100%	
Frequency and duration of use/exposure	: Covers daily exposures up to 8 hours (unless stated differently)	
Other conditions affecting workers exposure	: Assumes use at not more than 20°C above ambient tempereature.	
Technical conditions and measures at process level (source) to prevent release	: Store substance within a closed system.	
Conditions and measures related to personal protection, hygiene and health evaluation		
Advice on general occupational hygiene	: Assumes a good basic standard of occupational hygiene is implemented	

Section 3 - Exposure estimation and reference to its source

Website:	: Not applicable.
Exposure estimation and reference to its source - Environment: 1: General exposures	
Exposure assessment (environment):	: Hydrocarbon Block Method (Petrisk)
Exposure estimation and reference to its source	: ESVOC SPERC 7.13a.v1
Exposure estimation and reference to its source - Workers: 2: General measures applicable to all activities	
Exposure assessment (human):	: The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.
Exposure estimation and reference to its source	: Not available.
Exposure estimation and reference to its source - Workers: 3: Bulk transfers	
Exposure assessment (human):	: The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.
Exposure estimation and reference to its source	: Not available.

Exposure estimation and reference to its source - Workers: 4: Drum/batch transfers

Exposure assessment (human): : The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.

Exposure estimation and reference to its source : Not available.

Exposure estimation and reference to its source - Workers: 5: Filling of articles/equipment

Exposure assessment (human): : The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.

Exposure estimation and reference to its source : Not available.

Exposure estimation and reference to its source - Workers: 6: Filling/preparation of equipment from drums or containers.

Exposure assessment (human): : The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.

Exposure estimation and reference to its source : Not available.

Exposure estimation and reference to its source - Workers: 7: General exposures (closed systems)

Exposure assessment (human): : The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.

Exposure estimation and reference to its source : Not available.

Exposure estimation and reference to its source - Workers: 8: General exposures (open systems)

Exposure assessment (human): : The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.

Exposure estimation and reference to its source : Not available.

Exposure estimation and reference to its source - Workers: 9: Remanufacture of reject articles

Exposure assessment (human): : The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.

Exposure estimation and reference to its source : Not available.

Exposure estimation and reference to its source - Workers: 10: Equipment maintenance

Exposure assessment (human): : The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.

Exposure estimation and reference to its source : Not available.

Exposure estimation and reference to its source - Workers: 11: Storage

Exposure assessment (human): : The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.

Exposure estimation and reference to its source : Not available.

Section 4 - Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Environment : Further details on scaling and control technologies are provided in SPERC factsheet. 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 air can be achieved using on-site technologies, either alone or in combination.

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

Health	: Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. Available hazard data do not support the need for a DNEL to be established for other health effects. Predicted exposures are not expected to exceed the DN(M)EL when the risk management measures/operational conditions outlined in section 2 are implemented. Risk management measures are based on qualitative risk characterisation. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
--------	--

Additional good practice advice beyond the REACH CSA

Environment	: Not available.
Health	: Not available.

Annex to the extended Safety Data Sheet (eSDS)

Professional

Identification of the substance or mixture

Product definition : Mixture
Code : 1162403_13798390
Product name : HEATING OIL (DYED)

Section 1 - Title

Short title of the exposure scenario : Use as a fuel - Professional

List of use descriptors : **Identified use name:** Use as a fuel - Professional
Process Category: PROC01, PROC02, PROC03, PROC08a, PROC08b, PROC16
Sector of end use: SU22
Subsequent service life relevant for that use: No.
Environmental Release Category: ERC09a, ERC09b

Environmental contributing scenarios : **General exposures** - ERC09a, ERC09b

Health Contributing scenarios : **General measures applicable to all activities** - PROC01, PROC02, PROC03, PROC08a, PROC08b, PROC16
Bulk transfers - PROC08b
Drum/batch transfers - PROC08b
Equipment cleaning and maintenance - PROC08a
Vessel and container cleaning - PROC08a
Storage - PROC01
Use as a fuel - PROC01, PROC02, PROC03, PROC16
Refuelling - PROC08b

Processes and activities covered by the exposure scenario : Covers the use as a fuel (or fuel additive) and includes activities associated with its transfer, use, equipment maintenance and handling of waste.

Section 2 - Exposure controls

Contributing scenario controlling environmental exposure for 1: General exposures

Product characteristics : Predominantly hydrophobic
Substance is complex UVCB.

Amounts used : Annual site tonnage (tonnes/year): 3 600 tonnes/year
Fraction of EU tonnage used in region: 0.1
Fraction of Regional tonnage used locally: 0.0005
Maximum daily site tonnage (kg/day): 9 900 kg/day
Regional use tonnage (tonnes/year): 7 200 000 tonnes/year

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

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

Other conditions affecting environmental exposure : Release fraction to air from wide dispersive use (regional only): 0.0001
Release fraction to soil from wide dispersive use (regional only): 0.00001
Release fraction to wastewater from wide dispersive use: 0.00001

Technical conditions and measures at process level (source) to prevent release : Common practices vary across sites thus conservative process release estimates used.

Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil	: If discharging to municipal sewage treatment plant, no on-site wastewater treatment required. If discharging to municipal sewage treatment plant, provide the required on-site wastewater removal efficiency of: $\geq 0\%$ Risk from environmental exposure is driven by freshwater sediment. Treat air emission to provide a typical removal efficiency of: Not applicable. Treat on-site wastewater (prior to receiving water discharge) to provide the required removal efficiency of: $\geq 67.2\%$
Organisational measures to prevent/limit release from site	: Do not apply industrial sludge to natural soils. Sewage sludge should be incinerated, contained or reclaimed.
Conditions and measures related to sewage treatment plant	: Assumed domestic sewage treatment plant flow: 2 000 m ³ /day Estimated substance removal from wastewater via municipal sewage treatment: 94.5 % Maximum allowable site tonnage (MSafe) [Assumed domestic sewage treatment plant flow]: 59 000 kg/day Total efficiency of removal from wastewater after on-site and off-site (municipal treatment plant) RMMs: 94.5 %
Conditions and measures related to external treatment of waste for disposal	: Combustion emissions considered in regional exposure assessment. Combustion emissions limited by required exhaust emission controls. External treatment and disposal of waste should comply with applicable local and/or national regulations.
Conditions and measures related to external recovery of waste	: This substance is consumed during use and no waste from the substance is generated.

Contributing scenario controlling worker exposure for 2: General measures applicable to all activities

General measures applicable to all activities

Control any potential exposure using measures such as contained or enclosed systems, properly designed and maintained facilities and a good standard of general ventilation. Drain down systems and transfer lines prior to breaking containment. Drain down and flush equipment where possible prior to maintenance.

Where there is potential for exposure: Ensure relevant staff are informed of the nature of exposure and aware of basic actions to minimise exposures; ensure suitable personal protective equipment is available; clear up spills and dispose of waste in accordance with regulatory requirements; monitor effectiveness of control measures; consider the need for health surveillance; identify and implement corrective actions.

General measures (flammability)

Risks from the physicochemical hazards of substances, such as flammability or explosiveness can be controlled by implementing risk management measures at the workplace. It is recommended to follow the Dangerous Substances and Explosion Atmospheres Regulations (DSEAR) and The Equipment and Protective Systems Intended for use in Potentially Explosive Atmosphere Regulations (EPS). Based on the implementation of a selection of handling and storage risk management measures for the identified uses, the risk can be regarded as controlled to an acceptable level.

Use in contained systems. Keep away from sources of ignition - No smoking. Handle in well ventilated area to prevent formation of explosive atmosphere. Use equipment and protective systems approved for flammable substances. Restrict line velocity during pumping to avoid generation of electrostatic discharge. Ground/bond container and receiving equipment. Use non-sparking tools. Refer to relevant technical standards EU regulations/national regulations. Review SDS for additional advice..

General measures (aspiration)

The H304 risk phrase (May be fatal if swallowed and enters airways) relates to potential for aspiration, a non-quantifiable hazard determined by physico-chemical properties (i.e. viscosity) that can occur during ingestion and also if it is vomited following ingestion. A DNEL cannot be derived. Risks from the physicochemical hazards of substances can be controlled by implementing risk management measures. For substances classified as H304, the following measures need to be implemented to control the aspiration hazard.

Product safety-related measures: Do not ingest. If swallowed then seek immediate medical assistance. Do not induce vomiting.

General measures (skin irritants)

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN 374) 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.

Product characteristics : Liquid

HEATING OIL (DYED)		Use as a fuel - Professional
Concentration of substance in mixture or article	: Covers percentage substance in the product up to 100%	
Frequency and duration of use/exposure	: Covers daily exposures up to 8 hours (unless stated differently)	
Other conditions affecting workers exposure	: Assumes use at not more than 20°C above ambient temperature.	
Conditions and measures related to personal protection, hygiene and health evaluation		
Advice on general occupational hygiene	: Assumes a good basic standard of occupational hygiene is implemented	
Contributing scenario controlling worker exposure for 3: Bulk transfers		
Product characteristics	: Liquid	
Concentration of substance in mixture or article	: Covers percentage substance in the product up to 100%	
Frequency and duration of use/exposure	: Covers daily exposures up to 8 hours (unless stated differently)	
Other conditions affecting workers exposure	: Assumes use at not more than 20°C above ambient temperature.	
Conditions and measures related to personal protection, hygiene and health evaluation		
Advice on general occupational hygiene	: Assumes a good basic standard of occupational hygiene is implemented	
Personal protection	: Wear suitable gloves tested to EN374.	
Contributing scenario controlling worker exposure for 4: Drum/batch transfers		
Product characteristics	: Liquid	
Concentration of substance in mixture or article	: Covers percentage substance in the product up to 100%	
Frequency and duration of use/exposure	: Covers daily exposures up to 8 hours (unless stated differently)	
Other conditions affecting workers exposure	: Assumes use at not more than 20°C above ambient temperature.	
Technical conditions and measures at process level (source) to prevent release	: Use drum pumps or carefully pour from container.	
Conditions and measures related to personal protection, hygiene and health evaluation		
Advice on general occupational hygiene	: Assumes a good basic standard of occupational hygiene is implemented	
Personal protection	: Wear suitable gloves tested to EN374.	
Contributing scenario controlling worker exposure for 5: Equipment cleaning and maintenance		
Product characteristics	: Liquid	
Concentration of substance in mixture or article	: Covers percentage substance in the product up to 100%	
Frequency and duration of use/exposure	: Covers daily exposures up to 8 hours (unless stated differently)	
Other conditions affecting workers exposure	: Assumes use at not more than 20°C above ambient temperature.	
Technical conditions and measures at process level (source) to prevent release	: Drain down and flush system prior to equipment break-in or maintenance.	
Conditions and measures related to personal protection, hygiene and health evaluation		
Advice on general occupational hygiene	: Assumes a good basic standard of occupational hygiene is implemented	
Date of issue/Date of revision : 4/4/2023		65/73

Personal protection : Wear chemical-resistant gloves (tested to EN374) in combination with 'basic' employee training.

Contributing scenario controlling worker exposure for 6: Vessel and container cleaning

Product characteristics : Liquid

Concentration of substance in mixture or article : Covers percentage substance in the product up to 100%

Frequency and duration of use/exposure : Covers daily exposures up to 8 hours (unless stated differently)

Other conditions affecting workers exposure : Assumes use at not more than 20°C above ambient temperature.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene : Assumes a good basic standard of occupational hygiene is implemented

Personal protection : Wear chemical-resistant gloves (tested to EN374) in combination with 'basic' employee training.

Contributing scenario controlling worker exposure for 7: Storage

Product characteristics : Liquid

Concentration of substance in mixture or article : Covers percentage substance in the product up to 100%

Frequency and duration of use/exposure : Covers daily exposures up to 8 hours (unless stated differently)

Other conditions affecting workers exposure : Assumes use at not more than 20°C above ambient temperature.

Technical conditions and measures at process level (source) to prevent release : Store substance within a closed system.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene : Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 8: Use as a fuel

Closed systems

Product characteristics : Liquid

Concentration of substance in mixture or article : Covers percentage substance in the product up to 100%

Frequency and duration of use/exposure : Covers daily exposures up to 8 hours (unless stated differently)

Other conditions affecting workers exposure : Assumes use at not more than 20°C above ambient temperature.

Technical conditions and measures at process level (source) to prevent release : Ensure operation is undertaken outdoors.

Ventilation control measures : Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene : Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 9: Refuelling

Product characteristics	: Liquid
Concentration of substance in mixture or article	: Covers percentage substance in the product up to 100%
Frequency and duration of use/exposure	: Covers daily exposures up to 8 hours (unless stated differently)
Other conditions affecting workers exposure	: Assumes use at not more than 20°C above ambient temperature.
Conditions and measures related to personal protection, hygiene and health evaluation	
Advice on general occupational hygiene	: Assumes a good basic standard of occupational hygiene is implemented
Personal protection	: Wear suitable gloves tested to EN374.

Section 3 - Exposure estimation and reference to its source

Website: : Not applicable.

Exposure estimation and reference to its source - Environment: 1: General exposures

Exposure assessment (environment):	: Hydrocarbon Block Method (Petrisk)
Exposure estimation and reference to its source	: ESVOG SPERC 9.12b.v1

Exposure estimation and reference to its source - Workers: 2: General measures applicable to all activities

Exposure assessment (human):	: The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.
Exposure estimation and reference to its source	: Not available.

Exposure estimation and reference to its source - Workers: 3: Bulk transfers

Exposure assessment (human):	: The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.
Exposure estimation and reference to its source	: Not available.

Exposure estimation and reference to its source - Workers: 4: Drum/batch transfers

Exposure assessment (human):	: The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.
Exposure estimation and reference to its source	: Not available.

Exposure estimation and reference to its source - Workers: 5: Equipment cleaning and maintenance

Exposure assessment (human):	: The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.
Exposure estimation and reference to its source	: Not available.

Exposure estimation and reference to its source - Workers: 6: Vessel and container cleaning

Exposure assessment (human):	: The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.
Exposure estimation and reference to its source	: Not available.

Exposure estimation and reference to its source - Workers: 7: Storage

Exposure assessment (human):	: The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.
Exposure estimation and reference to its source	: Not available.

Exposure estimation and reference to its source - Workers: 8: Use as a fuel

Exposure assessment (human):	: The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.
Exposure estimation and reference to its source	: Not available.

Exposure estimation and reference to its source - Workers: 9: Refuelling

Exposure assessment (human):	: The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.
Exposure estimation and reference to its source	: Not available.

Section 4 - Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Environment	: Further details on scaling and control technologies are provided in SPERC factsheet. 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 air can be achieved using on-site technologies, either alone or in combination. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.
Health	: Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. Available hazard data do not support the need for a DNEL to be established for other health effects. Predicted exposures are not expected to exceed the DN(M)EL when the risk management measures/operational conditions outlined in section 2 are implemented. Risk management measures are based on qualitative risk characterisation. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Additional good practice advice beyond the REACH CSA

Environment	: Not available.
Health	: Not available.

Annex to the extended Safety Data Sheet (eSDS)

Consumer

Identification of the substance or mixture

Product definition : Mixture
Code : 1162403_13798390
Product name : HEATING OIL (DYED)

Section 1 - Title

Short title of the exposure scenario : Use as a fuel - Consumer
List of use descriptors : **Identified use name:** Use as a fuel - Consumer
Sector of end use: SU21
Subsequent service life relevant for that use: No.
Environmental Release Category: ERC09a, ERC09b
Market sector by type of chemical product: PC13
Environmental contributing scenarios : **General exposures** - ERC09a, ERC09b
Health Contributing scenarios : **General measures applicable to all activities** - PC13
Liquid: automotive refuelling - PC13
Liquid: garden equipment - use - PC13
Liquid: garden equipment - refuelling - PC13

Processes and activities covered by the exposure scenario : Covers consumer uses in liquid fuels.

Section 2 - Exposure controls

Contributing scenario controlling environmental exposure for 1: General exposures

Product characteristics : Predominantly hydrophobic
Substance is complex UVCB.
Amounts used : Annual site tonnage (tonnes/year): 9 700 tonnes/year
Fraction of EU tonnage used in region: 0.1
Fraction of Regional tonnage used locally: 0.0005
Maximum daily site tonnage (kg/day): 27 000 kg/day
Regional use tonnage (tonnes/year): 19 000 000 tonnes/year
Frequency and duration of use : Continuous release
Emission days (days per year): 365 days per year
Environment factors not influenced by risk management : Local freshwater dilution factor: 10
Local marine water dilution factor: 100
Other conditions affecting environmental exposure : Release fraction to air from wide dispersive use (regional only): 0.0001
Release fraction to soil from wide dispersive use (regional only): 0.00001
Release fraction to wastewater from wide dispersive use: 0.00001
Conditions and measures related to sewage treatment plant : Assumed domestic sewage treatment plant flow: 2 000 m³/day
Estimated substance removal from wastewater via municipal sewage treatment: 94.5 %
Not applicable as there is no release to wastewater.
Maximum allowable site tonnage (MSafe) [Assumed domestic sewage treatment plant flow]: 110 000 kg/day
Conditions and measures related to external treatment of waste for disposal : Combustion emissions considered in regional exposure assessment.
Combustion emissions limited by required exhaust emission controls.
External treatment and disposal of waste should comply with applicable local and/or national regulations.
Conditions and measures related to external recovery of waste : This substance is consumed during use and no waste from the substance is generated.

Date of issue/Date of revision : 1/5/2022

69/73

Contributing scenario controlling consumer exposure for 2: General measures applicable to all activities**General measures (flammability)**

Risks from the physicochemical hazards of substances can be controlled by implementing risk management measures. For flammable substances a selection of the following measures need to be implemented to control unintended ignition of flammable substances. These measures are expected to be suitable to prevent minor accidents which might occur during consumer use. Based on the implementation of a selection of handling and storage risk management measures for the identified uses, it is anticipated that there is no immediate concern as the risk should be controlled to an acceptable level. Use only with adequate ventilation. Keep away from sources of ignition - No smoking. Review SDS for additional advice.

General measures (aspiration)

The H304 risk phrase (May be fatal if swallowed and enters airways) relates to potential for aspiration, a non-quantifiable hazard determined by physico-chemical properties (i.e. viscosity) that can occur during ingestion and also if it is vomited following ingestion. A DNEL cannot be derived. Risks from the physicochemical hazards of substances can be controlled by implementing risk management measures. For substances classified as H304, the following measures need to be implemented to control the aspiration hazard.

Product safety-related measures: Do not ingest. If swallowed then seek immediate medical assistance. Do not induce vomiting. Just a sip of lamp oil - or even sucking the wick of lamps - may lead to life-threatening lung damage. Keep lamps filled with this liquid out of the reach of children.

Product characteristics	: Liquid
Amounts used	: Not applicable.
Frequency and duration of use/exposure	: Not applicable.
Other given operational conditions affecting consumers exposure	: Not applicable.

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene	: Not applicable.
---	-------------------

Contributing scenario controlling consumer exposure for 3: Liquid: automotive refuelling

Product characteristics	: Liquid
Concentration of substance in mixture or article	: Covers percentage substance in the product up to 100%
Amounts used	: Covers skin contact area up to 210 cm ² For each use event, covers use amounts up to 37 500 g Covers use in room size of 100 m ³
Frequency and duration of use/exposure	: Covers use up to 1 times per day Covers use up to 52 days per year Covers exposure up to 0.05 hour(s) Covers outdoor use. 0.6 ach (air changes per hour)
Other given operational conditions affecting consumers exposure	: Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene	: Not applicable.
---	-------------------

Contributing scenario controlling consumer exposure for 4: Liquid: garden equipment - use

Product characteristics	: Liquid
Concentration of substance in mixture or article	: Covers percentage substance in the product up to 100%
Amounts used	: Covers skin contact area up to 420 cm ² For each use event, covers use amounts up to 750 g Covers use in room size of 100 m ³
Frequency and duration of use/exposure	: Covers use up to 1 times per day Covers use up to 26 days per year Covers exposure up to 2 hour(s) Covers outdoor use. 0.6 ach (air changes per hour)

HEATING OIL (DYED)		Use as a fuel - Consumer
Other given operational conditions affecting consumers exposure	: Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure	
Conditions and measures related to personal protection and hygiene		
Advice on general occupational hygiene	: Not applicable.	
Contributing scenario controlling consumer exposure for 5: Liquid: garden equipment - refuelling		
Product characteristics	: Liquid	
Concentration of substance in mixture or article	: Covers percentage substance in the product up to 100%	
Amounts used	: Covers skin contact area up to 420 cm ² For each use event, covers use amounts up to 750 g Covers use in room size of 34 m ³	
Frequency and duration of use/exposure	: Covers use up to 1 times per day Covers use up to 26 days per year Covers exposure up to 0.03 hour(s) Covers use in a one car garage (34 m ³) under typical ventilation. 1.5 ach (air changes per hour)	
Other given operational conditions affecting consumers exposure	: Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure	
Conditions and measures related to personal protection and hygiene		
Advice on general occupational hygiene	: Not applicable.	

Section 3 - Exposure estimation and reference to its source

Website:	: Not applicable.
Exposure estimation and reference to its source - Environment: 1: General exposures	
Exposure assessment (environment):	: Hydrocarbon Block Method (Petrorisk)
Exposure estimation and reference to its source	: ESVOC SPERC 9.12c.v1
Exposure estimation and reference to its source - Consumers: 2: General measures applicable to all activities	
Exposure assessment (human):	: ECETOC TRA, consumer
Exposure estimation and reference to its source	: Not available.
Exposure estimation and reference to its source - Consumers: 3: Liquid: automotive refuelling	
Exposure assessment (human):	: ECETOC TRA, consumer
Exposure estimation and reference to its source	: Not available.
Exposure estimation and reference to its source - Consumers: 4: Liquid: garden equipment - use	
Exposure assessment (human):	: ECETOC TRA, consumer
Exposure estimation and reference to its source	: Not available.
Exposure estimation and reference to its source - Consumers: 5: Liquid: garden equipment - refuelling	
Exposure assessment (human):	: ECETOC TRA, consumer
Exposure estimation and reference to its source	: Not available.

Section 4 - Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Environment	: Further details on scaling and control technologies are provided in SPERC factsheet.
Health	: Predicted exposures are not expected to exceed the DN(M)EL when the risk management measures/operational conditions outlined in section 2 are implemented. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Additional good practice advice beyond the REACH CSA

Environment	: Not available.
Health	: Not available.

HEATING OIL (DYED)