

**SAFETY DATA SHEET****Fuel oil, residual (CAS 68476-33-5)**

The safety data sheet is in accordance with Commission Regulation (EU) 2015/830 of 28 May 2015 amending Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)

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

**Date issued** 02.12.2019

**1.1. Product identifier**

**Product name** Fuel oil, residual (CAS 68476-33-5)  
**Synonyms** Heavy fuel oil, LSFO, RMG 380, RME 180, FO 0.5%S, FO 1.0%S  
**REACH Reg. No.** 01-2119474894-22  
**CAS No.** 68476-33-5  
**EC No.** 270-675-6  
**Extended SDS with ES incorporated** Yes  
**Extended SDS with ES incorporated, comments** See attachment(-s) in section 16.

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

**Product group** Fuel  
Raw material in the chemical industry  
**Use of the substance / preparation** Fuel for use in off-road diesel engines, boilers, furnaces and other combustion equipment  
Use as an intermediate, industrial  
Distribution of substance, industrial  
Formulation & (re)packing of the substance and its mixtures, industrial  
Use as a fuel, industrial  
Use as a fuel, professional  
**Uses advised against** Applications that are not registered and risk assessed.

**1.3. Details of the supplier of the safety data sheet**

**Company name** St1 Sverige AB  
**Postal address** Box 1029  
**Postcode** SE-172 21

<b>City</b>	Sundbyberg
<b>Country</b>	Sweden
<b>Telephone number</b>	+46 (0) 31 744 6000
<b>Email</b>	<a href="mailto:Supply-Sweden@st1.se">Supply-Sweden@st1.se</a>
<b>Website</b>	<a href="http://www.st1.se">www.st1.se</a>

## 1.4. Emergency telephone number

<b>Emergency telephone</b>	Telephone number: 111 (NHS) Description: For poisoning emergencies (UK)
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## SECTION 2: Hazards identification

### 2.1. Classification of the substance or mixture

<b>Classification according to Regulation (EC) No 1272/2008 [CLP / GHS]</b>	Acute Tox. 4; H332 Carc. 1B; H350 Repr. 2; H361d STOT RE 2; H373 Aquatic Acute 1; H400 Aquatic Chronic 1; H410 EUH 066
<b>Substance / mixture hazardous properties</b>	Harmful by inhalation. May cause cancer. Suspected of damaging the unborn child May cause damage to organs (blood, liver, thymus) through prolonged or repeated exposure. Very toxic to aquatic life with long lasting effects. Repeated exposure may cause skin dryness or cracking.

### 2.2. Label elements

#### Hazard pictograms (CLP)



<b>Composition on the label</b>	Fuel oil, residual
<b>Signal word</b>	Danger
<b>Hazard statements</b>	H332 Harmful if inhaled. H350 May cause cancer . H361d Suspected of damaging the unborn child. H373 May cause damage to organs (blood, liver, thymus) through prolonged or repeated exposure

	H410 Very toxic to aquatic life with long lasting effects.
<b>Precautionary statements</b>	P201 Obtain special instructions before use. P261 Avoid breathing vapours/mist/spray/gas. P273 Avoid release to the environment. P281 Use personal protective equipment as required. P301+P310 IF SWALLOWED: Immediately call a POISON CENTER or doctor / physician. P331 Do NOT induce vomiting. P308+P313 IF exposed or concerned: Get medical advice / attention. P391 Collect spillage.
<b>Supplemental label information</b>	EUH 066 Repeated exposure may cause skin dryness or cracking.

## 2.3. Other hazards

<b>PBT / vPvB</b>	The substance does not meet current criteria for PBT (Persistent, bioaccumulative and toxic) or vPvB (very persistent and very bioaccumulative).
<b>Physicochemical effects</b>	Not classified as flammable but combustible. Flammable vapours may be present even at temperatures below flash point. Therefore the liquid should be treated as potentially flammable. May ignite on surfaces at temperatures above auto-ignition temperature. Electrostatic charges may be generated during pumping. Electrostatic discharge may cause fire. Hydrogen sulphide, an extremely flammable and toxic gas, and other hazardous vapours may evolve and collect in the headspace of storage tanks, transport vessels and other enclosed containers.
<b>Health effect</b>	Hydrogen sulphide (H <sub>2</sub> S) is highly toxic and may be fatal if inhaled. The gas may dull the sense of smell and has a high odour threshold, so do not rely on odour as an indication of hazard. Contact with hot material can cause thermal burns which may result in permanent skin damage.

## SECTION 3: Composition / information on ingredients

### 3.1. Substances

Substance	Identification	Classification	Contents	Notes
Fuel oil, residual	CAS No.: 68476-33-5 EC No.: 270-675-6 REACH Reg. No.: 01-2119474894-22	Acute Tox. 4; H332 Carc. 1B; H350 Repr. 2; H361d STOT RE 2; H373 Aquatic Acute 1; H400 Aquatic Chronic 1; H410 EUH 066	≤ 100 %	

<b>Remarks, substance</b>	Composition is complex and varies with the source of the crude oil. Heavy Fuel Oils are blends of residual fuels and distillate streams which always require heating before use. Streams obtained from distillation and cracking processes and containing a mixture of saturated, aromatic and olefinic hydrocarbons with carbon numbers predominantly in the C <sub>9</sub> to C <sub>50</sub> range. Contains cracked components in which polycyclic aromatic compounds, mainly 3-ring but some 4 to 6 ring species, are present.
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Contains sulphur, oxygen, nitrogen compounds, vanadium and other metals at > 10 ppm w/w.  
Contains hydrogen sulphide, CAS 7783-06-4.  
Hydrogen sulphide may be present both in the liquid and the vapour.

**Substance comments**

See section 16 for explanation of hazard statements (H) listed above.

## SECTION 4: First aid measures

### 4.1. Description of first aid measures

**General**

Emergency telephone number: see section 1.4. If medical advice is needed, have safety data sheet or label available at hand.

Vaporisation of H<sub>2</sub>S that has been trapped in clothing can be dangerous to rescuers. Maintain respiratory protection to avoid contamination from the victim to rescuer.

Mechanical ventilation should be used to resuscitate if at all possible.

**Inhalation**

Remove victim to fresh air and keep at rest in a position comfortable for breathing.

Call a POISON CENTER or doctor/physician if you feel unwell.

Do not attempt to rescue the victim unless proper respiratory protection against H<sub>2</sub>S is worn.

If the victim has difficulty breathing or tightness of the chest, is dizzy, vomiting, or unresponsive, give 100% oxygen.

Perform CPR if needed and call for an ambulance.

**Skin contact**

Cold product:

Remove contaminated clothing. Flush exposed area with water and follow by washing with soap if available. If persistent irritation occurs, obtain medical attention.

Hot product:

Cool the burn area by flushing with large amounts of water. Do not attempt to remove anything from the burn area or apply burn creams or ointments.

Cover the burn area loosely with a sterile dressing, if available. Transport to the nearest medical facility for additional treatment.

**Eye contact**

Cold product:

Flush eye with copious quantities of water. If persistent irritation occurs, obtain medical attention.

Hot product:

Cool the burn area by flushing with large amounts of water. Do not attempt to remove anything from the burn area or apply burn creams or ointments. Cover the burn area loosely with a sterile dressing, if available. Transport to the nearest medical facility for additional treatment.

**Ingestion**

Rinse mouth thoroughly. Do NOT induce vomiting. Immediately call a POISON CENTER or doctor/physician. Never give anything by mouth to an unconscious person.

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

**Acute symptoms and effects**

Inhalation: At low concentrations of H<sub>2</sub>S ( $\leq 10$  ppm), the gas appears irritating to the airways.

Headache, nausea, dizziness, unsteady gait and diarrhea ( $\leq 100$  ppm). At 200 ppm potential for pulmonary oedema after > 20-30 minutes.  
 At higher concentrations of H<sub>2</sub>S (about 500 ppm), the respiratory center is paralyzed and can cause death within a few seconds.  
 Exposure to non-lethal levels can cause long-term or permanent nerve damage or pulmonary edema.  
 Eye contact: Causes irritation upon eye-contact and may cause watering, burning and redness. After contact with hydrogen sulphide typically so-called "gas eye" may appear, which is an experience of seeing colored rings around lights.

**Delayed symptoms and effects** Repeated exposure may cause skin dryness or cracking.  
 May cause damage to organs (blood, thymus, liver) through prolonged or repeated exposure .  
 Suspected of damaging the unborn child

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

**Medical monitoring for delayed effects** Monitor for consciousness, circulation and breathing.  
 Monitor for signs of an arrhythmia.

**Specific details on antidotes** Correction of metabolic acidosis.  
 In case of severe CNS or circulatory effects, 200 ml of sodium bicarbonate is given immediately, 50 mg/ml iv (adult).  
 CALL POISON INFORMATION CENTER.

**Other information** Treat symptomatically.

## SECTION 5: Firefighting measures

### 5.1. Extinguishing media

**Suitable extinguishing media** In case of major fire and large quantities: Foam. Water spray, fog or mist.  
 Small fires: Powder. Carbon dioxide (CO<sub>2</sub>).  
 Sand or earth are suitable in small fires.

**Improper extinguishing media** Do not use water jet as an extinguisher, as this will spread the fire.  
 Simultaneous use of foam and water on the same surface is to be avoided as water destroys the foam.

### 5.2. Special hazards arising from the substance or mixture

**Fire and explosion hazards** Combustible liquid. To be treated as a potentially flammable liquid.  
 Hydrogen sulphide (H<sub>2</sub>S) and toxic sulphur oxides may be released when this material is heated.  
 Static accumulator: This product may accumulate static electricity. Electrostatic discharge may cause fire.  
 Can form explosive gas-air mixtures. Vapours are heavier than air and may spread near ground to sources of ignition. May travel considerable distance to source of ignition and flash back.

**Hazardous combustion products** May include, but is not limited to:  
 Carbon dioxide (CO<sub>2</sub>). Carbon monoxide (CO). Hydrocarbons. Unspecified organic compounds. Oxides of sulphur (SO<sub>x</sub>). Hydrogen sulphide (H<sub>2</sub>S).

### 5.3. Advice for firefighters

<b>Personal protective equipment</b>	Firefighters who may be exposed to smoke or thermal decomposition products shall wear all available personal protective equipment (PPE) and SCBA mask.
<b>Other information</b>	If there is no risk involved, move the containers to a safe place. If not possible, cool with water from a safe position. Extinguishing water must not be discharged into drains.

## SECTION 6: Accidental release measures

### 6.1. Personal precautions, protective equipment and emergency procedures

<b>General measures</b>	Evacuate area. Provide adequate ventilation. Stop leak if safe to do so. Eliminate all ignition sources if safe to do so. Test atmosphere for hazardous gas concentrations to ensure safe working conditions before personnel are allowed to enter the area. Monitor area with combustible gas meter.
<b>Personal protection measures</b>	Avoid any exposure. Put on protective equipment before entering danger area. For personal protection, see section 8.

### 6.2. Environmental precautions

<b>Environmental precautionary measures</b>	Do not allow to enter into sewer, water system or soil. Immediately notify the local authorities about any damage.
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### 6.3. Methods and material for containment and cleaning up

<b>Clean up</b>	Remove ignition sources and work with non-sparking tools. Small Spillages: (< 1 drum) Collect with absorbent, non-combustible material into suitable containers. Proposals for inert materials: sand, kieselguhr, universal binder. Collect in a suitable container and dispose as hazardous waste according to section 13. Large Spillages: For large liquid spills (> 1 drum), transfer by mechanical means such as vacuum truck to a salvage tank for recovery or safe disposal. Do not flush away residues with water.
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### 6.4. Reference to other sections

<b>Other instructions</b>	See also sections 8 and 13.
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## SECTION 7: Handling and storage

### 7.1. Precautions for safe handling

<b>Handling</b>	Heavy fuel oils are blends of residual fuels and distillate streams which always require heating before use. Provide adequate ventilation. Local exhaust is recommended. Air monitoring alarms are needed to monitor concentrations of H <sub>2</sub> S i air in
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enclosed spaces, heated transport vessels and in spill or leak situations.  
Avoid inhalation of vapours and contact with skin and eyes. Use protective equipment as referred to in section 8.  
Contaminated rags and cloths must be put in fireproof containers for disposal.  
Risk of vapour concentration on the floor and in low-lying areas. Risk for slippery floors and tools if spilled out.  
Pregnant women should not work with the product, if there is the least risk of exposure.

## Protective safety measures

<b>Safety measures to prevent fire</b>	Smoking and naked flames and other ignition sources are prohibited. Do not pressurise, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition. Apply also to emptied containers, that may contain explosive vapours. Take precautionary measures against static discharges. Ground / bond container and receiving equipment. Use only non-sparking tools. Use explosion-proof electrical / ventilating / lighting // equipment.
<b>Additional information</b>	Product transfer: Avoid splash filling. Wait 2 minutes after tank filling (for tanks such as those on road tanker vehicles) before opening hatches or manholes. Wait 30 minutes after tank filling (for large storage tanks) before opening hatches or manholes. Keep containers closed when not in use. Do not use compressed air for filling, discharging or handling
<b>Advice on general occupational hygiene</b>	Do not eat, drink or smoke during work. Wash hands at the end of each work shift and before eating, smoking and using the toilet. Wash contaminated clothing before reuse.

## 7.2. Conditions for safe storage, including any incompatibilities

<b>Storage</b>	Drum and small container storage: Drums should be stacked to a maximum of 3 high. Use properly labelled and closeable containers. Prevent ingress of water.  Tank storage: Tanks must be specifically designed for use with this product. Bulk storage tanks should be diked (bunded). Locate tanks away from heat and other sources of ignition. Tanks should be fitted with heating coils. Ensure heating coils are always covered with product (minimum 15 cm).
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## Conditions for safe storage

<b>Packaging compatibilities</b>	Recommended materials: For containers, or container linings use mild steel, stainless steel. Aluminium may also be used for applications where it does not present an unnecessary fire hazard. Other suitable materials are: High density polyethylene (HDPE) and Viton (FKM). For container linings, use amine-adduct cured epoxy paint.
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For seals and gaskets use: graphite, PTFE, Viton A, Viton B.

Unsuitable materials:

Natural rubber (NR), nitrile rubber (NBR), ethylene propylene rubber (EPDM), polymethyl methacrylate (PMMA), polystyrene, polyvinyl chloride (PVC), polyisobutylene.

However, some may be suitable for glove materials.

**Advice on storage compatibility** Keep away from:  
Strong oxidizing agents. Food and feed.

### 7.3. Specific end use(s)

**Specific use(s)** See section 1.2.  
See exposure scenario.

## SECTION 8: Exposure controls / personal protection

### 8.1. Control parameters

Substance	Identification	Exposure limits	TWA Year
Hydrogen sulphide	CAS No.: 7783-06-4	Limit value (8 h) : 5 ppm Limit value (8 h) : 7 mg/m <sup>3</sup> <b>Limit value (short term)</b> Value: 10 ppm <b>Limit value (short term)</b> Value: 14 mg/m <sup>3</sup>	

#### Other information about threshold limit values

References (laws/regulations): Norwegian regulation on exposure limits: FOR 2011-12-06 nr 1358 Forskrift om tiltaks- og grenseverdier (sist endret gjennom FOR-2017-12-20-2353).

### DNEL / PNEC

#### DNEL

Group: Professional  
Route of exposure: Acute inhalation (systemic)  
Value: 4700 mg/m<sup>3</sup>  
Reference: 15 minutes. (aerosol)  
Comments: Applies to Fuel oil, residual.

Group: Professional  
Route of exposure: Long-term inhalation (systemic)  
Value: 0,12 mg/m<sup>3</sup>  
Reference: 8 h. (aerosol)  
Comments: Applies to Fuel oil, residual.

Group: Professional  
Route of exposure: Long-term dermal (systemic)  
Value: 0,065 mg/kg  
Reference: 8 h.  
Comments: Applies to Fuel oil, residual.



Group: Consumer  
 Route of exposure: Long-term oral (systemic)  
 Value: 0,015 mg/kg bw/day  
 Comments: Applies to Fuel oil, residual.

<b>PNEC</b>	Comments: Substance is a hydrocarbon with a complex, unknown or variable composition. Conventional methods of deriving PNECs are not appropriate and it is not possible to identify a single representative PNEC for such substances.
<b>DMEL</b>	Comments: No data available

## 8.2. Exposure controls

### Precautionary measures to prevent exposure

<b>Technical measures to prevent exposure</b>	<p>Explosion-proof general and local exhaust ventilation.          Provide adequate ventilation. Observe Occupational Exposure Limits and minimise the risk of inhalation of vapours.          EN 689:2018 Workplace exposure. Measurement of exposure by inhalation to chemical agents. Strategy for testing compliance with occupational exposure limit values.          The personal protective equipment must be CE-marked and the latest version of the standards shall be used. The protective equipment and the specified standards recommended below are only suggestions, and should be selected on advice from the supplier of such equipment.          A risk assessment of the work place/work activities (the actual risk) may lead to other control measures. The protection equipment's suitability and durability will depend on application.</p>
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### Eye / face protection

<b>Eye protection equipment</b>	<p>Description: Wear approved chemical safety goggles where eye exposure is reasonably probable.          Reference to relevant standard: EN 166 (Personal eye-protection. Specifications).</p>
<b>Additional eye protection measures</b>	<p>Eye wash facilities should be available at the work place. Either a fixed eye wash facility connected to the drinking water (preferably warm water) or a portable disposable unit.</p>

### Hand protection

<b>Suitable materials</b>	<p>Nitrile.          For incidental contact/splash protection, Neoprene, PVC gloves may be suitable.</p>
<b>Breakthrough time</b>	<p>Comments: Nitrile: &gt; 240 minutes.</p>
<b>Thickness of glove material</b>	<p>Comments: Glove thickness must be chosen in consultation with the glove supplier.</p>
<b>Hand protection equipment</b>	<p>Description: Use protective gloves that are suitable for the application. The gloves abilities may vary among the different glove manufacturers.          Reference to relevant standard: BS-EN 374 (Protective gloves against chemicals and micro-organisms).          BS-EN 420 (Protective gloves. General requirements and test methods).</p>

<b>Additional hand protection measures</b>	Gloves must only be worn on clean hands. Wash promptly with soap & water if skin becomes contaminated.
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## Skin protection

<b>Recommended protective clothing</b>	Description: At risk of splashing: Wear impervious protective clothing, gloves, apron and boots.
<b>Additional skin protection measures</b>	Emergency shower should be available at the workplace. Remove contaminated clothing and wash the skin thoroughly with soap and water after work. Wash contaminated clothing before reuse.

## Respiratory protection

<b>Recommended respiratory protection</b>	Description: In case of inadequate ventilation: Mask with filter ABE. At work in confined or poorly ventilated spaces, respiratory protection with air supply must be used. Reference to relevant standard: EN 14387 (Respiratory protective devices. Gas filter(s) and combined filter(s). Requirements, testing, marking). BS EN 137:2006. Respiratory protective devices. Self-contained open-circuit compressed air breathing apparatus with full face mask.
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## Appropriate environmental exposure control

<b>Environmental exposure controls</b>	Local guidelines on emission limits for volatile substances must be observed for the discharge of exhaust air containing vapour. Do not allow to enter into sewer, water system or soil.
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## SECTION 9: Physical and chemical properties

### 9.1. Information on basic physical and chemical properties

<b>Physical state</b>	Viscous liquid.
<b>Colour</b>	Brown. / Black.
<b>Odour</b>	Hydrocarbon.
<b>Odour limit</b>	Comments: Data lacking.
<b>pH</b>	Comments: Not relevant.
<b>Melting point / melting range</b>	Value: < 30 °C
<b>Boiling point / boiling range</b>	Value: 150 -750 °C
<b>Flash point</b>	Value: > 60 °C
<b>Evaporation rate</b>	Comments: Data lacking.
<b>Flammability</b>	Not relevant.
<b>Explosion limit</b>	Value: 0,50 -5,0 vol%
<b>Vapour pressure</b>	Value: 0,2 -7,91 hPa Temperature: 37,8 °C
<b>Vapour density</b>	Value: > 1

	Comments: Air=1.
<b>Density</b>	Value: $\leq 991 \text{ kg/m}^3$ Temperature: 15 °C
<b>Solubility</b>	Medium: Water Comments: Ignorable.
<b>Partition coefficient: n-octanol/ water</b>	Comments: Data lacking.
<b>Auto-ignition temperature</b>	Value: > 220 °C
<b>Decomposition temperature</b>	Comments: Data lacking.
<b>Viscosity</b>	Value: > 20,5 mm <sup>2</sup> /s Temperature: 40 °C Type: Kinematic
<b>Explosive properties</b>	Not explosive.
<b>Oxidising properties</b>	Not oxidizing.

## 9.2. Other information

### Other physical and chemical properties

Comments	No further information is available.
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## SECTION 10: Stability and reactivity

### 10.1. Reactivity

Reactivity	Under normal conditions and use there are not expected any reactivity hazards for this chemical.
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### 10.2. Chemical stability

Stability	Stable under normal temperature conditions and recommended use.
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### 10.3. Possibility of hazardous reactions

Possibility of hazardous reactions	May arise in contact with incompatible materials (see section 10.5) and/or under inappropriate conditions (see section 10.4).
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### 10.4. Conditions to avoid

Conditions to avoid	Avoid heat, flames and other sources of ignition. Take precautionary measures against static discharge.
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### 10.5. Incompatible materials

Materials to avoid	Strong oxidizing agents.
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### 10.6. Hazardous decomposition products

<b>Hazardous decomposition products</b>	Hydrogen sulphide, an extremely flammable and toxic gas, and other hazardous vapours may evolve and collect in the headspace of storage tanks, transport vessels and other enclosed containers. See also section 5.2.
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## SECTION 11: Toxicological information

### 11.1. Information on toxicological effects

<b>Acute toxicity</b>	Effect tested: LD50 Route of exposure: Oral Value: > 5000 mg/kg Species: Rat
	Effect tested: LD50 Route of exposure: Dermal Value: > 2000 mg/kg Species: Rabbit
	Effect tested: LC50 Route of exposure: Inhalation. Duration: 4 hour(s) Value: > 1,0 ≤ 5,0 mg/l Species: Rat

### Other information regarding health hazards

<b>Assessment of acute toxicity, classification</b>	Harmful by inhalation.
<b>Assessment of skin corrosion / irritation, classification</b>	Based on available data, the classification criteria are not met. Prolonged or repeated contact leads to drying of skin.
<b>Assessment of eye damage or irritation, classification</b>	Based on available data, the classification criteria are not met.
<b>Assessment of respiratory sensitisation, classification</b>	Based on available data, the classification criteria are not met.
<b>Assessment of skin sensitisation, classification</b>	Based on available data, the classification criteria are not met.
<b>Assessment of germ cell mutagenicity, classification</b>	Based on available data, the classification criteria are not met.
<b>Assessment of carcinogenicity, classification</b>	May cause cancer.
<b>Assessment of reproductive toxicity, classification</b>	Suspected of damaging the unborn child
<b>Assessment of specific target organ toxicity - single exposure, classification</b>	Based on available data, the classification criteria are not met.
<b>Assessment of specific target organ toxicity - repeated exposure, classification</b>	May cause damage to organs (blood, liver, thymus) through prolonged or repeated exposure .
<b>Assessment of aspiration hazard, classification</b>	Based on available data, the classification criteria are not met.

## Symptoms of exposure

<b>In case of ingestion</b>	Data lacking.
<b>In case of skin contact</b>	Prolonged and repeated contact can cause drying of the skin.
<b>In case of inhalation</b>	Solvent vapors may be harmful and overexposure may cause headaches, nausea, vomiting, and intoxication. Inhalation of H <sub>2</sub> S at low concentrations ( $\leq 10$ ppm): Irritating to the airways. Inhalation of H <sub>2</sub> S at concentrations $\leq 100$ ppm: Headache, nausea, dizziness, unsteady gait and diarrhea. Inhalation of H <sub>2</sub> S at concentrations 200 ppm: Potential for pulmonary oedema after >20-30 minutes. Inhalation of H <sub>2</sub> S at high concentrations (about 500 ppm): The respiratory center is paralyzed and can cause death within a few seconds. Exposure to non-lethal levels can cause long-term or permanent nerve damage or pulmonary edema.
<b>In case of eye contact</b>	May cause temporary eye irritation. May cause stinging and redness. After contact with hydrogen sulphide typically so-called "gas eye" may appear, which is an experience of seeing colored rings around lights.
<b>Other information</b>	Contact with hot material can cause thermal burns which may result in permanent tissue damage on skin and in eyes.

## SECTION 12: Ecological information

### 12.1. Toxicity

<b>Ecotoxicity</b>	Very toxic to aquatic life with long lasting effects. Acute toxicity to fish: Expected to be harmful, LL/EL/IL50: 10-100 mg/l Acute algae toxicity: Expected to be very toxic, LL/EL/IL50: <1 mg/l Acute aquatic toxicity: Expected to be toxic, LL/EL/IL50: 1-10 mg/l Acute toxicity to microorganisms: Not expected to be toxic, LL/EL/IL50: > 100 mg/l Chronic toxicity to fish: NOEC/NOEL expected to be: > 0,01 – $\leq 0,1$ mg/l (based on test data) Chronic toxicity to aquatic invertebrates: NOEC/NOEL expected to be: > 0,1 – $\leq 1,0$ mg/l (based on test data)
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### 12.2. Persistence and degradability

<b>Persistence and degradability, comments</b>	The product is potentially degradable. Volatile solvents are rapidly oxidized by photochemical reaction in air.
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### 12.3. Bioaccumulative potential

<b>Bioaccumulative potential</b>	Contains components which have bioaccumulative potential.
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### 12.4. Mobility in soil

<b>Mobility</b>	<p>The product contains volatile substances, which may spread in the atmosphere. Partly evaporates from water or soil surfaces, but a significant proportion will remain after one day.</p> <p>May contaminate soil and groundwater.</p> <p>Sinks in fresh water, but will float on sea water.</p>
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## 12.5. Results of PBT and vPvB assessment

<b>Results of PBT and vPvB assessment</b>	This substance is not classified as PBT or vPvB.
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## 12.6. Other adverse effects

<b>Other adverse effects, comments</b>	<p>Forms an oil film on water surfaces that may harm organisms in the water and disrupt oxygen transport in the boundary layer between air and water.</p> <p>Avoid release to the environment.</p>
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## SECTION 13: Disposal considerations

### 13.1. Waste treatment methods

<b>Appropriate methods of disposal for the chemical</b>	<p>Do not empty into drains. Recover and reclaim or recycle, if practical.</p> <p>Disposed of as hazardous waste by approved contractor. The waste code (EWC-Code) is intended as a guide. The code must be chosen by the user, if the use differs from the one mentioned below.</p>
<b>Appropriate methods of disposal for the contaminated packaging</b>	<p>Drain container thoroughly. After draining, vent in a safe place away from sparks and fire. Residues may cause an explosion hazard. Do not, puncture, cut, or weld uncleaned drums.</p> <p>Send to drum recoverer or metal reclaimer. Do not pollute the soil, water or environment with the waste container.</p>
<b>EWC waste code</b>	<p>EWC waste code: 130701 fuel oil and diesel Classified as hazardous waste: Yes</p> <p>EWC waste code: 130703 other fuels (including mixtures) Classified as hazardous waste: Yes</p>

## SECTION 14: Transport information

### 14.1. UN number

<b>ADR/RID/ADN</b>	3082
<b>IMDG</b>	3082
<b>ICAO/IATA</b>	3082

### 14.2. UN proper shipping name

<b>Proper shipping name English ADR/RID/ADN</b>	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
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<b>Technical name/Danger releasing substance English ADR/RID/ADN</b>	(Fuel oil, residual)
<b>ADR/RID/ADN</b>	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
<b>Technical name/danger releasing substance ADR/RID/ADN</b>	(Fuel oil, residual)
<b>IMDG</b>	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
<b>Technical name/danger releasing substance IMDG</b>	(Fuel oil, residual)
<b>ICAO/IATA</b>	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
<b>Technical name/danger releasing substance ICAO/IATA</b>	(Fuel oil, residual)

### 14.3. Transport hazard class(es)

<b>ADR/RID/ADN</b>	9
<b>Classification code ADR/RID/ADN</b>	M6
<b>IMDG</b>	9
<b>ICAO/IATA</b>	9

### 14.4. Packing group

<b>ADR/RID/ADN</b>	III
<b>IMDG</b>	III
<b>ICAO/IATA</b>	III

### 14.5. Environmental hazards

<b>IMDG Marine pollutant</b>	Yes
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### 14.6. Special precautions for user

<b>Special safety precautions for user</b>	Follow loading regulations in ADR/RID/IMDG/ICAO-TI
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### 14.7. Maritime transport in bulk according to IMO instruments

#### Additional information

<b>Hazard label ADR/RID/ADN</b>	9
<b>Hazard label IMDG</b>	9
<b>Hazard label ICAO/IATA</b>	9
<b>Additional information</b>	MARPOL Annex I rules apply for bulk shipments by sea.

#### ADR/RID Other information

<b>Tunnel restriction code</b>	-
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Transport category	3
Hazard No.	90

### IMDG Other information

EmS	F-A, S-F
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## SECTION 15: Regulatory information

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

References (laws/regulations)	Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures (CLP-regulation) with later amendments. Regulation (EC) No 1907/2006 on the registration, evaluation, authorization and restriction of chemicals (REACH Regulation), with later amendments. European Waste Catalogue and Hazardous Waste List Dangerous Goods regulations Control of Major Accident Hazards (COMAH) Regulations 2015
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### 15.2. Chemical safety assessment

Chemical safety assessment performed	Yes
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## SECTION 16: Other information

Supplier's notes	The information contained in this SDS must be made available to all those who handle the product. The information in this document should be brought to the attention of the person in your organisation responsible for advising on safety matters.
List of relevant H-phrases (Section 2 and 3)	EUH 066 Repeated exposure may cause skin dryness or cracking. H332 Harmful if inhaled. H350 May cause cancer . H361d Suspected of damaging the unborn child. H373 May cause damage to organs through prolonged or repeated exposure H400 Very toxic to aquatic life. H410 Very toxic to aquatic life with long lasting effects.
Recommended restrictions on use	This product is intended for use in closed systems only.
Abbreviations and acronyms used	ADR: The European Agreement concerning the International Carriage of Dangerous Goods by Road DNEL: Derived No Effect Level EWC: European Waste Code (a code from the EU's common classification system for waste) EL50: The effective concentration of substance (slightly soluble) that causes 50% of the maximum response. IATA: The International Air Transport Association ICAO: The International Civil Aviation Organisation



IMDG: The International Maritime Dangerous Goods Code  
LC50: Median concentration lethal to 50% of a test population.  
LD50: Lethal dose, is the amount of a substance given to a group of test animals, which causes the death of 50%.  
LL50: Lethal level: loading rate that kills 50% of exposed organisms.  
NOEC: No Observable Effect Concentration.  
NOEL: No Observed Effect Level. The highest tested dose or exposure level at which, in a study, no statistically significant effect is observed in the exposed population compared with an appropriate control group.  
PNEC: Predicted No Effect Concentration  
RID: The Regulations concerning the International Carriage of Dangerous Goods by Rail

**Information added, deleted or revised**

Layout changed.






**Version**

1

**Prepared by**

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**Exposure scenario**

-  [1. Use of substance as intermediate, Industrial.pdf](#)
-  [2. Distribution of substance, Industrial.pdf](#)
-  [3. Formulation & \(re\)packing of substances and mixtures, Industrial.pdf](#)
-  [4. Use as a fuel, Industrial .pdf](#)
-  [5. Use as a fuel, Professional.pdf](#)