## Section 1. Identification

<table>
<thead>
<tr>
<th>Product name</th>
<th>Fuel Oil - Elevated Temperature - Flammable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Synonyms</td>
<td>No 6 Fuel Oil, Residual Fuel Oil, Slurry Fuel Oil, Bunker Fuel Oil, Decant Oil, Utility Fuel</td>
</tr>
</tbody>
</table>

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

| Product use | Fuel. |

**Manufacturer**

HollyFrontier Refining & Marketing LLC  
2828 North Harwood  
Suite 1300  
Dallas, Texas 75201  
USA  
Customer Service: (888) 286-8836

**Emergency telephone number**

CHEMTREC® (800) 424-9300  
CCN 201319

## Section 2. Hazards identification

**OSHA/HCS status**

This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

**Classification of the substance or mixture**

<table>
<thead>
<tr>
<th>FLAMMABLE LIQUIDS - Category 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACUTE TOXICITY (inhalation) - Category 4</td>
</tr>
<tr>
<td>CARCINOGENICITY - Category 1B</td>
</tr>
<tr>
<td>TOXIC TO REPRODUCTION (Unborn child) - Category 2</td>
</tr>
<tr>
<td>SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) (blood system, liver and thymus) (dermal) - Category 2</td>
</tr>
<tr>
<td>ASPIRATION HAZARD - Category 1</td>
</tr>
</tbody>
</table>

**GHS label elements**

### Hazard pictograms

![Hazard pictogram](image)

**Signal word**: Danger

**Hazard statements**

Combustible liquid.  
Harmful if inhaled.  
May cause cancer.  
Suspected of damaging the unborn child.  
May be fatal if swallowed and enters airways.  
May cause damage to organs through prolonged or repeated exposure in contact with skin. (blood system, liver, thymus)

**Precautionary statements**

### Prevention

Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wear protective gloves: > 8 hours (breakthrough time): Recommended: Wear heat resistant gloves when used at elevated temperatures.  
Wear eye or face protection. Wear protective clothing. Keep away from flames and hot surfaces. - No smoking. Use only outdoors or in a well-ventilated area. Do not breathe vapor. Product may release hydrogen sulfide: a specific assessment of inhalation risks from the presence of hydrogen sulfide in tank headspaces, confined spaces, product residue, tank waste and waste water and unintentional releases should be made to help determine controls appropriate to local circumstances.
Response: Get medical attention if you feel unwell. IF exposed or concerned: Get medical attention. IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or physician if you feel unwell. IF SWALLOWED: Immediately call a POISON CENTER or physician. Do NOT induce vomiting.

Storage: Store in a well-ventilated place. Keep cool.

Disposal: Dispose of contents and container in accordance with all local, regional, national and international regulations.

Supplemental label elements: Eliminate sources of ignition. Avoid spark promoters. Ground/bond container and receiving equipment. These alone may be insufficient to remove static electricity. Avoid contact with skin and clothing. Wash thoroughly after handling. Heated material can cause thermal burns.

Hazard not otherwise classified: Static accumulating flammable liquid can become electrostatically charged even in bonded and grounded equipment. Sparks may ignite liquid and vapor may cause flash fire or explosion. Prolonged or repeated contact may dry skin and cause irritation. May release hydrogen sulfide a poisonous gas that can accumulate in confined spaces.

Section 3. Composition/information on ingredients

Substance/mixture: Substance

CAS number/other identifiers:

<table>
<thead>
<tr>
<th>Substance/mixture</th>
<th>CAS number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fuel oil, No 6</td>
<td>68476-33-5</td>
</tr>
<tr>
<td>hydrogen sulfide</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Ingredient name</th>
<th>%</th>
<th>CAS number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fuel oil, No 6</td>
<td>100</td>
<td>68553-00-4</td>
</tr>
<tr>
<td>hydrogen sulfide</td>
<td>&lt;1</td>
<td>7783-06-4</td>
</tr>
</tbody>
</table>

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

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 and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary 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. Get medical attention. Continue to rinse for at least 15 minutes.

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: Wash skin thoroughly with soap and water or use recognized skin cleanser. Remove contaminated clothing and shoes. Continue to rinse for at least 15 minutes. Get medical attention. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Ingestion: 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. Get medical attention immediately. Call a poison center or physician. Wash mouth with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. 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.

Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact: No known significant effects or critical hazards.

Date of issue/Date of revision: 11/5/2015  Date of previous issue: No previous validation  Version: 1
Inhalation: Harmful if inhaled. Mist/high concentrations: Inhalation may cause irritation to the nose, throat, upper respiratory tract and lungs.

Skin contact: Defatting to the skin. May cause skin dryness and irritation.

Ingestion: May be fatal if swallowed and enters airways.

Over-exposure signs/symptoms:

Eye contact: No specific data.

Inhalation: reduced fetal weight; increase in fetal deaths; skeletal malformations; respiratory tract irritation; coughing

Skin contact: irritation; dryness; cracking; reduced fetal weight; increase in fetal deaths; skeletal malformations

Ingestion: nausea or vomiting; reduced fetal weight; increase in fetal deaths; skeletal malformations

Indication of immediate medical attention and special treatment needed, if necessary:

Notes to physician: Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled. Epinephrine and other sympathomimetic drugs may initiate cardiac arrhythmias in persons exposed to high concentrations of hydrocarbon solvents.

Specific treatments: No specific treatment.

Protection of medical responders: 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.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media: Use dry chemical, CO₂, water spray (fog) or foam.

Unsuitable extinguishing media: Do not use water jet.

Specific hazards arising from the chemical: Combustible liquid. This product is a poor conductor of electricity and can become electrostatically charged. If sufficient charge is accumulated, ignition of flammable mixtures can occur. To reduce potential for static discharge, use proper bonding and grounding procedures. This liquid may accumulate static electricity when filling properly grounded containers. Static accumulation may be significantly increased by the presence of small quantities of water or other contaminants. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. The vapor/gas is heavier than air and will spread along the ground. Vapors may accumulate in low or confined areas or travel a considerable distance to a source of ignition and flash back. Runoff to sewer may create fire or explosion hazard. May release hydrogen sulfide a poisonous gas that can accumulate in confined spaces.

Hazardous thermal decomposition products: Decomposition products may include the following materials:
- carbon dioxide
- carbon monoxide

Special protective actions for fire-fighters: Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.

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

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 spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment. May release hydrogen sulfide a poisonous gas that can accumulate in confined spaces.

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".

Environmental precautions

Avoid dispersal of spilled 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).

Methods and materials 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. Absorb with an inert material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

Large spill

Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Approach release from upwind. Prevent entry into sewers, waterways, 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 spilled product. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

Precautions for safe handling

Protective measures

Put on appropriate personal protective equipment (see Section 8). Avoid exposure - obtain special instructions before use. Avoid exposure during pregnancy. 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 vapor or mist. Do not swallow. 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. Empty containers retain product residue and can be hazardous. Do not reuse container. Handling operations that can promote accumulation of static charges include but are not limited to: mixing, filtering, pumping at high flow rates, splash filling, creating mists or sprays, tank and container filling, tank cleaning, sampling, gauging, switch loading, vacuum truck operations. Restrict flow velocity according to API 2003 (2008), NFPA 77 (2007), and Laurence Britton, “Avoiding Static Ignition Hazards in Chemical Operations”. To reduce potential for static discharge, ensure that all equipment is properly grounded and bonded and meets appropriate electrical classification requirements. High pressure skin injections are serious medical emergencies. Injury will not appear serious at first. Within a few hours, tissue will become swollen, discolored and extremely painful. May release hydrogen sulfide a poisonous gas that can accumulate in confined spaces.

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.

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Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

<table>
<thead>
<tr>
<th>Ingredient name</th>
<th>Exposure limits</th>
</tr>
</thead>
</table>
                        | STEL: 15 ppm 8 hours. OSHA PEL Z2 (United States, 2/2013). 
                        | CEIL: 20 ppm AMP: 50 ppm 10 minutes. | ACGIH TLV (United States, 4/2014). TWA: 1 ppm 8 hours. 
                        | STEL: 5 ppm 15 minutes. | NIOSH REL (United States, 10/2013). CEIL: 10 ppm 10 minutes. 
                        | CEIL: 15 mg/m³ 10 minutes. |

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, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment. May release hydrogen sulfide a poisonous gas that can accumulate in confined spaces.

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: safety glasses with side-shields.

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): Recommended: Wear heat resistant gloves when used at elevated temperatures.

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.

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: Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

### Section 9. Physical and chemical properties

#### Appearance

**Physical state:** Liquid.

**Color:** Dark.

**Odor:** Petroleum, asphalt-like.

**Odor threshold:** Not available.

**pH:** Not available.

**Melting point:** Not available.

**Boiling point:** >176.67°C (>350°F)

**Flash point:** 65.6 °C (150 °F)

**Evaporation rate:** Not available.

**Flammability (solid, gas):** Not available.

**Lower and upper explosive (flammable) limits:**
- Lower: 0.5%
- Upper: 7%

**Vapor pressure:** Not available.

**Vapor density:** >1 [Air = 1]

**Specific gravity:** 0.99 [15.5°C (60°F)]

**Solubility:** Negligible

**Partition coefficient: n-octanol/water:** Not available.

**Auto-ignition temperature:** 232.22°C (450°F)

**Decomposition temperature:** Not available.

**Viscosity:** Kinematic (40°C (104°F)): 0.15 to 6 cm²/s (15 to 600 cSt)

**Molecular weight:** Not applicable.

### Section 10. Stability and reactivity

**Reactivity:** No specific test data related to reactivity available for this product or its ingredients.

**Chemical stability:** The product is stable.

**Possibility of hazardous reactions:** Under normal conditions of storage and use, hazardous reactions will not occur.

**Conditions to avoid:** Avoid all possible sources of ignition (spark or flame). Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition. Do not allow vapor to accumulate in low or confined areas.

**Incompatible materials:** Reactive or incompatible with the following materials: oxidizing materials

**Hazardous decomposition products:** Under normal conditions of storage and use, hazardous decomposition products should not be produced.
Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Result</th>
<th>Species</th>
<th>Dose</th>
<th>Exposure</th>
<th>Observation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fuel oil, No 6</td>
<td>LC50 Inhalation Dusts and mists</td>
<td>Rat</td>
<td>4 mg/l</td>
<td>4 hours</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>LD50 Dermal</td>
<td>Rabbit</td>
<td>&gt;2000 mg/kg</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>LD50 Oral</td>
<td>Rat</td>
<td>&gt;5000 mg/kg</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>LC50 Inhalation Gas.</td>
<td>Rat</td>
<td>444 ppm</td>
<td>4 hours</td>
<td>-</td>
</tr>
<tr>
<td>Hydrogen sulfide</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Conclusion/Summary : Based on CONCAWE assessment of heavy fuel oil components.

Irritation/Corrosion

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Result</th>
<th>Species</th>
<th>Score</th>
<th>Exposure</th>
<th>Observation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fuel oil, No 6</td>
<td>Eyes - Mild irritant</td>
<td>Rabbit</td>
<td>-</td>
<td>24 hours 100 microliters</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Skin - Mild irritant</td>
<td>Rabbit</td>
<td>-</td>
<td>500 milligrams</td>
<td>-</td>
</tr>
</tbody>
</table>

Conclusion/Summary: Heated material can cause thermal burns. Based on CONCAWE assessment of heavy fuel oil components. Slight irritant.

Sensitization

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Result</th>
<th>Species</th>
<th>Score</th>
<th>Exposure</th>
<th>Observation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skin</td>
<td>Heated material can cause thermal burns.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Respiratory

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Result</th>
<th>Species</th>
<th>Score</th>
<th>Exposure</th>
<th>Observation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Carboxyhemoglobin

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Result</th>
<th>Species</th>
<th>Score</th>
<th>Exposure</th>
<th>Observation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Sensitization

Conclusion/Summary: Based on CONCAWE assessment of heavy fuel oil components. Not sensitizing

Mutagenicity

Conclusion/Summary: Based on CONCAWE assessment of heavy fuel oil components. No mutagenic effect.

Carcinogenicity

Conclusion/Summary: Based on CONCAWE assessment of heavy fuel oil components. Carcinogenic.

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>OSHA</th>
<th>IARC</th>
<th>NTP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fuel oil, No 6</td>
<td>-</td>
<td>2B</td>
<td>-</td>
</tr>
</tbody>
</table>

Reproductive toxicity

Conclusion/Summary: Based on CONCAWE assessment of heavy fuel oil components. Not considered to be toxic to the reproductive system.

Teratogenicity

Conclusion/Summary: Based on CONCAWE assessment of heavy fuel oil components. Developmental effects.

Specific target organ toxicity (single exposure)

<table>
<thead>
<tr>
<th>Name</th>
<th>Category</th>
<th>Route of exposure</th>
<th>Target organs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrogen sulfide</td>
<td>Category 3</td>
<td>Not applicable.</td>
<td>Respiratory tract irritation</td>
</tr>
</tbody>
</table>

Specific target organ toxicity (repeated exposure)

<table>
<thead>
<tr>
<th>Name</th>
<th>Category</th>
<th>Route of exposure</th>
<th>Target organs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fuel oil, No 6</td>
<td>Category 2</td>
<td>Skin</td>
<td>blood system, liver and thymus</td>
</tr>
</tbody>
</table>

Aspiration hazard

<table>
<thead>
<tr>
<th>Name</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fuel oil, No 6</td>
<td>ASPIRATION HAZARD - Category 1</td>
</tr>
</tbody>
</table>
Information on the likely routes of exposure

Routes of entry anticipated: Oral, Dermal, Inhalation.

Delayed and immediate effects and also chronic effects from short and long term exposure

**Short term exposure**
- **Potential immediate effects**: Not available.
- **Potential delayed effects**: Not available.

**Long term exposure**
- **Potential immediate effects**: Not available.
- **Potential delayed effects**: Not available.

**Potential chronic health effects**
- **Conclusion/Summary**: Based on CONCAWE assessment of heavy fuel oil components.
- **General**: May cause damage to organs through prolonged or repeated exposure in contact with skin. Prolonged or repeated contact can defat the skin and lead to irritation, cracking and/or dermatitis.
- **Carcinogenicity**: May cause cancer. Risk of cancer depends on duration and level of exposure.
- **Mutagenicity**: No known significant effects or critical hazards.
- **Teratogenicity**: Suspected of damaging the unborn child.
- **Developmental effects**: No known significant effects or critical hazards.
- **Fertility effects**: No known significant effects or critical hazards.

**Numerical measures of toxicity**

**Acute toxicity estimates**

<table>
<thead>
<tr>
<th>Route</th>
<th>ATE value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inhalation (dusts and mists)</td>
<td>4.036 mg/l</td>
</tr>
</tbody>
</table>

**Section 12. Ecological information**

**Toxicity**

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Result</th>
<th>Species</th>
<th>Exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fuel oil, No 6</td>
<td>Acute EC50 &lt;1 mg/l</td>
<td>Algae</td>
<td>72 hours</td>
</tr>
<tr>
<td></td>
<td>Chronic NOEL 0.1 mg/l</td>
<td>Daphnia</td>
<td>21 days</td>
</tr>
<tr>
<td></td>
<td>Acute EC50 62 µg/l Fresh water</td>
<td>Crustaceans - Gammarus pseudoalinitaeus</td>
<td>2 days</td>
</tr>
<tr>
<td></td>
<td>Acute LC50 2 µg/l Fresh water</td>
<td>Fish - Coregonus clupeaformis - Yolk-sac fry</td>
<td>96 hours</td>
</tr>
</tbody>
</table>

**Conclusion/Summary**: Very toxic to aquatic life with long lasting effects. Based on CONCAWE assessment of heavy fuel oil components.

**Persistence and degradability**

**Conclusion/Summary**: Based on CONCAWE assessment of heavy fuel oil components.

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Aquatic half-life</th>
<th>Photolysis</th>
<th>Biodegradability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fuel oil, No 6</td>
<td>-</td>
<td>-</td>
<td>Inherent</td>
</tr>
</tbody>
</table>

**Bioaccumulative potential**

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>LogP&lt;sub&gt;ow&lt;/sub&gt;</th>
<th>BCF</th>
<th>Potential</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fuel oil, No 6</td>
<td>4 to 6</td>
<td>-</td>
<td>high</td>
</tr>
</tbody>
</table>
Other adverse effects: No known significant effects or critical hazards.

Section 13. Disposal considerations

Disposal methods: The generation of waste should be avoided or minimized 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. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Vapor from product residues may create a highly flammable or explosive atmosphere inside the container. Do not cut, weld or grind used containers unless they have been cleaned thoroughly internally. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Section 14. Transport information

<table>
<thead>
<tr>
<th>DOT Classification</th>
<th>TDG Classification</th>
<th>Mexico Classification</th>
<th>ADR/RID</th>
<th>IMDG</th>
<th>IATA</th>
</tr>
</thead>
<tbody>
<tr>
<td>UN number</td>
<td>UN3256</td>
<td>UN3256</td>
<td>UN3256</td>
<td>UN3256</td>
<td>UN3256</td>
</tr>
<tr>
<td>UN proper shipping name</td>
<td>Elevated temperature liquid, flammable, n.o.s., (Fuel oil, No 6) RQ (hydrogen sulfide)</td>
<td>ELEVATED TEMPERATURE LIQUID, FLAMMABLE, N.O.S. (Fuel oil, No 6). Marine pollutant (Fuel oil, No 6)</td>
<td>LIQUIDO A TEMPERATURA ELEVADA, INFLAMABLE, N.E.P. (Fuel oil, No 6)</td>
<td>ELEVATED TEMPERATURE LIQUID, FLAMMABLE, N.O.S. (Fuel oil, No 6)</td>
<td>Elevated temperature liquid, flammable, n.o.s. (Fuel oil, No 6)</td>
</tr>
<tr>
<td>Transport hazard class(es)</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Packing group</td>
<td>III</td>
<td>III</td>
<td>III</td>
<td>III</td>
<td>III</td>
</tr>
<tr>
<td>Additional information</td>
<td>This product may be re-classified as &quot;Combustible Liquid,&quot; unless transported by vessel or aircraft. Non-product classified as per the following sections of the Transportation of Dangerous Goods</td>
<td>Special provisions 274</td>
<td>The environmentally hazardous substance mark is not required when transported in sizes of ≤5 L or ≤5 kg</td>
<td>The marine pollutant mark is not required when transported in sizes of ≤5 L or ≤5 kg</td>
<td>The environmentally hazardous substance mark may appear if required by other</td>
</tr>
</tbody>
</table>

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bulk packages (less than or equal to 119 gal) of combustible liquids are not regulated as hazardous materials in package sizes less than the product reportable quantity.

**Reportable quantity**

11111.1 lbs / 5044.4 kg [1346.1 gal / 5095.4 L]

Package sizes shipped in quantities less than the product reportable quantity are not subject to the RQ (reportable quantity) transportation requirements.

**Packaging instruction**

**Passenger aircraft**
Quantity limitation: Forbidden.

**Cargo aircraft**
Quantity limitation: Forbidden.

**Special provisions**

IB1, T3, TP3, TP29

**Remarks**
The HOT placard is required for product being shipped in bulk at elevated temperature.

Regulations: 2.18-2.19 (Class 3), 2.7 (Marine pollutant mark).

The marine pollutant mark is not required when transported by road or rail.

**Explosive Limit and Limited Quantity Index**

0

**Passenger Carrying Road or Rail Index**

Forbidden

**Special provisions**

16

≤5 kg.

**Hazard identification number**

30

**Limited quantity**

0

**Special provisions**

274, 560

**Tunnel code**

(D/E)

**Emergency schedules (EmS)**

F-E, S-D

**Special provisions**

274

transportation regulations. **Passenger and Cargo Aircraft**

Quantity limitation: Forbidden

Packaging instructions: Forbidden

**Cargo Aircraft Only**

Quantity limitation: Forbidden

Packaging instructions: Forbidden

**Limited Quantities - Passenger Aircraft**

Quantity limitation: Forbidden

Packaging instructions: Forbidden

**Limited Quantities - Cargo Aircraft**

Quantity limitation: Forbidden

Packaging instructions: Forbidden

**Hazard identification number**

30

**Limited quantity**

0

**Special provisions**

274, 560

**Tunnel code**

(D/E)

**Explosive Limit and Limited Quantity Index**

0

**Passenger Carrying Road or Rail Index**

Forbidden

**Special provisions**

16

≤5 kg.

**Hazard identification number**

30

**Limited quantity**

0

**Special provisions**

274, 560

**Tunnel code**

(D/E)
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.

Section 15. Regulatory information

U.S. Federal regulations: United States inventory (TSCA 8b): All components are listed or exempted.

Clean Water Act (CWA) 311: hydrogen sulfide

SARA 302/304

Composition/information on ingredients

<table>
<thead>
<tr>
<th>Name</th>
<th>%</th>
<th>EHS</th>
<th>SARA 302 TPQ</th>
<th>SARA 304 RQ</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>(lbs)</td>
<td>(gallons)</td>
</tr>
<tr>
<td>hydrogen sulfide</td>
<td>&lt;1</td>
<td>Yes</td>
<td>500</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>100</td>
<td>-</td>
</tr>
</tbody>
</table>

SARA 304 RQ: 11111.1 lbs / 5044.4 kg [1346.1 gal / 5095.4 L]

SARA 311/312

Classification: Fire hazard
Immediate (acute) health hazard
Delayed (chronic) health hazard

Composition/information on ingredients

<table>
<thead>
<tr>
<th>Name</th>
<th>%</th>
<th>Fire hazard</th>
<th>Sudden release of pressure</th>
<th>Reactive</th>
<th>Immediate (acute) health hazard</th>
<th>Delayed (chronic) health hazard</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fuel oil, No 6 hydrogen sulfide</td>
<td>100</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>&lt;1</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

State regulations

Massachusetts: None of the components are listed.
New York: None of the components are listed.
New Jersey: None of the components are listed.
Pennsylvania: None of the components are listed.
California Prop. 65: None of the components are listed.

Canada inventory: All components are listed or exempted.

International regulations

International lists

Australia inventory (AICS): All components are listed or exempted.
China inventory (IECSC): All components are listed or exempted.
Japan inventory: Not determined.
Korea inventory: Not determined.
Malaysia Inventory (EHS Register): Not determined.
New Zealand Inventory of Chemicals (NZIoC): All components are listed or exempted.
Philippines inventory (PICCS): Not determined.
Taiwan inventory (CSNN): Not determined.

Section 16. Other information

National Fire Protection Association (U.S.A.)

Flammability
Health 1 2
Instability/Reactivity
Special

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Copyright ©2001, National Fire Protection Association, Quincy, MA 02269. This warning system is intended to be interpreted and applied only by properly trained individuals to identify fire, health and reactivity hazards of chemicals. The user is referred to certain limited number of chemicals with recommended classifications in NFPA 49 and NFPA 325, which would be used as a guideline only. Whether the chemicals are classified by NFPA or not, anyone using the 704 systems to classify chemicals does so at their own risk.

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Key to abbreviations : ATE = Acute Toxicity Estimate
BCF = Bioconcentration Factor
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
IATA = International Air Transport Association
IMDG = International Maritime Dangerous Goods
LogPow = logarithm of the octanol/water partition coefficient
UN = United Nations

Indicates information that has changed from previously issued version.

Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named manufacturer, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.