1. Product and Company Identification

<table>
<thead>
<tr>
<th>Product Name</th>
<th>Bunker C Oil</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAS #</td>
<td>Mixture</td>
</tr>
<tr>
<td>Product use</td>
<td>Fuel</td>
</tr>
<tr>
<td>Manufacturer</td>
<td>Irving Oil Refining G.P.</td>
</tr>
<tr>
<td>Box 1260</td>
<td>Saint John, NB E2L 4H6 CA</td>
</tr>
<tr>
<td>Phone:</td>
<td>(506) 202-2000</td>
</tr>
<tr>
<td>Refinery:</td>
<td>(506) 202-3000</td>
</tr>
<tr>
<td>Emergency Phone:</td>
<td>1-800-424-9300 (CHEMTREC)</td>
</tr>
</tbody>
</table>

2. Hazards Identification

Emergency overview

WARNING
COMBUSTIBLE LIQUID AND VAPOR. Containers may explode when heated. CONTAINS MATERIAL WHICH MAY CAUSE CANCER. Contains a potential teratogen. May cause chronic toxic effects. EYE AND SKIN IRRITANT. Contact with liquid may cause skin sensitization.

Potential short term health effects

Routes of exposure
Eye, Skin contact, Skin absorption, Inhalation, Ingestion.

Eyes
Hydrogen sulphide is very toxic. At concentrations as low as 1 to 5 ppm, nausea and severe eye irritation may occur.

Skin
Prolonged or repeated skin contact may cause skin irritation or allergic skin sensitization reaction.

ACGIH - Threshold Limit Values - Skin Notations
Benzene 71-43-2 Skin - potential significant contribution to overall exposure by the cutaneous route

Inhalation
Sense of smell may be impaired at concentrations of hydrogen sulphide at approximately 20 ppm, with headache and respiratory tract lung irritation. At 250 to 500ppm, potentially fatal pulmonary edema may occur. Dizziness, sudden (often fatal) collapse, unconsciousness and death occur at higher concentrations. Pulmonary edema may be delayed as long as 48 hours after exposure.

Ingestion
Harmful if swallowed. May cause stomach distress, nausea or vomiting.

Target organs

Chronic effects
Prolonged or repeated exposure can cause drying, defatting and dermatitis. Prolonged or repeated exposure can cause kidney damage.

Signs and symptoms
Symptoms may include redness, edema, drying, defatting and cracking of the skin. Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting.
3. Composition / Information on Ingredients

<table>
<thead>
<tr>
<th>Ingredient(s)</th>
<th>CAS #</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bunker C Oil</td>
<td>68553-00-4</td>
<td>60 - 100</td>
</tr>
<tr>
<td>Sulfur</td>
<td>7704-34-9</td>
<td>1 - 5</td>
</tr>
<tr>
<td>Benzene</td>
<td>71-43-2</td>
<td>&lt; 0.1</td>
</tr>
<tr>
<td>Benzo[a]pyrene</td>
<td>50-32-8</td>
<td>&lt; 0.1</td>
</tr>
<tr>
<td>Hydrogen sulfide</td>
<td>7783-06-4</td>
<td>&lt; 0.1</td>
</tr>
<tr>
<td>Vanadium, elemental</td>
<td>7440-62-2</td>
<td>&lt; 0.1</td>
</tr>
</tbody>
</table>

Composition comments
* "Bunker C Oil" is a complex mixture of hydrocarbons. Its exact composition depends on the source of the crude oil from which it was produced and the refining methods used. Fuel oil No. 6 contains hundreds of individual organic chemicals. This section identifies only some of the well-known chemical constituents.
* Hydrogen sulfide content - vapour space concentration can range from 1000 to 1500 ppm corresponding to a 100 - 150 ppm range in the oil.

4. First Aid Measures

First aid procedures
- **Eye contact**
  - Flush with cool water. Remove contact lenses, if applicable, and continue flushing. Obtain medical attention if irritation persists.
- **Skin contact**
  - Flush with cool water. Wash with soap and water. Obtain medical attention if irritation persists.
- **Inhalation**
  - If symptoms develop, move victim to fresh air. If symptoms persist, obtain medical attention. If breathing has stopped, trained personnel should administer CPR immediately.
- **Ingestion**
  - Do not induce vomiting. Never give anything by mouth if victim is unconscious, or is convulsing. Obtain medical attention.

Notes to physician
- Symptoms may be delayed.

General advice
- Keep away from sources of ignition. No smoking. If you feel unwell, seek medical advice (show the label where possible). Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance. Avoid contact with eyes and skin. Keep out of reach of children.

5. Fire Fighting Measures

Flammable properties
- Combustible by WHMIS/OSHA criteria. Vapors may travel to a source of ignition and flash back. Containers may explode when heated.

Extinguishing media
- **Suitable extinguishing media**
  - Carbon dioxide. Dry chemical. Foam.
- **Unsuitable extinguishing media**
  - Not available

Protection of firefighters
- **Specific hazards arising from the chemical**
  - Container may explode in heat of fire.
  - Vapors are heavier than air and may travel along the ground to some distant source of ignition and flash back.
- **Protective equipment for firefighters**
  - Firefighters should wear full protective clothing including self contained breathing apparatus.
  - Cool containers with flooding quantities of water until well after fire is out.

Hazardous combustion products

Explosion data
- **Sensitivity to mechanical impact**
  - Not expected to be sensitive to mechanical impact.
- **Sensitivity to static discharge**
  - Vapor: Yes.
6. Accidental Release Measures

<table>
<thead>
<tr>
<th>Category</th>
<th>Instructions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Personal precautions</strong></td>
<td>Keep unnecessary personnel away. Do not touch or walk through spilled material. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Keep people away from and upwind of spill/leak.</td>
</tr>
<tr>
<td><strong>Methods for containment</strong></td>
<td>Stop leak if you can do so without risk. Prevent entry into waterways, sewers, basements or confined areas. This material is a water pollutant and should be prevented from contaminating soil or from entering sewage and drainage systems and bodies of water.</td>
</tr>
<tr>
<td><strong>Methods for cleaning up</strong></td>
<td>Before attempting clean up, refer to hazard data given above. Small spills may be absorbed with non-reactive absorbent and placed in suitable, covered, labelled containers. Prevent large spills from entering sewers or waterways. Contact emergency services and supplier for advice. Never return spills in original containers for re-use.</td>
</tr>
<tr>
<td><strong>Other information</strong></td>
<td>Keep unnecessary personnel away.</td>
</tr>
</tbody>
</table>

7. Handling and Storage

<table>
<thead>
<tr>
<th>Category</th>
<th>Instructions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Handling</strong></td>
<td>Use good industrial hygiene practices in handling this material. Ground and bond containers when transferring material.</td>
</tr>
<tr>
<td><strong>Storage</strong></td>
<td>Keep out of reach of children. Containes should be vented and equipped with a flame arrester. May be stored at ambient temperatures. Keep away from heat, open flames or other sources of ignition.</td>
</tr>
</tbody>
</table>
# 8. Exposure Controls / Personal Protection

<table>
<thead>
<tr>
<th>Ingredient(s)</th>
<th>Exposure Limits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Benzene</td>
<td>ACGIH-TLV</td>
</tr>
<tr>
<td></td>
<td>TWA: 0.5 ppm</td>
</tr>
<tr>
<td></td>
<td>STEL: 2.5 ppm</td>
</tr>
<tr>
<td></td>
<td>OSHA-PEL</td>
</tr>
<tr>
<td></td>
<td>TWA: 1 ppm</td>
</tr>
<tr>
<td></td>
<td>STEL: 5 ppm</td>
</tr>
<tr>
<td></td>
<td>Ceiling: 25 ppm</td>
</tr>
<tr>
<td>Benzo[a]pyrene</td>
<td>ACGIH-TLV</td>
</tr>
<tr>
<td></td>
<td>TWA: 0.2 mg/m3</td>
</tr>
<tr>
<td></td>
<td>OSHA-PEL</td>
</tr>
<tr>
<td></td>
<td>TWA: 0.2 mg/m3</td>
</tr>
<tr>
<td>Bunker C Oil</td>
<td>ACGIH-TLV</td>
</tr>
<tr>
<td></td>
<td>Not established</td>
</tr>
<tr>
<td></td>
<td>OSHA-PEL</td>
</tr>
<tr>
<td></td>
<td>Not established</td>
</tr>
<tr>
<td>Hydrogen sulfide</td>
<td>ACGIH-TLV</td>
</tr>
<tr>
<td></td>
<td>TWA: 10 ppm</td>
</tr>
<tr>
<td></td>
<td>STEL: 15 ppm</td>
</tr>
<tr>
<td></td>
<td>OSHA-PEL</td>
</tr>
<tr>
<td></td>
<td>Ceiling: 20 ppm</td>
</tr>
<tr>
<td>Sulfur</td>
<td>ACGIH-TLV</td>
</tr>
<tr>
<td></td>
<td>TWA: 10 mg/m3</td>
</tr>
<tr>
<td></td>
<td>OSHA-PEL</td>
</tr>
<tr>
<td></td>
<td>Not established</td>
</tr>
<tr>
<td>Vanadium, elemental</td>
<td>ACGIH-TLV</td>
</tr>
<tr>
<td></td>
<td>Not established</td>
</tr>
<tr>
<td></td>
<td>OSHA-PEL</td>
</tr>
<tr>
<td></td>
<td>Ceiling: 0.5 mg/m3</td>
</tr>
</tbody>
</table>

**Engineering controls**

- Mechanical ventilation should be used when handling this product in enclosed spaces. Local exhaust ventilation may be necessary.

**Personal protective equipment**

- **Eye / face protection**
  - Face shield or chemical goggles.

- **Hand protection**
  - Tychem™ SL.

- **Skin and body protection**
  - Use of protective coveralls and long sleeves is recommended.
  - If clothing or footwear becomes contaminated with the product, remove it immediately and completely decontaminate it before re-use, or discard it.

- **Respiratory protection**
  - Do not attempt rescue of an hydrogen sulphide knockdown victim without the use of proper respiratory protective equipment.
  - For confined spaces, wear a NIOSH-approved (or equivalent) full-facepiece airline respirator in the positive pressure mode with emergency escape provisions.
  - Respirator should be selected by and used under the direction of a trained health and safety professional following requirements found in OSHA's respirator standard (29 CFR 1910.134), CAN/CSA-Z94.4 and ANSI's standard for respiratory protection (Z88.2).

- **General hygiene considerations**
  - Handle in accordance with good industrial hygiene and safety practice.
  - When using do not eat or drink.
  - Wash hands before breaks and immediately after handling the product.
9. Physical and Chemical Properties

Appearance: Liquid.
Color: Black
Form: Liquid
Odor: Rotten egg odor if H2S present. Tar-like odor otherwise. Note: H2S deadens the sense of smell. Absence of rotten eggs smell does not mean absence of H2S.
Odor threshold: <0.15 Ppm for Hydrogen sulphide
Physical state: Liquid
pH: Not applicable
Melting point: Not available
Freezing point: Not available
Boiling point: 204.44 °C (400 °F) (minimum)
Flash point: > 65 °C (> 149.00 °F) Closed Cup
Pour point: Not available
Evaporation rate: Negligible
Flammability limits in air, lower, % by volume: 1%
Flammability limits in air, upper, % by volume: 5%
Vapor pressure: < 0.0001 mmHg
Vapor density: (air=1)
Specific gravity: 0.95 - 1.04 @ 20°C
Octanol/water coefficient: Not available
Auto-ignition temperature: 400 °C (752.00 °F) (approximately)
Viscosity: 300 - 1200 cSt
Percent volatile: Not available

10. Stability and Reactivity

Chemical stability: Stable under recommended storage conditions.
Conditions to avoid: Heat, open flames, static discharge, sparks and other ignition sources. Do not mix with other chemicals.
Incompatible materials: Acids.
Oxidizers.
Possibility of hazardous reactions: Hazardous polymerization does not occur.

11. Toxicological Information

Component analysis - LC50
Ingredient(s) | LC50
---|---
Benzene | 13050 ppm rat; 13700 mg/l/4h rat
Benzo[a]pyrene | Not available
Bunker C Oil | Not available
Hydrogen sulfide | 1 mg/l/4h rat
Sulfur | > 6.23 mg/l/4h rat
Vanadium, elemental | Not available
**Component analysis - Oral LD50**

<table>
<thead>
<tr>
<th>Ingredient(s)</th>
<th>LD50</th>
</tr>
</thead>
<tbody>
<tr>
<td>Benzene</td>
<td>690 mg/kg rat; 4700 mg/kg mouse</td>
</tr>
<tr>
<td>Benzo[a]pyrene</td>
<td>Not available</td>
</tr>
<tr>
<td>Bunker C Oil</td>
<td>4320 mg/kg rat</td>
</tr>
<tr>
<td>Hydrogen sulfide</td>
<td>Not available</td>
</tr>
<tr>
<td>Sulfur</td>
<td>&gt; 5000 mg/kg human; &gt; 3000 mg/kg rat</td>
</tr>
<tr>
<td>Vanadium, elemental</td>
<td>23 mg/kg rat</td>
</tr>
</tbody>
</table>

**Effects of acute exposure**

**Eye**
Hydrogen sulphide is very toxic. At concentrations as low as 1 to 5 ppm, nausea and severe eye irritation may occur.

**Skin**
Prolonged or repeated skin contact may cause skin irritation or allergic skin sensitization reaction.

**ACGIH - Threshold Limit Values - Skin Notations**
- Benzene: 71-43-2 Skin - potential significant contribution to overall exposure by the cutaneous route

**Inhalation**
Sense of smell may be impaired at concentrations of hydrogen sulphide at approximately 20 ppm, with headache and respiratory tract lung irritation. At 250 to 500ppm, potentially fatal pulmonary edema may occur. Dizziness, sudden (often fatal) collapse, unconsciousness and death occur at higher concentrations. Pulmonary edema may be delayed as long as 48 hours after exposure.

**Ingestion**
Harmful if swallowed. May cause stomach distress, nausea or vomiting.

**Sensitization**
Contains a potential skin sensitizer. May cause photosensitization (extreme sensitivity to sunlight).

**Chronic effects**
Prolonged or repeated exposure can cause kidney damage.

**Carcinogenicity**
See below.

**ACGIH - Threshold Limit Values - Carcinogens**
- Benzene: 71-43-2 A1 - Confirmed Human Carcinogen
- Benzo[a]pyrene: 50-32-8 A2 - Suspected Human Carcinogen

**IARC - Group 1 (Carcinogenic to Humans)**
- Benzene: 71-43-2 Supplement 7 [1987], Monograph 29 [1982]

**NTP (National Toxicology Program) - Report on Carcinogens - Known Human Carcinogens**
- Benzene: 71-43-2 Known Human Carcinogen
- Benzo[a]pyrene: 50-32-8 Known Carcinogen

**NTP (National Toxicology Program) - Report on Carcinogens - Reasonably Anticipated to be Human Carcinogens**
- Benzene: 71-43-2 Suspect Carcinogen
- Benzo[a]pyrene: 50-32-8 Reasonably Anticipated To Be A Human Carcinogen (listed under Polycyclic aromatic hydrocarbons)

**U.S. - California - Proposition 65 - Carcinogens List**
- Benzene: 71-43-2 carciogen, initial date 2/27/87
- Benzo[a]pyrene: 50-32-8 carciogen, initial date 7/1/87

**Mutagenicity**
Contains a potential mutagen.

**Reproductive effects**
Non-hazardous by WHMIS/OSHA criteria.

**Teratogenicity**
Contains potential teratogens.

**Synergistic Materials**
Other petroleum hydrocarbons and other chemicals that cause CNS depression or other neurological effects can be expected to produce additive or synergistic effects.
12. Ecological Information

Ecotoxicity

Components of this product have been identified as having potential environmental concerns.

Ecotoxicity - Freshwater Algae Data
Benzene 71-43-2 72 Hr EC50 Selenastrum capricornutum: 29 mg/L

Ecotoxicity - Freshwater Fish Species Data
Benzene 71-43-2 96 Hr LC50 Pimephales promelas: 10.7-14.7 mg/L [flow-through]; 96 Hr LC50 Oncorhynchus mykiss: 5.3 mg/L [flow-through]; 96 Hr LC50 Lepomis macrochirus: 22.49 mg/L [static]; 96 Hr LC50 Poecilia reticulata: 28.6 mg/L [static]; 96 Hr LC50 Pimephales promelas: 22330-41160 μg/L [static]; 96 Hr LC50 Lepomis macrochirus: 70000-142000 μg/L [static]

Bunker C Oil 68553-00-4 96 Hr LC50 Brachydanio rerio: 48 mg/L [semi-static]
Hydrogen sulfide 7783-06-4 96 Hr LC50 Lepomis macrochirus: 0.0448 mg/L [flow-through]; 96 Hr LC50 Pimephales promelas: 0.016 mg/L [flow-through]
Sulfur 7704-34-9 96 Hr LC50 Brachydanio rerio: 866 mg/L [static]; 96 Hr LC50 Lepomis macrochirus: <14 mg/L [static]; 96 Hr LC50 Oncorhynchus mykiss: >180 mg/L [static]

Ecotoxicity - Water Flea Data
Benzene 71-43-2 48 Hr EC50 water flea: 356 mg/L [Static]; 48 Hr EC50 Daphnia magna: 10 mg/L
Hydrogen sulfide 7783-06-4 96 Hr EC50 Gammarus pseudolimnaeus: 0.022 mg/L

Environmental effects
This product has not been tested.

Aquatic toxicity
This product has not been tested.

Persistence / degradability
This product would meet the Group 5 criteria as set out in EPA’s definition of persistent and non-persistent oils.
The specific gravity is equal to or greater than 1.0.
This material is believed to be highly persistent in the environment.

Bioaccumulation / accumulation
This product has not been tested.

Partition coefficient
This product has not been tested.

Mobility in environmental media
This product has not been tested.

Chemical fate information
This product has not been tested.

Other adverse effects
This product has not been tested.

13. Disposal Considerations

Waste codes
Not available

Disposal instructions
Review federal, state/provincial, and local government requirements prior to disposal.
Discard with solid waste.

Waste from residues / unused products
Not available

Contaminated packaging
Not available

14. Transport Information

U.S. Department of Transportation (DOT)

Basic shipping requirements:
Proper shipping name: Fuel oil (No. 1, 2, 4, 5, or 6)
Hazard class: 3 (Combustible)
UN number: NA1993
Packing group: III
Additional information: ERG number: 128

Transportation of Dangerous Goods (TDG - Canada)
Not regulated as dangerous goods.
15. Regulatory Information

**Canadian federal regulations**
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

**Canada - CEPA - Schedule I - List of Toxic Substances**
Benzene 71-43-2 Present

**Canada - WHMIS - Ingredient Disclosure List**
Benzene 71-43-2 0.1 %
Benzo[a]pyrene 50-32-8 0.1 %
Hydrogen sulfide 7783-06-4 1 %
Vanadium, elemental 7440-62-2 1 %

**US Federal regulations**
This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

All components are on the U.S. EPA TSCA Inventory List.

**U.S. - CERCLA/SARA - Hazardous Substances and their Reportable Quantities**
Benzene 71-43-2 10 Lb final RQ (received an adjusted RQ of 10 lbs based on potential carcinogenicity in an August 14, 1989 final rule); 4.54 kg final RQ (received an adjusted RQ of 10 lbs based on potential carcinogenicity in an August 14, 1989 final rule)
Benzo[a]pyrene 50-32-8 1 Lb final RQ; 0.454 kg final RQ
Hydrogen sulfide 7783-06-4 100 Lb final RQ; 45.4 kg final RQ

**U.S. - CERCLA/SARA - Section 302 Extremely Hazardous Substances EPCRA RQs**
Hydrogen sulfide 7783-06-4 100 Lb EPCRA RQ

**U.S. - CERCLA/SARA - Section 302 Extremely Hazardous Substances TPQs**
Hydrogen sulfide 7783-06-4 500 Lb TPQ

**U.S. - CERCLA/SARA - Section 313 - Emission Reporting**
Benzenes 71-43-2 0.1 % de minimis concentration
Benzo[a]pyrene 50-32-8 0.1 % Supplier notification limit (listed under Chemical Category N590, Polycyclic aromatic compounds)
Vanadium, elemental 7440-62-2 1.0 % de minimis concentration (except when contained in an alloy)

**U.S. - CWA (Clean Water Act) - Hazardous Substances**
Benzene Present
Hydrogen sulfide Present

**U.S. - CWA (Clean Water Act) - Priority Pollutants**
Benzenes Present
Benzo[a]pyrene Present

**U.S. - CWA (Clean Water Act) - Toxic Pollutants**
Benzenes Present

**Occupational Safety and Health Administration (OSHA)**
29 CFR 1910.1200 hazardous chemical

**CERCLA (Superfund) reportable quantity**
Benzene: 10.0000
Hydrogen sulfide: 100.0000
Benzo[a]pyrene: 1.0000

**Superfund Amendments and Reauthorization Act of 1986 (SARA)**

**Hazard categories**
Immediate Hazard - Yes Delayed Hazard - Yes Fire Hazard - Yes Pressure Hazard - No Reactivity Hazard - No

**Section 302 extremely hazardous substance** No

**Section 311 hazardous chemical** Yes

**Clean Air Act (CAA)**
Not available
<table>
<thead>
<tr>
<th>Clean Water Act (CWA)</th>
<th>Not available</th>
</tr>
</thead>
<tbody>
<tr>
<td>WHMIS status</td>
<td>Controlled</td>
</tr>
<tr>
<td>WHMIS classification</td>
<td>Class B - Division 3 - Combustible Liquid, Class D - Division 2B</td>
</tr>
<tr>
<td>WHMIS labeling</td>
<td></td>
</tr>
</tbody>
</table>
**State regulations**

| U.S. - California - 8 CCR Section 339 - Director's List of Hazardous Substances |
|-------------------------|-------------------------|
| Benzene | 71-43-2 | Present |
| Benzo(a)pyrene | 50-32-8 | Present |
| Hydrogen sulfide | 7783-06-4 | Present |
| Sulfur | 7704-34-9 | Present |
| Vanadium, elemental | 7440-62-2 | Present |

**U.S. - California - Proposition 65 - Carcinogens List**

| Benzene | 71-43-2 | Carcinogen, initial date 2/27/87 |
| Benzo(a)pyrene | 50-32-8 | Carcinogen, initial date 7/1/87 |

**U.S. - California - Proposition 65 - Developmental Toxicity**

| Benzene | 71-43-2 | Developmental toxicity, initial date 12/26/97 |

**U.S. - California - Proposition 65 - Reproductive Toxicity - Male**

| Benzene | 71-43-2 | Male reproductive toxicity, initial date 12/26/97 |

**U.S. - Connecticut - Carcinogenic Substances**

| Benzene | 71-43-2 | Meets the definition of a carcinogen from the Secretary of Labor. |
| Benzo(a)pyrene | 50-32-8 |  |

**U.S. - Illinois - Toxic Air Contaminant Carcinogens**

| Benzene | 71-43-2 | IRIS A Carcinogen; NTP Known Carcinogen; ACGIH A2 Carcinogen; IARC Group 1 Carcinogen |
| Benzo(a)pyrene | 50-32-8 | IRIS B2 Carcinogen; NTP Suspect Carcinogen; ACGIH A2 Carcinogen; IARC Group 2A Carcinogen |

**U.S. - Illinois - Toxic Air Contaminants**

| Benzene | 71-43-2 | Present |
| Benzo(a)pyrene | 50-32-8 | Present |

**U.S. - Louisiana - Reportable Quantity List for Pollutants**

| Benzene | 71-43-2 | 10 Lb final RQ (receives an adjustable RQ of 10 lbs based on potential carcinogenicity in August 14, 1989 final rule); 4.54 kg final RQ (receives an adjustable RQ of 10 lbs based on potential carcinogenicity in August 14, 1989 final rule) |
| Benzo(a)pyrene | 50-32-8 | 1 Lb final RQ; 0.454 kg final RQ |
| Hydrogen sulfide | 7783-06-4 | 100 Lb final RQ; 45.4 kg final RQ |

**U.S. - Massachusetts - Right To Know List**

| Benzene | 71-43-2 | Carcinogen; Extraordinarily hazardous |
| Benzo(a)pyrene | 50-32-8 | Carcinogen; Extraordinarily hazardous |
| Hydrogen sulfide | 7783-06-4 | Extraordinarily hazardous |
| Sulfur | 7704-34-9 | Present |
| Vanadium, elemental | 7440-62-2 | Present (dust and fume) |

**U.S. - Michigan - Critical Materials List**

| Benzene | 71-43-2 | 100 Lb Annual usage threshold |
| Benzo(a)pyrene | 50-32-8 | 10 Lb Annual usage threshold |

**U.S. - Minnesota - Hazardous Substance List**

| Benzene | 71-43-2 | Carcinogen |
| Benzo(a)pyrene | 50-32-8 | Carcinogen |
| Hydrogen sulfide | 7783-06-4 | Present |

**U.S. - New Jersey - Right to Know Hazardous Substance List**

| Benzene | 71-43-2 | sn 0197 |
| Benzo(a)pyrene | 50-32-8 | sn 0207 |
| Hydrogen sulfide | 7783-06-4 | sn 1017 |
| Sulfur | 7704-34-9 | sn 1757 |
| Vanadium, elemental | 7440-62-2 | sn 3762 |

**U.S. - New York - Reporting of Releases Part 597 - List of Hazardous Substances**

| Benzene | 71-43-2 | 10 Lb RQ (air); 1 lb RQ (land/water) |
| Benzo(a)pyrene | 50-32-8 | 1 Lb RQ (air); 1 lb RQ (land/water) |
| Hydrogen sulfide | 7783-06-4 | 100 Lb RQ (air); 100 lb RQ (land/water) |

**U.S. - North Carolina - Control of Toxic Air Pollutants**

| Benzene | 71-43-2 | 0.00012 mg/m3 (carcinogens) |
| Benzo(a)pyrene | 50-32-8 | 0.000033 mg/m3 (carcinogens) |
| Hydrogen sulfide | 7783-06-4 | 0.12 mg/m3 (chronic toxicants) |

**U.S. - Ohio - Extremely Hazardous Substances - Threshold Quantities**

| Hydrogen sulfide | 7783-06-4 | 500 Lb TQ |

**U.S. - Pennsylvania - RTK (Right to Know) - Special Hazardous Substances**

| Benzene | 71-43-2 | Present |
| Benzo(a)pyrene | 50-32-8 | Present |

**U.S. - Pennsylvania - RTK (Right to Know) List**

| Benzene | 71-43-2 | Environmental hazard; Special hazardous substance |
| Benzo(a)pyrene | 50-32-8 | Environmental hazard; Special hazardous substance |
| Hydrogen sulfide | 7783-06-4 | Environmental hazard |
| Sulfur | 7704-34-9 | Present |
| Vanadium, elemental | 7440-62-2 | Environmental hazard |

**WARNING:** This product contains a chemical known to the State of California to cause cancer and birth defects or other reproductive harm.
U.S. - Rhode Island - Hazardous Substance List

Benzene 71-43-2 Toxic (skin); Flammable (skin); Carcinogen (skin)
Benzo(a)pyrene 50-32-8 Toxic
Hydrogen sulfide 7783-06-4 Toxic; Flammable
Sulfur 7704-34-9 Flammable

Inventory name

<table>
<thead>
<tr>
<th>Country(s) or region</th>
<th>Inventory name</th>
<th>On inventory (yes/no)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Canada</td>
<td>Domestic Substances List (DSL)</td>
<td>Yes</td>
</tr>
<tr>
<td>Canada</td>
<td>Non-Domestic Substances List (NDSL)</td>
<td>No</td>
</tr>
<tr>
<td>United States &amp; Puerto Rico</td>
<td>Toxic Substances Control Act (TSCA) Inventory</td>
<td>Yes</td>
</tr>
</tbody>
</table>

A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s).

16. Other Information

Disclaimer

Information contained herein was obtained from sources considered technically accurate and reliable. While every effort has been made to ensure full disclosure of product hazards, in some cases data is not available and is so stated. Since conditions of actual product use are beyond control of the supplier, it is assumed that users of this material have been fully trained according to the requirements of all applicable legislation and regulatory instruments. No warranty, expressed or implied, is made and supplier will not be liable for any losses, injuries or consequential damages which may result from the use of or reliance on any information contained in this document.

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Prepared by Dell Tech Laboratories Ltd. (519) 858-5021
Other information For an updated MSDS, please contact the supplier/manufacturer listed on the first page of the document.

EYE: Flush with cool water. Remove contact lenses, if applicable, and continue flushing. Obtain medical attention if irritation persists.

SKIN: Flush with cool water. Wash with soap and water. Obtain medical attention if irritation persists.

INHALATION: If symptoms develop, move victim to fresh air. If symptoms persist, obtain medical attention. If breathing has stopped, trained personnel should administer CPR immediately.

INGESTION: Do not induce vomiting. Never give anything by mouth if victim is unconscious, or is convulsing. Obtain medical attention.

READ MATERIAL SAFETY DATA SHEET BEFORE USING PRODUCT


YEUX: Rincer à grande eau froide. Enlever les verres de contact, le cas échéant, et continuer à rincer. Obtenir de l'attention médicale si l'irritation persiste.

PEAU: Rincer à grande eau froide. Laver à l'eau et au savon. Obtenir de l'attention médicale si l'irritation persiste.

INHALATION: En cas de symptômes, placer la victime à l'air frais. Si les symptômes persistent, obtenir de l'attention médicale. Si la victime ne respire pas du personnel qualifié devrait immédiatement commencer la réanimation cardio-pulmonaire.

INGESTION: Ne pas faire vomir. Ne jamais rien faire boire ou avaler à une victime inconsciente, ou si la victime a des convulsions. Appeler un médecin.

LIRE LA FICHE SIGNALÉTIQUE AVANT D'UTILISER CE PRODUIT