| WHMIS | Personal Protection Equipment | TDG (Ground) |
|---|---|---|
|  |  |   |

## 1 Identification of the substance/mixture and of the company/undertaking

**Product identifier**

**Trade name**: Dilbit
**SDS Nr**: SDS-0037
**Chemical description**: Diluted Bitumen
CAS No: 8052-42-4 (100%)
EC No: 3257
**Registration-No**: Registration deadline not expired.
**Use**: Manufacture of and distillation of substances. Use as a refinery feedstock.

**Company identification**: Freepoint Commodities, LLC
58 Commerce Road
Stamford, Ct. 06902

**E-Mail address (competent person)**: Lou Santore

**Lou Santore [LSantore@freepoint.com]**

**Emergency telephone number**: Within the U.S. or Canada: 1 800 424 9300
Outside the U.S. and Canada: +1 703 527 3887 (collect calls accepted)

MSDS prepared by: Paule Patterson, ENERCON Services, Inc.

## 2 Hazards identification

**GHS Classification:**

Flammable Liquids - Category 2
Acute Toxicity – Inhalation, Category 2 *
Germ Cell Mutagenicity – Category 1B
Carcinogenicity - Category 1A
Toxic to Reproduction, Category 2
Specific Target Organ Toxicity Single Exposure - Category 3 – Narcotic Effects
Specific Target Organ Toxicity Repeat Exposure - Category 2
Aspiration Hazard, Category 1

*** Classification is due to the potential for Hydrogen sulphide ($H_2S$) accumulation**

**GHS LABEL ELEMENTS**
**Symbol(s)**

**Signal Word**

Danger

**CLP Hazard Statements:**

**PHYSICAL HAZARDS:**
H224: Extremely flammable liquid and vapor.

**ENVIRONMENTAL HAZARDS:**
H411: Toxic to aquatic life with long lasting effects.

**HEALTH HAZARDS:**
H225: Highly flammable liquid and vapor.
H304: May be fatal if swallowed and enters airways.

H315: Causes skin irritation.
H319: Causes serious eye irritation.
H330: Fatal if inhaled.
H340: May cause genetic effects.
H336: May cause drowsiness or dizziness.
H350: May cause cancer.
H361: Suspected of damaging fertility or the unborn child.
H373: May cause damage to organs or organ systems through prolonged or repeated exposure.
EUH066: Repeated exposure may cause skin dryness or cracking.

**CLP Precautionary statements**
**Prevention:**
P201: Obtain special instructions before use.
P210: Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P220: Do not handle until all safety precautions have been read and understood.
P240: Ground/bond container and receiving equipment.
P241: Use explosion-proof electrical/ventilating/lighting and other equipment.
P242: Use only non-sparking tools.
P243: Take precautionary measures against static discharge.
P260: Do not breathe dust/fume/gas/mist/vapors/spray.
P264: Wash thoroughly after handling.
P271: Use only outdoors or in a well-ventilated area.
P280: Wear protective gloves/protective clothing/eye protection/face protection.

**Storage:**
P235: Keep cool.
P403+P235: Store in a well ventilated place. Keep container tightly closed.
P405: Store locked up.

**Response:**
P301+P310: IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
P303+361+353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P304+340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P313: If eye irritation persists: Get medical advice/attention.
P314: Get medical advice/attention if you feel unwell.
P332+313: If skin irritation occurs: Get medical advice/attention.

P340: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P362+364: Take off contaminated clothing and wash it before reuse.
P391: Collect spillage.

**Disposal:**
P501: Dispose of contents and container to appropriate waste site or reclaimer in accordance with local, state, and national regulations.

**EC Safety Phrases:**
S53 Avoid exposure. Obtain special instructions before use.
S16 Keep away from sources of ignition - No smoking.
S29 Do not empty into drains.
S45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
S61 Avoid release to the environment. Refer to special instructions/Safety data sheets.

### 2.3 Other Hazards

**Health Hazards:**
Hydrogen sulphide is highly toxic and may be fatal if inhaled. Hydrogen sulphide (H2S), an extremely flammable and toxic gas, and other hazardous vapors may evolve and collect in the headspace of storage tanks, transport vessels and other enclosed containers.

May dull the sense of smell, so do not rely on odor as an indication of hazard.

H2S has a broad range of effects dependent on the airborne concentration and length of exposure: 0.02 ppm odor threshold, smell of rotten eggs; 10 ppm eye and respiratory tract irritation; 100 ppm coughing, headache, dizziness, nausea, eye irritation, loss of sense of smell in minutes; 200 ppm potential for pulmonary edema after >20-30 minutes; 500 ppm loss of consciousness after short exposures, potential for respiratory arrest; >1000ppm immediate loss of consciousness, may lead rapidly to death, prompt cardiopulmonary resuscitation may be required.

Do not depend on sense of smell for warning. H2S causes rapid olfactory fatigue. There is no evidence that H2S will accumulate in the body tissue after repeated exposure.

*Fumes from heated product may cause eye and lung irritation. Hot product can cause thermal burns.*
*On rare occasions, Hydrogen Sulphide may be present which can accumulate to hazardous levels in enclosed spaces.*

**Other Information:**

**This product is intended for use in closed systems only.**

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

## 3 Composition/information on ingredients

| COMPONENT | CAS # | Percent |
|---|---|---|
| Bitumen | 8042-05-9 | 100 |
| Sulfur | 7704-34-6 | 3 – 7 |
| Hexane | 110-54-3 | 1 – 5 |
| Pentane | 109-66-0 | 1 – 5 |
| Isopentane | 78-78-4 | 1 – 5 |
| Toulene | 108-88-3 | 0.1-1.0 |
| Ethylbenzene | 100-41-4 | 0.1-1.0 |
| Xylene | 1330-20-7 | 0.1-1.0 |
| Benzene | 71-43-2 | 0.1 – 1.0 |
| Hydrogen sulphied | 7783-06-4 | <0.01 |
| Benzene | 71-43-2 | <1 |

A natural product derived from various oil production fields primarily consisting of a complex combination of paraffinic and aromatic hydrocarbons and small amounts of nitrogen and sulfur compounds.

## 4 First aid measures

**First Aid: Eyes**
In case of contact with eyes, immediately flush with clean, low-pressure water for at least 15 min. Hold eyelids open to ensure adequate flushing. Seek medical attention.

**First Aid: Skin**
Remove contaminated clothing. Wash contaminated areas thoroughly with soap and water or waterless hand cleanser. Obtain medical attention if irritation or redness develops. Thermal burns require immediate medical attention depending on the severity and the area of the body burned.

**First Aid: Ingestion**
**DO NOT INDUCE VOMITING.** Do not give liquids. Obtain immediate medical attention. If spontaneous vomiting occurs, lean victim forward to reduce the risk of aspiration. Monitor for breathing difficulties. Small amounts of material which enter the mouth should be rinsed out until the taste is dissipated.

**First Aid: Inhalation**
Remove person to fresh air. If person is not breathing, provide artificial respiration. If necessary, provide additional oxygen once breathing is restored if trained to do so. Seek medical attention immediately.

**First Aid Measures**

**Inhalation**: Exposure to concentrations above 100% of the LEL such as 5% or 50,000 ppm may sensitize heart and cause irregular heartbeat. High concentrations may exclude oxygen and cause dizziness and suffocation. Contact with liquid or cold vapor may cause frostbite or freeze burn.

Exposure to concentrations above 10% of the LEL may cause a general central nervous system (CNS) depression typical of anesthetic gases or intoxicants. Aliphatic hydrocarbon gases may build up in confined spaces and may cause dizziness, light-headedness, headache, nausea and loss of coordination. Continued inhalation may result in narcosis, unconsciousness, and possibly lead to death.

Remove victim to uncontaminated area wearing self contained breathing apparatus. Keep victim warm and rested. Call a doctor. Apply artificial respiration if breathing stopped.

**Skin/eye contact**: For exposure to liquid, immediately warm frostbite area with warm water not to exceed 105°F (41°C) - flush with water for at least 15 minutes.

In case of massive exposure, remove contaminated clothing while showering with warm water. Obtain medical attention.

**- Eye contact**: Immediately flush eyes thoroughly with warm water for at least 15 minutes. Remove contact lenses. Hold the eyelids open and away from the eyeballs to ensure that all surfaces are flushed thoroughly. Seek medical attention immediately.

**- Ingestion**: Ingestion is not considered a potential route of exposure. If accidentally swallowed obtain immediate medical attention.

**Notes to physician**: Symptoms: Dizziness, Headache, Nausea, Frostbite, Vomiting, Discomfort Hazards:
This material may be a cardiac sensitizer; avoid the use of epinephrine.

**Treatment**: Treatment of overexposure should be directed at the control of symptoms and the clinical condition of the patient.

## 5 Fire-fighting measures

### General Fire Hazards

Highly flammable liquid and vapor. This product will easily ignite in the presence of heat sources, sparks, or flames.

See Section 9 for Flammability Properties.

### Hazardous Combustion Products

**Carbon monoxide, carbon dioxide and non-combusted hydrocarbons (smoke) Fumes, smoke, carbon monoxide, sulphur oxides, aldehydes and other decomposition products, in the case of incomplete combustion.**
**Vapors are heavier than air and may collect in low lying or confined space areas.**
**Vapors may travel towards ignition sources and flash back.**
**Runoff to sewers or drainage systems may create a fire or explosive hazard.**

.

### Extinguishing Media

Dry chemical, CO2, firefighting foam, or water extinguishing agent.

Water streams may cause rapid expansion of foaming material. Water spray should only be used to keep exposed containers cool and to flush spills away from exposure. Prevent runoff from fire control or dilution from entering stream, spillways, municipal sewers, or drinking water supply.

### Unsuitable Extinguishing Media

High pressure water

### Fire Fighting Equipment/Instructions

Small fires in the incipient (beginning) stage may typically be extinguished using handheld portable fire extinguishers and other firefighting equipment. Firefighting activities that may result in potential exposure to high heat, smoke or toxic by-products of combustion should require NIOSH/MSHA- approved pressure-demand self-contained breathing apparatus with full face piece and full protective clothing. Isolate area around container involved in fire.

Cool tanks, shells, and containers exposed to fire and excessive heat with water. For massive fires the use of unmanned hose holders or monitor nozzles may be advantageous to further minimize personnel exposure. Major fires may require withdrawal, allowing the tank to burn. Large storage tank fires typically require specially trained personnel and equipment to extinguish the fire, often including the need for properly applied firefighting foam.

## 6 Accidental release measures

### Recovery and Neutralization

#### Emergency Measures

Evacuate nonessential personnel and remove or secure all ignition sources. Consider wind direction; stay upwind and uphill, if possible. Evaluate the direction of product travel, diking, sewers, etc. to confirm spill areas. Product may release substantial amounts of flammable vapors and gases (e.g., methane, ethane, and propane), at or below ambient temperature depending on source and process conditions and pressure.

Immediately isolate the source and secure the spill area for at least 150 feet (50 meters) in all directions.

Report spills/releases as required to appropriate authorities.

Carefully contain and stop the source of the spill, if safe to do so.

### Materials and Methods for Clean-Up

Shovel up and dispose of at an appropriate waste disposal facility in accordance with current applicable laws and regulations, and product characteristics at time of disposal.

### Personal Precautions and Protective Equipment

Response and clean-up crews must be properly trained and must utilize proper protective equipment (see Section 8).

### Environmental Precautions

Bitumens are immiscible with water but may be adsorped in the sediment. Surface material may be skimmed off for later disposal.
Protect bodies of water by diking, absorbents, or absorbent boom, if possible. Do not flush down sewer or drainage systems, unless system is designed and permitted to handle such material. The use of firefighting foam may be useful in certain situations to reduce vapors. The proper use of water spray may effectively disperse product vapors or the liquid itself, preventing contact with ignition sources or areas/equipment that require protection - do not discharge solid water stream patterns into the liquid resulting in splashing.

### Prevention of Secondary Hazards

None

## 7 Handling and storage

Handling Procedures

Handle as a flammable liquid. Keep away from heat, sparks, and open flame! Electrical equipment should be approved for classified area. Bond and ground containers during product transfer to reduce the possibility of static-initiated fire or explosion.

On rare occasions, Hydrogen Sulphide may be present which can accumulate to hazardous levels in enclosed spaces. Avoid all personal contact and breathing of gas.

### Storage Procedures

Keep away from flame, sparks, excessive temperatures and open flame. Use approved vented containers. Keep containers closed and clearly labeled. Empty product containers or vessels may contain explosive vapors. Do not pressurize, cut, heat, weld or expose such containers to sources of ignition.

Store in a well-ventilated area. This storage area should comply with NFPA 30 "Flammable and Combustible Liquid Code". Avoid storage near incompatible materials. The cleaning of tanks previously containing this product should follow API Recommended Practice (RP) 2013 "Cleaning Mobile Tanks In Flammable and Combustible Liquid Service" and API RP 2015 "Cleaning Petroleum Storage Tanks."

### Incompatibilities

Keep away from strong oxidizers.

## 8 Exposure controls/personal protection

### Component Exposure Limits

| Components | CAS-No. | Exposure Limits | |
|---|---|---|---|
| | | ACGIH TLV | **OSHA TWA** |
| Bitumen | 8042-05-9 | | 0.5 mg/m$^3$ |
| Sulfur | 7704-34-6 | 10 mg/m$^3$ | 15 mg/m$^3$ (total dust), 3 mg/m$^3$ (respirable fraction) |
| Hexane | 110-54-3 | 50 ppm | 500 ppm , 1800 mg/m$^3$ (skin) |
| Pentane | 109-66-0 | 1000 ppm | 1000 ppm, 2950 mg/m$^3$ |
| Isopentane | 78-78-4 | 1000 ppm | No PEL established |
| Toulene | 108-88-3 | 20 ppm | 200 ppm |
| Ethylbenzene | 100-41-4 | 20 ppm | 100 ppm, 435 mg/m$^3$ |
| Xylene | 1330-20-7 | 100 ppm | 100 ppm, 435 mg/m$^3$ |
| Benzene | 71-43-2 | 0.5 ppm | 1.0 ppm |
| Hydrogen sulphied | 7783-06-4 | 1.0 ppm | 20 ppm |
| Polycyclic Aromatic Hydrocarbons | 130498-29-2 | ALARA | 0.2 mg/m$^3$ 9for bezene soluble fraction) |

LTEL: Long Term Exposure Limits - Time Weight Average (TWA) over 8 hours.
STEL: Short Term Exposure Limits - Time Weight Average (TWA) over 15 Minutes
ALARA: As low as reasonably achievable.
Note: Limits Shown for guidance only. Follow applicable regulations.

## Personal Protective Equipment (PPE)

**Engineering Measures:**
Use adequate explosive proof ventilation to keep vapor concentrations of this product below occupational exposure and flammability limits, particularly in confined spaces.

**Personal Protective Equipment: Respiratory**

A NIOSH/ MSHA-approved air-purifying respirator with organic vapor cartridges or canister that meets the NFPA 2112 and CAN/CGSB 155.20 standards may be permissible under certain circumstances where airborne concentrations are or may be expected to exceed exposure limits or for odor or irritation. Protection provided by air-purifying respirators is limited.

Use a positive pressure, air-supplied respirator if there is a potential for uncontrolled release, exposure levels are not known, in oxygen-deficient atmospheres, or any other circumstance where an air-purifying respirator may not provide adequate protection.

**Personal Protective Equipment: Hands**

If prolonged or repeated skin contact is likely wear oil impervious gloves and clothing. If handling hot material use heat-resistant gloves, apron and/or other clothing. Good personal hygiene practices should always be followed.

**Personal Protective Equipment: Eyes**

Safety glasses or goggles are recommended where there is a possibility of splashing or spraying.

**Personal Protective Equipment: Skin and Body**

If prolonged or repeated skin contact is likely wear oil impervious gloves and clothing. If handling hot material use heat-resistant gloves, apron and/or other clothing. Good personal hygiene practices should always be followed.

### Hygiene Measures

Emergency eye wash capability should be available in the near proximity to operations presenting a potential splash exposure. Use good personal hygiene practices. Avoid repeated and/or prolonged skin exposure. Wash hands before eating, drinking, smoking, or using toilet facilities. Do not use as a cleaning solvent on the skin. Do not use gasoline or solvents (naphtha, kerosene, etc.) for washing this product from exposed skin areas. Waterless hand cleaners are effective.
Promptly remove contaminated clothing and launder before reuse. Use care when laundering to prevent the formation of flammable vapors which could ignite via washer or dryer. Consider the need to discard contaminated leather shoes and gloves.

## 9 Physical and chemical properties

| | | | |
|---|---|---|---|
| **Appearance:** | Black or brown tar-like texture | **Odor:** | Characteristic, petroleum/asphalt-type odor |
| **Physical State:** | Viscous Liquid | **pH:** | ND |
| **Vapor Pressure:** | 35.8 kPa @ 100 °F (37.8 °C) | **Vapor Density:** | ND |
| **Boiling Point:** | 118 °F (48 °C) | **Melting Point:** | ND |
| **Solubility (H2O):** | Insoluble to slightly soluble | **Specific Gravity:** | AP 1.02 (at 20 °C) |
| **Evaporation Rate:** | Variable | **VOC:** | ND |
| **Octanol/H2O Coeff.:** | ND | **Flash Point:** | <25 °F (<-4 °C) |
| **Flash Point Method:** | ND | **Upper Flammability Limit (UFL):** | ND |
| **Lower Flammability Limit (LFL):** | ND | **Burning Rate:** | ND |
| **Auto Ignition:** | | ND | |

## 10 Stability and reactivity

### Chemical Stability

This is a stable material.

### Hazardous Reaction Potential

**None known.**

### Conditions to Avoid

Hot product in contact with water can cause foaming or sudden evolution of steam which could cause pressure build-up and possibly rupture a tank or vessel. Overheating may result in thermal cracking that produces toxic and flammable vapors.

Materials to avoid: Halogens, strong acids, alkalis and oxidizers.
Hazardous decomposition products : Fumes, smoke, carbon monoxide, sulphur oxides, aldehydes and other decomposition products, in the case of incomplete combustion.

### Incompatible Products

Keep away from strong oxidizers, acids, and halogens.

### Hazardous Decomposition Products

Carbon monoxide, carbon dioxide and non-combusted hydrocarbons (smoke).

## 11 Toxicological information

### Acute Toxicity

### A: General Product Information

Harmful if swallowed.
Xylene reacts synergistically with n-hexane to enhance hearing loss.

**Oral:** Not available.

**Dermal:** Not available.

**Inhalation:** Not available.

**Product Toxicity**

| Component | CAS No. | $LD_{50}$ oral | $LD_{50}$ dermal | $LC_{50}$ |
|---|---|---|---|---|
| Petroleum | 8002-05-9 | 4300 mg/kg (rat) | Not available. | Not available. |
| Sulphur | 7704-34-9 | > 8437 mg/kg (rat) | Not available. | Not available. |
| Hexane | 110-54-3 | 25000 mg/kg (rat) | Not available. | 48000 ppm (rat); 4H |
| Pentane | 109-66-0 | 400 mg/kg (rat) | Not available. | 364000 mg/m³ (rat); 4H |
| Isopentane | 78-78-4 | Not available. | Not available. | Not available. |
| Benzene | 71-43-2 | 930 mg/kg (rat) | > 9400 µL/kg (rabbit) | 10000 ppm (rat); 7H |
| Toluene | 108-88-3 | 2600 mg/kg (rat) | 14.1 mL/kg (rabbit) | 49000 mg/m³ (rat); 4H |
| Ethylbenzene | 100-41-4 | 3500 mg/kg (rat) | 17800 µL/kg (rabbit) | Not available. |
| Xylene | 1330-20-7 | 4300 mg/kg (rat) | > 1700 mg/kg (rabbit) | 5000 ppm (rat); 4H |
| Hydrogen sulphide | 7783-06-4 | Not available. | Not available. | 444 ppm (rat); 4H |
| Polycyclic Aromatic Hydrocarbons | 130498-29-2 | Not available. | Not available. | Not available. |

**Symptoms (including delayed and immediate effects)**

**Inhalation:** Fatal if inhaled. May cause drowsiness or dizziness. May cause respiratory irritation. Signs/symptoms may include cough, sneezing, nasal discharge, headache, hoarseness, and nose and throat pain. Excessive inhalation may cause headache, dizziness, confusion, loss of appetite and/or loss of consciousness. Inhalation of Toluene may result in peculiar skin sensations (e. g. pins and needles) or numbness. This product contains small amounts of Hydrogen sulphide which
may accumulate in confined spaces. Inhalation of Hydrogen sulphide may cause loss of sense of smell, major irritation of the respiratory tract, headache, nausea,
vomiting, dizziness, and fluid buildup in the lungs (pulmonary edema), which can be fatal. At 300 ppm unconsciousness may occur after 20 minutes. From 300 to

500 ppm, death can occur within 1 to 4 hours of continuous exposure. At 500 ppm the respiratory system is paralyzed, the victim collapses almost instantaneously,
and death can occur after exposure of only 30 to 60 minutes. Above 500 ppm Hydrogen sulphide may cause immediate loss of consciousness; death is rapid, and possibly immediate.

**Eye:** May cause eye irritation. Signs/symptoms may include redness, swelling, pain, tearing, and blurred or hazy vision. Hydrogen sulphide may cause eye irritation at
1-20 ppm and acute conjunctivitis at higher concentrations. Above 50 ppm H2S, eye irritation may include symptoms of redness, severe swelling, tearing, sensitivity to light and the appearance of 'Halos' around lights.

**Skin:** Causes skin irritation. Signs/symptoms may include localized redness, swelling, and itching.

**Ingestion:** May be fatal if swallowed and enters airways. May cause gastrointestinal irritation. Signs/symptoms may include abdominal pain, stomach upset, nausea, vomiting and diarrhea.

| | |
|---|---|
| **Skin Sensitization:** | Not available. |
| **Respiratory Sensitization:** | Not available. |
| **Medical Conditions Aggravated By Exposure:** | Not available. |

| | |
|---|---|
| **EFFECTS OF CHRONIC EXPOSURE (from short and long-term exposure) Target Organs:** | Skin. Eyes. Gastrointestinal tract. Respiratory system. Lungs. Blood. Cardiovascular system. Bone marrow. Liver. Kidneys. Reproductive system. Central nervous system. Peripheral nervous system. |
| **Chronic Effects:** | Hazardous by OSHA/WHMIS criteria. May cause chronic effects. Prolonged or repeated contact may dry skin and cause irritation. High vapor concentrations, generally greater than 10% by volume, may sensitize the heart and lead to lethal cardiac arrhythmias. Repeated dermal application of crude oils in rats produced systemic toxicity in blood, liver, thymus and bone marrow. Eyes. Skin. Gastrointestinal tract. Respiratory system. Chronic inhalation of n-Hexane may cause peripheral nerve disorders and central nervous system effects. Prolonged or repeated inhalation of Isopentane may cause |

dizziness, weakness, weight loss, anemia, nervousness, pains in the limbs and peripheral numbness. Reports of chronic poisoning with Benzene, Toluene, Ethylbenzene or Xylene describe anemia, decreased blood cell count and bone marrow hypoplasia. Liver and kidney damage may occur. Repeated exposure of the eyes to high concentrations of Xylenes vapor may cause reversible eye damage. Chronic inhalation exposure to xylene causes mid-frequency hearing loss in laboratory animals. Xylene reacts synergistically with n-hexane to enhance hearing loss. Immunodepressive effects have also been reported for Benzene. Hydrogen sulphide may reduce lung function; cause neurological effects such as headaches, nausea, depression and personality changes; eye and mucous membrane irritation: damage to cardiovascular system. This product contains Polycyclic Aromatic Hydrocarbons. Prolonged contact with these compounds has been associated with the induction of skin and lung tumours, anemia, disorders of the liver, bone marrow and lymphoid tissues.

Carcinogenicity: May cause cancer. Lifetime skin painting studies in animals with whole crude oils and crude oil fractions have produced tumors in animals following prolonged and repeated skin contact. Chronic exposure to benzene has been associated with an increased incidence of leukemia and multiple myeloma (tumor composed of cells of the type normally found in the bone marrow).

| Component | ACGIH | IARC | NTP | OSHA | Prop 65 |
|---|---|---|---|---|---|
| Petroleum | Not listed. | Group 3 | Not listed. | OSHA Carcinogen. | Not listed. |
| Benzene | A1 | Group 1 | List 1 | OSHA Carcinogen. | Listed. |
| Toluene | A4 | Group 3 | Not listed. | Not listed. | Not listed. |
| Ethylbenzene | A3 | Group 2B | Not listed. | OSHA Carcinogen. | Listed. |
| Xylene | A4 | Group 3 | Not listed. | Not listed. | Not listed. |
| Polycyclic Aromatic Hydrocarbons | A2 | Not listed. | List 2 | OSHA Carcinogen. | Listed. |

**Mutagenicity:** May cause genetic effects.

**Reproductive Effects:** Suspected of damaging fertility or the unborn child. Studies exist which report a link to crude oil and reproductive effects

including menstrual disorders.

Teratogenicity Effects: No data available.

Embyotoxicity: Possible risk of harm to the unborn child. Repeated dermal exposures of crude oils to pregnant rats produced material toxicity and fetal development toxicity tumors. Benzene and Xylene have caused adverse fetal effects in laboratory animals. Exposure to Toulene may effect the developing fetus.

## 12 Ecological information

### Ecotoxicity

### A: General Product Information

**Ecotoxicity:** Petroleum: 21 and 41 mg/l, 96 hr., Rainbow trout;
Petroleum: 2.7 and 4.1 mg/l, 96 hr., Mysid;
Petroleum: 122 and 528 ml/kg, 96 hr., Algae.

### Elimination information (persistence and degradability)

Biodegradability : Bitumens are persistent and not subject to biodegradation.

Mobility : Adsorption to sediment and soil will be the predominant behavior.

Bioaccumulation : Minimal owing to low water solubility.

### Further information on ecology

Remarks : In the absence of specific environmental data for this product, this assessment is based on information for representative substances.
Keep out of sewers, drainage areas and waterways. Report spills and releases, as applicable, under Federal and State regulations.

## 13 Disposal considerations

### Waste Disposal Instructions

See Section 7 for Handling Procedures. See Section 8 for Personal Protective Equipment recommendations.

**Waste Disposal**: This product is suitable for recycling or safe disposal at approved facilities.

Contaminated packaging: Empty containers retain residue (liquid and/or vapor) and can be dangerous.

**DO NOT PRESSURIZE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCES OF IGNITION; THEY MAY EXPLODE AND CAUSE INJURY OR DEATH.**

Do not attempt to refill or clean container since residue is difficult to remove.
Empty drums should be completely drained, properly bunged and promptly returned to a drum reconditioner.
All containers should be disposed of in an environmentally safe manner and in accordance with governmental regulations.

## 14 Transport information

**DOT Infromation:**
**Shipping Name:** Petroleum Crude Oil
**UN #:** 1267
**Hazard Class: 3**
**Placard:**


**Note : Product may be transported by air or road if its temperature is below 100°C and its flashpoint.**

Land transport (ADR/RID):
ADR
14.1 UN number: 1267
14.2 UN proper shipping name: Petroleum Crude Oil

14.3 Transport hazard class(es): 3
14.4 Packing group : I Danger label (primary risk) : 3

RID
14.1 UN number: 1267
14.2 UN proper shipping name: Petroleum Crude Oil
14.3 Transport hazard class(es): 3
14.4 Packing group : I Danger label (primary risk) : 3

Sea transport (IMDG Code):
14.1 UN number: 1267
14.2 UN proper shipping name: Petroleum Crude Oil
14.3 Transport hazard class(es): 3
14.4 Packing group : I Danger label (primary risk) : 3
14.5 Environmental hazards: Yes. Marine Pollutant

Air transport (IATA):
14.1 UN number: 1267
14.2 UN proper shipping name: Petroleum Crude Oil
14.3 Transport hazard class(es): 3
14.4 Packing group : I Danger label (primary risk) : 3

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
Pollution Category: Not applicable.
Ship Type: Not applicable.
Product Name: Not applicable.
Special Precaution: Not applicable.

Additional Information: MARPOL Annex 1 rules apply for bulk shipments by sea.

## 15 Regulatory information

**Component Analysis**

US OSHA Hazard Communication Standard: This product may be used in certain applications where temperature may lead to generation of bitumen fumes.
Governmental Inventory Status: All components comply with TSCA, EINECS/ELINCS, AICS, METI, DSL, KECI, ENCS, PICCS and IECSC.
EU Labelling: Product is not dangerous as defined by the European Union Dangerous Substances/Preparations Directives. EU labelling not required.

**US (TSCA)**
The components of this product are in compliance with the chemical notification requirements of TSCA.

**Canada (DSL)**
The components of this product are in compliance with the chemical notification requirements of the NSN Regulations under CEPA, 1999.

**Federal Regulations**

**Canada**
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.

**WHMIS Classification:** Class B2 - Flammable Liquids. Class D1A - Very Toxic Material. * Class D2A - Carcinogenicity. Class D2A - Embryotoxicity. Class D2A - Mutagenicity. Class D2A - Chronic toxic effects. Class D2B - Skin irritant.

**Hazard Symbols:**

**United States**
This SDS has been prepared to meet the U.S. OSHA Hazard Communication Standard, 29 CFR 1910.1200.

## SARA SECTION 313 - SUPPLIER NOTIFICATION

This product contains the following chemicals:

| Component | Section 302 (EHS) TPQ (lbs.) | Section 304 EHS RQ (lbs.) | CERCLA RQ (lbs.) | Section 313 | RCRA CODE | CAA 112( r ) TQ (lbs.) |
|---|---|---|---|---|---|---|
| Hexane | Not listed. | Not listed. | 5000 | 313 | Not listed. | Not listed. |
| Pentane | Not listed. | Not listed. | Not listed. | Not listed. | Not listed. | 10000 |
| Isopentane | Not listed. | Not listed. | Not listed. | Not listed. | Not listed. | 10000 |
| Benzene | Not listed. | Not listed. | 10 | 313 | U019 | Not listed. |
| Toluene | Not listed. | Not listed. | 1000 | 313 | U220 | Not listed. |
| Ethylbenzene | Not listed. | Not listed. | 1000 | 313 | Not listed. | Not listed. |
| Xylene | Not listed. | Not listed. | 100 | 313 | U239 | Not listed. |
| Hydrogen sulphide | 500 | 100 | 100 | 313 | U135 | 10000 |
| Polycyclic Aromatic Hydrocarbons | Not listed. | Not listed. | Not listed. | 313 | Not listed. | Not listed. |

**SARA Title III**

**State Regulations**

**Massachusetts** US Massachusetts Commonwealth's Right-to-Know Law (Appendix A to 105 Code of Massachusetts Regulations Section 670.000)

| Component | CAS No. | RTK List |
|---|---|---|
| Petroleum | 8002-05-9 | Listed. |
| Sulphur | 7704-34-9 | Listed. |
| Hexane | 110-54-3 | Listed. |
| Pentane | 109-66-0 | Listed. |
| Isopentane | 78-78-4 | Listed. |
| Benzene | 71-43-2 | E |
| Toluene | 108-88-3 | Listed. |
| Ethylbenzene | 100-41-4 | Listed. |
| Xylene | 1330-20-7 | Listed. |
| Hydrogen sulphide | 7783-06-4 | E |
| Polycyclic Aromatic Hydrocarbons | 130498-29-2 | Listed. |

**New Jersey** US New Jersey Worker and Community Right-to-Know Act (New Jersey Statute Annotated Section 34:5A-5)

| Component | CAS No. | RTK List |
|---|---|---|
| Petroleum | 8002-05-9 | SHHS |

| | | |
|---|---|---|
| Sulphur | 7704-34-9 | Listed. |
| Hexane | 110-54-3 | SHHS |
| Pentane | 109-66-0 | SHHS |
| Isopentane | 78-78-4 | SHHS |
| Benzene | 71-43-2 | SHHS |
| Toluene | 108-88-3 | SHHS |
| Ethylbenzene | 100-41-4 | SHHS |
| Xylene | 1330-20-7 | SHHS |
| Hydrogen sulphide | 7783-06-4 | SHHS |

**Note:** E = Environmental Hazard; S = Special Hazardous Substance

**Pennsylvania** US Pennsylvania Worker and Community Right-to-Know Law (34 Pa. Code Chap. 301-323)

| **Component** | **CAS No.** | **RTK List** |
|---|---|---|
| Petroleum | 8002-05-9 | Listed. |
| Sulphur | 7704-34-9 | Listed. |
| Hexane | 110-54-3 | Listed. |
| Pentane | 109-66-0 | Listed. |
| Isopentane | 78-78-4 | Listed. |
| Benzene | 71-43-2 | ES |
| Toluene | 108-88-3 | E |
| Ethylbenzene | 100-41-4 | E |
| Xylene | 1330-20-7 | E |
| Hydrogen sulphide | 7783-06-4 | E |
| Polycyclic Aromatic Hydrocarbons | 130498-29-2 | Listed. |

**California California Prop 65:** WARNING: This product contains chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.

| **Component** | **Type of Toxicity** |
|---|---|
| Benzene | cancer; developmental, male |
| Toluene | developmental |
| Ethylbenzene | cancer |
| Polycyclic Aromatic Hydrocarbons | cancer |

## 16 Other information

**Key/Legend**
EPA = Environmental Protection Agency; TSCA = Toxic Substance Control Act; ACGIH = American Conference of Governmental Industrial Hygienists; IARC = International Agency for Research on Cancer; NIOSH = National Institute for Occupational Safety and Health; NTP = National Toxicology Program; OSHA = Occupational Safety and Health Administration, NJTSR = New Jersey Trade Secret Registry.

**DISCLAIMER OF LIABILITY**: Before using this product in any new process or experiment, a thorough material compatibility and safety study should be carried out.

This document is generated for the purpose of distributing health, safety, and environmental data.

Information is correct to the best of our knowledge at the date of the MSDS publication. It is not a specification sheet nor should any displayed data be construed as a specification.

The information on this MSDS was obtained from sources which we believe are reliable. However, the information is provided without any warranty, expressed or implied, regarding its correctness. Some information presented and conclusions drawn herein are from sources other than direct test data on the substance itself. The conditions or methods of handling, storage, use and disposal of the product are beyond our control and may be beyond our knowledge. For this and other reasons, we do not assume responsibility and expressly disclaim liability for loss, damage, or expense arising out of or in any way connected with handling, storage, use, or disposal of this product. If the product is used as a component in another product, this MSDS information may not be applicable.