



# SAFETY DATA SHEET

SDS ID NO.: 0148MAR019  
Revision Date 11/23/2016

## 1. IDENTIFICATION

**Product Name:** Marathon Petroleum Road Oil Asphalt

**Synonym:** Marathon Petroleum Slow Cure Asphalt; Slow Cure Cutback Asphalt; Slow Cure Asphalt; SC-30; SC-70; SC-250; SC-800; SC-3000; Marathon Road Oil Asphalt; E-2 Road Oil; Road Oil E-2; E-3 Road Oil; Road Oil E-3; E-4 Road Oil; Road Oil E-4; 0140MAR019

**Product Code:** 0148MAR019

**Chemical Family:** Asphalt

**Recommended Use:** Road Building & Other Service.

**Restrictions on Use:** All others.

**Manufacturer, Importer, or Responsible Party Name and Address:**  
**MARATHON PETROLEUM COMPANY LP**  
**539 South Main Street**  
**Findlay, OH 45840**

**SDS information:** 1-419-421-3070

**Emergency Telephone:** 1-877-627-5463

## 2. HAZARD IDENTIFICATION

### Classification

#### **OSHA Regulatory Status**

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Acute toxicity - Inhalation (Dusts/Mists)	Category 4
Skin corrosion/irritation	Category 2
Serious eye damage/eye irritation	Category 2A
Skin sensitization	Category 1A
Germ cell mutagenicity	Category 2
Carcinogenicity	Category 1A
Reproductive toxicity	Category 2
Specific target organ toxicity (repeated exposure)	Category 2
Acute aquatic toxicity	Category 1
Chronic aquatic toxicity	Category 1

#### **Hazards Not Otherwise Classified (HNOC)**

Hot liquid may cause thermal burns  
May release hydrogen sulfide gas

### Label elements

### EMERGENCY OVERVIEW

**Danger**

Contact with product at elevated temperatures can result in thermal burns  
 Harmful if inhaled  
 May release highly toxic hydrogen sulfide gas that quickly fatigues the sense of smell  
 Causes skin irritation  
 Causes serious eye irritation  
 May cause an allergic skin reaction  
 Suspected of causing genetic defects  
 May cause cancer  
 Suspected of damaging fertility or the unborn child  
 May cause damage to organs (blood, thymus, liver, spleen, bone marrow) through prolonged or repeated exposure.  
 Very toxic to aquatic life with long lasting effects

Up to 1% of the mixture consists of ingredient(s) of unknown toxicity



**Appearance** Brown to black solid or semi-solid at room temperature. Liquid at temperatures > 70°C.

**Physical State** Liquid

**Odor** Hydrocarbon / Tar

**Precautionary Statements - Prevention**

Obtain special instructions before use  
 Do not handle until all safety precautions have been read and understood  
 Do not breathe fumes/gas/vapors  
 Use only outdoors or in a well-ventilated area  
 Wear protective gloves/protective clothing/eye protection/face protection  
 Wash hands and any possibly exposed skin thoroughly after handling  
 Contaminated work clothing should not be allowed out of the workplace  
 Avoid release to the environment

**Precautionary Statements - Response**

IF exposed, concerned or you feel unwell: Get medical attention  
 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing  
 If eye irritation persists: Get medical attention  
 IF ON SKIN: Wash with plenty of soap and water  
 If skin irritation or rash occurs: Get medical attention  
 Take off contaminated clothing and wash before reuse  
 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing  
 Call a POISON CENTER or doctor if you feel unwell  
 Collect spillage

**Precautionary Statements - Storage**

Store locked up

**Precautionary Statements - Disposal**

Dispose of contents/container at an approved waste disposal plant

### 3. COMPOSITION/INFORMATION ON INGREDIENTS

Road Oil Asphalt is a petroleum asphalt mixed with varying proportions of fuel oils, kerosine, and/or petroleum residues. Composition varies depending on source of crude and specifications of final product. May contain minor amounts of sulfur, nitrogen and oxygen containing compounds. Different asphalt grades may also contain an anti-strip additive.

**Composition Information:**

Name	CAS Number	% Concentration
Asphalt	8052-42-4	50-85
Residues (petroleum), vacuum	64741-56-6	0-50
Fuel Oil, Residual	68476-33-5	0-50
Distillates (petroleum), straight-run middle	64741-44-2	0-30
Sulfur Compounds	Mixture	0.5-5
Polyamine	Proprietary	0-1
Polycyclic Aromatic Hydrocarbons	Mixture	<1
Naphthalene	91-20-3	0.01-0.2
Hydrogen sulfide	7783-06-4	0-0.01

All concentrations are percent by weight unless material is a gas. Gas concentrations are in percent by volume.

## 4. FIRST AID MEASURES

**First Aid Measures**

**General Advice:** Immediately address any airway, breathing, or circulation concerns. Contact EMS if the person is having trouble breathing, moving, or staying awake. Perform a quick assessment for other injuries that may be present including falls or from falling objects.

REMEMBER ABCC (AIRWAY, BREATHING, CIRCULATION, COOLING).

**Inhalation:** If symptoms of overexposure to asphalt fume develop, move to fresh air in a position comfortable for breathing. If symptoms or irritation occur, call a poison control center or doctor.

**Skin Contact:** Hot material: DO NOT DELAY. Immediately immerse or place the affected skin under a water stream for at least 15 minutes. Urgent medical attention is required for burns to the face, eyes, hands, feet, genitalia, and for circumferential or large burn areas. GET MEDICAL ATTENTION IMMEDIATELY. Do not attempt to remove solidified asphalt if not a physician. Leave burn uncovered. Ice (or "cold packs") may be used in the event that water is unavailable. Only remove clothing if not adhering to the skin. Be aware that although it is very important to cool the burn thoroughly and completely, the overuse of ice may increase the risk of hypothermia.

Cold material: To remove cold asphalt not associated with a burn, wash with soap and water or waterless cleaner. If symptoms or irritation or rash occur, call a poison control center or doctor.

**Eye Contact:** Hot material: After contact with hot asphalt, lay the person flat on their back, remove contact lenses if easy to do, and flush with water from a continuous stream for at least 15 minutes by allowing the water to flow over the bridge of the nose to the eyes. GET MEDICAL ATTENTION IMMEDIATELY.

Cold material: If irritation develops, flush eyes with water. If irritation or redness persists call a poison control center or a doctor.

**Ingestion:** Ingestion not likely. Small amounts of ingested asphalt usually require no treatment. If large amounts are swallowed, call a poison control center or doctor.

**Most important signs and symptoms, both short-term and delayed with overexposure**

**Adverse Effects:** Contact with cold material may cause irritation or sensitization. Exposure to hot melted material can cause thermal burns. Hydrogen sulfide can cause respiratory paralysis and death, depending on the concentration and duration of exposure. Do not rely on ability to smell vapors, since loss of smell rapidly occurs. Effects of overexposure include irritation of the nose and throat, nausea, vomiting, diarrhea, abdominal pain and signs of nervous system depression (e.g. headache, drowsiness, dizziness, loss of coordination and fatigue), irregular heartbeats, pulmonary edema, weakness and convulsions. Prolonged or repeated

exposure may cause adverse effects to the blood, thymus, liver, spleen, and bone marrow.

#### **Indication of any immediate medical attention and special treatment needed**

##### **Notes To Physician:**

Immediately address any airway, breathing, or circulation concerns.

**SKIN & EYE CONTACT:** Prolonged flushing/cooling is necessary if the patient is treated on scene or soon after asphalt contact. Topical antibiotics should be liberally applied to the adhered asphalt-skin interface to aid in asphalt removal. A non-adherent material, such as Adaptic®, can then be applied and covered with sterile gauze. If topical antibiotics are not available, other materials that may be effective include mineral oil, baby oil, petroleum jelly (e.g. Vaseline®), mayonnaise, or butter. Do not use organic solvents such as kerosene, gasoline, or ethanol, as these can result in tissue damage or a fire hazard. Dressings should be changed every 4 hours until natural separation occurs. Initiate standard burn management at that time. Once cooled, adhered asphalt is not harmful to the skin, and in fact, provides a sterile cover over the affected area. The asphalt will detach itself within a few days as healing occurs. If it is necessary to remove the asphalt, only medically approved solvents or warm paraffin should be used to prevent further skin damage. Circumferential asphalt contact can have a tourniquet effect and impair distal circulation and nerve function. Create a longitudinal split or cut (analogous to an escharotomy) may be required completely across the residual asphalt to relieve pressure in the underlying tissue. For eye exposures with adherent asphalt, consult with an ophthalmologist. If hot material has caused burns to the eye, early ophthalmologic evaluation is recommended.

**INHALATION:** Inhalation exposure can produce toxic effects. Treat intoxications as hydrogen sulfide exposures. At high concentrations hydrogen sulfide may produce pulmonary edema, respiratory depression, and/or respiratory paralysis. The first priority in treatment should be the establishment of adequate ventilation and the administration of 100% oxygen. Monitor for respiratory distress. If cough or difficulty in breathing develops, evaluate for upper respiratory tract inflammation, bronchitis, and pneumonitis.

## **5. FIRE-FIGHTING MEASURES**

#### **Suitable extinguishing media**

For small fires, Class B fire extinguishing media such as CO<sub>2</sub>, dry chemical, foam (AFFF/ATC) or water fog can be used. For large fires, water spray, fog or foam (AFFF/ATC) can be used. Firefighting should be attempted only by those who are adequately trained and equipped with proper protective equipment.

#### **Unsuitable extinguishing media**

Do not use straight streams. Water contact can cause violent eruption of hot asphalt.

#### **Specific hazards arising from the chemical**

This product is not a combustible liquid per the OSHA Hazard Communication Standard, but will ignite and burn at temperatures exceeding the flash point. Specific hazards arising from the chemical.

#### **Hazardous combustion products**

Smoke, carbon monoxide, and other products of incomplete combustion.

#### **Explosion data**

**Sensitivity to Mechanical Impact** No.

**Sensitivity to Static Discharge** No.

#### **Special protective equipment and precautions for firefighters**

Firefighters should wear full protective clothing and positive-pressure self-contained breathing apparatus (SCBA) with a full face-piece, as appropriate. Avoid using straight water streams. Water spray and foam (AFFF/ATC) must be applied carefully to avoid frothing and from as far a distance as possible. Avoid excessive water spray application. Keep run-off water out of sewers and water sources.

#### **Additional firefighting tactics**

Not applicable.

NFPA

Health 2

Flammability 1

Instability 0

Special Hazard -

## 6. ACCIDENTAL RELEASE MEASURES

<b>Personal precautions:</b>	Keep public away. Isolate and evacuate area. Shut off source if safe to do so.
<b>Protective equipment:</b>	Use personal protection measures as recommended in Section 8.
<b>Emergency procedures:</b>	Advise authorities and National Response Center (800-424-8802) if the product has entered a water course or sewer. Notify local health and pollution control agencies, if appropriate.
<b>Environmental precautions:</b>	Avoid release to the environment. Avoid subsoil penetration.
<b>Methods and materials for containment:</b>	Contain liquid with sand or soil.
<b>Methods and materials for cleaning up:</b>	Use suitable absorbent materials such as vermiculite, sand, or clay to clean up residual liquids. Recover and return free product to proper containers.

## 7. HANDLING AND STORAGE

<b>Safe Handling Precautions:</b>	<p>Avoid contact with skin, eyes and clothing. Avoid breathing fumes, gas, or vapors. Use only with adequate ventilation. Wash thoroughly after handling. Use good personal hygiene practices and wear appropriate personal protective equipment. Comply with all applicable EPA, OSHA, NFPA and consistent state and local requirements.</p> <p>Harmful concentrations of hydrogen sulfide (H<sub>2</sub>S) gas can accumulate in excavations and low-lying areas as well as the vapor space of storage and bulk transport compartments. Stay upwind and vent open hatches before unloading. Sulfur containing products may cause polysulfide deposits (iron sulfide) to form inside iron storage tanks. These pyrophoric deposits, upon exposure to air, can ignite spontaneously. Keep heating coils and flues in storage tanks, trucks and kettles covered with product (8"). Do not overheat.</p>
<b>Storage Conditions:</b>	Store in properly closed containers that are appropriately labeled and in a cool, well-ventilated area.
<b>Incompatible Materials</b>	Strong oxidizing agents.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Name	ACGIH TLV	OSHA PELs:	OSHA - Vacated PELs	NIOSH IDLH
Asphalt 8052-42-4	0.5 mg/m <sup>3</sup> TWA	-	-	-
Residues (petroleum), vacuum 64741-56-6	Asphalt (Bitumen) Fume, as benzene-soluble aerosol, inhalable fraction 0.5 mg/m <sup>3</sup> TWA	-	-	-
Fuel Oil, Residual 68476-33-5	-	-	-	-
Distillates (petroleum), straight-run middle 64741-44-2	-	-	-	-
Sulfur Compounds Mixture	-	-	-	-
Polyamine Proprietary	-	-	-	-
Polycyclic Aromatic Hydrocarbons	-	-	-	-

Mixture				
Naphthalene 91-20-3	10 ppm TWA Skin - potential significant contribution to overall exposure by the cutaneous route	TWA: 10 ppm TWA: 50 mg/m <sup>3</sup>	10 ppm TWA 50 mg/m <sup>3</sup> TWA 15 ppm STEL 75 mg/m <sup>3</sup> STEL	250 ppm
Hydrogen sulfide 7783-06-4	1 ppm TWA 5 ppm STEL	Ceiling: 20 ppm Peak: 50 ppm	10 ppm TWA 14 mg/m <sup>3</sup> TWA 15 ppm STEL 21 mg/m <sup>3</sup> STEL	100 ppm

**Notes:** The manufacturer has voluntarily elected to provide exposure limits contained in OSHA's 1989 air contaminants standard in its SDSs, even though certain of those exposure limits were vacated in 1992.

**Engineering measures:** Local or general exhaust required in an enclosed area or when there is inadequate ventilation.

### Personal protective equipment

**Eye protection:** Wear goggles and faceshield when handling hot material.

**Skin and body protection:** Wear insulated gloves when handling hot material. Contact the glove manufacturer for specific advice on glove selection and breakthrough times. Wear the appropriate thermal resistant clothing and footwear when handling and applying hot asphalt. Rubberized suits or coats may be needed for some maintenance operations with hot material.

**Respiratory protection:** Where there is potential for airborne exposure to hydrogen sulfide (H<sub>2</sub>S) above exposure limits, a NIOSH approved, self-contained breathing apparatus (SCBA) or equivalent operated in a pressure demand or other positive pressure mode should be used. When H<sub>2</sub>S vapors exceed permissible limits, i.e., in confined spaces or bulk transport loading/unloading, a positive-pressure atmosphere supplying respirator is recommended. Self-contained breathing apparatus should be used for fire fighting.

Provided hydrogen sulfide (H<sub>2</sub>S) is not detected: if there is potential to exceed the exposure limits for asphalt fumes a NIOSH certified air purifying respirator equipped with organic vapor cartridges/canisters with R or P95 filters should be used. A respiratory protection program that meets or is equivalent to OSHA 29 CFR 1910.134 and ANSI Z88.2 should be followed when conditions warrant the use of a respirator.

Note: Air purifying respirators are not to be used in atmospheres that exceed the maximum use concentration (as directed by regulation or the manufacturer's instructions), in oxygen deficient atmospheres, (less than 19.5 percent oxygen) or under conditions that are immediately dangerous to life and health (IDLH).

**Hygiene measures:** Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes and clothing.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

### Information on basic physical and chemical properties

<b>Physical State</b>	Liquid
<b>Appearance</b>	Brown to black solid or semi-solid at room temperature. Liquid at temperatures > 70°C.
<b>Color</b>	Light to dark brown, Black
<b>Odor</b>	Hydrocarbon / Tar
<b>Odor Threshold</b>	No data available.

<u>Property</u>	<u>Values (Method)</u>
<b>Melting Point / Freezing Point</b>	No data available.
<b>Initial Boiling Point / Boiling Range</b>	204-704 °C / 400-1300 °F (ASTM D2887)
<b>Flash Point</b>	> 93.3 °C / > 200 °F (ASTM D92)
<b>Evaporation Rate</b>	No data available.
<b>Flammability (solid, gas)</b>	Not applicable.

<b>Flammability Limit in Air (%):</b>	
<b>Upper Flammability Limit:</b>	No data available.
<b>Lower Flammability Limit:</b>	No data available.
<b>Explosion limits:</b>	No data available.
<b>Vapor Pressure</b>	1 -10 mm Hg @ 160 °F (ASTM D323)
<b>Vapor Density</b>	No data available.
<b>Specific Gravity / Relative Density</b>	0.87-1.12
<b>Water Solubility</b>	Negligible
<b>Solubility in other solvents</b>	No data available.
<b>Partition Coefficient</b>	No data available.
<b>Decomposition temperature</b>	No data available.
<b>pH:</b>	Not applicable.
<b>Autoignition Temperature</b>	No data available.
<b>Kinematic Viscosity</b>	>150 cSt @ 140°F (ASTM D2170)
<b>Dynamic Viscosity</b>	No data available.
<b>Explosive Properties</b>	No data available.
<b>VOC Content (%)</b>	No data available.
<b>Density</b>	No data available.
<b>Bulk Density</b>	Not applicable.

## 10. STABILITY AND REACTIVITY

<b><u>Reactivity</u></b>	The product is non-reactive under normal conditions.
<b><u>Chemical stability</u></b>	Stable under recommended storage conditions.
<b><u>Possibility of hazardous reactions</u></b>	None under normal processing.
<b><u>Hazardous polymerization</u></b>	Will not occur.
<b><u>Conditions to avoid</u></b>	Sources of heat or ignition.
<b><u>Incompatible Materials</u></b>	Strong oxidizing agents.
<b><u>Hazardous decomposition products</u></b>	None known under normal conditions of use.

## 11. TOXICOLOGICAL INFORMATION

### **Potential short-term adverse effects from overexposures**

<b>Inhalation</b>	Harmful if inhaled. Fumes or vapors from the heated material may be irritating to the respiratory tract. May release highly toxic hydrogen sulfide gas that quickly fatigues the sense of smell. Concentrations of >1000 ppm will cause immediate unconsciousness and death through respiratory paralysis.
<b>Eye contact</b>	Vapors may cause eye irritation and sensitivity to light. Contact with hot material may cause thermal burns.
<b>Skin contact</b>	May cause skin irritation. May cause an allergic skin reaction. Contact with hot material may cause thermal burns.
<b>Ingestion</b>	If swallowed at ambient temperature no significant adverse effects are expected. Ingestion of large amounts may cause gastrointestinal blockage. Swallowing hot material may cause burns to the mouth, throat, and stomach.

### **Acute toxicological data**

Name	Oral LD50	Dermal LD50	Inhalation LC50
Asphalt 8052-42-4	> 5000 mg/kg (Rat)	> 2000 mg/kg (Rabbit)	>94.4 mg/m <sup>3</sup> (Rat) 4 h
Residues (petroleum), vacuum	> 5000 mg/kg (Rat)	> 2000 mg/kg (Rabbit)	>94.4 mg/m <sup>3</sup> (Rat) 4 h

64741-56-6			
Fuel Oil, Residual 68476-33-5	> 5000 mg/kg (Rat)	> 2000 mg/kg (Rabbit)	>1 - <5 mg/L (Rat) 4 h
Distillates (petroleum), straight-run middle 64741-44-2	> 5000 mg/kg (Rat)	> 2000 mg/kg (Rabbit)	1700 mg/m <sup>3</sup> (Rat) 4 h
Sulfur Compounds Mixture	-	-	>5 mg/l (Rat) 4 h
Polyamine Proprietary	-	-	-
Polycyclic Aromatic Hydrocarbons Mixture	-	-	-
Naphthalene 91-20-3	490 mg/kg (Rat)	> 2000 mg/kg (Rabbit)	> 340 mg/m <sup>3</sup> (Rat) 1 h
Hydrogen sulfide 7783-06-4	-	-	444 ppm (Rat) 4 h

#### **Delayed and immediate effects as well as chronic effects from short and long-term exposure**

**PETROLEUM ASPHALT:** Eye and upper respiratory tract irritation has been reported in some asphalt workers (paving and roofing operations) but they are typically mild and transient. Some studies indicate that asphalt paving workers may experience lower respiratory tract symptoms (e.g., coughing, wheezing, and shortness of breath) and pulmonary function changes. Other studies of asphalt workers found no consistent relationship between exposure to asphalt fumes and pulmonary function. Increased levels of 1-hydroxypyrene (a marker for exposure to polycyclic aromatic hydrocarbons) have been observed in the urine of asphalt workers. Genotoxicity studies (e.g., DNA adducts in the urine) of asphalt workers have been largely inconclusive.

A slight increase in lung cancer mortality was reported in a study of European workers exposed to paving and mastic asphalt, but conclusions were equivocal. A follow-up case-control epidemiology study of asphalt paving workers sponsored by the International Association for Research in Cancer (IARC) concluded that there was no evidence that asphalt exposure was linked to lung cancer.

An increase in skin tumors was observed in lifetime studies of laboratory rodents exposed to extracts of asphalt (bitumen). The relevance of these studies to humans is not clear. No increase in skin tumors was observed in a lifetime bioassay where laboratory mice were treated with paving fume condensates. No increase in lung or other tumors were observed in a lifetime inhalation study in laboratory rats exposed to fumes from paving asphalt.

**ASPHALTS USED IN ROOFING OPERATIONS:** Some asphalts including roofing flux are further processed (oxidized/air-rectified) by the user or customer before use. An increased incidence of skin tumors was observed in a mouse skin carcinogenicity study where animals were exposed to condensed fumes collected from an oxidized roofing asphalt (BURA Type III) at above 450°F. Additional studies where mice were exposed to oxidized roofing asphalt fume condensates both as a tumor initiator and as a tumor promoter indicate that roofing fume condensate caused tumors as a result of initiation.

**CATALYTICALLY CRACKED CLARIFIED OIL:** Genotoxicity: Findings from in vitro and in vivo studies of this material have been both negative and positive, but the overall weight of evidence suggests this material is genotoxic. Studies of repeated, prolonged dermal exposure in rodents have demonstrated evidence of skin cancer, liver and thymus damage, and anemia. Fetal death and fetal malformations were observed in pregnant rodents following dermal exposure. These findings indicate components of this material may be absorbed through the skin and cause adverse systemic effects. This material may be described as a high-boiling fraction of catalytically cracked petroleum. The International Agency for Research on Cancer (IARC) has identified high-boiling fractions of catalytically cracked petroleum streams as "untreated or mildly-treated oils" and has classified these oils as Group 1, Carcinogenic to Humans.

**MIDDLE DISTILLATES, PETROLEUM:** Long-term repeated (lifetime) skin exposure to similar materials has been reported to result in an increase in skin tumors in laboratory rodents. The relevance of these findings to humans is not clear at this time.



**POLYCYCLIC AROMATIC HYDROCARBONS:** This product contains polycyclic aromatic hydrocarbons (PAH) at a level of >0.1%. Some PAH's that have been identified in this product such as benzo(a)pyrene, benz(a)anthracene and similar substances have been shown to be carcinogenic in experimental animals. An increased risk of cancer has been observed in workers employed in the aluminum production, coal gasification, coal-tar pitch, coke production and iron and steel industries that had been occupationally exposed to PAH'. Since these kinds of PAHs have been measured at high levels in air samples taken in these industries, The International Agency for Research on Cancer (IARC) has concluded that these PAHs are probably carcinogenic to humans.

**NAPHTHALENE:** Severe jaundice, neurotoxicity (kernicterus) and fatalities have been reported in young children and infants as a result of hemolytic anemia from overexposure to naphthalene. Persons with glucose 6-phosphate dehydrogenase (G6PD) deficiency are more prone to the hemolytic effects of naphthalene. Adverse effects on the kidney have been reported in persons overexposed to naphthalene but these effects are believed to be a consequence of hemolytic anemia, and not a direct effect. Hemolytic anemia has been observed in laboratory animals exposed to naphthalene. Laboratory rodents exposed to naphthalene vapor for 2 years (lifetime studies) developed non-neoplastic and neoplastic tumors and inflammatory lesions of the nasal and respiratory tract. Cataracts and other adverse effects on the eye have been observed in laboratory animals exposed to high levels of naphthalene. Findings from a large number of bacterial and mammalian cell mutation assays have been negative. A few studies have shown chromosomal effects (elevated levels of Sister Chromatid Exchange or chromosomal aberrations) in vitro. Naphthalene has been classified as Possibly Carcinogenic to Humans (2B) by IARC, based on findings from studies in laboratory animals.

**HYDROGEN SULFIDE:** Hydrogen sulfide gas has an unpleasant odor that diminishes with increased exposure. Eye irritation may occur at levels above 4 ppm. Olfactory fatigue occurs rapidly at levels of 50 ppm or higher. Odor is not a reliable warning property. Respiratory effects include irritation with possible pulmonary edema at levels above 50 ppm. At 500 ppm immediate loss of consciousness and death can occur. NIOSH has determined that 100 ppm hydrogen sulfide is immediately dangerous to life and health (IDLH).

### Adverse effects related to the physical, chemical and toxicological characteristics

#### Signs and Symptoms

Contact with cold material may cause irritation or sensitization. Contact with hot material may cause thermal burns. Hydrogen sulfide can cause respiratory paralysis and death, depending on the concentration and duration of exposure. Do not rely on ability to smell vapors, since loss of smell rapidly occurs. Effects of overexposure include irritation of the nose and throat, nausea, vomiting, diarrhea, abdominal pain and signs of nervous system depression (e.g. headache, drowsiness, dizziness, loss of coordination and fatigue), irregular heartbeats, pulmonary edema, weakness and convulsions. Prolonged or repeated exposure may cause damage to organs.

#### Sensitization

May cause sensitization by skin contact. Not expected to be a respiratory sensitizer.

#### Mutagenic effects

Suspected of causing genetic defects.

#### Carcinogenicity

Cancer designations are listed in the table below

Name	ACGIH (Class)	IARC (Class)	NTP	OSHA
Asphalt 8052-42-4	Not classifiable (A4)	Emissions of straight-run asphalt from paving operations - Possible human carcinogen (2B)	Not Listed	Not Listed
Residues (petroleum), vacuum 64741-56-6	Not Listed	Bitumens, occupational exposure to straight-run bitumens and their emissions during road paving Possible human carcinogen	Not Listed	Not Listed

		(2B)		
Fuel Oil, Residual 68476-33-5	Not Listed	Possible human carcinogen (2B)	Not Listed	Not Listed
Distillates (petroleum), straight-run middle 64741-44-2	Not Listed	Not classifiable (3)	Not Listed	Not Listed
Sulfur Compounds Mixture	Not Listed	Not Listed	Not Listed	Not Listed
Polyamine Proprietary	Not Listed	Not Listed	Not Listed	Not Listed
Polycyclic Aromatic Hydrocarbons Mixture	Suspected human carcinogen(A2)	Carcinogenic to humans (1)	Reasonably anticipated to be a human carcinogen	Not Listed
Naphthalene 91-20-3	Confirmed animal carcinogen (A3)	Possible human carcinogen (2B)	Reasonably anticipated to be a human carcinogen	Not Listed
Hydrogen sulfide 7783-06-4	Not Listed	Not Listed	Not Listed	Not Listed

**Reproductive toxicity** Suspected of damaging fertility or the unborn child.

**Specific Target Organ Toxicity (STOT) - single exposure** Not classified.

**Specific Target Organ Toxicity (STOT) - repeated exposure** Blood. Thymus. Liver. Spleen. Bone marrow.

**Aspiration hazard** Not classified.

**Unknown Acute Toxicity** Up to 1% of the mixture consists of ingredient(s) of unknown toxicity

## 12. ECOLOGICAL INFORMATION

**Ecotoxicity** This product should be considered very toxic to aquatic organisms, with the potential to cause long lasting adverse effects in the aquatic environment.

Name	Algae/aquatic plants	Fish	Toxicity to Microorganisms	Crustacea
Asphalt 8052-42-4	-	-	-	-
Residues (petroleum), vacuum 64741-56-6	-	96-hr LC50 = 48 mg/l Zebra danio (semi-static)	-	-
Fuel Oil, Residual 68476-33-5	72-hr EL50 < 1 mg/l Algae	96-hr LC50 = 35 mg/l Fathead minnow (flow-through) 96-hr LC50 = 48 mg/l Zebra danio (semi-static)	-	48-hr EL50 = 1-10 mg/l Daphnia magna
Distillates (petroleum), straight-run middle 64741-44-2	-	-	-	48-hr TLm = 4.1 ppm Shrimp
Sulfur Compounds Mixture	-	-	-	-
Polyamine Proprietary	-	-	-	-
Polycyclic Aromatic Hydrocarbons Mixture	-	-	-	-
Naphthalene 91-20-3	-	96-hr LC50 = 0.91-2.82 mg/l Rainbow trout (static) 96-hr LC50 = 1.99 mg/l Fathead minnow (static)	-	48-hr LC50 = 1.6 mg/l Daphnia magna
Hydrogen sulfide 7783-06-4	-	96-hr LC50 = 0.016 mg/l Fathead minnow 96-hr LC50 = 0.013 mg/l Rainbow trout	-	-

<b><u>Persistence and degradability</u></b>	Not expected to be readily biodegradable.
<b><u>Bioaccumulation</u></b>	Not expected to bioaccumulate in aquatic organisms.
<b><u>Mobility in soil</u></b>	Not likely to move rapidly with surface or groundwater flows because of its low water solubility.
<b><u>Other adverse effects</u></b>	No information available.

### 13. DISPOSAL CONSIDERATIONS

#### Description of Waste Residues

No information available.

#### Safe Handling of Wastes

Handle in accordance with applicable local, state, and federal regulations. Use personal protection measures as required.

#### Disposal of Wastes / Methods of Disposal

The user is responsible for determining if any discarded material is a hazardous waste (40 CFR 262.11). Dispose of in accordance with federal, state and local regulations.

#### Methods of Contaminated Packaging Disposal

Empty containers should be completely drained and then discarded or recycled, if possible. Dispose of in accordance with federal, state and local regulations.

### 14. TRANSPORT INFORMATION

#### DOT (49 CFR 172.101):

<b>UN Proper Shipping Name:</b>	Elevated Temperature Liquid, N.O.S.
<b>UN/Identification No:</b>	UN 3257
<b>Class:</b>	9
<b>Packing Group:</b>	III

#### TDG (Canada):

<b>UN Proper Shipping Name:</b>	Elevated Temperature Liquid, N.O.S.
<b>UN/Identification No:</b>	UN 3257
<b>Transport Hazard Class(es):</b>	9
<b>Packing Group:</b>	III

### 15. REGULATORY INFORMATION

#### US Federal Regulatory Information:

US TSCA Chemical Inventory Section 8(b): This product and/or its components are listed on the TSCA Chemical Inventory.

#### EPA Superfund Amendment & Reauthorization Act (SARA):

**SARA Section 302:** This product may contain component(s) that have been listed on EPA's Extremely Hazardous Substance (EHS) List:

Name	CERCLA/SARA - Section 302 Extremely Hazardous Substances and TPQs
Asphalt	NA
Residues (petroleum), vacuum	NA
Fuel Oil, Residual	NA
Distillates (petroleum), straight-run middle	NA
Sulfur Compounds	NA
Polyamine	NA
Polycyclic Aromatic Hydrocarbons	NA

Naphthalene	NA
Hydrogen sulfide	500

**SARA Section 304:** This product may contain component(s) identified either as an EHS or a CERCLA Hazardous substance which in case of a spill or release may be subject to SARA reporting requirements:

Name	Hazardous Substances RQs
Asphalt	NA
Residues (petroleum), vacuum	NA
Fuel Oil, Residual	NA
Distillates (petroleum), straight-run middle	NA
Sulfur Compounds	NA
Polyamine	NA
Polycyclic Aromatic Hydrocarbons	1 lb final RQ 0.454 kg final RQ
Naphthalene	100 lb final RQ 45.4 kg final RQ
Hydrogen sulfide	100

**SARA Section 311/312:** The following EPA hazard categories apply to this product:

Acute Health Hazard  
Chronic Health Hazard

**SARA Section 313:** This product may contain component(s), which if in exceedance of the de minimus threshold, may be subject to the reporting requirements of SARA Title III Section 313 Toxic Release Reporting (Form R).

Name	CERCLA/SARA 313 Emission reporting:
Asphalt	None
Residues (petroleum), vacuum	None
Fuel Oil, Residual	None
Distillates (petroleum), straight-run middle	None
Sulfur Compounds	None
Polyamine	None
Polycyclic Aromatic Hydrocarbons	0.1 % Supplier notification limit
Naphthalene	0.1 % de minimis concentration
Hydrogen sulfide	1.0 % de minimis concentration

**State and Community Right-To-Know Regulations:**

The following component(s) of this material are identified on the regulatory lists below:

Asphalt

Louisiana Right-To-Know:	Not Listed
California Proposition 65:	Not Listed
New Jersey Right-To-Know:	SN 0170
Pennsylvania Right-To-Know:	Present
Massachusetts Right-To-Know:	Present (cutback, liquid rapid-curing, fumes)
Florida Substance List:	Not Listed
Rhode Island Right-To-Know:	Not Listed
Michigan Critical Materials Register List:	Not Listed
Massachusetts Extraordinarily Hazardous Substances:	Not Listed
California - Regulated Carcinogens:	Not Listed
Pennsylvania RTK - Special Hazardous Substances:	Not Listed
New Jersey - Special Hazardous Substances:	Not Listed
New Jersey - Environmental Hazardous Substances List:	Not Listed
Illinois - Toxic Air Contaminants:	Not Listed
New York - Reporting of Releases Part 597 - List of Hazardous Substances:	Not Listed

Residues (petroleum), vacuum	
Louisiana Right-To-Know:	Not Listed
California Proposition 65:	Not Listed
New Jersey Right-To-Know:	Not Listed
Pennsylvania Right-To-Know:	Not Listed
Massachusetts Right-To Know:	Not Listed
Florida Substance List:	Not Listed
Rhode Island Right-To-Know:	Not Listed
Michigan Critical Materials Register List:	Not Listed
Massachusetts Extraordinarily Hazardous Substances:	Not Listed
California - Regulated Carcinogens:	Not Listed
Pennsylvania RTK - Special Hazardous Substances:	Not Listed
New Jersey - Special Hazardous Substances:	Not Listed
New Jersey - Environmental Hazardous Substances List:	Not Listed
Illinois - Toxic Air Contaminants:	Present
New York - Reporting of Releases Part 597 - List of Hazardous Substances:	Not Listed
Fuel Oil, Residual	
Louisiana Right-To-Know:	Not Listed
California Proposition 65:	Not Listed
New Jersey Right-To-Know:	SN 4062
Pennsylvania Right-To-Know:	Present
Massachusetts Right-To Know:	Not Listed
Florida Substance List:	Not Listed
Rhode Island Right-To-Know:	Flammable
Michigan Critical Materials Register List:	Not Listed
Massachusetts Extraordinarily Hazardous Substances:	Not Listed
California - Regulated Carcinogens:	Not Listed
Pennsylvania RTK - Special Hazardous Substances:	Not Listed
New Jersey - Special Hazardous Substances:	Not Listed
New Jersey - Environmental Hazardous Substances List:	Not Listed
Illinois - Toxic Air Contaminants:	Present
New York - Reporting of Releases Part 597 - List of Hazardous Substances:	Not Listed
Distillates (petroleum), straight-run middle	
Louisiana Right-To-Know:	Not Listed
California Proposition 65:	Not Listed
New Jersey Right-To-Know:	Not Listed
Pennsylvania Right-To-Know:	Not Listed
Massachusetts Right-To Know:	Not Listed
Florida Substance List:	Not Listed
Rhode Island Right-To-Know:	Not Listed
Michigan Critical Materials Register List:	Not Listed
Massachusetts Extraordinarily Hazardous Substances:	Not Listed
California - Regulated Carcinogens:	Not Listed
Pennsylvania RTK - Special Hazardous Substances:	Not Listed
New Jersey - Special Hazardous Substances:	Not Listed
New Jersey - Environmental Hazardous Substances List:	Not Listed
Illinois - Toxic Air Contaminants:	Not Listed
New York - Reporting of Releases Part 597 - List of Hazardous Substances:	Not Listed
Sulfur Compounds	
Louisiana Right-To-Know:	Not Listed
California Proposition 65:	Not Listed
New Jersey Right-To-Know:	Not Listed
Pennsylvania Right-To-Know:	Not Listed

Massachusetts Right-To Know:	Not Listed
Florida Substance List:	Not Listed
Rhode Island Right-To-Know:	Not Listed
Michigan Critical Materials Register List:	Not Listed
Massachusetts Extraordinarily Hazardous Substances:	Not Listed
California - Regulated Carcinogens:	Not Listed
Pennsylvania RTK - Special Hazardous Substances:	Not Listed
New Jersey - Special Hazardous Substances:	Not Listed
New Jersey - Environmental Hazardous Substances List:	Not Listed
Illinois - Toxic Air Contaminants:	Not Listed
New York - Reporting of Releases Part 597 - List of Hazardous Substances:	Not Listed
Polyamine	
Louisiana Right-To-Know:	Not Listed
California Proposition 65:	Not Listed
New Jersey Right-To-Know:	Not Listed
Pennsylvania Right-To-Know:	Not Listed
Massachusetts Right-To Know:	Not Listed
Florida Substance List:	Not Listed
Rhode Island Right-To-Know:	Not Listed
Michigan Critical Materials Register List:	Not Listed
Massachusetts Extraordinarily Hazardous Substances:	Not Listed
California - Regulated Carcinogens:	Not Listed
Pennsylvania RTK - Special Hazardous Substances:	Not Listed
New Jersey - Special Hazardous Substances:	Not Listed
New Jersey - Environmental Hazardous Substances List:	Not Listed
Illinois - Toxic Air Contaminants:	Not Listed
New York - Reporting of Releases Part 597 - List of Hazardous Substances:	Not Listed
Polycyclic Aromatic Hydrocarbons	
Louisiana Right-To-Know:	Not Listed
California Proposition 65:	Carcinogen
New Jersey Right-To-Know:	SN 3758
Pennsylvania Right-To-Know:	Environmental hazard; Special hazardous substance
Massachusetts Right-To Know:	Carcinogen; Extraordinarily hazardous
Florida Substance List:	Not Listed
Rhode Island Right-To-Know:	Present
Michigan Critical Materials Register List:	10 lb Annual usage threshold
Massachusetts Extraordinarily Hazardous Substances:	Carcinogen; extraordinarily hazardous
California - Regulated Carcinogens:	Not Listed
Pennsylvania RTK - Special Hazardous Substances:	Present
New Jersey - Special Hazardous Substances:	Carcinogen; mutagen; teratogen
New Jersey - Environmental Hazardous Substances List:	SN 3758 TPQ: 500 lb (If you have >500 lbs in combination of any of the listed chemicals, you are to report them under the category heading - N590 (that is, do not report the individual chemicals or their CAS numbers))
Illinois - Toxic Air Contaminants:	Present
New York - Reporting of Releases Part 597 - List of Hazardous Substances:	1 lb RQ (air); 1 lb RQ (land/water)
Naphthalene	
Louisiana Right-To-Know:	Not Listed
California Proposition 65:	Carcinogen, initial date 4/19/02
New Jersey Right-To-Know:	SN 1322 SN 3758
Pennsylvania Right-To-Know:	Environmental hazard Present (particulate)
Massachusetts Right-To Know:	Present
Florida Substance List:	Not Listed
Rhode Island Right-To-Know:	Toxic; Flammable

Michigan Critical Materials Register List:	Not Listed
Massachusetts Extraordinarily Hazardous Substances:	Not Listed
California - Regulated Carcinogens:	Not Listed
Pennsylvania RTK - Special Hazardous Substances:	Not Listed
New Jersey - Special Hazardous Substances:	Carcinogen
New Jersey - Environmental Hazardous Substances List:	SN 1322 TPQ: 500 lb (Reportable at the de minimis quantity of >0.1%)
Illinois - Toxic Air Contaminants:	Present
New York - Reporting of Releases Part 597 - List of Hazardous Substances:	100 lb RQ (air); 1 lb RQ (land/water)

## Hydrogen sulfide

Louisiana Right-To-Know:	Not Listed
California Proposition 65:	Not Listed
New Jersey Right-To-Know:	SN 1017
Pennsylvania Right-To-Know:	Environmental hazard
Massachusetts Right-To-Know:	Extraordinarily hazardous
Florida Substance List:	Not Listed
Rhode Island Right-To-Know:	Not Listed
Michigan Critical Materials Register List:	Not Listed
Massachusetts Extraordinarily Hazardous Substances:	Extraordinarily hazardous
California - Regulated Carcinogens:	Not Listed
Pennsylvania RTK - Special Hazardous Substances:	Not Listed
New Jersey - Special Hazardous Substances:	Flammable - fourth degree
New Jersey - Environmental Hazardous Substances List:	SN 1017 TPQ: 500 lb
Illinois - Toxic Air Contaminants:	Not Listed
New York - Reporting of Releases Part 597 - List of Hazardous Substances:	100 lb RQ (air); 100 lb RQ (land/water)

**Canada DSL/NDL Inventory:** This product and/or its components are listed either on the Domestic Substances List (DSL) or are exempt.

**Canadian Regulatory Information:** This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the SDS contains all of the information required by those regulations.

Name	Canada - WHMIS: Classifications of Substances:	Canada - WHMIS: Ingredient Disclosure:
Asphalt	Uncontrolled product according to WHMIS classification criteria	-
Residues (petroleum), vacuum	D2B	1%
Fuel Oil, Residual	B3,D2A,D2B	0.1%
Distillates (petroleum), straight-run middle	B3,D2B	1%
Sulfur Compounds	Uncontrolled product according to WHMIS classification criteria	-
Polyamine	D2B,E	1%
Polycyclic Aromatic Hydrocarbons	D2A,D2B	0.1%
Naphthalene	B4,D2A	0.1%
Hydrogen sulfide	A,B1,D1A,D2B	1%



**Note:** Not applicable.

## 16. OTHER INFORMATION

**Prepared By** Toxicology and Product Safety

**Revision Notes**

**Revision Date** 11/23/2016  
**Previous Publish Date** 5/19/2015  
**Revised Sections** The following sections (§) have been updated:  
1. IDENTIFICATION  
2. HAZARD IDENTIFICATION  
3. COMPOSITION/INFORMATION ON INGREDIENTS  
4. FIRST AID MEASURES  
9. PHYSICAL AND CHEMICAL PROPERTIES  
11. TOXICOLOGICAL INFORMATION  
12. ECOLOGICAL INFORMATION

**Disclaimer**

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information is intended as guidance for safe handling, use, processing, storage, transportation, accidental release, clean-up and disposal and is not considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.