



## SAFETY DATA SHEET (SDS): CRUDE OIL

### SECTION I – IDENTIFICATION

PRODUCT IDENTIFIER	TRADE NAME	OTHER SYNONYMS
Crude Oil	Crude Oil (Sweet)	Crude Petroleum, Sweet Crude
<b>RECOMMENDED USE AND RESTRICTION ON USE</b> Used for energy generation purposes This product is not intended or designed for other uses.		
<b>MANUFACTURER/SUPPLIER INFORMATION</b> Martin Marietta Materials 2710 Wycliff Road Raleigh, North Carolina 27607 Phone: 919-781-4550  For additional health, safety or regulatory information and other emergency situations, call 919-781-4550		

### SECTION II – HAZARD(S) IDENTIFICATION

<b>HAZARD CLASSIFICATION:</b> Category 1A Carcinogen Category 1 Specific Target Organ Toxicity (STOT) following repeated exposures Category 2A Eye Irritant Category 2 Skin Irritant Category 2 Germ Cell Mutagenicity Category 1 Aspiration Hazard	
<b>SIGNAL WORD:</b> DANGER	
<b>HAZARD STATEMENTS:</b> May cause cancer. Causes damage to respiratory system, kidneys, liver, central nervous system, hematopoietic (blood forming) system, lymphatic system (bone marrow) and immune system through prolonged or repeated exposure. Causes skin irritation and serious eye irritation. Suspected of causing genetic defects May be fatal if swallowed and enters airways.	
<b>PRECAUTIONARY STATEMENTS</b> Do not handle until the safety information presented in this SDS has been read and understood. Do not breathe fume, vapors, sprays or mists. Do not eat, drink or smoke while manually handling this product. Wash skin thoroughly after manually handling. If swallowed: Immediately call a poison center or doctor and do not induce vomiting. If vomiting occurs, lean victim forward to reduce the risk of aspiration. If on skin (or hair): Rinse skin after manually handling and wash contaminated clothing if there is potential for direct skin contact before reuse. If inhaled excessively: Remove person to fresh air and keep comfortable for breathing. If victim is not breathing, provide artificial respiration, or provide additional oxygen if trained to do so. Seek medical attention immediately. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do, and continue rinsing. If exposed, concerned, unwell or irritation of the eyes, skin, mouth or throat/nasal passage persists or develops: Get medical attention. Wear eye protection, protective clothing and respiratory protection following this SDS, NIOSH guidelines and other applicable regulations. Use protective gloves if manually handling the product. Avoid splashing or creating sprays or mists when handling, using or storing. Use with adequate ventilation to keep exposure below recommended exposure limits.	
Dispose of product in accordance with local, regional, national or international regulations. Please refer to Section XI for details of specific health effects of the components.	

**SECTION III – COMPOSITION/INFORMATION ON INGREDIENTS**

COMPONENT(S) CHEMICAL NAME	CAS REGISTRY NO	% by weight (approx)
Crude Petroleum	8002-05-9 <sup>(1)</sup>	100
Sulfur Compounds	-	0-2
Saturates	-	80-90
Aromatics	-	8-15
Polars	-	1-5
Asphaltene Content	8052-42-4 <sup>(2)</sup>	0-2
<i>May contain:</i> Benzene	71-43-2	0-0.1

(1) CAS No. for Petroleum Distillates (Naphtha)

(2) CAS No. for Asphalt

**SECTION IV – FIRST-AID MEASURES**

**INHALATION:** If excessive inhalation occurs, remove to fresh air. Contact a physician if irritation persists or develops later. If victim is not breathing, provide artificial respiration, or provide additional oxygen if trained to do so. Seek medical attention immediately.

**EYES:** Immediately flush eye(s) with plenty of clean water for at least 15 minutes, while holding the eyelid(s) open. Occasionally lift the eyelid(s) to ensure thorough rinsing. Remove contact lenses, if present and easy to do, and continue rinsing. Beyond flushing. Contact a physician if irritation persists or develops later.

**SKIN:** Remove contaminated clothing. Rinse skin with soap and water after manually handling and wash contaminated clothing if there is potential for direct skin contact. Contact a physician if irritation persists or develops later. Thermal burns may require immediate medical attention, depending on severity and area burned.

**INGESTION:** Immediately call a poison center or doctor and do not induce vomiting. If vomiting occurs, lean victim forward to reduce the risk of aspiration.

**SIGNS AND SYMPTOMS OF EXPOSURE:** Contact with eyes may cause mild to serious irritation including stinging, watering, redness, and swelling. Skin contact may cause skin irritation including redness and a burning sensation may follow acute contact. Prolonged contact may cause dermatitis, folliculitis, or oil acne. Liquid may be absorbed through the skin in toxic amounts if large amounts of skin are exposed repeatedly. There have been rare occurrences of precancerous warts on the forearm, back of hands and scrotum from chronic prolonged contact. The major threat of ingestion occurs from the aspiration (breathing) of liquid drops into the lungs, particularly from vomiting. Aspiration may result in chemical pneumonia (fluid in the lungs), severe lung damage, respiratory failure, and death. Ingestion may cause gastrointestinal disturbances including irritation, nausea, vomiting and diarrhea. In severe cases, tremors, convulsions, loss of consciousness, coma, respiratory arrest, and death may occur. Inhalation of the fumes, vapors, sprays or mists may cause respiratory and nasal irritation. Central nervous system effects may include headache, dizziness, loss of balance and coordination, unconsciousness, coma, respiratory failure, and death.

**SECTION V – FIRE-FIGHTING MEASURES****EXTINGUISHING AGENT**

Not flammable (not classified as flammable liquid based on GHS hazard classification); Class B fire extinguishing media such as CO<sub>2</sub> or foam is recommended. Water spray is recommended to cool or protect exposed materials or structures. Water may be ineffective for extinguishing the fire, unless used under favorable conditions by experienced fire fighters.

**UNUSUAL FIRE AND EXPLOSION HAZARD**

This material may be ignited by heat, sparks, flames, or other sources of ignition. Vapors may travel considerable distance to a source of ignition where they can ignite, flashback, or explode. May create vapor/air explosion hazard indoors, in confined spaces or outdoors. Vapors are heavier than air and can accumulate in low areas. If container is not properly cooled, it can rupture in the heat of a fire.

Contact with powerful oxidizing agents may cause fire and/or explosions (see Section X of this SDS). May readily ignite when mixed with naphtha and other volatile solvents.

**SPECIAL FIRE FIGHTING PROCEDURES**

Fire-fighting should be attempted only by those who are adequately trained and equipped with proper protective equipment.

**HAZARDOUS COMBUSTION PRODUCTS**

Fires may produce irritating, corrosive and/or toxic gases. Combustion can yield carbon dioxide, carbon monoxide, possibly hydrogen sulfide, other organic compounds and sulfur oxides.

**SECTION VI – ACCIDENTAL RELEASE MEASURES****STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED**

Persons involved in cleaning should first follow the precautions defined in Section VII of the SDS. Spilled product where fumes or vapors may be generated may pose inhalation hazards. In circumstances of emergency response involving an inhalation hazard or potential inhalation hazard, personnel must wear positive self-contained breathing apparatus while engaged in the emergency response operations until it is determined through the use of air monitoring that a decreased level of respiratory protection will not result in hazardous exposures to employees (29 CFR 1910.120(q)(3)(iv)).

Wear appropriate personal protective equipment as specified in Section VIII including appropriate respirators during and following clean up to ensure worker exposures remain below occupational exposure limits (OELs - Refer to Section VIII).

Isolate and evacuate area. Shut off source if it is safe to do so. Eliminate all sources of ignition in the vicinity of the spill or released vapor. Contain liquid with vermiculite, sand or clay to prevent further contamination of soil, surface water or ground water. Place contaminated material in covered containers appropriate for disposal. Dispose of the product according to federal, state and local regulations.

Follow prescribed procedures for reporting and responding to large spills. Advise the National Response Center if the substance has entered a waterway (1-800-424-8802).

**SECTION VII – HANDLING AND STORAGE**

Follow protective controls set forth in Section VIII of this SDS when handling this product. Components that may be irritants may be generated during processing, handling and storage. This material quickly evaporates and forms a vapor, which can catch fire and/or explode. Many sources can ignite the vapor, such as: pilot lights, welding equipment, and electrical equipment. Do not cut, drill, grind or weld on empty containers since they may contain explosive residues.

Electrostatic charge may accumulate and create a hazardous condition. Review all operations that have the potential to generate an electric charge. Bond and ground containers during product transfer to reduce the possibility of static-initiated fire or explosion.

Do not breathe vapors, fumes, mists or sprays. Avoid contact with skin and eyes. Do not store near food or beverages or smoking materials.

Use adequate ventilation and ensure that exposure to hazardous components are managed to below the appropriate OELs. If the component concentrations are above the appropriate OELs, use respiratory protection during the establishment of engineering controls. Refer to Section VIII - Exposure Controls/Personal Protection for further information.

In accordance with OSHA's Hazard Communication Standard (29 CFR 1910.1200, 1915.99, 1917.28, 1918.90, 1926.59, 1928.21), state, and/or local right-to-know laws and regulations, familiarize your employees with this SDS and the information contained herein. Warn your employees, your customers and other third parties (in case of resale or distribution to others) of the potential health risks associated with the use of this product and train them in the appropriate use of personal protective equipment and engineering controls, which will reduce their risks of exposure.

**SECTION VIII – EXPOSURE CONTROLS/PERSONAL PROTECTION**

Airborne OELs for Components of Crude Oil:

COMPONENT(S) CHEMICAL NAME	MSHA/OSHA PEL	ACGIH TLV-TWA	NIOSH REL
Crude Petroleum <sup>(1)</sup>	2000 mg/m <sup>3</sup>	-	350 mg/m <sup>3</sup> ; C 1800 mg/m <sup>3</sup>
Sulfur Compounds	-	-	-
Saturates	-	-	-
Aromatics	-	-	-
Polars	-	-	-
Asphaltene Content	-	<sup>(2)</sup> (I) 0.5 mg/m <sup>3</sup>	-
Benzene	1 ppm; C 5 ppm	0.5 ppm; C 2.5 ppm	0.1 ppm; C 1 ppm

(1): Limits based on Petroleum Distillates (Naphtha)

(2): As Benzene-soluble Aerosol

(I): Inhalable Fraction.

(C): Ceiling Limit

**ENGINEERING CONTROLS**

Ventilation: Use local exhaust, general ventilation or natural ventilation adequate to maintain exposures below appropriate exposure limits.

Other control measures: Airborne concentrations of volatile components should be monitored regularly and levels in excess of appropriate exposure limits should be reduced by implementing feasible engineering controls.

**EYE/FACE PROTECTION**

Safety glasses with side shields should be worn when splashing is possible. There is potential for severe eye irritation if exposed to excessive concentrations of volatile components for those using contact lenses.

**SKIN PROTECTION**

Supported polyvinyl chloride gloves should be worn to prevent skin contact. Protective clothing such as gloves, apron, boots, and facial protection should be worn when engineering controls or work practices are not adequate for prevention of skin contact.

**SECTION VIII – EXPOSURE CONTROLS/PERSONAL PROTECTION, CONTD.****RESPIRATORY PROTECTION**

Where it has been determined that there is no hydrogen sulfide exposure hazard (exposure potential below H<sub>2</sub>S permissible exposure limit), a NIOSH/MSHA-approved air purifying respirator with organic vapor cartridges or canisters may be permissible under certain circumstances where airborne concentrations are or may be expected to exceed limits for odor or irritation.

Protection provided by air purifying respirators is limited.

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

Respirator use must comply with applicable MSHA or OSHA standards, which include provisions for a user training program, respirator repair and cleaning, respirator fit testing, and other requirements. For additional information contact NIOSH at 1-800-356-4674 or visit website: <http://www.cdc.gov/niosh/npg> (search for crystalline silica). See also ANSI standard Z88.2 (latest revision) "American National Standard for Respiratory Protection," 29 CFR 1910.134 and 1926.103, and 42 CFR 84.

Consult with a certified industrial hygienist, your insurance risk manager or the OSHA Consultative Services group for detailed information. Ensure appropriate respirators are worn, as needed, during and following the task, including clean up or whenever there is potential for exposure to volatile components of the product, to ensure worker exposures remain below OELs.

**GENERAL HYGIENE CONSIDERATIONS**

Following the guidelines in this SDS are recognized as good industrial hygiene practices. Avoid breathing fumes, sprays, vapors or mists. Avoid skin and eye contact. Wash dust-exposed skin with soap and water before eating, drinking, smoking and using toilet facilities. Wash work clothes after each use. Use care when laundering clothing to prevent formation of vapors which could ignite the washer or dryer.

**SECTION IX— PHYSICAL AND CHEMICAL PROPERTIES**

<b>APPEARANCE</b> Amber to green to black liquid, depending on source	<b>ODOR AND ODOR THRESHOLD</b> Slight petroleum odor and not applicable
<b>pH AND VISCOSITY</b> Not available	<b>MELTING POINT/FREEZING POINT</b> -99 °F (Petroleum distillates)
<b>BOILING POINT AND RANGE</b> 379-1315° F	<b>FLASH POINT AND FLAMMABILITY</b> 233 - 331° F and not Flammable
<b>FLAMMABILITY/EXPLOSIVE LIMITS AND AUTOIGNITION TEMPERATURE</b> Not available	<b>EVAPORATION RATE AND DECOMPOSITION TEMPERATURE</b> Not applicable
<b>VAPOR PRESSURE AND VAPOR DENSITY IN AIR</b> < 0.5 psi and 25.6 ° (API)	<b>SPECIFIC GRAVITY.</b> 0.9
<b>SOLUBILITY IN WATER</b> Insoluble to slightly soluble	<b>PARTITION COEFFICIENT: N-OCTANOL/WATER</b> Log Kow: 2 to > 6

**SECTION X – STABILITY AND REACTIVITY**

<b>STABILITY</b> Stable	<b>CONDITIONS TO AVOID</b> Avoid high temperatures, open flames, sparks, welding, smoking and other sources of ignition. Contact with incompatible materials (see below).
<b>THERMAL STABILITY</b> See Hazardous Decomposition Products	
<b>INCOMPATIBILITY (Materials to avoid)</b> Contact with powerful oxidizing agents such as fluorine, boron trifluoride, chlorine trifluoride, manganese trifluoride, and oxygen difluoride may cause fire and/or explosions. May readily ignite when mixed with naphtha and other volatile solvents. May react vigorously with acids, bases, halogens and metallic salts.	
<b>HAZARDOUS DECOMPOSITION PRODUCTS</b> Thermal decomposition of the material may release carbon monoxide, carbon dioxide, hydrogen sulfide, nitrogen dioxide, ozone and other organic and inorganic compounds into the atmosphere. The health effects of the decomposition products are discussed in Section XI.	
<b>HAZARDOUS POLYMERIZATION</b> Not known to polymerize	

**SECTION XI – TOXICOLOGICAL INFORMATION**

Health Effects: The information below represents an overview of health effects caused by overexposure to one or more components in crude oil.

Primary routes(s) of exposure:      ■ Inhalation      ■ Skin      ■ Ingestion

**EYE CONTACT:** Contact with eyes may cause mild to serious irritation including stinging, watering, redness, and swelling.

**SKIN CONTACT:** Skin contact may cause skin irritation including redness and a burning sensation may follow acute contact. Prolonged contact may cause dermatitis, folliculitis, or oil acne.

**SKIN ABSORPTION:** Liquid may be absorbed through the skin in toxic amounts if large amounts of skin are exposed repeatedly. There have been rare occurrences of precancerous warts on the forearm, back of hands and scrotum from chronic prolonged contact.

**INGESTION:** The major threat of ingestion occurs from the aspiration (breathing) of liquid drops into the lungs, particularly from vomiting. Aspiration may result in chemical pneumonia (fluid in the lungs), severe lung damage, respiratory failure, and death. Ingestion may cause gastrointestinal disturbances including irritation, nausea, vomiting and diarrhea. In severe cases, tremors, convulsions, loss of consciousness, coma, respiratory arrest, and death may occur.

**INHALATION:** Inhalation of the fumes, vapors, sprays or mists may cause respiratory and nasal irritation. Central nervous system effects may include headache, dizziness, loss of balance and coordination, unconsciousness, coma, respiratory failure, and death.

**MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE**

Inhaling vapors, fumes, mists or sprays of product may aggravate existing skin disorders, respiratory conditions, liver or kidney dysfunction, male reproductive and peripheral nerve disorders.

**SECTION XI – TOXICOLOGICAL INFORMATION, CONTD.**

This product is a mixture of components. The composition percentages are listed in Section II. Toxicological information is listed below:

Crude Oil:

Exposure Routes: Inhalation, ingestion, skin absorption, skin/eye contact

Target Organs: Eyes, skin, respiratory system, gastrointestinal system, central nervous system, liver kidney, hematopoietic (blood forming) system, lymphatic system (bone marrow), immune system and possibly reproductive system

Acute Effect: May cause eye, skin, respiratory and nasal irritation. Ingestion may cause vomiting, resulting in aspiration and chemical pneumonia. Central nervous system effects from inhalation may include headache, dizziness, rapid heart rate, tremors, confusion, anemia, loss of balance and coordination, unconsciousness, coma, respiratory failure, and death.

Chronic Effect/Carcinogenicity: There have been rare occurrences of precancerous warts on the forearm, back of hands and scrotum from chronic prolonged skin contact. These warts were not necessarily on the exposed parts of the body. Crude Oil is not listed as a carcinogen by the NTP, IARC, or OSHA. However, repeated skin contact by laboratory mice produced skin tumors. The tumors reduced in occurrence when the animals' skin was washed between applications. Repeated exposure may affect the nervous system, liver, kidney, hematopoietic (blood forming) system, lymphatic system (bone marrow) and possibly the reproductive system.

Benzene: *This product may contain 0 – 0.1% benzene.*

Exposure Routes: Inhalation, skin absorption, ingestion, skin/eye contact

Target Organs: Hematopoietic (blood forming) system, lymphatic system, nervous system, reproductive system

Acute Effects: Inhalation (5-10 minutes) of very high levels of benzene (10,000-20,000 ppm) can result in death. Lower levels (700-3,000 ppm) can cause drowsiness, dizziness, rapid heart rate, headaches, tremors, confusion, and unconsciousness. Ingestion can cause vomiting, irritation of the stomach, dizziness, sleepiness, convulsions, rapid heart rate, coma, and death. Skin contact may cause redness and sores. Eye contact may cause irritation and cornea damage. Acute deaths from benzene exposure at high concentrations have been due to ventricular fibrillation caused by exertion and release of epinephrine.

Chronic Effects/Carcinogenicity: Benzene is on the NTP, OSHA and IARC carcinogen lists. The IARC and the EPA have determined that benzene is carcinogenic to humans (Group 1 Carcinogen). Chronic inhalation of certain levels of benzene causes disorders in the blood in humans, including leukemia (cancer of blood forming organs). Benzene specifically affects bone marrow (the tissues that produce blood cells). Aplastic anemia, excessive bleeding, and damage to the immune system (by changes in blood levels of antibodies and loss of white blood cells) may develop. Several occupational studies suggest that benzene may impair fertility in women exposed to high levels. However, these studies are limited due to lack of exposure history, simultaneous exposure to other substances, and lack of follow-up.

Asphaltene Content (Based on Asphalt Bitumen):

Exposure route: Inhalation, ingestion, skin/eye contact.

Target organs: Eyes, skin and respiratory system

Acute effect: If product is heated or comes in contact with heated surfaces, exposure to asphalt fumes may increase. Asphalt fumes can cause ocular and respiratory irritation leading to coughing, shortness of breath, and headaches. Ingested asphalt has low toxicity however chewing of asphalt can cause gastric masses and stomach obstructions. Contact with hot asphalt can cause second and third degree burns.

Chronic effect/carcinogenicity: Not classifiable as a human carcinogen.

In the event of significant heating, thermal decomposition or a fire, various gases may be released. The health effects of these products are described below:

**SECTION XI – TOXICOLOGICAL INFORMATION, CONTD.****Carbon Monoxide:**

Exposure route: Inhalation.

Target organs: Respiratory system, cardiovascular system, blood, central nervous system.

Acute effect: Inhalation of carbon monoxide causes cell oxidation to be inhibited which results in a reduction of the oxygen carrying capacity to all organs of the body. Resulting acute effects may include confusion, dizziness, headache, nausea, unconsciousness and weakness. High level exposures can result in death.

Chronic effect/carcinogenicity: Prolonged exposure may have effects on the nervous system and the cardiovascular system. Suspected to cause reproductive effects such as neurological problems, low birth weight, increased still births and congenital heart problems.

**Carbon Dioxide:**

Exposure route: Inhalation.

Target organs: Respiratory system, cardiovascular system.

Acute effect: Inhalation of carbon dioxide may cause dizziness, headache, and elevated blood pressure. Inhalation of high concentrations of this gas may cause hyperventilation and unconsciousness.

Chronic effect/carcinogenicity: Information on chronic effect of prolonged exposure to this substance is not documented.

**Hydrogen Sulfide:**

Exposure route: Inhalation, skin/eye contact

Target organs: Eyes, respiratory system, central nervous system.

Acute effect: Inhalation, even at small levels can cause fatigue, headache, apnea, lung edema, coma, insomnia, irritability of the eyes and respiratory system, dizziness and central nervous system effects. In some cases respiratory paralysis leading to death can occur.

Chronic effect/carcinogenicity: Prolonged exposure to this material can cause toxicosis in people exposed to large concentrations. Not classifiable as a human carcinogen.

Under certain circumstances, Hydrogen sulfide, a highly flammable and toxic gas, may be released from molten asphalt. H<sub>2</sub>S is a colorless gas with an odor similar to rotten eggs. Odor cannot be relied on as a means of detection because the olfactory nerves (sense of smell) rapidly become insensitive to it. In addition, the H<sub>2</sub>S odor may be masked by the general odor of hot asphalt. Low concentrations (50 – 100 ppm) of H<sub>2</sub>S can irritate the eyes and respiratory tract, and may cause nervousness, cough, nausea, and headache. Prolonged exposure to concentrations between 250 – 600 ppm, may cause pulmonary edema (fluid in the lungs) and bronchial pneumonia. Brief exposure to concentrations above 500 ppm can cause unconsciousness and may be fatal. The OSHA PEL is 20 ppm (ceiling). The ACGIH TLV is 10 ppm with a STEL of 15 ppm. H<sub>2</sub>S may accumulate in an enclosed space. Persons should stand upwind and avoid breathing the gas when opening hatches and dome covers.

**Nitrogen Dioxide:**

Exposure route: Inhalation, ingestion, skin/eye contact

Target organs: Eyes, skin, cardiovascular system and respiratory system.

Acute effect: Inhalation can cause burning of the respiratory tract, sore throat, cough, lung edema, dizziness, headache, apnea, weakness and vomiting. Contact with the skin and/or eyes will cause redness, pain and possibly severe burns. Exposure to very high concentrations may lead to death.

Chronic effect/carcinogenicity: Not classifiable as a human carcinogen. Prolonged exposure to this material may cause increased susceptibility to respiratory infection may aggravate asthma and allergic disorders.



**SECTION XI – TOXICOLOGICAL INFORMATION, CONTD.****Ozone:**

Exposure routes: Inhalation, skin/eye contact.

Target organs: Eyes, skin and respiratory system.

Acute effect: Inhalation may cause irritation of the respiratory tract, cough, headache, shortness of breath, asthmatic reactions and sore throat. Contact with the eyes will result in irritation, pain and redness and may result in loss of vision. It may cause effects on the central nervous system resulting in headache and impaired vigilance and performance.

Chronic effect/carcinogenicity: Not classifiable as a human carcinogen.

**Sulfur Dioxide:**

Exposure route: Inhalation, skin/eye contact.

Target organs: Eyes, skin and respiratory system.

Acute effect: Inhalation may cause irritation of the respiratory tract, asthma-like reactions, reflex spasm of the larynx, cough, shortness of breath, sore throat and lung edema. It is possible that respiratory arrest may occur which can lead to death. Contact with eyes can cause irritation, redness, pain and severe burns.

Chronic effect/carcinogenicity: Not classifiable as a human carcinogen. Repeated or prolonged exposure may aggravate asthma.

Acute Toxicity Estimates for Crude Oil – Not Available

**SECTION XII – ECOLOGICAL INFORMATION**

Coating action of oil may be toxic to aquatic organisms. Keep out of all bodies of water and sewage drainage systems. On release to the environment, the lighter components of crude oil may evaporate. The remaining portion may become dispersed in the water column or absorbed to soil or sediment. Crude oil is not readily biodegradable.

**SECTION XIII – DISPOSAL CONSIDERATIONS****WASTE DISPOSAL METHOD**

Collect and reuse clean materials. Dispose of waste materials only in accordance with applicable federal, state, and local laws and regulations.

This material is not listed as a RCRA hazardous waste under Federal Regulations (40 CFR 261-271). This material may meet the criteria of an “ignitable” hazardous waste. This material could also become hazardous if mixed or contaminated with a listed hazardous waste.

**SECTION XIV – TRANSPORT INFORMATION****DOT HAZARD CLASSIFICATION**

Flammable Liquid

**PLACARD REQUIRED****LABEL REQUIRED**

Label as required by the OSHA Hazard Communication standard {29 CFR 1910.1200(f)}, and applicable state and local regulations.

**SECTION XV – REGULATORY INFORMATION**

TSCA: Petroleum, asphalt and benzene appear on the EPA TSCA chemical substance inventory.

Clean Water Act (Oil Spills): Any spill or release of this product to “navigable waters” or adjoining shorelines sufficient to cause a visible sheen or deposit of a sludge or emulsion must be reported immediately to the National Response Center (1-800-424-8802) as required by U.S. Federal Law. The rule for determining when notification is required is stated in 40 CFR 302.4 (section IV.D.3.b). Also contact appropriate state and local authorities.

Clean Water Act: Benzene has been designated as toxic pollutant pursuant to section 307(a)(1) of the Federal Water Pollution Control Act and is subject to effluent limitations.

SARA 311 Categories: The Following EPA Hazard Categories apply to this product:

Immediate (Acute) Health Effects

Delayed (Chronic) Health Effects

Fire hazard

Carcinogen: Benzene, a possible component of this product, is on the NTP, OSHA and IARC carcinogen lists. The IARC and the EPA have determined that benzene is carcinogenic to humans (Group 1 Carcinogen). Benzene is number six on the CERCLA Priority List of Hazardous Substances. Benzene is classified as a substance known to the state of California to be a carcinogen and cause reproductive toxicity.

Federal Drinking Water Standards: Maximum contaminant levels (MCL) for organic contaminants apply to community and non-transient, non-community water systems: Benzene, MCL 0.005 mg/L.

State Drinking Water Standards (Benzene): (CA) CALIFORNIA 1 ug/L, (FL) FLORIDA 1 ug/L, (NJ) NEW JERSEY 1 ug/L, (AZ) ARIZONA 1.3 ug/L, (CT) CONNECTICUT 1 ug/L, (ME) MAINE 6 ug/L, (MN) MINNESOTA 3 ug/L

FDA Requirements: Benzene is an indirect food additive for use only as a component of adhesives.

**SECTION XVI – OTHER INFORMATION****DEFINITIONS OF ACRONYMS/ABBREVIATIONS**

ACGIH: American Conference of Governmental Industrial Hygienists

ANSI: American National Standards Institute

CAS: Chemical Abstracts Service

CERCLA: Comprehensive Environmental Response, Compensation and Liability Act

CFR: US Code of Federal Regulations

EPA: Environmental Protection Agency

FDA: Food and Drug Administration

GHS: Globally Harmonized System

IARC: International Agency for Research on Cancer

MCL: Maximum Contaminant Levels

MSHA: Mine Safety and Health Administration

NIOSH: National Institute for Occupational Safety and Health, US Department of Health and Human Services

NIOSH REL: NIOSH Recommended Exposure Limit

NRC: National Response Center

NTP: National Toxicology Program

OEL: Occupational Exposure Limit

OSHA: Occupational Safety and Health Administration, US Department of Labor

PEL: Permissible Exposure Limit

RCRA: Resource Conservation and Recovery Act

SARA Title III: Title III of the Superfund Amendments and Reauthorization Act, 1986

SDS: Safety Data Sheet

STOT: Specific Target Organ Toxicity

TLV: Threshold Limit Value

TSCA: Toxic Substance Control Act

TWA: Time-Weighted Average

**SECTION XVI – OTHER INFORMATION, CONTD.**

User's Responsibility: The OSHA Hazard Communication Standard 29 CFR 1910.1200 requires that this SDS be made available to your employees who handle or may be exposed to this product. Educate and train your employees regarding applicable precautions. Instruct your employees to handle this product properly.

Disclaimer: The information contained in this document applies to this specific material as supplied and Martin Marietta Materials believes that the information contained in this SDS is accurate. The suggested precautions and recommendations are based on recognized good work practices and experience as of the date of publication. They are not necessarily all-inclusive or fully adequate in every circumstance as not all use circumstances can be anticipated. It may not be valid for this material if it is used in combination with other materials. It is the user's responsibility to satisfy oneself as to the suitability and completeness of this information for one's own particular use. Since the actual use of the product described herein is beyond our control, Martin Marietta Materials, assumes no liability arising out of the use of the product by others. Appropriate warnings and safe handling procedures should be provided to handlers and users. Also, the suggestions should not be confused with nor followed in violation of applicable laws, regulation, rules or insurance requirement. However, product must not be used in a manner which could result in harm.

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DATE OF PREPARATION 3/2015

REPLACES 8/2007

NO WARRANTY, EXPRESSED OR IMPLIED, OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR OTHERWISE IS MADE