Martin Marietta Materials

MATERIAL SAFETY DATA SHEET

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Effective Date: 8-07

I – PRODUCT AND COMPANY IDENTIFICATION

CHEMICAL NAME	CHEMICAL FORMULA	MOLECULAR WEIGHT
N/A	Mixture	N/A

TRADE NAME
Crude Oil (Sweet)

SYNONYMS
Crude Petroleum, Sweet Crude

DOT IDENTIFICATION NO.
UN 1267

II – COMPOSITION/INFORMATION ON INGREDIENTS

COMPONENT(S) CHEMICAL NAME	CAS REGISTRY NO	Concentration (by wt)	MSHA/OSHA PEL	ACGIH TLV-TWA
Crude Petroleum	8002-05-9		*Oil Mist(mineral) 5mg/m^3	*Oil Mist(mineral) 5mg/m^3
Sulfur Compounds	Mixture	0-2%	N/A	N/A
Saturates	Mixture	80-90%	N/A	N/A
Aromatics	Mixture	8-15%	N/A	N/A
Polars	Mixture	1-5%	N/A	N/A
Asphaltene Content	Mixture	0-2%	N/A	N/A
May Contain: Benzene	71-43-2	0 – 0.1%	1.0 ppm	0.5 ppm
Limestone	1317-65-3		(T) 15 mg/m^3, (R) 5 mg/m^3	

* There are no exposure limits for crude oil published by ACGIH or OSHA. The limit for mineral oil mist is to be used only as a reference.

III – HAZARDS IDENTIFICATION

Amber to green to black liquid, depending on source. Crude oil is volatile and flammable, and may cause flash fires. If ingested, aspiration may occur, causing lung damage or death.

Health Effects: The information below represents an overview of health effects caused by overexposure to one or more components in Crude Oil. The individual effects are described in Section XI.

Primary route(s) of exposure: ■ Inhalation ■ Skin □ Ingestion

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

SKIN CONTACT: Mild 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:	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
Skin disorders, respiratory conditions, liver or kidney dysfunction, male reproductive and peripheral nerve disorders.

IV – FIRST AID MEASURES

EYES:	Immediately flush eyes with plenty of clean water for at least 15 minutes, while holding the eyelids open. Occasionally lift the eyelids to ensure thorough rinsing. Contact a physician if irritation persists or develops later.
SKIN:	Remove contaminated clothing. Wash with soap and water. Contact a physician if irritation persists or develops later. Thermal burns may require immediate medical attention, depending on severity and area burned.
INGESTION:	DO NOT INDUCE VOMITING. Do not give liquids. Obtain immediate medical attention. If vomiting occurs, lean victim forward to reduce the risk of aspiration.
INHALATION:	Remove to fresh air. If victim is not breathing, provide artificial respiration, or provide additional oxygen if trained to do so. Seek medical attention immediately.

V – FIRE FIGHTING MEASURES

FLASHPOINT	FLAMMABLE LIMITS IN AIR
233 - 331º F	N/D

EXTINGUISHING AGENT
Class B fire extinguishing media such as CO_2 or foam is recommended. Water spray is recommended to cool or protect exposed materials or structures. Water may be ineffective for extinguishment, unless used under favorable conditions by experienced fire fighters. Fire fighting should be attempted only by those who are adequately trained and equipped with proper protective equipment.

UNUSUAL FIRE AND EXPLOSION HAZARD
This material is flammable and can 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.

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 MSDS.

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)).

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 disposable containers, and dispose of in a manner consistent with 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).

VII – HANDLING AND STORAGE

Follow protective controls set forth in Section VIII of this MSDS when handling this product. 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.

VIII – EXPOSURE CONTROLS/PERSONAL PROTECTION

ENGINEERING CONTROLS
Ventilation: Use local exhaust or general ventilation to maintain exposures below appropriate exposure and flammability limits.

EYE/FACE PROTECTION
Safety glasses with side shields should be worn when splashing is possible.

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.

RESPIRATORY PROTECTION
Where it has been determined that there is no hydrogen sulfide exposure hazard (exposure potential below H_2S 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 OSHA standards, which include provisions for a user training program, respirator repair and cleaning, respirator fit testing, medical clearance and other requirements.

GENERAL HYGIENE CONSIDERATIONS
Following the guidelines in this MSDS are recognized as good industrial hygiene practices. Avoid skin and eye contact. Wash 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.

IX – PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE AND ODOR Amber to green to black liquid, depending on source Slight petroleum odor	SPECIFIC GRAVITY 0.9
BOILING POINT 379-1315º F	API Gravity 25.6º
VAPOR PRESSURE < 0.5 psi	% VOLATILE, BY VOLUME Variable
EVAPORATION RATE Variable	SOLUBILITY IN WATER Insoluble to slightly soluble

X – STABILITY AND REACTIVITY

STABILITY Stable	CONDITIONS TO AVOID Avoid high temperatures, open flames, sparks, welding, smoking and other sources of ignition. Contact with incompatible materials (see below).
INCOMPATIBILITY (Materials to avoid) Strong oxidizing agents such as chlorates and chlorides	
HAZARDOUS DECOMPOSITION PRODUCTS Combustion can yield carbon dioxide, carbon monoxide, possibly hydrogen sulfide, other organic compounds and sulfur oxides.	

XI – TOXICOLOGICAL INFORMATION

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

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, 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.

Benzene: *This product may contain 0 – 0.1% benzene.*
ACHIH TLV TWA: 0.5 ppm / STEL: 2.5 ppm
MSHA and OSHA PEL TWA:10 ppm / STEL: 25 ppm / Peak:50 ppm, 10 minutes

Exposure Routes: Inhalation, skin absorption, ingestion

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.

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.

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.

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.

XIV – TRANSPORT INFORMATION

PROPER SHIPPING NAME
Petroleum Crude Oil

DOT HAZARD CLASSIFICATION
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PLACARD REQUIRED

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

XV – REGULATORY INFORMATION

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. Also contact appropriate state and local authorities.

SARA 311 CATEGORIES
The Following EPA Hazard Categories apply to this product:
Immediate (Acute) Health Effects
Delayed (Chronic) Health Effects
Fire hazard

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.

XVI – OTHER INFORMATION

ACGIH: American Conference of Governmental Industrial Hygienists
CFR: US Code of Federal Regulations
DOT: US Department of Transportation
IARC: International Agency for Research on Cancer
NIOSH: National Institute for Occupational Safety and Health, US Department of Health and Human Services
NTP: National Toxicology Program
OSHA: Occupational Safety and Health Administration, US Department of Labor
PEL: Permissible Exposure Limit
SARA Title III: Title III of the Superfund Amendments and Reauthorization Act, 1986
TLV: Threshold Limit Value
TWA: Time-weighted Average

FOR FURTHER INFORMATION CONTACT:

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HOURS: 8 AM – 5 PM (EST)

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