

# MATERIAL SAFETY DATA SHEET

## Malaysian heavy blend crude

MSDS No.  
HCO 2961

Version: 5

Rev. Date  
2-2017

**IMPORTANT:** Read this MSDS before handling and disposing of this product and pass this information on to employees, customers, and users of this product.

### 1. PRODUCT and COMPANY IDENTIFICATION

**Material Identity** Malaysian Heavy Blend  
Crude Oil

**Trade Name(s)** Malaysian Heavy Blend  
Crude Oil

**Other Name(s)**

**Physical form** Earth Oil, Petroleum Oil, Rock  
Oil, Liquid

**Appearance Trade** Ark Black or brown  
Hydrocarbon – Rotten Egg

### 2. COMPONENTS and EXPOSURE LIMITS

Component <sup>1</sup>	CAS No	% Composition By Volume <sup>2</sup>		ACGIH TLV	Exposure Limits <sup>3</sup>		Type
					OSHA PEL	Units	
PETROLEUM	8002-05-9	EQ	100	N/AP	N/AP		
which contains:							
	106-97-8	AP	0.8 to 1	800	800	nm	TWA
HEXANE (N-HEXANE)	110-54-3	AP	0.3 to 1	50 skin	50	ppm	TWA
ISOPENTANE	78-78-4	AP	0.3 to 1.5	N/AP 600	750 600	ppm ppm	STEL TWA
PENTANE	109-66-0	AP	1.5 to 2.5	N/AP 600	750 600	ppm ppm	STEL TWA
Other applicable exposure guidelines:							
COAL TAR PITCH VOLATILES, AS BENZENE SOLUBLES <sup>(4)</sup>							
	65996-93-2			10 0.2	N/AP 0.2	mg/m <sup>3</sup> mg/m <sup>3</sup>	STEL TWA
OIL MIST, MINERAL	8012-95-1			5	5	mg/m <sup>3</sup>	TWA
STODDARD SOLVENT				100	100	ppm	TWA
	8052-41-3						

Stoddard Solvent exposure limits are listed as an exposure guideline for hydrocarbon vapors that may be similar to those derived from crude oil.

Print Date: 01 MARCH 2017 \*\*\*FOR "DISCLAIMER OF LIABILITY", SEE THE STATEMENT ON LAST PAGE\*\*\*

Since specific exposure standards or control limits have not been established for this material, the exposure limits shown here are suggested as minimum control guidelines.

1. Carcinogen displayed after Component Name. Listed by (1) NTP, (2) IARC, (3) OSHA, (4) Other

2. See Abbreviations on last page

3. The OSHA exposure limits were changed in 1989 due to a federal court ruling. NIOSH has chosen to list the 1989 OSHA exposure limits in this document as they are generally more stringent and therefore more protective than the current exposure limits. (Refer to 29 CFR 1910.1000)

### 3. HAZARD IDENTIFICATION

#### IMMEDIATE HAZARDS

##### DANGER

**HIGHLY FLAMMABLE! OSHA/NFPA Class 1B flammable liquid. KEEP AWAY FROM HEAT, SPARKS, AND OPEN FLAME! CONTAINS PETROLEUM DISTILLATES!** Avoid breathing vapors or mists. Use only with adequate ventilation. If swallowed, do not induce vomiting since aspiration into the lungs may cause chemical pneumonia. Obtain prompt medical attention.

May cause irritation or more serious skin disorders! May be harmful if inhaled! May cause irritation of the nose, throat, and lungs, headache, dizziness, drowsiness, loss of coordination, fatigue, nausea and labored breathing. May cause irregular heartbeats. Avoid prolonged or repeated liquid, mist, and vapor contact with eyes, skin, and respiratory tract.

Wash hands thoroughly after handling.

Sulfur compounds in this material may decompose to release hydrogen sulfide gas which may accumulate to potentially lethal concentrations in enclosed air spaces. Vapor concentrations of hydrogen sulfide above 50 ppm, or prolonged exposure at lower concentrations, may saturate human odor perceptions so that the smell of gas may not be apparent. **DO NOT DEPEND ON THE SENSE OF SMELL TO DETECT HYDROGEN SULFIDE!** Long-term tests show that similar crude oil have produced skin tumors on laboratory animals.

Crude Oil contain some polycyclic aromatic hydrocarbons which have been shown to be carcinogenic after prolonged or repeated skin contact in laboratory animals.

#### Routes of Exposure

#### Signs and Symptoms

##### Inhalation (Primary)

Vapors or mists from this material, at concentrations greater than the recommended exposure limits in Section 2, can cause irritation of the nose, throat, and lungs, headache, dizziness, drowsiness, loss of coordination, fatigue, nausea and labored breathing. Airborne concentrations above the recommended exposure limits are not anticipated during normal workplace activities due to the slow evaporation of this material at ambient temperatures. Exposure to moderate airborne concentrations of hydrogen sulfide (less than 50 ppm) can result in irritation of the eyes, nose and throat, headache, dizziness, shortness of breath, nausea and nervousness. Exposure to hydrogen sulfide vapor above 200 ppm may cause irritation of mucous membranes, inflammation of the lungs, accumulation of fluid in the lungs, irregular heartbeats, unconsciousness with convulsions or impaired breathing with suffocation. Exposure to higher concentrations of hydrogen sulfide vapor (above 500 ppm) may cause rapid death.

##### Eye Contact

May cause slight eye irritation.

##### Skin Contact

Moderate skin irritation may occur upon short-term exposure.

Exposure to sunlight may increase the degree of skin irritation.

Absorption through the skin may occur and produce toxic effects (see Summary of Chronic Hazards).

##### Ingestion

May cause irritation of the mouth, throat and gastrointestinal tract leading to nausea, vomiting, diarrhea, and restlessness. May cause headache, dizziness, drowsiness, loss of coordination, fatigue, nausea and labored breathing.

**ASPIRATION HAZARD:** Aspiration into the lungs may cause chemical pneumonia. This material can enter the lungs during swallowing or vomiting and may cause lung inflammation and damage which in severe cases may be fatal.

**Summary of  
Chronic  
Hazards and  
Special Health  
Effects**

Personnel with preexisting central nervous system (CNS) disease, skin disorders, or chronic respiratory diseases should be evaluated by an appropriate health professional before exposure to this material.

Prolonged/repeated skin exposure, inhalation or ingestion of this material may result in adverse dermal or systemic effects. Avoid prolonged or repeated exposure. May be harmful if absorbed through the skin. Prolonged or repeated contact may create cancer risk, organ damage, and adversely affect reproduction, fetal development and fetal survival. Avoid all skin contact.

Neurotoxic effects have been associated with n-hexane, a component of this material. Avoid prolonged or repeated exposure.

See Section 11 for Additional Toxicological Information.

**4. EMERGENCY and FIRST AID**

<b>Inhalation</b>	Immediately remove personnel to area of fresh air. For respiratory distress, give oxygen, rescue breathing, or administer CPR (cardiopulmonary resuscitation) if necessary. Obtain prompt medical attention.
<b>Eye Contact</b>	Flush eyes with clean, low-pressure water for at least 15 minutes, occasionally lifting the eyelids. If pain or redness persists after flushing, obtain medical attention.
<b>Skin Contact</b>	Immediately remove contaminated clothing. Wash affected skin thoroughly with soap and water. If irritation persists, obtain medical attention.
<b>Ingestion</b>	Do not induce vomiting since aspiration into the lungs may cause lipid pneumonia. Obtain prompt medical attention.

**Emergency  
Medical  
Treatment  
Procedures**

See above procedures. Personnel with pre-existing central nervous system disease, skin disorders, chronic respiratory diseases, or impaired liver or kidney function should avoid exposure to this product.

**5. FIRE and EXPLOSION**

**Flash Point (Method)\*** Based on NFPA Petroleum, Crude  
**Autoignition Temperature (Method)\***  
**Flammable Limits (% Vol. in Air\*)**

AP 20<sup>+</sup> F to 90<sup>+</sup> F  
N/DA  
AP1+  
+  
Upper AP8

**NFPA Hazard Rating:**

**Health:** 2 = Moderate  
**Fire:** 3 = High

**Reactivity:** 0 = Insignificant

**Special:**

\* At Normal Atmospheric Temperature and Pressure

+ Based on NFPA 325

**Fire and  
Explosion  
Hazards**

**HIGHLY FLAMMABLE!** This material releases flammable vapors at or below ambient temperatures. When mixed with air in certain proportions and exposed to an ignition source, these vapors can burn in the open or explode in confined spaces.

Flammable vapors may travel long distances along the ground before reaching a point of ignition and flashing back.

Open top tanks involved in a fire have a potential for "boil-over" if water or water-in-oil emulsion is at the bottom of the tank. Boil-over may result in a large expulsion of burning oil from the tank, greatly increasing the fire area.

**Extinguishing  
Media**

Foam, Dry chemical, Carbon dioxide (CO<sub>2</sub>)

Water and water fog can cool the fire but may not extinguish the fire.

**Special  
Firefighting  
Procedures**

For fires involving this material, do not enter any enclosed or confined fire space without proper protective equipment. This may include self-contained breathing apparatus to protect against the hazardous effects of combustion products and oxygen deficiencies. Cool tanks and containers exposed to fire with water. If firefighters cannot work upwind to the fire, respiratory protective equipment must be worn unless and until atmospheric monitoring indicates that such protection is not required. Improper use of water and extinguishing media containing water may cause frothing which can spread the fire over a larger area. Water fog or spray are of value for cooling tank shells and surfaces exposed to fire, but may not achieve extinguishment.

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**6. ACCIDENTAL RELEASE MEASURES**

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**Precautions if  
Material is Spilled  
or Released**

Contain spill, evacuate non-essential personnel, and safely stop flow. On hard surfaces, spilled material may create a slipping hazard. Equip cleanup crews with proper protective equipment (as specified in Section 8) and advise of hazards. Clean up by recovering as much spilled or contaminated materials as possible and placing into closed containers. Consult with an environmental professional for the federal, state and local cleanup and reporting requirements for spills and releases.

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**7. HANDLING and STORAGE**

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**Handling,  
Storage and  
Decontamination  
Procedures**

Store and transport in accordance with all applicable laws. **KEEP AWAY FROM HEAT, SPARKS, AND OPEN FLAME! KEEP CONTAINERS CLOSED, PLAINLY LABELED AND OUT OF CLOSED VEHICLES!** Containers should be able to withstand pressures expected from warming or cooling in storage. Ground all drums and transfer vessels when handling. Store in cool (80°F or below), well-ventilated location. All electrical equipment in storage and/or handling areas should be installed in accordance with applicable requirements of the National Electrical Code (NEC).

**KEEP OUT OF REACH OF CHILDREN!**

Empty containers retain some liquid and vapor residues, and hazard precautions must be observed when handling empty containers.

For determining National Electrical Code (NEC) Hazardous (Classified) location requirements for electrical installations, consider this material Class 1, Group D.

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**8. EXPOSURE CONTROLS/PERSONAL PROTECTION**

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**Engineering  
Controls**

Where possible, use adequate ventilation to keep vapor and mist concentrations of this material below the Occupational Exposure Limits shown in Section 2. Electrical equipment should comply with National Electrical Code (NEC) standards (see Section 7). Where there is potential for exposure to hydrogen sulfide gas in excess of the permissible exposure limit, a NIOSH/MSHA-approved supplied-air respirator operated in positive pressure mode should be worn.

**Respiratory**

If hydrogen sulfide gas is not present in excess of permissible exposure limits, a NIOSH/MSHA-approved air-purifying respirator with an organic vapor cartridge may be permissible under certain circumstances where airborne concentrations of hydrocarbon vapor may exceed the exposure limits in Section 2. Where work conditions may generate airborne mists of the material, also use a high-efficiency particulate pre-filter. Consult a health and safety professional for guidance in respirator selection. Respirator use should comply with OSHA 29 CFR 910.134.

**CAUTION:** The protection provided by air-purifying respirators is limited. Use a positive pressure air-supplied respirator if there is any potential for an uncontrolled release, if exposure levels are not known, or if concentrations exceed the protection limits of the air-purifying respirator.

**Eyes**

Eye protection should be worn. If there is potential for splashing or spraying, chemical protective goggles and/or a face shield should be worn. If contact lenses are worn, consult an eye specialist or a safety professional for additional precautions. Suitable eye wash water should be available in case of eye contact with this material.

**Skin**

Avoid all skin contact with this material. If conditions of use present any potential for skin contact, clean and impervious clothing such as gloves, apron, boots, and facial protection should be worn. Neoprene, Nitrile, Butyl Rubber or Viton glove material is recommended. When working around equipment or processes which may create the potential for skin contact, full body coverage should be worn, which consist of impervious boots and oil-resistant coated Tyvek suit or other impervious jacket and pants.

Non-impervious clothing which accidentally becomes contaminated with this material should be removed promptly and not reworn until the clothing is washed thoroughly and the contamination is effectively removed. Discard soaked leather goods.

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<b>Other Hygienic and Work Practices</b>	Use good personal hygiene practices. If skin contact should occur, material should be removed from the skin with a waterless hand cleaner, and the affected area should then be washed with a mild soap and water. Wash hands and other exposed areas thoroughly before eating, drinking, smoking or using toilet facilities.
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## 9. PHYSICAL and CHEMICAL PROPERTIES

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<b>Boiling Point:</b>	
<b>Viscosity Units, Temp. (Method):</b>	N/DA
<b>Dry Point:</b>	N/AP
<b>Freezing Point:</b>	N/DA
<b>Vapor Pressure, Temp. (Method):</b>	AP 1 to 2 at 100° F (REID-PSIA)
<b>Volatile Characteristics:</b>	Appreciable
<b>Specific Gravity (H<sub>2</sub>O = 1 @ 39.2F):</b>	AP 0.88
<b>Vapor Sp. Gr. (Air = 1.0 @ 60.F - 90.F):</b>	N/DA
<b>Solubility in Water:</b>	Negligible
<b>PH:</b>	N/AP
<b>Appearance and Odor:</b>	Thick light yellow to dark black colored liquid. Petroleum hydrocarbon odor.
<b>Other Physical and Chemical Properties:</b>	Total sulfur = approx. 1% - 2% Hydrogen sulfide content is less than 5 ppm dissolved in liquid

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## 10. STABILITY and REACTIVITY

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<b>Stability</b>	Stable
<b>Hazardous Polymerization</b>	Not expected to occur.
<b>Other Chemical Reactivity</b>	N/AP

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<b>Conditions to Avoid</b>	Heat, sparks, and open flame.
<b>Materials to Avoid</b>	Strong acids, alkalis, and oxidizers such as liquid chlorine and oxygen.
<b>Hazardous or Decomposition Products</b>	Burning or excessive heating may produce carbon monoxide and other harmful gases or vapors including oxides of sulfur and nitrogen.

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## 11. TOXICOLOGICAL INFORMATION

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<b>Toxicological Information</b>	The information found in this section is written for medical, toxicology, occupational health and safety professionals. This section provides technical information on the toxicity testing of this or similar materials or its components. If clarification of the technical content is needed, consult a professional in the areas of expertise listed above.
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<b>Prolonged/ Repeated Exposures</b>	IARC has determined there is "limited evidence for the carcinogenicity in experimental animals of crude oil" and "inadequate evidence for the carcinogenicity in humans of crude oil." IARC concludes that "crude oil is not classifiable as to its carcinogenicity to humans (Group 3)."  Crude Oil administered orally to pregnant rats during gestation produced increased number of resorptions and decrease in fetal weight and length.
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Exposure to N-hexane at concentrations considerably higher than the current permissible exposure limit has reportedly been associated with peripheral neuropathy.

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**12. ECOLOGICAL INFORMATION**

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Not Available

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**13. DISPOSAL CONSIDERATIONS**

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<b>Waste Disposal Methods</b>	Maximize recovery for reuse or recycling. Consult environmental professional to determine if state or federal regulations would classify spilled or contaminated materials as a hazardous waste. Use only approved transporters, recyclers, treatment, storage or disposal facilities. Comply with all federal, state and local laws pertaining to waste management.
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**14. TRANSPORT INFORMATION**

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<b>UN Proper Shipping Name</b>	Petroleum crude oil
<b>UN Hazard Class</b>	3
<b>UN Number</b>	UN1267
<b>UN Packing Group</b>	PGI

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**15. REGULATORY INFORMATION**

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**SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT OF 1986 (SARA), TITLE III****Section 311/312 Hazard Categories:**

Immediate (acute) health hazard  
Delayed (chronic) health hazard  
Fire hazard

No chemicals in this product exceed the threshold reporting level established by SARA Title III, Section 313 and 40 CFR 372.

**TOXIC SUBSTANCES CONTROL ACT (TSCA)**

All components of this product are listed on the TSCA Inventory.

**COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION AND LIABILITY ACT (CERCLA)** This material is covered by CERCLA's PETROLEUM EXEMPTION.

(Refer to 40 CFR 307.14)

**CALIFORNIA SAFE DRINKING WATER AND TOXIC ENFORCEMENT ACT OF 1986 - PROPOSITION 65****PROP 65 WARNING LABEL:**

Chemicals known to the State to cause cancer, birth defects, or other reproductive harm are found in gasoline, crude oil, and many other petroleum products and their vapors, or result from their use.

Read and follow label directions and use care when handling or using all petroleum products.  
**WARNING:**

This product contains the following chemical(s) listed by the state of California as known to cause cancer or birth defects or other reproductive harm.

(C)

**MINERAL OILS, UNTREATED**

Other Prop 65 chemicals will result under certain conditions from the use of this material. For example, burning fuels produces combustion products including carbon monoxide, a Prop 65 reproductive toxin.

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**16. OTHER INFORMATION**

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**General  
Comments**

The information and conclusions herein reflect normal operating conditions and may be from sources other than direct test data on the mixture itself.

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**Abbreviations:**

EQ = Equal

LT = Less Than

GT = Greater Than

AP = Approximately

UK = Unknown

TR = Trace

N/P = No Applicable Information Found

N/AP = Not Applicable

N/A = No Data Available

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**Disclaimer of Liability**

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**MASTER**  
**M. T SERENE I**