MATERIAL SAFETY DATA SHEET

Heavy Lubricating Oil

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Heavy Lubricating Oil (HLO)

Section I. Product and Company Identification	
Material Name:	Heavy Lubricating Oil
Synonyms:	VG 10, VG 30, Bitumen (60/70), Bitumen (80/100), Bitumen(Modified), Asphalt
Material Use:	By-product of Wiped Film Evaporation Unit. Construction Material for roads
Manufacturer:	
MSDS Version:	1.0
MSDS Date:	09/05/2017

Section II. Hazards Identification

Classification according to Regulation (EC) No. 1272/2008 [CLP]

Not classified

Hazard statements

None

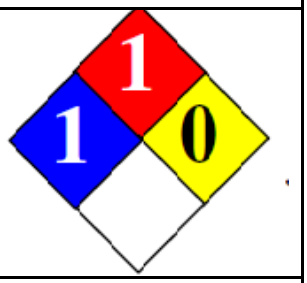
CLP Precautionary statements

None

Classification according to Directive 67/548/EEC or 1999/45/EC

Not Classified as dangerous according to EC criteria.

NFPA 704 HAZARD IDENTIFICATION

	Fire Hazard		4	Extreme
			3	High
Health		**Reactivity**	2	Moderate
			1	Slight
			0	Insignificant
	Specific Hazard			

Summary of Hazards

Health Hazards

Hot material can cause severe eye and skin burns on contact. Contact between heated material and water can cause a violent eruption. Fumes from heated material can cause irritation to the eyes, skin, and respiratory system, and can increase susceptibility to sunburn.

Physical Hazards

Combustible material.

Hot material can cause severe burn injury.

Health Effects: Eye Contact

Hot material can cause burns to the eyes. Mists, vapours or fumes from this material can cause eye irritation with tearing, redness, or a stinging or burning feeling.

Health Effects: Skin Contact

Hot material can cause burns to the skin. May cause skin irritation with redness, an itching or burning feeling, and swelling of the skin. Exposure to sunlight and to heavy lubricating oil vapours may amplify tendency for sunburns. Skin contact may cause harmful effects in other parts of the body.

Health Effects: Ingestion

Contact with hot material may cause burns. If swallowed at ambient temperatures, no significant adverse health effects are anticipated. If swallowed in massive quantities, this material can obstruct the intestine

Health Effects: Inhalation

No significant adverse health effects are expected to occur upon short-term exposure to this product at ambient temperatures. HLO fumes have been associated with irritation of eyes nose and throat. Also, lower respiratory effects have been reported.

Target Organs: Eyes, Skin, Respiratory system, Kidney, Liver

Section III. Composition/Information on Ingredients

Material Description:	Mixture of Hydrocarbons
Reportable Quantity:	See Section XV, Regulatory Information.
Marine Pollutant:	Yes

Ingredients

Ingredient Name	CAS #	Weight Percentage
Heavy Lubricating Oil	8052-42-4	100%

Section IV. First Aid Measures

General advice: Remove from exposure, lie down. Take off all contaminated clothing immediately. When symptoms persist or in all cases of doubt seek medical advice. Never give anything by mouth to an unconscious person.

First Aid: Eye Contact

Remove contact lenses if it can be done safely. Flush immediately with large amounts of water for at least 15 minutes, while holding eyelids open. Seek medical advice if pain or redness continues.

First aid: Skin Contact

Remove contaminated clothing and shoes. Wash off with soap and water but do not attempt to remove heavy lubricating oil that adheres to skin before obtaining medical assistance. Completely decontaminate clothing, shoes and protective equipment before reuse. Contaminated leather goods should be discarded.

In case of skin contact with hot product, immediately immerse or drench the affected are in water to assist cooling. Get immediately medical attention.

If irritation persists or symptoms develop, seek medical attention.

First Aid: Ingestion

Never give anything by mouth to an unconscious person. DO NOT induce vomiting. Aspiration of material into the lungs due to vomiting can cause chemical pneumonitis, which can be fatal. Clean mouth with water and drink afterwards plenty of water. If spontaneous vomiting occurs, keep head below hips to prevent aspiration of liquid into lungs and monitor for breathing difficulty. SEEK IMMEDIATE MEDICAL ATTENTION. Keep person warm and quiet.

First Aid: Inhalation

Remove to fresh air. If breathing is difficult, ensure clear airway and administer oxygen. If not breathing, apply artificial respiration or cardiopulmonary resuscitation. Keep person warm, quiet and get medical attention.

Section V. Fire Fighting Measures

Fire & Explosion Hazards

Combustible liquid with high ignition temperature. Burning forms smoke, carbon monoxide, carbon dioxide and decomposition products of heavy hydrocarbons. Vapors may be explosive in confined spaces. Mists or sprays may be flammable at temperatures below flash point.

Extinguishing Media

SMALL FIRES: Any extinguisher suitable for Class B fires, dry chemical, CO2, water spray, firefighting foam, or Halon.

LARGE FIRES: Water spray, fog or firefighting foam. Water may be ineffective for fighting the fire, but may be used to cool fire-exposed containers.

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

Advice for firefighters

Do not enter enclosed fire spaces without proper protective equipment. Fire fighters should wear full – face, self-contained breathing apparatus and thermal protective clothing. Evacuate the area from unnecessary personnel. If a tank, tank truck or rail car is involved in fire evacuate a radius of ½ mile. Position firefighters upwind. Cool containers with water spray. If possible withdraw containers from fire area. Improper use of extinguishing media containing water may cause frothing and thus spread the fire to a larger area.

Section VI. Accidental Release Measures

Personnel precautions & protective equipment

ACTIVATE FACILITY'S SPILL CONTINGENCY OR EMERGENCY RESPONSE PLAN. Evacuate nonessential personnel and remove or secure all ignition sources. Consider wind direction; stay upwind and uphill, if possible. Evaluate the direction of product travel, diking, sewers, etc. to confirm spill areas. Response and clean-up crews must be properly trained and must utilize proper protective equipment

Personnel should wear suitable protective clothing, gloves, boots, eye and face protection, especially when handling hot material. Avoid contact with the eyes, skin and clothes. Avoid vapor and fog inhalation. No respiratory protection is needed under normal conditions with adequate ventilation. Eye protection should be worn, including chemical type goggles or face shield. Do not wear contact lenses. Provide eye wash water. Eliminate all sources of ignition.

Environmental precautions

Carefully contain and stop the source of the spill, if safe to do so. Protect bodies of water by diking, absorbents, or absorbent boom, if possible. Do not flush down sewer or drainage systems, unless system is designed and permitted to handle such material. Authorities should be notified if reportable quantity release occurs. The material may cause increase of chemical and biological oxygen demand of water.

Spills

Stop spill if possible. Absorb spills with inert material. Remove ignition sources. Use dikes and water booms to contain discharge. Use non – sparking tools and equipment (pumps etc). Prevent entry into sewers. Wear appropriate protective equipment.

Section VII. Handling and storage

Handling

Provide adequate ventilation to minimize vapor concentrations. Avoid contact with skin, eye and clothing. Do not breathe dust/fume/gas/mist/vapors/spray. Keep containers closed when not in use. Avoid all unnecessary exposure. Do not eat, drink and do not smoke in areas where product is used. Handle in accordance with good industrial hygiene and safety procedures.

Product is generally transported and stored hot (typically at temperatures above 110°F and below 350°F). Handle as a combustible liquid. Keep away from heat, sparks, and open flame! Electrical equipment should be approved for classified area. Bond and ground containers during product transfer to reduce the possibility of static-initiated fire or explosion.

Consult API Recommended Practice 2023 for additional guidance. Store distant from fire and ignition sources. No smoking near areas where material is stored or used.

Storage

Store in grounded, tightly sealed, proper vessels away from heat, sparks, open flame and other ignition sources. Provide storage area with adequate extinguishing measures. Prevent soil and water contamination. Storage tanks should be diked. Avoid storage near

incompatible materials. The cleaning of tanks previously containing this product should follow API Recommended Practice (RP) 2013 "Cleaning Mobile Tanks in Flammable and Combustible Liquid Service" and API RP 2015 "Cleaning Petroleum Storage Tanks ".

Incompatible materials

Strong oxidizing agents. Strong acids.

Section VIII. Exposure Controls & Personal Protection

Exposure Guidelines

List	Components	CAS No.	Type	Value
ACGIH	Heavy Lubricating Oil	8052-42-4	TWA	0.5 mg/m3

Engineering Measures: Engineering controls are normally required when handling hot materials. Use process enclosures, local exhaust ventilation, or other controls to maintain airborne levels below recommended exposure limits (see below). Engineering controls should meet applicable requirements of the National Electrical Code (NEC) Standards. Ensure that an emergency eye wash station and safety shower is located near the work-station.

Eye Protection: Use a full-face shield and chemical safety goggles if handling heated material. With product at ambient temperatures, safety glasses equipped with side shields are recommended as minimum protection in industrial settings. An eye wash station immediately available to the work area.

Hand Protection: When handling product at elevated temperatures, use long-cuffed leather or heat resistant gloves. When product is at ambient temperatures, use gloves constructed of chemical resistant materials such as heavy nitrile rubber if frequent or prolonged contact is expected.

Skin and body Protection: Use insulated, heat-resistant clothing when handling heated material. Use a full body heat-resistant or internally cooled suit when work conditions dictate.

Respiratory Protection: Contaminant air concentrations determine the level of respiratory protection required. Use only NIOSH-approved respiratory equipment within the limits of the protection factors for that equipment. Respiratory equipment must be selected based on the maximum expected air concentration.

Hygiene Measures: Use good personal hygiene practices. Wash hands before eating, drinking, smoking, or using toilet facilities. DO NOT use gasoline, kerosene, solvents, or harsh abrasive skin cleaners to clean skin. Prevent skin contact when handling heated material. Use insulated, heat-resistant clothing when handling heated material. Use a full-body heat-resistant or internally cooled suit when work conditions dictate.

Section IX. Physical & Chemical Properties

Physical State	Viscous Liquid,
Appearance	Thick slurry like Liquid
Color	Dark brown to black
Odour	Characteristic sour, tar-like odor
Odour Threshold	No data available
pH	Not applicable
Boiling range	No data available
Pour point	No data available
Vapor Pressure	Negligible
Evaporation Rate (n-Butyl Acetate=1)	Non-Volatile
Density	999 at 15°C (59 °F)
Viscosity	72.15 cP at 100 °C (212 °F)
Flash Point	> 270 °C (518 °F)
Auto Ignition Temperature	320 – 400 °C (608 – 752 °F)
Lower Flammable Limit (LFL)	0.9% vol
Upper Flammable Limit (UFL)	7.0% vol
Relative Vapor Density (air=1)	> 1

Water Solubility	Insoluble

Section X. Stability & Reactivity Information

Chemical Stability

Material stable under normal conditions.

Conditions to Avoid

Avoid ignition sources.

Incompatible materials

Strong Oxidizing Agents. Strong Acids. Heated vapors or mists may form explosive mixtures with air. Do not allow molten products to contact water or liquids as this can cause violent eruptions.

Hazardous Decomposition Products

In case of fire, hazardous decomposition products may be produced such as Carbon oxides, Hydrogen sulfide and other sulfur-containing gases can evolve from this product particularly at elevated temperatures. No decomposition products in case of appropriate storage / handling / transport.

Section XI. Toxicological Information

LD50 oral rat > 5001 mg/kg

LD50 dermal rat > 2001 mg/kg

LC50 inhalation rat (mg/m3) > 94.4 for 4 hr.

Acute toxicity: Harmful if inhaled.

Aspiration hazard: Potential for aspiration if swallowed

Skin corrosion/irritation: May cause skin irritation. May cause an allergic skin reaction. Contact with hot material may cause thermal burns.

Serious eye damage/irritation: Vapors may cause eye irritation and sensitivity to light. Contact with hot material may cause thermal burns.

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

Germ cell mutagenicity: Not classified

Carcinogenicity: Not classified

Reproductive toxicity: Not classified

Specific target organ toxicity (single exposure): Not classified

Specific target organ toxicity (repeated exposure): Repeated or prolonged exposure may cause skin irritation. Prolonged exposure to vapors may cause neurotoxic disorders.

Potential Adverse human health effects and symptoms: Accidental ingestion may cause gastric disturbances and irritation of gastrointestinal tract. High concentration of vapors or mists may cause irritation of the respiratory tract mucosa, headache, dizziness, nausea. Prolonged / repetitive exposure may cause breathing disturbances, central nervous system disorders, disturbances of coordination of movement, disorientation, loss of consciousness. Prolonged/repetitive skin contact may cause skin dermatitis.

Section XII. Ecological Information

Ecotoxicity

General

Material is insoluble to water. Material is lighter than water. Spills may form a film on the surface of water which can diminish dissolved oxygen levels, harming aquatic organisms. Limited dispersion in soil.

Harmful Exposure Limits

LC50 fish – No data available

EC50 algae – No data available

EC50 Daphnia – No data available

NOEC Daphnia (chronic) – No data available

NOEC (fish) chronic – No data available

NOEC (mammals) – No data available

Biodegradability

This product is estimated to have a slow rate of biodegradation. This product is not expected to bioaccumulate through food chains in the environment. Analysis for ecological effects has not been conducted on this product. Spills into water ways may be harmful to organisms and bottom feeders.

Section XIII. Disposal Considerations

Recover as much spilled material as possible for reuse or recycling. Disposal of waste material must be conducted in accordance with local regulations.

Section XIV. Transportation Information

CFR

Proper shipping name: Elevated temperature liquid
UN-No.: 3257
Class: 9
Packing Group: III

Comments: (Heavy Lubricating Oil) This material must not be transported when heated at or above its flash point.

TDG

Proper shipping name: Elevated temperature liquid
UN-No.: UN3257
Class: 9
Packing group: III

IATA Cargo Transport

UN-No.: UN3257
Class: 9
Not permitted for transport

IATA Passenger Transport

UN-No.: UN3257
Class: 9
Not permitted for transport

IMDG-Code

UN-No.: UN 3257
Description of the goods: Elevated temperature liquid
Class: 9
Packaging group: III
IMDG-Labels: 9
EmS Number: F-A S-P
Marine pollutant: No

Section XV. Regulatory Information

OSHA Hazards: Moderate skin irritant
Moderate eye irritant
Toxic by inhalation.

CERCLA SECTION 103 and SARA SECTION 304 (RELEASE TO THE ENVIROMENT)

The CERCLA definition of hazardous substances contains a “petroleum exclusion” clause which exempts crude oil. Fractions of crude oil, and products (both finished and intermediate) from the crude oil refining process and any indigenous components of such from the

CERCLA Section 103 reporting requirements. However, other federal reporting requirements, including SARA Section 304, as well as the Clean Water Act may still apply.
TSCA Status: On TSCA Inventory
DSL Status: All components of this product are on the Canadian DSL list.
SARA 311/312 Hazards: Acute Health Hazard

Section XVI. Other Information

The information presented in this Material Safety Data Sheet is based on current knowledge and is believed to be complete and accurate at the time of preparation of this document. It describes the material for the purposes of health, safety and environment requirements only and shall, therefore, be used only as a guide. The data refers to a specific product and may not be valid for combined uses with other products. It is the user´s obligation to evaluate and use this product safely and to comply with all applicable laws and regulations. CTL shall not be responsible for any damage or injury resulting from abnormal use or from any failure to adhere to recommended practices. Unless specifically agreed otherwise CTL does not take responsibility for use, transportation, storage, handling or disposal of the material described herein.