



# TRIANGLE BIOMEDICAL SCIENCES, INC.

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## MATERIAL SAFETY DATA SHEET

IDENTIFICATION AND EMERGENCY INFORMATION				
<b>Product Name</b>	Heating Oil			
<b>Product Code (Catalog Number)</b>	HO (Catalog number change only-previously H-HO)			
<b>Product Category (Chemical Name)</b>	petroleum process oil			
<b>Product Appearance and Odor</b>	clear liquid, light yellow color; faint petroleum hydrocarbon odor			
<b>Emergency Notification</b>	Chem-Tel 1-800-255-3924			
COMPONENTS AND HAZARD INFORMATION				
Component	CAS No.	%	OSHA TWA ppm mg/m3	OSHA STEL ppm mg/m3
distillates (petroleum), hydrotreated heavy paraffinic	64742-54-7	>99	NE 5	NE 10
-or- distillates (petroleum), solvent-dewaxed heavy paraffinic	-or- 64742-65-0			
proprietary additives	mixture	<1		
Hazardous Materials Identification System (HMIS)				
Health	Flammability	Reactivity	Basis	
1	1	0	Recommended by Exxon	
<b>Exposure Limit for Total Product</b>	5 mg/m3 for oil mist (aerosol) for an 8-hour workday			
<b>Basis</b>	OSHA regulation 29 CFR 1910.1000 and recommended by the American Conference of Governmental Industrial Hygienists (ACGIH). ACGIH states that the air is to be sampled by a method that does not collect vapor; in addition, it lists a 10 mg/m3 STEL.			
<b>PSI Hazard Code</b>				
PHYSICAL DATA				
<b>THE FOLLOWING DATA ARE APPROXIMATE OR TYPICAL VALUES AND SHOULD NOT BE USED FOR PRECISE DESIGN PURPOSES.</b>				
<b>Boiling Range</b> ~293°C (560°F)	<b>Specific Gravity</b> 0.88	<b>Molecular Weight</b> ~372	<b>Viscosity</b> 160 SSU @100°F	
<b>Percent Volatile by Volume</b> negligible from open	<b>Vapor Pressure @20 C degrees</b> <0.01 mm Hg	<b>Vapor Density (Air = 1)</b> >5	<b>Pour, Congealing or Melting Point</b> -6°C (20°F)	

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container				
<b>Solubility in Water @1 ATM and 25°C (77°F)</b> negligible; <0.1%		<b>Evaporation Rate @1 ATM and 25°C (77°F)</b> (n-Butyl Acetate =1) <0.01		<b>pH</b> essentially neutral
<b>FIRE AND EXPLOSION HAZARD INFORMATION</b>				
<b>Flash Point (Minimum)</b> 199°C (390°F)	<b>Autoignition Temperature</b> >315°C (600°F)	<b>Test Mode</b> ASTM D 92, Cleveland Open Cup	<b>LEL</b> 0.9%	<b>UEL</b> 7%
<b>National Fire Protection Association (NFPA) — Hazard Identification</b>				
<b>Health</b> 1	<b>Flammability</b> 1	<b>Reactivity</b> 0	<b>Basis</b> Recommended by Exxon	
<b>Handling Precautions</b> Use product with caution around heat, sparks, pilot lights, static electricity and open flame.				
<b>Flammable or Explosive Limits (Approximate Percent by Volume in Air)</b> lower flammable limit: 0.9%; upper flammable limit: 7%				
<b>Extinguishing Media</b> Foam, water spray (fog), dry chemical, carbon dioxide and vaporizing liquid type extinguishing agents may all be suitable for extinguishing fires involving this type of product, depending on size or potential size of fire and circumstances related to the situation. Plan fire protection and response strategy through consultation with local fire protection authorities or appropriate specialists.				
<b>Fire Fighting Procedures</b> Use water spray, dry chemical, foam or carbon dioxide to extinguish the fire. Use water to keep fire-exposed containers cool. If a leak or spill has not ignited, use water spray to disperse the vapors and to provide protection for persons attempting to stop a leak. Water spray may be used to flush spills away from exposures. Minimize breathing of gases, vapor, fumes, or decomposition products. Use supplied-air breathing equipment for enclosed or confined spaces or as otherwise needed.				
<b>Decomposition Products Under Fire Condition</b> Fumes, smoke, carbon monoxide, sulfur oxides, aldehydes and other decomposition products, in the case of incomplete combustion.				
<b>“Empty” Container Warning</b> Empty containers retain residue (liquid and/or vapor) and can be dangerous. DO NOT PRESSURIZE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCES OF IGNITION. THEY MAY EXPLODE AND CAUSE INJURY OR DEATH. Do not attempt to refill or clean containers since residue is difficult to remove. "Empty" drums should be completely drained, properly bunged and promptly returned to a drum reconditioner. All other containers should be disposed of in an environmentally safe manner and in accordance with governmental regulations. For work on tanks refer to Occupational Safety and Health Administration regulations, ANSI Z49.1, and other governmental and industrial references pertaining to cleaning, repairing, welding, or other contemplated operations.				

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**Unusual Fire and Explosion Hazards****HEALTH AND HAZARD INFORMATION****Variability Among Individuals**

Health studies have shown that many petroleum hydrocarbons and synthetic lubricants pose potential human health risks which may vary from person to person. As a precaution, exposure to liquids, vapors, mists or fumes should be minimized

**Signs and symptoms of overexposure****Effects of Overexposure**

Prolonged and repeated skin exposure may cause skin irritation.

**Nature of Hazard and Toxicity Information**

Repeated and prolonged overexposure to oil mists may result in droplet deposition, oil granuloma formation, inflammation and increased incidence of infection. In accordance with the current OSHA Hazard Communication Standard criteria, this product does not require a cancer hazard warning. This is because the product is formulated from base stocks which are severely hydrotreated, severely solvent extracted, and/or processed by mild hydrotreatment and extraction. Alternately, it may consist of components not otherwise affected by IARC criteria, such as atmospheric distillates or synthetically derived materials, and as such is not characterized by current IARC classification criteria. Prolonged or repeated skin contact with this product tends to remove skin oils, possibly leading to irritation and dermatitis; however, based on human experience and available toxicological data, this product is judged to be neither a "corrosive" nor an "irritant" by OSHA criteria. Product contacting the eyes may cause eye irritation. Product has a low order of acute and dermal toxicity, but minute amounts aspirated into the lungs during ingestion or vomiting may cause mild to severe pulmonary injury and possibly death. This product is judged to have an acute oral LD50 (rat) greater than 5 g/kg of body weight, and an acute dermail LD50 (rabbit) greater than 3.16 g/kg of body weight.

**Pre-existing Medical Conditions which may be Aggravated by Exposure**

none recognized

**Threshold Limit Value****Health Hazards****PRIMARY ROUTES OF ENTRY AND EMERGENCY AND FIRST AID PROCEDURES****Eye Contact**

If splashed into the eyes, flush with water for 15 minutes or until irritation subsides. If irritation persists, call a physician.

**Skin**

In case of skin contact, remove any contaminated clothing and wash skin with soap and water. Launder or dry-clean clothing before reuse. If product is injected into or under the skin, or into any part of the body, regardless of the appearance of the wound or its size, the individual should be evaluated immediately by a physician as a surgical emergency. Even though initial symptoms from high pressure injection may be minimal or absent, early surgical treatment within the first few hours may significantly reduce the ultimate extent of injury.

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**Inhalation**

Vapor pressure is very low. Vapor inhalation under ambient conditions is normally not a problem. If overcome by vapor from hot product, immediately remove from exposure and call a physician. If breathing is irregular or has stopped, start resuscitation; administer oxygen, if available. If overexposed to oil mist, remove from further exposure until excessive oil mist condition subsides.

**Ingestion**

If ingested, DO NOT induce vomiting. Call a physician immediately.

**SEEK MEDICAL TREATMENT IF DISCOMFORT PERSISTS.**

**REACTIVITY**

<b>Stability</b> Stable	<b>Incompatibility</b>	<b>Hazardous Decomposition Products</b>
<b>Conditions to Avoid</b>	<b>Hazardous Polymerization</b> will not occur	<b>Materials to Avoid</b> strong oxidants such as liquid chlorine, concentrated oxygen, sodium hypochlorite, calcium hypochlorite, etc.

**ENVIRONMENTAL INFORMATION****Steps to be Taken in Case Material is Released or Spilled**

Recover free product. Add sand, earth or other suitable absorbent to spill area. Minimize skin contact. Keep product out of sewers and watercourses by diking or impounding. Advise authorities if product has entered or may enter sewers, watercourses, or extensive land areas. Assure conformity with applicable government regulations.

**Waste Disposal Method****Disposal****Protective Gear****Precautions to be taken in handling and storage****Clean Water Act / Oil Pollution Act**

This product may be classified as an oil under Section 311 of the Clean Water Act, and under the Oil Pollution Act. Discharges or spills into or leading to surface waters that cause a sheen must be reported to the National Response Center (1-800-424-8802).

**THE FOLLOWING INFORMATION MAY BE USEFUL IN COMPLYING WITH VARIOUS STATE AND FEDERAL LAWS AND REGULATIONS UNDER VARIOUS ENVIRONMENTAL STATUTES.**

**Reportable Quantity (RQ), EPA Regulation 40 CFR 302 (CERCLA Section 102)**

**Threshold Planning Quantity (TPQ), EPA Regulation 40 CFR 355 (SARA Sections 301-304)**

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<b>Toxic Chemical Release Reporting, EPA Regulation 40 CFR 372 (SARA Section 313)</b>
<b>Hazardous Chemical Reporting, EPA Regulation 40 CFR 370 (SARA Sections 311-312)</b>
<b>SPECIAL STATE NOTIFICATIONS</b>
<b>PROTECTION AND PRECAUTIONS</b>
<p><b>Ventilation</b> Use local exhaust to capture vapor, mists or fumes, if necessary. Provide ventilation sufficient to prevent exceeding recommended exposure limit or buildup of explosive concentrations of vapor in air. No smoking or use of flame or other ignition sources.</p>
<p><b>Respiratory Protection</b> Use supplied-air respiratory protection in confined or enclosed spaces, if needed.</p>
<p><b>Protective Gloves</b> Use chemical-resistant gloves, if needed, to avoid prolonged or repeated skin contact.</p>
<p><b>Eye Protection</b> Use splash goggles or face shield when eye contact may occur.</p>
<p><b>Other Protective Equipment</b> Use chemical-resistant apron or other impervious clothing, if needed, to avoid contaminating regular clothing, which could result in prolonged or repeated skin contact.</p>
<p><b>Work Practices / Engineering Controls</b> Keep containers closed when not in use. Do not store near heat, sparks, flame or strong oxidants.</p>
<p><b>Personal Hygiene</b> Minimize breathing vapor, mist or fumes. Avoid prolonged or repeated contact with skin. Remove contaminated clothing; launder or dry-clean before re-use. Remove contaminated shoes and thoroughly clean before re-use; discard if oil-soaked. Cleanse skin thoroughly after contact, before breaks and meals, and at end of work period. Product is readily removed from skin by waterless hand cleaners followed by washing thoroughly with soap and water.</p>
<b>TRANSPORTATION AND OSHA RELATED LABEL INFORMATION</b>
<p><b>Transportation Incident Information</b> For further information relative to spills resulting from transportation incidents, refer to latest Department of Transportation Emergency Response Guidebook for Hazardous Materials Incidents.</p>
<p><b>U.S. DOT Hazardous Materials Shipping Description</b> not regulated</p>
<p><b>OSHA Required Label Information</b> In compliance with hazard and right to know requirements, where applicable OSHA Hazard Warnings may be found on the label, bill of lading or invoice accompanying this shipment.</p>

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