

#### EMERGENCY OVERVIEW

##### CAUTION!

#### FLAMMABLE LIQUID - SLIGHT TO MODERATE IRRITANT - EFFECTS CENTRAL NERVOUS SYSTEM - HARMFUL OR FATAL IF SWALLOWED

High fire hazard. Keep away from heat, spark, open flame, and other ignition sources.

If ingested, do NOT induce vomiting, as this may cause chemical pneumonia (fluid in the lungs). Contact may cause eye, skin and mucous membrane irritation. Avoid prolonged breathing of vapors or mists. Inhalation may cause irritation, anesthetic effects (dizziness, nausea, headache, intoxication), and respiratory system effects.

Long-term exposure may cause effects to specific organs, such as to the liver, kidneys, blood, nervous system, and skin. Contains benzene, which can cause blood disease, including anemia and leukemia.



NFPA 704 (Section 16)

### 1. CHEMICAL PRODUCT AND COMPANY INFORMATION

**HOVENSA LLC**  
1 Estate Hope  
Christiansted, VI 00820-5652

**EMERGENCY TELEPHONE NUMBER (24 hrs):**  
**COMPANY CONTACT (business hours):**

**CHEMTREC (800)424-9300**  
**(340) 692-3000**

**SYNONYMS:** Crude Petroleum; Sour Crude  
See Section 16 for abbreviations and acronyms.

### 2. COMPOSITION and CHEMICAL INFORMATION ON INGREDIENTS

INGREDIENT NAME (CAS No.)	CONCENTRATION PERCENT BY WEIGHT
Light catalytically-cracked distillate (64741-59-9)	100

A complex combination of hydrocarbons produced by the distillation of products from the fluidized catalytic cracking (FCC) process with carbon numbers in the range C9 to C25, boiling in the approximate range of 340 to 700 °F.

### 3. HAZARDS IDENTIFICATION

#### **EYES**

Contact with eyes may cause moderate to severe irritation.

#### **SKIN**

Practically non-toxic if absorbed following acute (single) exposure. May cause skin irritation with prolonged or repeated contact. Liquid may be absorbed through the skin in toxic amounts if large areas of skin are exposed repeatedly. Rare, precancerous warts on the forearms, backs of hands and scrotum have been reported from prolonged or repeated skin contact.



## MATERIAL SAFETY DATA SHEET

Light Cycle Oil

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### **INGESTION**

The major health threat of ingestion occurs from the danger of 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 even death.

Ingestion may cause gastrointestinal disturbances, including irritation, nausea, vomiting and diarrhea, and central nervous system (brain) effects similar to alcohol intoxication. In severe cases, tremors, convulsions, loss of consciousness, coma, respiratory arrest, and death may occur.

### **INHALATION**

Excessive exposure may cause irritations to the nose, throat, lungs and respiratory tract. Central nervous system (brain) effects may include headache, dizziness, loss of balance and coordination, unconsciousness, coma, respiratory failure, and death.

**WARNING:** the burning of any hydrocarbon as a fuel in an area without adequate ventilation may result in hazardous levels of combustion products, including carbon monoxide, and inadequate oxygen levels, which may cause unconsciousness, suffocation, and death.

### **CHRONIC and CARCINOGENICITY**

Similar products have produced skin cancer and systemic toxicity in laboratory animals following repeated applications. The significance of these results to human exposures has not been determined - see Section 11 Toxicological Information.

### **MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE**

Irritation from skin exposure may aggravate existing open wounds, skin disorders, and dermatitis (rash).

## **4. FIRST AID MEASURES**

### **EYES**

In case of contact with eyes, immediately flush with clean, low-pressure water for at least 15 min. Hold eyelids open to ensure adequate flushing. Seek medical attention.

### **SKIN**

Remove contaminated clothing. Wash contaminated areas thoroughly with soap and water or waterless hand cleanser. Obtain medical attention if irritation or redness develops. Thermal burns require immediate medical attention depending on the severity and the area of the body burned.

### **INGESTION**

DO NOT INDUCE VOMITING. Do not give liquids. Obtain immediate medical attention. If spontaneous vomiting occurs, lean victim forward to reduce the risk of aspiration. Monitor for breathing difficulties. Small amounts of material which enter the mouth should be rinsed out until the taste is dissipated.

### **INHALATION**

Remove person to fresh air. If person is not breathing provide artificial respiration. If necessary, provide additional oxygen once breathing is restored if trained to do so. Seek medical attention immediately.

## **5. FIRE FIGHTING MEASURES**

### **FLAMMABLE PROPERTIES:**

FLASH POINT:	100 °F (38 °C) minimum PMCC
AUTOIGNITION POINT:	N/D
OSHA/NFPA FLAMMABILITY CLASS:	2 (COMBUSTIBLE)
LOWER EXPLOSIVE LIMIT (%):	N/D (0.6% for # 2 Fuel Oil, a similar product)
UPPER EXPLOSIVE LIMIT (%):	N/D (7.5% for # 2 Fuel Oil, a similar product)



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### **FIRE AND EXPLOSION HAZARDS**

Flash point and explosive limits are highly dependent on the crude oil source. Treat as an OSHA/NFPA flammable liquid unless otherwise indicated. Vapors may be ignited rapidly when exposed to heat, spark, open flame or other source of ignition. When mixed with air and exposed to an ignition source, flammable vapors can burn in the open or explode in confined spaces. Being heavier than air, vapors may travel long distances to an ignition source and flash back. Runoff to sewer may cause fire or explosion hazard.

### **EXTINGUISHING MEDIA**

**SMALL FIRES:** Any extinguisher suitable for Class B fires, dry chemical, CO<sub>2</sub>, water spray, fire fighting foam, or Halon.

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

### **FIRE FIGHTING INSTRUCTIONS**

Small fires in the incipient (beginning) stage may typically be extinguished using handheld portable fire extinguishers and other fire fighting equipment.

Firefighting activities that may result in potential exposure to high heat, smoke or toxic by-products of combustion should require NIOSH/MSHA- approved pressure-demand self-contained breathing apparatus with full facepiece and full protective clothing.

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 fire fighting foam.

See Section 16 for the NFPA 704 Hazard Rating.

## **6. ACCIDENTAL RELEASE MEASURES**

**ACTIVATE FACILITY SPILL CONTINGENCY or EMERGENCY 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. Product may release substantial amounts of flammable vapors and gases (e.g., methane, ethane, and propane), at or below ambient temperature depending on source and process conditions and pressure.

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. The use of fire fighting foam may be useful in certain situations to reduce vapors. The proper use of water spray may effectively disperse product vapors or the liquid itself, preventing contact with ignition sources or areas/equipment that require protection - do not discharge solid water stream patterns into the liquid resulting in splashing.

Take up with sand or other oil absorbing materials. Carefully shovel, scoop or sweep up into a waste container for reclamation or disposal. Response and clean-up crews must be properly trained and must utilize proper protective equipment (see Section 8).

## **7. HANDLING and STORAGE**

### **HANDLING and STORAGE PRECAUTIONS**

Handle as a combustible liquid. Keep away from heat, sparks, excessive temperatures and open flame! No smoking or open flame in storage, use or handling areas. Bond and ground containers during product transfer to reduce the possibility of static-initiated fire or explosion.



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Special slow load procedures for "switch loading" must be followed to avoid the static ignition hazard that can exist when this product is loaded into tanks previously containing low flash point products (such as gasoline) - see API Publication 2003, "Protection Against Ignitions Arising Out Of Static, Lightning and Stray Currents."

### **STORAGE PRECAUTIONS**

Keep containers closed and clearly labeled. Use approved vented storage containers. Empty product containers or vessels may contain explosive vapors. Do not pressurize, cut, heat, weld or expose such containers to sources of ignition.

Store in a well-ventilated area. This storage area should comply with NFPA 30 "Flammable and Combustible Liquid Code". 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."

### **WORK/HYGIENIC PRACTICES**

Emergency eye wash capability should be available in the near proximity to operations presenting a potential splash exposure. Use good personal hygiene practices. Avoid repeated and/or prolonged skin exposure. Wash hands before eating, drinking, smoking, or using toilet facilities. Do not use as a cleaning solvent or harsh abrasive skin cleaners for washing this product from exposed skin areas. Waterless hand cleaners are effective. Promptly remove contaminated clothing and launder before reuse. Use care when laundering to prevent the formation of flammable vapors which could ignite via washer or dryer. Consider the need to discard contaminated leather shoes and gloves.

## **8. EXPOSURE CONTROLS and PERSONAL PROTECTION**

### **EXPOSURE LIMITS**

Components (CAS No.)	Source	Exposure Limits		Note
		TWA/STEL		
Light catalytically-cracked distillate (64741-59-9)	OSHA	PEL = 5 mg/m <sup>3</sup> as mineral oil mist		A3
	ACGIH	TLV = 100 mg/m <sup>3</sup> as mineral oil mist		

### **ENGINEERING CONTROLS**

Use adequate ventilation to keep vapor concentrations of this product below occupational exposure and flammability limits, particularly in confined spaces.

### **EYE/FACE PROTECTION**

Safety glasses or goggles are recommended where there is a possibility of splashing or spraying.

### **SKIN PROTECTION**

Gloves constructed of nitrile or neoprene are recommended. Chemical protective clothing such as of E.I. DuPont Tyvek-Saranex 23®, Tychem®, Barricade® or equivalent recommended based on degree of exposure. Note: The resistance of specific material may vary from product to product as well as with degree of exposure. Consult manufacturer specifications for further information.

### **RESPIRATORY PROTECTION**

A NIOSH/MSHA-approved air-purifying respirator with organic vapor cartridges or canister may be permissible under certain circumstances where airborne concentrations are or may be expected to exceed exposure limits or for odor or irritation. Protection provided by air-purifying respirators is limited. Refer to OSHA 29 CFR 1910.134, ANSI Z88.2-1992, NIOSH Respirator Decision Logic, and the manufacturer for additional guidance on respiratory protection selection.

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



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### 9. PHYSICAL and CHEMICAL PROPERTIES

#### **APPEARANCE**

Straw-colored, water-like liquid

#### **ODOR**

Mild, petroleum distillate odor

#### **BASIC PHYSICAL PROPERTIES**

BOILING RANGE: 340 to 700 °F (171 to 371 °C)

VAPOR PRESSURE: 0.009 psia @ 70 °F (21 °C)

VAPOR DENSITY (air = 1): > 1.0

SPECIFIC GRAVITY (H<sub>2</sub>O = 1): AP 0.9 @ 60 °F (16 °C)

PERCENT VOLATILES: 100 %

EVAPORATION RATE: Slow; varies with conditions

SOLUBILITY (H<sub>2</sub>O): Negligible

### 10. STABILITY and REACTIVITY

**STABILITY:** Stable. Hazardous polymerization will not occur.

#### **CONDITIONS TO AVOID and INCOMPATIBLE MATERIALS**

Material is stable under normal conditions. Avoid high temperatures, open flames, sparks, welding, smoking and other ignition sources. Keep away from strong oxidizers; Viton ®; Fluorel ®

#### **HAZARDOUS DECOMPOSITION PRODUCTS**

Carbon monoxide, carbon dioxide and non-combusted hydrocarbons (smoke).

### 11. TOXICOLOGICAL PROPERTIES

#### **ACUTE TOXICITY**

Acute Oral LD50: 4.6 ml/kg (rat-males); 3.2 ml/kg (rat-females)

Acute Dermal LD50 (rabbit): > 2 ml/kg

Guinea Pig Sensitization: negative

Primary dermal irritation: moderately irritating

Draize eye irritation: mildly irritating

#### **CHRONIC EFFECTS AND CARCINOGENICITY**

Carcinogenic: IARC: NO NTP: NO OSHA: NO ACGIH: 1997 NOIC: A3

Dermal carcinogenicity: positive - mice

Studies have shown that similar products produce skin tumors in laboratory animals following repeated applications without washing or removal. The significance of this finding to human exposure has not been determined. Other studies with active skin carcinogens have shown that washing the animal's skin with soap and water between applications reduced tumor formation.

This product is similar to Diesel Fuel. IARC classifies whole diesel fuel exhaust particulates as probably carcinogenic to humans (Group 2A) and NIOSH regards it as a potential cause of occupational lung cancer based on animal studies and limited evidence in humans.

#### **MUTAGENICITY (genetic effects)**

Material of similar composition has been positive in a mutagenicity study.

### 12. ECOLOGICAL INFORMATION

Keep out of sewers, drainage areas, and waterways. Report spills and releases, as applicable, under Federal and State regulations.



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13. DISPOSAL CONSIDERATIONS

Consult federal, state and local waste regulations to determine appropriate disposal options.

14. TRANSPORTATION INFORMATION

DOT PROPER SHIPPING NAME: FUEL OIL, NO. 2
DOT HAZARD CLASS and PACKING GROUP: 3, III
DOT IDENTIFICATION NUMBER: NA 1993
DOT SHIPPING LABEL: FLAMMABLE LIQUID

PLACARD:



May be reclassified for transportation as a COMBUSTIBLE LIQUID under conditions of DOT 49 CFR 173.120(b)(2)

15. REGULATORY INFORMATION

U.S. FEDERAL, STATE, and LOCAL REGULATORY INFORMATION

Any spill or uncontrolled release of this product, including any substantial threat of release, may be subject to federal, state and/or local reporting requirements. This product and/or its constituents may also be subject to other regulations at the state and/or local level. Consult those regulations applicable to your facility/operation.

CLEAN WATER ACT (OIL SPILLS)

Any spill or release of this product to "navigable waters" (essentially any surface water, including certain wetlands) 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 regulatory agencies as required.

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

The CERCLA definition of hazardous substances contains a "petroleum exclusion" clause which exempts crude oil, refined, and unrefined petroleum products and any indigenous components of such. However, other federal reporting requirements (e.g., SARA Section 304 as well as the Clean Water Act if the spill occurs on navigable waters) may still apply.

SARA SECTION 311/312 - HAZARD CLASSES

Table with 5 columns: ACUTE HEALTH, CHRONIC HEALTH, FIRE, SUDDEN RELEASE OF PRESSURE, REACTIVE. Values: X, X, X, --, --

SARA SECTION 313 - SUPPLIER NOTIFICATION

This product does not contain toxic chemicals subject to the reporting requirements of section 313 of the Emergency Planning and Community Right-To-Know Act (EPCRA) of 1986 and of 40 CFR 372.

CALIFORNIA PROPOSITON 65 LIST OF CHEMICALS

This product contains the following chemicals that are included on the Proposition 65 "List of Chemicals" required by the California Safe Drinking Water and Toxic Enforcement Act of 1986:

Table with 2 columns: INGREDIENT NAME (CAS NUMBER), Date Listed. Row: Residual Fuel Oil (no CAS Number listed), 10/01/1990

CANADIAN REGULATORY INFORMATION (WHMIS)

Class B, Division 3(Combustible Liquid); Class D, Division 2, Subdivision B (Toxic by other means)

NFPA® HAZARD RATING HEALTH: 0



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FIRE: 2  
REACTIVITY: 0

Refer to NJPA 704 "Identification of the Fire Hazards of Materials" for further information

**HMIS® HAZARD RATING**

HEALTH:	1 *	Slight
FIRE:	2	Moderate
Physical:	0	Negligible

\* Chronic

**SUPERSEDES MSDS DATED:** 01/19/1999

### ABBREVIATIONS:

AP = Approximately    < = Less than    > = Greater than  
N/A = Not Applicable    N/D = Not Determined    ppm = parts per million

### ACRONYMS:

ACGIH	American Conference of Governmental Industrial Hygienists	NTP	National Toxicology Program
AIHA	American Industrial Hygiene Association	OPA	Oil Pollution Act of 1990
ANSI	American National Standards Institute (212) 642-4900	OSHA	U.S. Occupational Safety & Health Administration
API	American Petroleum Institute (202) 682-8000	PEL	Permissible Exposure Limit (OSHA)
CERCLA	Comprehensive Emergency Response, Compensation, and Liability Act	RCRA	Resource Conservation and Recovery Act
DOT	U.S. Department of Transportation [General info: (800) 467-4922]	REL	Recommended Exposure Limit (NIOSH)
EPA	U.S. Environmental Protection Agency	SARA	Superfund Amendments and Reauthorization Act of 1986 Title III
HMIS	Hazardous Materials Information System	SCBA	Self-Contained Breathing Apparatus
IARC	International Agency For Research On Cancer	SPCC	Spill Prevention, Control, and Countermeasures
MSHA	Mine Safety and Health Administration	STEL	Short-Term Exposure Limit (generally 15 minutes)
NFPA	National Fire Protection Association (617)770-3000	TLV	Threshold Limit Value (ACGIH)
NIOSH	National Institute of Occupational Safety and Health	TSCA	Toxic Substances Control Act
NOIC	Notice of Intended Change (proposed change to ACGIH TLV)	TWA	Time Weighted Average (8 hr.)
		WEEL	Workplace Environmental Exposure Level (AIHA)
		WHMIS	Canadian Workplace Hazardous Materials Information System

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