

**Section 1: IDENTIFICATION**

**Product Identifier:** Vacuum Gas Oil

**Other Means of Identification:** FCC Feedstock; Light Vacuum Gas Oil; Heavy Vacuum Gas Oil; Raw Vacuum Gas Oil.

**SDS Number:** 644400

**Product Code:** Not available.

**Product Use:** Refinery Feedstock.

**Restrictions on Use:** Not available.

**Manufacturer/Supplier:** U.S. OIL & REFINING CO.  
3001 Marshall Ave.  
Tacoma, WA 98421

**Emergency Phone:** U.S. OIL & REFINING CO.: (253) 383-1651  
CHEMTREC: 800-424-9300  
NATIONAL POISON CENTER: 1-800-222-1222

**Date of Preparation of SDS:** December 2, 2016

**Section 2: HAZARD(S) IDENTIFICATION**

**CLASSIFICATION:** Carcinogenicity, Category 1B

**LABEL ELEMENTS**

**Hazard  
Symbol(s):**



**Signal Word:** Danger

**Hazard  
Statements:** May cause cancer.

**PRECAUTIONARY STATEMENTS**

**Prevention:** Obtain special instructions before use.  
Do not handle until all safety precautions have been read and understood.  
Wear protective gloves, protective clothing, eye protection and face protection.

**Response:** If exposed or concerned: Get medical advice/attention.

**Storage:** Store locked up.

**Disposal:** Dispose of contents/container in accordance with applicable regional, national and local laws and regulations.

**Hazards Not Otherwise Classified:** No applicable information was found.



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**Ingredients with Unknown Acute Toxicity:** 100% of this product mixture consists of ingredient(s) of unknown acute toxicity.

This material is considered hazardous by the OSHA Hazard Communication Standard, (29 CFR 1910.1200).

**Section 3: COMPOSITION / INFORMATION ON INGREDIENTS**

Hazardous Ingredient(s)	Common name / Synonyms	CAS No.	% wt./wt.
Distillates (petroleum), light vacuum	Not available.	70592-77-7	100
Polycyclic Aromatic Hydrocarbons	Not available.	130498-29-2	Variable
Hydrogen Sulfide (H <sub>2</sub> S)	Not available.	7783-06-4	Trace

**Section 4: FIRST-AID MEASURES**

**Inhalation:** If inhaled: Remove person to fresh air and keep comfortable for breathing. If symptoms persist, get medical attention/advice.

**Acute and delayed symptoms and effects:** May cause respiratory irritation. Signs/symptoms may include cough, sneezing, nasal discharge, headache, hoarseness, and nose and throat pain. This product contains trace amounts of Hydrogen Sulfide which may accumulate in confined spaces. Inhalation of Hydrogen Sulfide may cause loss of sense of smell, major irritation of the respiratory tract, headache, nausea, vomiting, dizziness, and fluid buildup in the lungs (pulmonary edema), which can be fatal. At 300 ppm unconsciousness may occur after 20 minutes. From 300 to 500 ppm, death can occur within 1 to 4 hours of continuous exposure. At 500 ppm the respiratory system is paralyzed, the victim collapses almost instantaneously, and death can occur after exposure of only 30 to 60 minutes. Above 500 ppm Hydrogen Sulfide may cause immediate loss of consciousness; death is rapid, and possibly immediate.

**Skin Contact:** If on skin (or hair): Rinse skin with water/shower. Get immediate medical advice/attention. Remove non-adhering contaminated clothing. Cool adherent materials and burned areas with ice and/or cold water. Do not remove adherent material or clothing.

**Acute and delayed symptoms and effects:** May cause skin irritation. Signs/symptoms may include localized redness, swelling, and itching. Hot liquid product may cause serious thermal burns on direct contact.

**Eye Contact:** If in eyes: Rinse cautiously with water for at least 30 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a poison center or doctor.

**Acute and delayed symptoms and effects:** May cause eye irritation. Signs/symptoms may include redness, swelling, pain, tearing, and blurred or hazy vision. Hot liquid product may cause serious thermal burns on direct contact.



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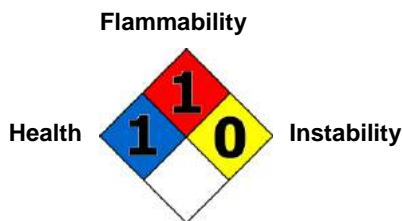
**Ingestion:** If swallowed: Rinse mouth. Immediately call a poison center or doctor. If vomiting occurs naturally, have victim lean forward to reduce the risk of aspiration. Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person.

**Acute and delayed symptoms and effects:** Hot product may cause thermal burns. Causes burns to nose, mouth, throat, and digestive tract. Signs/symptoms may include severe mouth, throat and abdominal pain, nausea, vomiting, and diarrhea, blood in the feces and/or vomitus may also be seen.

**Note to Physicians:** Symptoms may not appear immediately. For inhalation of Hydrogen Sulfide, consider Oxygen.

### Section 5: FIRE-FIGHTING MEASURES

NFPA 704



#### SUITABLE/UNSUITABLE EXTINGUISHING MEDIA

**Suitable Extinguishing Media:** Small Fire: Dry chemical, CO<sub>2</sub>, water spray or regular foam.

Large Fire: Water spray, fog or regular foam. Move containers from fire area if it can be done safely.

**Unsuitable Extinguishing Media:** Do not spray water onto burning product as this may cause spattering and spreading of the flame.

#### SPECIFIC HAZARDS

Not flammable or combustible by OSHA/WHMIS criteria. When heated, this material may evolve toxic and flammable Hydrogen Sulfide.

**Products of Combustion:** Oxides of Carbon. Oxides of Sulfur.

**Sensitivity to Mechanical Impact:** This material is not sensitive to mechanical impact.

**Sensitivity to Static Discharge:** Take precautionary measures against static discharge. This material is sensitive to static discharge at temperatures at or above the flash point.

#### SPECIAL PROTECTIVE EQUIPMENT AND PRECAUTIONS FOR FIREFIGHTERS

Fire may produce irritating, corrosive and/or toxic gases. Runoff from fire control or dilution water may cause pollution. Hydrogen Sulfide is heavier than air and may collect in low lying areas and confined spaces. Wear positive pressure self-contained breathing apparatus (SCBA). Structural firefighters' protective clothing will only provide limited protection.

**Section 6: ACCIDENTAL RELEASE MEASURES****PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT AND EMERGENCY PROCEDURES**

- Personal Precautions:** Do not touch or walk through spilled material. Use personal protection recommended in Section 8. Don full-face, positive pressure, self-contained breathing apparatus.
- Protective Equipment:** Emergency eyewash capability should be available. Wear respiratory protection as conditions warrant.
- Emergency Procedures:** Keep unauthorized personnel away. Stay upwind. Keep out of low areas. Ventilate closed spaces before entering. ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area).

**METHODS AND MATERIALS FOR CONTAINMENT AND CLEANING UP**

- Methods for Containment:** Stop leak if it can be done without risk. Contain hot liquid by dyking and allow to cool and solidify. Do not flush to sewer or allow to enter waterways.
- Methods for Clean-Up:** Absorb or cover with dry earth, sand or other non-combustible material and transfer to containers.

**Section 7: HANDLING AND STORAGE****PRECAUTIONS FOR SAFE HANDLING:**

Do not swallow. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Grounding of containers/pouring equipment is necessary when transferring hot liquid product. See Section 8 for information on Personal Protective Equipment.

**CONDITIONS FOR SAFE STORAGE:**

Store locked up. Store away from incompatible materials. See Section 10 for information on Incompatible Materials. Head spaces in storage containers may contain toxic Hydrogen Sulfide gas. Structural materials and lighting and ventilation systems should be corrosion resistant.

**Section 8: EXPOSURE CONTROLS / PERSONAL PROTECTION****EXPOSURE LIMITS**

Component	ACGIH	OSHA
Distillates (petroleum), light vacuum [CAS No. 70592-77-7]	No TLV established.	No PEL established.
Polycyclic Aromatic Hydrocarbons [CAS No. 130498-29-2]	A2; BEI; Exposure by all routes should be carefully controlled to levels as low as possible (1990); For Benz[a]anthracene	0.2 mg/m <sup>3</sup> (TWA); For benzene-soluble fraction.
Hydrogen Sulfide [CAS No. 7783-06-4]	1 ppm (TWA); 5 ppm (STEL); (2009)	20 ppm (C); 50 ppm (Peak) (Maximum duration: 10 mins. once only if no other meas. exp. occurs.) 10 ppm (TWA); 15 ppm (STEL) [Vacated]

**PEL:** Permissible Exposure Limit**TLV:** Threshold Limit Value**TWA:** Time-Weighted Average**STEL:** Short-Term Exposure Limit**C:** Ceiling**ENGINEERING CONTROLS**

Use ventilation adequate to keep exposures (airborne levels of dust, fume, vapor, gas, etc.) below recommended exposure limits.

**PERSONAL PROTECTIVE EQUIPMENT (PPE)****Eye/Face Protection:**

Wear chemical safety goggles. If product is hot, wear full face-shield. Use equipment for eye protection that meets the standards referenced by CSA Standard CAN/CSA-Z94.3-92 and OSHA regulations in 29 CFR 1910.133 for Personal Protective Equipment.

**Hand Protection:**

Wear protective gloves. If product is hot, thermally protective gloves are recommended. Consult manufacturer specifications for further information.

**Skin and Body Protection:**

Wear protective clothing. Clothing with full length sleeves and pants should be worn.

**Respiratory Protection:**

If engineering controls and ventilation are not sufficient to control exposure to below the allowable limits then an appropriate NIOSH approved air-purifying respirator, with organic vapor cartridge or self-contained breathing



apparatus must be used. Supplied air breathing apparatus must be used when Oxygen concentrations are low or if airborne concentrations exceed the limits of the air-purifying respirators.

**General Hygiene Considerations:** Handle according to established industrial hygiene and safety practices. Consult a competent industrial hygienist to determine hazard potential and/or the PPE manufacturers to ensure adequate protection. Emergency eyewash should be available near operations presenting a potential splash exposure. Avoid skin exposure. Promptly remove contaminated clothing, gloves, and shoes.

### Section 9: PHYSICAL AND CHEMICAL PROPERTIES

<b>Appearance:</b>	Dark green to black colored viscous liquid.
<b>Color:</b>	Dark green to black.
<b>Odor:</b>	Slightly cracked or burnt to asphaltic odor.
<b>Odor Threshold:</b>	Not available.
<b>Physical State:</b>	Liquid.
<b>pH:</b>	Not available.
<b>Melting Point / Freezing Point:</b>	29 °C (85 °F) (Pour Point)
<b>Initial Boiling Point:</b>	Not available.
<b>Boiling Range:</b>	Not available.
<b>Flash Point:</b>	> 135 °C (275 °F) (PMCC)
<b>Evaporation Rate:</b>	Not available.
<b>Flammability (solid, gas):</b>	Not applicable.
<b>Lower Flammability Limit:</b>	Approximately 0.6 %
<b>Upper Flammability Limit:</b>	Approximately 7.5 %
<b>Vapor Pressure:</b>	0.1 psia at 38 °C (100 °F) (Reid Vapor Pressure)
<b>Vapor Density:</b>	Not available.
<b>Relative Density:</b>	0.91 to 0.93 (Water = 1) at 4 °C (39 °F)
<b>Solubilities:</b>	Insoluble in water.
<b>Partition Coefficient: n-Octanol/Water:</b>	Not available.
<b>Auto-ignition Temperature:</b>	399 °C (750 °F) (estimated)
<b>Decomposition Temperature:</b>	Not available.



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**Viscosity:** 30 to 50 cSt at 50 °C (122 °F)  
**Percent Volatile, wt. %:** Not available.  
**VOC Content, wt. %:** Not available.

### Section 10: STABILITY AND REACTIVITY

**Reactivity:** Contact with incompatible materials. Sources of ignition. Exposure to heat.  
**Chemical Stability:** Stable under normal storage conditions.  
**Possibility of Hazardous Reactions:** None known.  
**Conditions to Avoid:** Contact with incompatible materials. Sources of ignition. Exposure to heat.  
**Incompatible Materials:** Strong acids. Bases. Strong oxidizers.  
**Hazardous Decomposition Products:** Oxides of Carbon. Oxides of Sulfur.

### Section 11: TOXICOLOGICAL INFORMATION

**LIKELY ROUTES OF EXPOSURE:** Eye contact. Skin contact. Inhalation. Ingestion. Skin absorption.

#### ACUTE EXPOSURE

##### PRODUCT TOXICITY

**Oral:** Not available.  
**Dermal:** Not available.  
**Inhalation:** Not available.

##### COMPONENT TOXICITY

Component	CAS No.	LD <sub>50</sub> oral	LD <sub>50</sub> dermal	LC <sub>50</sub>
Distillates (petroleum), light vacuum	70592-77-7	Not available.	Not available.	Not available.
Polycyclic Aromatic Hydrocarbons	130498-29-2	Not available.	Not available.	Not available.
Hydrogen Sulfide	7783-06-4	Not available.	Not available.	444 ppm (rat); 4H

**Target Organs:** Skin. Eyes. Gastrointestinal tract. Respiratory system. Lungs. Blood. Cardiovascular system. Bone marrow. Liver. Central nervous system.

#### SYMPTOMS (including delayed and immediate effects)

**Inhalation:** May cause respiratory irritation. Signs/symptoms may include cough, sneezing, nasal discharge, headache, hoarseness, and nose and throat pain. This product contains trace amounts of Hydrogen Sulfide which may accumulate in confined



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spaces. Inhalation of Hydrogen Sulfide may cause loss of sense of smell, major irritation of the respiratory tract, headache, nausea, vomiting, dizziness, and fluid buildup in the lungs (pulmonary edema), which can be fatal. At 300 ppm unconsciousness may occur after 20 minutes. From 300 to 500 ppm, death can occur within 1 to 4 hours of continuous exposure. At 500 ppm the respiratory system is paralyzed, the victim collapses almost instantaneously, and death can occur after exposure of only 30 to 60 minutes. Above 500 ppm Hydrogen Sulfide may cause immediate loss of consciousness; death is rapid, and possibly immediate.

**Eye:** May cause eye irritation. Signs/symptoms may include redness, swelling, pain, tearing, and blurred or hazy vision. Hot liquid product may cause serious thermal burns on direct contact.

**Skin:** May cause skin irritation. Signs/symptoms may include localized redness, swelling, and itching. Hot liquid product may cause serious thermal burns on direct contact.

**Ingestion:** Hot product may cause thermal burns. Signs/symptoms may include severe mouth, throat and abdominal pain, nausea, vomiting, and diarrhea, blood in the feces and/or vomitus may also be seen.

**Skin Sensitization:** Not available.

**Respiratory Sensitization:** Not available.

**Medical Conditions Aggravated By Exposure:** Not available.

### CHRONIC EFFECTS (from short and long-term exposure)

**Target Organs:** Skin. Eyes. Gastrointestinal tract. Respiratory system. Lungs. Blood. Cardiovascular system. Bone marrow. Liver. Central nervous system.

**Chronic Effects:** Prolonged or repeated contact may dry skin and cause irritation. This product contains Polycyclic Aromatic Hydrocarbons. Prolonged contact with these compounds has been associated with the induction of skin and lung tumours, anemia, disorders of the liver, bone marrow and lymphoid tissues. Hydrogen Sulfide may reduce lung function; cause neurological effects such as headaches, nausea, depression and personality changes; eye and mucous membrane irritation; and damage to cardiovascular system.

**Carcinogenicity:** May cause cancer. This material contains Polycyclic Aromatic Hydrocarbons (PAHs), some of which are animal carcinogens.

#### Component Carcinogenicity

Component	ACGIH	IARC	NTP	OSHA	Prop 65
Polycyclic Aromatic Hydrocarbons	A2	Not listed.	List 2	OSHA Carcinogen.	Listed.





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**Mutagenicity:** Not available.  
**Reproductive Effects:** Not available.  
**Developmental Effects**  
**Teratogenicity:** Not available.  
**Embryotoxicity:** Not available.  
**Toxicologically Synergistic Materials:** Not available.

### Section 12: ECOLOGICAL INFORMATION

**Ecotoxicity:** This material will float on water and resulting runoff may create a fire hazard.  
**Persistence / Degradability:** Not available.  
**Bioaccumulation / Accumulation:** Not available.  
**Mobility in Environment:** Not available.  
**Other Adverse Effects:** Not available.

### Section 13: DISPOSAL CONSIDERATIONS

**Disposal Instructions:** Disposal should be in accordance with applicable regional, national and local laws and regulations. Local regulations may be more stringent than regional or national requirements.

### Section 14: TRANSPORT INFORMATION

REGULATORY INFORMATION	ID NUMBER	EMERGENCY RESPONSE GUIDEBOOK	PROPER SHIPPING NAME	CLASS	PACKING GROUP	PLACARD
DOT Classification	Not applicable.	Not applicable.	Not regulated.	Not applicable.	Not applicable.	Not applicable.
TDG Classification	Not applicable.	Not applicable.	Not regulated.	Not applicable.	Not applicable.	Not applicable.
IATA/ICAO	Not applicable.	Not applicable.	Not regulated.	Not applicable.	Not applicable.	Not applicable.

### Section 15: REGULATORY INFORMATION

#### CHEMICAL INVENTORIES

#### US (TSCA)

The components of this product are in compliance with the chemical notification requirements of TSCA.



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### Canada (DSL)

The components of this product are in compliance with the chemical notification requirements of the NSN Regulations under CEPA, 1999.

### FEDERAL REGULATIONS

#### Canada

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

**WHMIS Classification:** Class D2A - Carcinogenicity.

**Hazard Symbols:**



#### United States

This SDS has been prepared to meet the U.S. OSHA Hazard Communication Standard, 29 CFR 1910.1200.

#### SARA Title III

Component	Section 302 (EHS) TPQ (lbs.)	Section 304 EHS RQ (lbs.)	CERCLA RQ (lbs.)	Section 313	RCRA CODE	CAA 112(r) TQ (lbs.)
Polycyclic Aromatic Hydrocarbons	Not listed.	Not listed.	Not listed.	313	Not listed.	Not listed.
Hydrogen Sulfide	500	100	100	313	U135	10000

#### SARA SECTION 311/312 - EPA HAZARD CATEGORIES

<u>ACUTE HEALTH</u>	<u>CHRONIC HEALTH</u>	<u>FIRE</u>	<u>SUDDEN RELEASE OF PRESSURE</u>	<u>REACTIVE</u>
X	X	-	-	-

#### State Regulations

##### California

**California Prop 65:** WARNING: This product contains chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.

#### Component

Polycyclic Aromatic Hydrocarbons

#### Type of Toxicity

cancer



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**Section 16: OTHER INFORMATION**

**Disclaimer:**

The information contained in this document applies to this specific material as supplied. It may not be valid for this material if it is used in combination with any other materials. It is the user's responsibility to satisfy oneself as to the suitability and completeness of this information for his own particular use.

**Date of Preparation of SDS:** December 2, 2016

**SDS Expiry Date (Canada):** December 1, 2019

**Version:** 1.1

**GHS SDS Prepared by:** Deerfoot Consulting Inc.

**Phone: (403) 720-3700**