

U. S. OIL & REFINING CO.

M A T E R I A L   S A F E T Y   D A T A   S H E E T

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IFO-380

MSDS No. 422380

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U. S. OIL & REFINING CO.  
3001 Marshall Ave.  
Tacoma, WA 98421

EMERGENCY ASSISTANCE:  
COMPANY: (253) 383-1651  
CHEMTREC: (800) 424-9300

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

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**1. GENERAL**  
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Trade Name: IFO-380  
Other Names: FUEL OIL

Chemical Family: HYDROCARBON  
Generic Name: FUEL OIL  
DOT Hazard Class: COMBUSTIBLE LIQUID  
Proper Shipping Name: FUEL OIL  
DOT UN ID No.: UN 1993

NFPA Hazard Rating: HEALTH: 2  
FIRE: 2  
REACTIVITY: 0  
SPECIAL:

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**2. PRODUCT COMPONENTS**  
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| Component   | CAS Number | Percent           |
|---|------------|-------------------|
| RESIDUAL FUEL OIL CONSISTS OF MIXTURES OF STRAIGHT RUN AND RESIDUAL FRACTIONS. THIS PRODUCT IS LIKELY TO CONTAIN TRACE AMOUNTS OF HYDROGEN SULFIDE (A TOXIC GAS). | 68476-33-5 | 100 (AP) VARIABLE |

COMPONENTS INCLUDE:

|                          |            |             |
|--------------------------|------------|-------------|
| 1. PETROLEUM RESIDUUM    | 68558-00-4 | 0-80 (AP)   |
| 2. PETROLEUM DISTILLATES | 68476-34-6 | 20-100 (AP) |
| 3. HYDROGEN SULFIDE      | 77831-06-4 | TRACE       |

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**3. OCCUPATIONAL EXPOSURE LIMITS**  
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| Substance                             | Value                | Time/Type   | Date | Source |
|---------------------------------------|----------------------|-------------|------|--------|
| OIL MIST, MINERAL<br>(SEE SECTION 11) | 5 MG/M <sup>3</sup>  | 8 Hr PEL    | 1989 | OSHA   |
|                                       | 10 MG/M <sup>3</sup> | 15 Min STEL | 1983 | ACGIH  |
| HYDROGEN SULFIDE                      | 10 PPM               | 8 Hr PEL    | 1989 | OSHA   |
|                                       | 15 PPM               | 15 Min STEL | 1989 | OSHA   |

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**4. HEALTH INFORMATION**  
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**Summary:** SKIN CONTACT WITH HOT OIL MAY CAUSE SEVERE THERMAL BURNS.

**Routes of Exposure**

**Signs and Symptoms**

**Inhalation** NO SIGNIFICANT SIGNS OR SYMPTOMS INDICATIVE OF ANY ADVERSE HEALTH EFFECTS ARE EXPECTED TO OCCUR UPON SHORT-TERM EXPOSURES.

**Eye Contact** EYE IRRITATION MAY RESULT FROM CONTACT WITH LIQUID, MISTS, AND/OR VAPORS.

**Skin Contact** SKIN IRRITATION MAY OCCUR UPON PROLONGED OR REPEATED SKIN CONTACT.

**Ingestion** NAUSEA, VOMITING, DIARRHEA, AND RESTLESSNESS

**Overexposure Effects:** THIS PRODUCT MAY CONTAIN AROMATIC OILS. ALTHOUGH THERE IS NO SPECIFIC EVIDENCE THAT THIS MATERIAL IS CARCINOGENIC TO HUMANS, EXPERIMENTS HAVE SHOWN THAT SIMILAR MATERIALS CONTAINING POLYCYCLIC AROMATIC HYDROCARBONS HAVE CAUSED SKIN CANCER ON TEST ANIMALS.

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**5. FIRE AND EXPLOSION**  
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**Flash Point (Method):** GT 150 °F (PMCC) SEE BELOW

**Autoignition Temperature (Method):** AP 500°F (ESTIMATE)

**Flammable Limits (% Vol. in air) at Normal Atmospheric Temperature and Pressure** LOWER: AP 0.6  
 UPPER: AP 7.5

**Unusual Fire and Explosion Hazards:**

MODERATELY COMBUSTIBLE! WHEN HEATED ABOVE THE FLASH POINT, THIS MATERIAL WILL RELEASE FLAMMABLE VAPORS WHICH IF EXPOSED TO A SOURCE OF IGNITION CAN BURN OR BE EXPLOSIVE IN CONFINED SPACES. MISTS OR SPRAYS MAY BE FLAMMABLE AT TEMPERATURES BELOW THE NORMAL FLASH POINT. KEEP AWAY FROM HEAT AND OPEN FLAME.

**Extinguishing Media:**

DRY CHEMICAL, HALON, AND CARBON DIOXIDE. FOAM AND WATER FOG ARE EFFECTIVE, BUT MAY CAUSE FROTHING.

**Special Firefighting Procedures:**

FOR FIRES INVOLVING THIS MATERIAL, DO NOT ENTER ANY ENCLOSED FIRE SPACE WITHOUT PROPER PROTECTIVE EQUIPMENT, INCLUDING SELF-CONTAINED BREATHING APPARATUS. COOL TANKS AND CONTAINERS EXPOSED TO FIRE WITH WATER. IMPROPER USE OF WATER AND EXTINGUISHING MEDIA CONTAINING WATER MAY CAUSE FROTHING WHICH CAN SPREAD THE FIRE OVER A LARGER AREA.

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**6. EMPLOYEE PROTECTION**

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**Respiratory:** NONE IS NEEDED UNDER NORMAL CONDITIONS WITH ADEQUATE VENTILATION. IF EXPOSURE EXCEEDS THE CONTROL LIMITS, RESPIRATORY PROTECTIVE EQUIPMENT WHICH MEETS 29 CFR 1910.134 AND IS NIOSH/MSHA APPROVED MUST BE WORN.

**Ventilation:** USE ADEQUATE VENTILATION TO KEEP OIL MISTS/VAPORS BELOW THE OCCUPATIONAL EXPOSURE LIMITS. SPECIAL VENTILATION MAY BE REQUIRED FOR HANDLING CONDITIONS AT ELEVATED TEMPERATURES.

**Eye:** EYE PROTECTION (CHEMICAL-TYPE GOGGLES AND/OR FACE SHIELD) SHOULD BE WORN WHENEVER THERE IS A LIKELIHOOD OF SPLASHING OR SPRAYING LIQUID. CONTACT LENSES SHOULD NOT BE WORN. EYE WASH WATER SHOULD BE PROVIDED.

**Skin:** WHEN SKIN CONTACT IS POSSIBLE, AND ESPECIALLY WHEN HANDLING HOT MATERIAL, PROTECTIVE CLOTHING SUCH AS GLOVES, IMPERVIOUS APRON, LONG-SLEEVES, BOOTS, AND FACE PROTECTION MUST BE WORN.

**Other:** USE GOOD PERSONAL HYGIENE PRACTICES. IN CASE OF SKIN CONTACT, WASH WITH MILD SOAP AND WATER OR A WATERLESS HAND CLEANER. IMMEDIATELY REMOVE SOILED CLOTHING AND WASH THOROUGHLY BEFORE REUSE. DISCARD OIL-SOAKED LEATHER GOODS.

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**7. EMERGENCY AND FIRST AID**

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- Inhalation:** IMMEDIATELY REMOVE FROM CONTAMINATED AREA TO FRESH AIR. FOR RESPIRATORY DISTRESS, GIVE OXYGEN OR ADMINISTER CPR (CARDIOPULMONARY RESUSCITATION), IF NECESSARY. OBTAIN PROMPT MEDICAL ATTENTION.
- Eye Contact:** FLUSH WITH CLEAN LOW-PRESSURE WATER FOR AT LEAST 15 MINUTES. IF IRRITATION PERSISTS, OBTAIN MEDICAL ATTENTION.
- Skin Contact:** REMOVE CONTAMINATED CLOTHING. WASH AFFECTED AREA THOROUGHLY WITH SOAP AND WATER. IF IRRITATION PERSISTS, SEEK MEDICAL ATTENTION. WASH CLOTHING THOROUGHLY BEFORE REUSE, BUT DISCARD CONTAMINATED LEATHER GOODS. HOT LIQUID MAY CAUSE BURNS; FLUSH WITH COOL LOW-PRESSURE WATER AND GET MEDICAL TREATMENT.
- Ingestion:** DO NOT INDUCE VOMITING, SINCE ASPIRATION INTO THE LUNGS WILL CAUSE CHEMICAL PNEUMONIA. MUST OBTAIN MEDICAL ATTENTION PROMPTLY.

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**8. SPILL AND DISPOSAL**

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**Actions if Material is Spilled or Leaked:**

CONTAIN SPILL. REMOVE ALL IGNITION SOURCES AND SAFELY STOP FLOW OF SPILL. SPILL MAY CREATE SLIPPING HAZARDS. IN URBAN AREAS CLEAN UP ASAP; IN NATURAL ENVIRONMENTS, SEEK ADVICE FROM ECOLOGISTS. EVACUATE ALL NON-ESSENTIAL PERSONNEL. USE PROPER PROTECTIVE EQUIPMENT. PADS/ABSORBENT MATERIAL CAN BE USED. THIS MATERIAL WILL FLOAT ON WATER AND RESULTING RUNOFF MAY CREATE A FIRE HAZARD. NOTIFY THE NATIONAL RESPONSE CENTER (800/424-8802) AND COMPLY WITH ALL LAWS. THE SPILLED MATERIAL AND ANY WATER OR SOIL WHICH IT HAS CONTACTED MAY BE HAZARDOUS TO ANIMAL/AQUATIC LIFE.

**Waste Disposal Methods:**

MAXIMIZE PRODUCT RECOVERY FOR REUSE PRIOR TO DISPOSAL. CONDITIONS OF USE MAY CAUSE THIS MATERIAL TO BECOME A "HAZARDOUS WASTE" AS DEFINED BY STATE OR FEDERAL LAWS. USE APPROVED TREATMENT, TRANSPORTERS, AND DISPOSAL SITES IN COMPLIANCE WITH ALL APPLICABLE LAWS. IF SPILL IS INTRODUCED INTO A WASTEWATER SYSTEM, THE CHEMICAL AND BIOLOGICAL OXYGEN DEMAND WILL LIKELY INCREASE. POTENTIAL DISPOSAL METHODS INCLUDE LAND FARMING, INCINERATION AND LAND DISPOSAL, IF PERMITTED.

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**9. PHYSICAL AND CHEMICAL DATA**  
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**Specific Gravity (H<sub>2</sub>O = 1 @ 39.2°F):** AP 0.96 to 1.0

**Hazardous Polymerization:** NOT EXPECTED TO OCCUR

**Evaporation Rate (Ratio of Time):** N/AP

**Vapor Pressure:** (REID-PSIA AT 100°F) LT 0.1

**Viscosity Units, Temp. (Method):** 320 TO 380 CST AT 122 °F

**Dry Point:** N/AP

**Volatile Characteristics:** SLIGHT

**Other Physical and Chemical Properties:** BLENDED TO MEET REGULATORY AND CUSTOMER REQUIREMENTS INCLUDING VISCOSITY, POUR, SULFUR, AND HEAVY METALS.

**Appearance and Odor:** BROWN TO BLACK COLORED VISCOUS LIQUID; SLIGHTLY CRACKED OR BURNT TO ASPHALTIC ODOR.

**Conditions to Avoid:** HEAT, AND OPEN FLAME

**Materials to Avoid:** STRONG ACIDS, ALKALIES, AND STRONG OXIDIZERS.

**Hazardous Decomposition Products:** BURNING OR EXCESSIVE HEATING MAY PRODUCE CARBON MONOXIDE AND OTHER HARMFUL GASES AND VAPORS INCLUDING OXIDES AND/OR OTHER COMPOUNDS OF SULFUR AND NITROGEN.

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**10. SARA TITLE III**  
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**Extremely Hazardous Substances for Emergency Response and Planning:**

| Component | CAS Number | Percent | TPQ(lbs) | RQ(lbs) |
|-----------|------------|---------|----------|---------|
| NONE      |            |         |          |         |

**Toxic Chemicals for Emission Reporting**

| Component | CAS Number | Percent (Typical) |
|-----------|------------|-------------------|
| NONE      |            |                   |

**EPA Hazard Classification:**  
 Acute Health Hazard:  
 Chronic Health Hazard:  
 Fire Hazard: X  
 Pressure Hazard:  
 Reactive Hazard:  
 Not Applicable:

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**11. ADDITIONAL PRECAUTIONS**


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**Handling & Storage:**

PARTS AND EQUIPMENT USING OR CONTAINING THIS MATERIAL MUST BE STEAM-CLEANED PRIOR TO ALL MAINTENANCE PROCEDURES. ALL MATERIAL SAMPLING SHOULD BE CONDUCTED IN A MANNER WHICH AVOIDS VAPOR INHALATION OR SKIN CONTACT. SPECIAL CARE AND LABELING MUST BE PROVIDED DURING TRANSPORTATION/HANDLING OF LABORATORY SAMPLES. USE GOOD PERSONAL HYGIENE PRACTICES. WASH HANDS WITH PLENTY OF SOAP AND WATER BEFORE EATING, DRINKING, SMOKING OR USE OF TOILET FACILITIES. DO NOT USE SOLVENTS (GASOLINE, KEROSENE, ETC.) OR ABRASIVE SKIN CLEANERS. OIL-SOAKED CLOTHING MUST BE PROMPTLY REMOVED AND LAUNDERED BEFORE REUSE. DISCARD CONTAMINATED LEATHER GOODS.

**General Comments:**

SPECIFIC EXPOSURE STANDARDS/CONTROL LIMITS FOR THIS MATERIAL HAVE NOT BEEN AGREED UPON; THEREFORE, ACGIH TLV GUIDELINES (SEE SECTION 3) ARE SUGGESTED FOR INTERIM USE UNTIL SPECIFIC STANDARDS/CONTROL LIMITS ARE ADOPTED.

SOME OF THE INFORMATION PRESENT AND CONCLUSIONS DRAWN HEREIN ARE FROM SOURCES OTHER THAN DIRECT TEST DATA ON THE MIXTURE ITSELF.

-----**NOTE**-----Qualifications

|                          |                           |                                 |
|--------------------------|---------------------------|---------------------------------|
| <b>EQ</b> = Equal        | <b>AP</b> = Approximately | <b>N/AV</b> = Not Available     |
| <b>LT</b> = Less Than    | <b>UK</b> = Unknown       | <b>N/AP</b> = Not Applicable    |
| <b>GT</b> = Greater than | <b>TR</b> = Trace         | <b>N/DA</b> = No Data Available |

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