

# SAFETY DATA SHEET

## 1. Identification

<b>Product identifier</b>	<b>Residual Fuel Oil</b>
<b>Other means of identification</b>	
<b>SDS number</b>	EJ-474-GHS
<b>Synonyms</b>	Bunker C, Bunker fuels, utility fuel oil, heavy fuel oil, residual fuel oil, #6 residual fuel oil blendstock
<b>Recommended use</b>	Fuel for industrial burners, boiler fuel for electric utilities and bunker fuel for ocean going vessels.
<b>Recommended restrictions</b>	None known.
<b>Manufacturer/Importer/Supplier/Distributor information</b>	
<b>Manufacturer</b>	Enjet, LLC
<b>Address</b>	5373 W. Alabama, Suite 502 Houston, Texas 77056
<b>Telephone</b>	
<b>Emergency phone number</b>	CHEMTREC USA +1 - (800) 424-9300 Enjet, LLC +1 - (713) 552-1559

## 2. Hazard(s) identification

<b>Physical hazards</b>	Flammable liquids	Category 4
<b>Health hazards</b>	Acute toxicity, inhalation	Category 4
	Carcinogenicity	Category 2
	Reproductive toxicity	Category 2
	Specific target organ toxicity, repeated exposure	Category 2 (Thymus, Liver, Blood)
	Aspiration hazard	Category 1
<b>OSHA defined hazards</b>	Not classified.	

### Label elements



<b>Signal word</b>	Danger
<b>Hazard statement</b>	Combustible liquid. May be fatal if swallowed and enters airways. Harmful if inhaled. Suspected of causing cancer. Suspected of damaging fertility or the unborn child. May cause damage to organs (Thymus, Liver, Blood) through prolonged or repeated exposure.
<b>Precautionary statement</b>	
<b>Prevention</b>	Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Keep away from flames and hot surfaces-No smoking. Do not breathe mist or vapor. Use only outdoors or in a well-ventilated area. Wear protective gloves/protective clothing/eye protection/face protection.
<b>Response</b>	If swallowed: Immediately call a poison center/doctor. If inhaled: Remove person to fresh air and keep comfortable for breathing. If exposed or concerned: Get medical advice/attention. Call a poison center/doctor if you feel unwell. Do NOT induce vomiting. In case of fire: Use appropriate media to extinguish.
<b>Storage</b>	Store in a well-ventilated place. Keep cool. Store locked up.
<b>Disposal</b>	Dispose of contents/container in accordance with local/regional/national/international regulations.
<b>Hazard(s) not otherwise classified (HNOC)</b>	Static accumulating flammable liquid. Gas may evolve and accumulate in confined spaces.
<b>Supplemental information</b>	None.

### 3. Composition/information on ingredients

Chemical name	CAS number	%
Clarified oils (Petroleum), catalytic cracked	64741-62-4	0-100
Distillates (petroleum), petroleum residues vacuum	68955-27-1	0-100
Fuel oil, residual	68476-33-5	0-100
Hydrogen sulfide	7783-06-4	0-1

\*Designates that a specific chemical identity and/or percentage of composition has been withheld as a trade secret.

### 4. First-aid measures

<b>Inhalation</b>	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Oxygen or artificial respiration if needed. Call a POISON CENTER or doctor/physician if you feel unwell.
<b>Skin contact</b>	Wash off with soap and water. Get medical attention if irritation develops and persists.
<b>Eye contact</b>	Rinse with water. Get medical attention if irritation develops and persists.
<b>Ingestion</b>	Call a physician or poison control center immediately. Rinse mouth. Do not induce vomiting. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs.
<b>Most important symptoms/effects, acute and delayed</b>	Aspiration may cause pulmonary edema and pneumonitis. Direct contact with eyes may cause temporary irritation. Jaundice. Prolonged exposure may cause chronic effects.
<b>Indication of immediate medical attention and special treatment needed</b>	Provide general supportive measures and treat symptomatically. Keep victim warm. Keep victim under observation. Symptoms may be delayed.
<b>General information</b>	IF exposed or concerned: Get medical advice/attention. If you feel unwell, seek medical advice (show the label where possible). Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance.

### 5. Fire-fighting measures

<b>Suitable extinguishing media</b>	Water fog. Foam. Dry chemical powder. Carbon dioxide (CO <sub>2</sub> ).
<b>Unsuitable extinguishing media</b>	Do not use water jet as an extinguisher, as this will spread the fire.
<b>Specific hazards arising from the chemical</b>	The product is combustible, and heating may generate vapors which may form explosive vapor/air mixtures. During fire, gases hazardous to health may be formed.
<b>Special protective equipment and precautions for firefighters</b>	Self-contained breathing apparatus and full protective clothing must be worn in case of fire.
<b>Fire fighting equipment/instructions</b>	In case of fire and/or explosion do not breathe fumes. Move containers from fire area if you can do so without risk.
<b>Specific methods</b>	Use standard firefighting procedures and consider the hazards of other involved materials.
<b>General fire hazards</b>	Combustible liquid.

### 6. Accidental release measures

<b>Personal precautions, protective equipment and emergency procedures</b>	Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Wear appropriate protective equipment and clothing during clean-up. Do not breathe the mist or vapor. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.
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**Methods and materials for containment and cleaning up**

Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Keep combustibles (wood, paper, oil, etc.) away from spilled material.

Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Cover with plastic sheet to prevent spreading. Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal. Following product recovery, flush area with water.

Small Spills: Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal. Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination.

Never return spills to original containers for re-use. For waste disposal, see section 13 of the SDS. Avoid discharge into drains, water courses or onto the ground.

**Environmental precautions**

**7. Handling and storage**

**Precautions for safe handling**

Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Keep away from open flames, hot surfaces and sources of ignition. When using do not smoke. Do not breathe mist or vapor. Avoid prolonged exposure. Pregnant or breastfeeding women must not handle this product. Should be handled in closed systems, if possible. Use only outdoors or in a well-ventilated area. Wear appropriate personal protective equipment. Wash hands thoroughly after handling. Observe good industrial hygiene practices.

**Conditions for safe storage, including any incompatibilities**

Store locked up. Keep away from heat, sparks and open flame. Store in a cool, dry place out of direct sunlight. Keep container tightly closed. Store in a well-ventilated place. Keep in an area equipped with sprinklers. Store away from incompatible materials (see Section 10 of the SDS).

**8. Exposure controls/personal protection**

**Occupational exposure limits**

**US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)**

Components	Type	Value	Form
Clarified oils (Petroleum), catalytic cracked (CAS 64741-62-4)	PEL	5 mg/m3	Mist.
Fuel oil, residual (CAS 68476-33-5)	PEL	5 mg/m3	Mist.

**US. OSHA Table Z-2 (29 CFR 1910.1000)**

Components	Type	Value
Hydrogen sulfide (CAS 7783-06-4)	Ceiling	20 ppm

**US. ACGIH Threshold Limit Values**

Components	Type	Value	Form
Clarified oils (Petroleum), catalytic cracked (CAS 64741-62-4)	TWA	5 mg/m3	Inhalable fraction.
Fuel oil, residual (CAS 68476-33-5)	TWA	5 mg/m3	Inhalable fraction.
Hydrogen sulfide (CAS 7783-06-4)	STEL	5 ppm	
	TWA	1 ppm	

**US. NIOSH: Pocket Guide to Chemical Hazards**

Components	Type	Value	Form
Clarified oils (Petroleum), catalytic cracked (CAS 64741-62-4)	STEL	10 mg/m3	Mist.
	TWA	5 mg/m3	Mist.
Fuel oil, residual (CAS 68476-33-5)	STEL	10 mg/m3	Mist.
	TWA	5 mg/m3	Mist.
Hydrogen sulfide (CAS 7783-06-4)	Ceiling	15 mg/m3	
		10 ppm	

<b>Biological limit values</b>	No biological exposure limits noted for the ingredient(s).
<b>Appropriate engineering controls</b>	Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.
<b>Individual protection measures, such as personal protective equipment</b>	
<b>Eye/face protection</b>	Wear safety glasses with side shields (or goggles).
<b>Skin protection</b>	
<b>Hand protection</b>	Wear protective gloves.
<b>Other</b>	Wear suitable protective clothing.
<b>Respiratory protection</b>	If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn.
<b>Thermal hazards</b>	Wear appropriate thermal protective clothing, when necessary.
<b>General hygiene considerations</b>	When using do not smoke. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

## 9. Physical and chemical properties

### Appearance

<b>Physical state</b>	Liquid. Viscous.
<b>Form</b>	Oil. Brown to
<b>Color</b>	black.
<b>Odor</b>	Cracked petroleum and/or asphalt-type odor
<b>Odor threshold</b>	Not available.
<b>pH</b>	Not available.
<b>Melting point/freezing point</b>	Not available.
<b>Initial boiling point and boiling range</b>	> 500 °F (> 260 °C)
<b>Flash point</b>	> 140.0 °F (> 60.0 °C)
<b>Evaporation rate</b>	Not available.
<b>Flammability (solid, gas)</b>	Not applicable.

### Upper/lower flammability or explosive limits

<b>Explosive limit - lower (%)</b>	3.9 % v/v
<b>Explosive limit - upper (%)</b>	20.1 % v/v
<b>Vapor pressure</b>	0.2 mm Hg at 70°F/21°C
<b>Vapor density</b>	Not available.
<b>Relative density</b>	0.9 - 1.07
<b>Relative density temperature</b>	60 °F (15.56 °C)
<b>Solubility(ies)</b>	
<b>Solubility (water)</b>	Insoluble
<b>Partition coefficient (n-octanol/water)</b>	Not available.
<b>Auto-ignition temperature</b>	765 °F (407.22 °C)
<b>Decomposition temperature</b>	Not available.
<b>Viscosity</b>	96 cSt
<b>Viscosity temperature</b>	122 °F (50 °C)
<b>Other information</b>	
<b>Explosive properties</b>	Not explosive.
<b>Oxidizing properties</b>	Not oxidizing.

## 10. Stability and reactivity

<b>Reactivity</b>	The product is stable and non-reactive under normal conditions of use, storage and transport.
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<b>Chemical stability</b>	Material is stable under normal conditions.
<b>Possibility of hazardous reactions</b>	No dangerous reaction known under conditions of normal use.
<b>Conditions to avoid</b>	Avoid heat, sparks, open flames and other ignition sources. Contact with incompatible materials.
<b>Incompatible materials</b>	Strong oxidizing agents.
<b>Hazardous decomposition products</b>	No hazardous decomposition products are known.

## 11. Toxicological information

### Information on likely routes of exposure

<b>Inhalation</b>	Harmful if inhaled. May cause damage to organs through prolonged or repeated exposure by inhalation.
<b>Skin contact</b>	No adverse effects due to skin contact are expected.
<b>Eye contact</b>	Direct contact with eyes may cause temporary irritation.
<b>Ingestion</b>	Droplets of the product aspirated into the lungs through ingestion or vomiting may cause a serious chemical pneumonia.

**Symptoms related to the physical, chemical and toxicological characteristics**      Aspiration may cause pulmonary edema and pneumonitis. Jaundice.

### Information on toxicological effects

**Acute toxicity**      May be fatal if swallowed and enters airways. Harmful if inhaled.

Components	Species	Test Results
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Clarified oils (Petroleum), catalytic cracked (CAS 64741-62-4)

**Acute**

*Inhalation*

LC50	Rat	> 320 mg/m3, 4 Hours
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Hydrogen sulfide (CAS 7783-06-4)

**Acute**

*Inhalation*

LC50	Rat	> 0.38 mg/l, 960 Minutes
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**Skin corrosion/irritation**      Prolonged skin contact may cause temporary irritation.

**Serious eye damage/eye irritation**      Direct contact with eyes may cause temporary irritation.

### Respiratory or skin sensitization

**Respiratory sensitization**      Not a respiratory sensitizer.

**Skin sensitization**      This product is not expected to cause skin sensitization.

**Germ cell mutagenicity**      No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.

**Carcinogenicity**      Suspected of causing cancer.

#### IARC Monographs. Overall Evaluation of Carcinogenicity

Clarified oils (Petroleum), catalytic cracked (CAS 64741-62-4)	2B Possibly carcinogenic to humans.
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Fuel oil, residual (CAS 68476-33-5)	2B Possibly carcinogenic to humans.
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#### NTP Report on Carcinogens

Not listed.

#### OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

**Reproductive toxicity**      Suspected of damaging fertility or the unborn child.

**Specific target organ toxicity - single exposure**      Not classified.

**Specific target organ toxicity - repeated exposure**      May cause damage to organs (Thymus, Liver, Blood) through prolonged or repeated exposure.

**Aspiration hazard**      May be fatal if swallowed and enters airways.

**Chronic effects** May cause damage to organs through prolonged or repeated exposure. Prolonged inhalation may be harmful.

## 12. Ecological information

**Ecotoxicity** The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

Components	Species	Test Results
Clarified oils (Petroleum), catalytic cracked (CAS 64741-62-4)		
<b>Aquatic</b>		
<i>Chronic</i>		
Fish	NOAEL	Oncorhynchus mykiss
		0.1 mg/l, 28 days
Hydrogen sulfide (CAS 7783-06-4)		
<b>Aquatic</b>		
Fish	LC50	Lake whitefish (Coregonus clupeaformis)
		0.002 mg/l, 96 hours

**Persistence and degradability** No data is available on the degradability of this product.

**Bioaccumulative potential** No data available.

**Mobility in soil** No data available.

**Other adverse effects** No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

## 13. Disposal considerations

**Disposal instructions** Dispose of contents/container in accordance with local/regional/national/international regulations.

**Hazardous waste code** Not regulated.

**Waste from residues / unused products** Not available.

**Contaminated packaging** Not available.

## 14. Transport information

### DOT

**UN number** NA1993  
**UN proper shipping name** Combustible Liquid, N.O.S. (Residual Fuel Oil)  
**Transport hazard class(es)**  
**Class** - Combustible Liquid  
**Subsidiary risk** -  
**Packing group** III  
**Special precautions for user** Not available.

### IATA

Not regulated as dangerous goods.

### IMDG

Not regulated as dangerous goods.

**Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code** Not established.

## 15. Regulatory information

**US federal regulations** This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

### TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

### OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

### CERCLA Hazardous Substance List (40 CFR 302.4)

Hydrogen sulfide (CAS 7783-06-4) LISTED

**Superfund Amendments and Reauthorization Act of 1986 (SARA)**

**Hazard categories**  
 Immediate Hazard - Yes  
 Delayed Hazard - Yes  
 Fire Hazard - Yes  
 Pressure Hazard - No  
 Reactivity Hazard - No

**SARA 302 Extremely hazardous substance**

Chemical name	CAS number	Reportable quantity (pounds)	Threshold planning quantity (pounds)	Threshold planning quantity, lower value (pounds)	Threshold planning quantity, upper value (pounds)
Hydrogen sulfide	7783-06-4	100	500		

**SARA 311/312 Hazardous chemical**  
 No

**SARA 313 (TRI reporting)**  
 Not regulated.

**Other federal regulations****Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List**

Not regulated.

**Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)**

Hydrogen sulfide (CAS 7783-06-4)

**Safe Drinking Water Act (SDWA)**  
 Not regulated.

**US state regulations****US. Massachusetts RTK - Substance List**

Clarified oils (Petroleum), catalytic cracked (CAS 64741-62-4)  
 Fuel oil, residual (CAS 68476-33-5)  
 Hydrogen sulfide (CAS 7783-06-4)

**US. New Jersey Worker and Community Right-to-Know Act**

Clarified oils (Petroleum), catalytic cracked (CAS 64741-62-4)  
 Fuel oil, residual (CAS 68476-33-5)  
 Hydrogen sulfide (CAS 7783-06-4)

**US. Pennsylvania Worker and Community Right-to-Know Law**

Clarified oils (Petroleum), catalytic cracked (CAS 64741-62-4)  
 Fuel oil, residual (CAS 68476-33-5)  
 Hydrogen sulfide (CAS 7783-06-4)

**US. Rhode Island RTK**

Hydrogen sulfide (CAS 7783-06-4)

**US. California Proposition 65**

WARNING: This product contains a chemical known to the State of California to cause cancer.

**US - California Proposition 65 - Carcinogens & Reproductive Toxicity (CRT): Listed substance**

Clarified oils (Petroleum), catalytic cracked (CAS 64741-62-4)  
 Fuel oil, residual (CAS 68476-33-5)

**International Inventories**

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	No
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	No

Country(s) or region	Inventory name	On inventory (yes/no)*
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	No
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

\*A "Yes" indicates this product complies with the inventory requirements administered by the governing country(s).

A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

## 16. Other information, including date of preparation or last revision

Issue date	23-June-2015
Revision date	12-August-2015
Version #	02
HMIS® ratings	Health: 2* Flammability: 2 Physical hazard: 0

### NFPA ratings



### Disclaimer

Enjet, LLC cannot anticipate all conditions under which this information and its product, or the products of other manufacturers in combination with its product, may be used. It is the user's responsibility to ensure safe conditions for handling, storage and disposal of the product, and to assume liability for loss, injury, damage or expense due to improper use. The information in the sheet was written based on the best knowledge and experience currently available.