



24-HOUR EMERGENCY TELEPHONE

SPRAGUE: 603-431-1000

CHEMTREC: 800-424-9300

SDS – SAFETY DATA SHEET

1. Identification

Product Identifier: #4 FUEL OIL

Synonyms: RESIDUAL FUEL OIL #4

Chemical Formula: Not applicable to mixtures

Recommended Use of the Chemical and Restrictions On Use: Industrial Fuel Oil

Manufacturer / Supplier: Sprague Operating Resources LLC

Phone: 603-431-1000

185 International Drive, Portsmouth, NH 03801

Emergency Phone Number: SPRAGUE: 603-431-1000; CHEMTREC: 800-424-9300

2. Hazard(s) Identification

Classification of the Substance or Mixture:

Acute Toxicity, Inhalation - Category 4

Carcinogenicity - Category 1B

Specific Target Organ Toxicity (Repeated Exposure) – Category 2

Acute Aquatic Toxicity – Category 1

Chronic Aquatic Toxicity – Category 1

Risk Phrases:

R20: Harmful by inhalation.

R45: May cause cancer.

R48 / 21: Harmful: Danger of serious damage to health by prolonged exposure in contact with skin.

R50 / 53: Very toxic to aquatic organisms. May cause long-term adverse effects in the aquatic environment.

R66: Repeated exposure may cause skin dryness or cracking.

Label Elements:

Trade Name: #4 FUEL OIL

Signal Word: Danger



Hazard Statements:

H332: Harmful if inhaled.

H350: May cause cancer.

H361: Suspected of damaging fertility or the unborn child.

H373: May cause damage to organs through prolonged or repeated exposure.

H400: Very toxic to aquatic life.

H410: Very toxic to aquatic life with long lasting effects.

Precautionary Statements:

P260: Do not breathe dust / fume / gas / mist / vapors / spray.

P280: Wear protective gloves / protective clothing / eye protection / face protection.

P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER or doctor / physician.

P331: Do not induce vomiting.

P501: Dispose of contents / container to an approved waste disposal plant.

3. Composition / Information on Ingredients

CAS Number: 68476-33-5

EC Number: 270-675-6

Index Number: 649-024-00-9

Molecular Weight: Not applicable to mixtures

Ingredient	CAS Number	Percent	Hazardous	Chemical Characterization
# 4 Fuel Oil *	68476-33-5	> 99%	Yes	Mixture
Polycyclic Hydrocarbons	08-007-452	< 1%	Yes	Substance

* Consisting of a complex mixture of parafinic, olefinic, and naphthenic hydrocarbons, plus fused polycyclic hydrocarbons (C10 and higher) as benzene solubles.

4. First-aid Measures

Inhalation: Remove from vapor to fresh air. If breathing has stopped, give artificial respiration. Maintain airway and blood pressure and administer oxygen, if available. Keep affected person warm and at rest. Qualified personnel should perform administration of oxygen. Get medical attention immediately.

Ingestion: DO NOT INDUCE VOMITING or give anything by mouth to an unconscious person. When vomiting occurs, keep person's head lower than hips to prevent pulmonary aspiration. Get medical attention immediately.

Skin Contact: Remove contaminated clothing. Wash affected area with soap or mild detergent and large amounts of water until no evidence of chemical remains (approximately 15 - 20 minutes.) If irritation develops, seek medical aid.

Eye Contact: Flush eyes immediately with large amounts of water, occasionally lifting upper and lower lids until no evidence of chemical remains (approximately 15-20 minutes). If irritation develops, seek medical aid.

5. Fire-fighting Measures

Fire: Flammable Liquid and Vapor!

Explosion: When mixed with air and exposed to an ignition source, flammable vapors can burn in the open or explode in confined spaces.

CAUTION: Flammable vapor production at ambient temperature in the open is expected to be minimal unless the oil is heated above its flash point. However, industry experience indicates that light hydrocarbon vapors can build up in the headspace of storage tanks at temperatures below the flash point of the oil, presenting a flammability and explosion hazard. Tank headspaces should be regarded a potentially flammable, since the oil's point cannot be regarded as a reliable indicator of the potential flammability in tank headspaces.

Fire Extinguishing Media: Foam, Carbon Dioxide, and Dry Chemical.

Special Information: In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full face piece operated in the pressure demand or other positive pressure mode. Cool exposed containers with water spray. Continue water spray until entire container contents are cool. Withdraw immediately in the event of rising sound from venting safety devices or any discoloration of storage tank due to fire (subject to the fire chief's directions.) Vapors are heavier than air and may travel a considerable distance to a source of ignition and flash back. Runoff to sewer may cause fire or explosion hazard.

6. Accidental Release Measures

Personal Precautions, Protective Equipment and Emergency Procedures: Ventilate area of leak or spill. Remove all sources of ignition. Wear appropriate personal protective equipment as specified in Section 8. Isolate hazard area. Keep unnecessary and unprotected personnel from entering.

Environmental Precautions and Methods and Materials for Containment and Cleaning Up: Keep out of sewers, drainage areas and waterways. If properly trained, proceed with the following measures:

1. For small spills, take up with sand or other absorbent material and place into containers for later disposal.
2. For large spills, dike far ahead of spill to prevent entrance into watercourses and/or ground water. Observe local, state, and federal governmental regulations.

7. Handling and Storage

Precautions for Safe Handling and Conditions for Safe Storage, Including Any Incompatibilities:

Protect against physical damage and excessive temperatures. Store in a well-ventilated location, away from any area where the fire hazard may be acute that complies with NFPA 30 "Flammable and Combustible Liquid Code." Separate from incompatibles, including strong oxidizers.

Containers should be bonded and grounded for transfers to avoid static sparks. Storage and use areas should be No Smoking areas. Use non-sparking type tools and equipment. Containers of this material may be hazardous when empty since they retain product residues (vapors, liquid.) Observe all warnings and precautions listed for the product. Do not pressurize, cut, weld, braze, solder, drill, grind or expose such containers to heat, sparks, flame, static electricity or other sources of ignition: they may explode and cause injury or death.

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."

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."

8. Exposure Controls / Personal Protection

Airborne Exposure Limits:

For #4 Fuel Oil (68476-33-5): mineral oil mist

OSHA Permissible Exposure Limit (PEL): 5 mg/m³

ACGIH Threshold Limit Value (TLV): 5 mg/m³

For Polycyclic Hydrocarbons (08-007-452): benzene soluble as coal tar pitch volatiles

OSHA Permissible Exposure Limit (PEL): 0.2 g/m³

ACGIH Threshold Limit Value (TLV): 0.2 mg/m³

Ventilation System: Indoors: A system of local and / or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, *Industrial Ventilation, A Manual of Recommended Practices*, most recent edition, for details. Use explosion-proof equipment. / Outdoors: Work upwind.

Personal Respirators (NIOSH Approved): If the exposure limit is exceeded and engineering controls are not feasible, use a mask with an organic vapor cartridge or positive pressure air supplied (SCBA) unit. Breathing air quality must meet the requirements of the OSHA respiratory protection standard (29CFR1910.134).

Skin Protection: Gloves and additional protection including impervious boots, apron, or coveralls, as needed in areas of unusual exposure - Neoprene, PVC.

Eye Protection: Use chemical safety goggles and / or a full face shield where splashing is possible.

Hygiene Measures: Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

9. Physical and Chemical Properties

Appearance: Dark, oil liquid

Odor: Characteristic hydrocarbon odor

Odor Threshold: Not determined

pH: No information found

% Volatiles by volume @ 21C (70F): N/A

Melting Point: -1 - 13C (30 - 55F)

Boiling Point / Boiling Range: 220 - 300F (104 - 149C)

Flash Point: 142 - 240 F (61 - 116 C)

Evaporation Rate (BuAC=1): 0.01

Flammability: Flammable Liquid and Vapor!

Upper / Lower Flammability or Explosive Limits: Upper – 5.0 / Lower – 1.0

Vapor Pressure (mm Hg): 0.1

Vapor Density (Air=1): 6

Relative Density: 1.01 - 1.07 g/cm³ at 15C (59F)

Solubility: Insoluble

Partition Coefficient: n-octanol / water: Not determined

Auto-ignition Temperature: > 20.5 mm²/s at 40C

Decomposition Temperature: Not determined

Viscosity: > 420 mm²/s @ 50C

10. Stability and Reactivity

Reactivity and / or Chemical Stability: Stable under ordinary conditions of use and storage at normal temperatures and pressures.

Possibility of Hazardous Reactions and Conditions to Avoid: Heat, flames, ignition sources and incompatibles.

Incompatible Materials: May explode or react violently when exposed to oxidizing materials.

Hazardous Decomposition Products: Thermal decomposition may release various hydrocarbons and hydrocarbon derivatives including carbon dioxide, carbon monoxide, water, organic acids, and aldehydes.

11. Toxicological Information

Potential Health Effects:

Inhalation: Mist or vapor may cause respiratory tract irritation. CNS depressant. High levels may cause giddiness, headache, dizziness, nausea, vomiting, and lack of coordination, narcosis, stupor, coma, and unconsciousness.

Ingestion: Irritation, giddiness, vertigo, headache, anesthetic stupor, CNS depression, coma and death.

Skin Contact: Drying, cracking and defatting dermatitis. Direct contact may cause extreme irritation with severe erythema and edema with blistering and open sores. Absorption of large amounts may result in narcosis.

Eye Contact: Irritation is possible. However, animal studies indicate that irritation is unlikely.

Chronic Exposure:

Inhalation: Prolonged exposure may cause dizziness, weakness, weight loss, anemia, nervousness, and pains in the limbs, peripheral numbness, and paresthesia. Renal failure possible. Degenerative changes of liver and kidneys may occur after prolonged exposure to high concentrations.

Skin Contact: Repeated or prolonged exposure may cause irritation, dermatitis, and a rash of pimples and spots.

Carcinogenicity: Possible human carcinogen. Causes cancer in laboratory animals.

Reproductive Toxicity: Reproductive and growth-related effects of fuel oil are not known.

Specific Target Organ Toxicity - Single Exposure (Globally Harmonized System:) No data available.

Specific Target Organ Toxicity - Repeated Exposure (Globally Harmonized System:) No data available.

Acute Toxicity:

LD50 Oral - rat - 5,500 mg/kg

LC50 Inhalation - rat - 4 h - 7.64 mg/l

LD50 Dermal - rat - > 2,000 mg/kg

12. Ecological Information

Ecotoxicity: Very toxic to aquatic life with long lasting effects.

For #4 Fuel Oil (68476-33-5):

Toxicity to fish: LL50: 79 mg/l - 96 h (Rainbow Trout)

Toxicity to daphnia and other aquatic invertebrates: EL50: 2 mg/l – 48 h (Water Flea)

Toxicity to fish (Chronic Toxicity): NOEC: 0.1 mg/l* (Based on Quantitative structure-activity relationship estimation.)

Toxicity to daphnia and other aquatic invertebrates (Chronic Toxicity): NOEL: 0.27 mg/l*

* Based on Quantitative structure-activity relationship estimation.

Persistence and Degradability: Not expected to be hydrolytically unstable. Not expected to be biodegradable.

Bioaccumulative Potential: The substance is a hydrocarbon UVCB. Consideration of representative hydrocarbon structures indicated none are likely to be highly bioaccumulative.

Mobility in Soil: Predicted distribution to environmental compartments partitioning mainly to soil.

Other adverse effects: No information available

13. Disposal Considerations

Recycle or dispose of in accordance with local, state, and federal safety and environmental laws and regulations. Refer to latest EPA or state regulations regarding proper disposal.

14. Transport Information

UN Number: UN1993

UN Proper Shipping Name: FUEL OIL (#4)

Packing Group: III



DOT

IMDG

IATA

Land Transport ADR/RID and GGVS/GGVE (Cross Border / Domestic)

Transport Hazard Class(es): 3

Maritime Transport IMDG/GGVSea

Transport Hazard Class(es): 3

Marine Pollutant: Yes

Air Transport ICAO-TI and IATA-DGR

Transport Hazard Class(es): 3

Transport in Bulk according to Annex II of MARPOL 73/78 and the IBC Code

Special Precautions for User: This product may be re-classed as a combustible liquid when shipped domestically, by land only. If re-classed as a combustible liquid, this product is unregulated by DOT when shipped in non-bulk quantities.

15. Regulatory Information

Chemical Inventory Status

Ingredient	TSCA	EC	Canada - DSL
#4 Fuel Oil (68476-33-5)	Yes	Yes	Yes

Federal, State & International Regulations

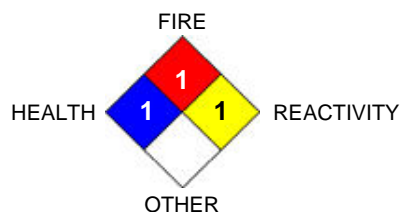
Ingredient	SARA 302		SARA 313		CERCLA	RCRA
	RQ	TPQ	List Chemical	Catg.		
#4 Fuel Oil (68476-33-5)	No	No	No	No	No	No

SARA 311/312	Acute: Yes	Chronic: Yes	Fire: Yes	Pressure: No	Reactivity: No
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16. Other Information

HMIS / NFPA Hazard Rating:

- 4=EXTREME
- 3= SERIOUS
- 2= MODERATE
- 1=SLIGHT
- 0=MINIMAL



Effective Date: 11/01/13 – Modified aspiration instructions

Previous Revisions:

05/01/13 – Standardized for GHS and REACH

11/98, 10/12/00, 07/19/02, 06/05, Reformatted 4/99

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