Safety Data Sheet

Material Name: No. 4 Fuel Oil

SDS No. 15054
EU/CLP GHS

Synonyms: 4 Fuel Oil; 4 Oil; Low Sulfur No. 4 Fuel Oil

* * * Section 1 - Product and Company Identification * * *

Manufacturer Information

Hess Corporation
1 Hess Plaza
Woodbridge, NJ 07095-0961

Phone: 732-750-6000 Corporate EHS
Emergency # 800-424-9300 CHEMTREC
www.hess.com (Environment, Health, Safety Internet Website)

* * * Section 2 - Hazards Identification * * *

GHS Classification:

Flammable Liquids – Category 4
Skin Corrosion/Irritation – Category 2
Eye Damage/Irritation – Category 2B
Sensitization - Skin – Category 1
Carcinogenicity - Category 1B
Specific Target Organ Toxicity (Single Exposure) - Category 3 (respiratory irritation, narcosis)
Hazardous to the Aquatic Environment, Acute Hazard – Category 2

Additional hazard not resulting in classification:

Material may be heated. If heated, care must be taken to avoid injury from thermal burns.

GHS LABEL ELEMENTS

Symbol(s)

Signal Word

DANGER

Hazard Statements

Combustible liquid.
Causes skin irritation.
Causes eye irritation.
May cause an allergic skin reaction.
May cause cancer.
May cause respiratory irritation.
May cause drowsiness and dizziness.
Toxic to aquatic life.

Precautionary Statements

Prevention

Keep away from flames and hot surfaces. – No smoking.
Wear protective gloves/protective clothing/eye protection/face protection.

Do not breathe fume/gas/mist/vapours/spray.
Use only outdoors or in a well-ventilated area.
Wear respiratory protection.
Wash hands and forearms thoroughly after handling.
Contaminated work clothing must not be allowed out of the workplace.
Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Avoid release to the environment.

Response
In case of fire: Use water spray, fog, hand-held dry chemical or foam to extinguish.
If on skin: Wash with plenty of soap and water. Take off contaminated clothing and wash it before reuse. If skin irritation or rash occurs: Get medical advice/attention.
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.
IF exposed or concerned: Get medical advice/attention.

Storage
Store in a well-ventilated place. Keep cool.
Keep container tightly closed.
Store locked up.

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

* * * Section 3 - Composition / Information on Ingredients * * *

CAS #	Component	Percent
68476-31-3	Fuel oil No. 4	100

A complex combination of heavy (high boiling point) petroleum hydrocarbons and is a blend of distillate (such as No. 2 Fuel Oil) and residual fuel oil (such as No. 6 Fuel Oil). The amount of sulfur varies with product specification and does not affect the health and safety properties as outlined in this Safety Data Sheet.

* * * Section 4 - First Aid Measures * * *

First Aid: 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.

First Aid: Skin
Remove contaminated clothing. Wash contaminated areas thoroughly with soap and water or waterless hand cleanser. Obtain medical attention if irritation or redness develops.

First Aid: 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.

First Aid: 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.

* * * Section 5 - Fire Fighting Measures * * *

General Fire Hazards

See Section 9 for Flammability Properties.
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.

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 as potentially flammable, since the oil's flash point cannot be regarded as a reliable indicator of the potential flammability in tank headspaces.

Hazardous Combustion Products

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

Extinguishing Media

SMALL FIRES: Any extinguisher suitable for Class B fires, dry chemical, fire fighting foam, CO2, and other gaseous agents.

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.

Unsuitable Extinguishing Media

None

Fire Fighting Equipment/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 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.

* * * Section 6 - Accidental Release Measures * * *

Recovery and Neutralization

Carefully contain and stop the source of the spill, if safe to do so.

Materials and Methods for Clean-Up

Take up with sand or other oil absorbing materials. Carefully shovel, scoop or sweep up into a waste container for reclamation or disposal.

Emergency Measures

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.

Personal Precautions and Protective Equipment

Response and clean-up crews must be properly trained and must utilize proper protective equipment.

Environmental Precautions

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.

Prevention of Secondary Hazards

None

* * * Section 7 - Handling and Storage * * *

Handling Procedures

Product is a blend of 6 oil (No. 6 Fuel Oil ~120°F) and ambient temperature of No. 2 Fuel Oil. Handle as a combustible liquid. Keep away from heat, sparks, and open flame! Electrical equipment should be approved for classified area. Bond and ground containers during product transfer to reduce the possibility of static-initiated fire or explosion.

Fuel Oil Ash Products

Personnel exposed to ash should wear appropriate protective clothing (example, DuPont Tyvek ®), wash skin thoroughly, launder contaminated clothing separately, and wear respiratory protection approved for use against toxic metal dusts (such as HEPA filter cartridges). Wetted-down combustion ash may evolve toxic hydrogen sulfide (H2S) - confined spaces should be tested for H2S prior to entry if ash is wetted.

Storage Procedures

Keep away from flame, sparks, excessive temperatures and open flame. Use approved vented containers. Keep containers closed and clearly labeled. 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."

Incompatibilities

Keep away from strong oxidizers.

* * * Section 8 - Exposure Controls / Personal Protection * * *

Component Exposure Limits

Fuel oil No. 4 (270-673-5)

ACGIH:	100 mg/m3 TWA (inhalable fraction and vapor, as total hydrocarbons, listed under Diesel fuel) Skin - potential significant contribution to overall exposure by the cutaneous route (listed under Diesel fuel)
Belgium:	100 mg/m3 TWA (as total hydrocarbon, aerosol and vapor) Skin (listed under Gas oil)
Portugal:	100 mg/m3 TWA [VLE-MP] (aerosol and vapor, as total Hydrocarbons, listed under Fuel diesel)

Engineering Measures

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

Personal Protective Equipment: Respiratory

A NIOSH 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.

Personal Protective Equipment: Hands

Gloves constructed of nitrile, neoprene, or PVC are recommended.

Personal Protective Equipment: Eyes

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

Personal Protective Equipment: Skin and Body

Chemical protective clothing such as of E.I. DuPont TyChem®, Saranex® 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.

* * * Section 9 - Physical & Chemical Properties * * *

Appearance:	Black, viscous	**Odor:**	Heavy, petroleum/asphalt-type odor
Physical State:	Liquid	**pH:**	ND
Vapor Pressure:	<0.007 psia @ 100 °F (38 °C)	**Vapor Density:**	NA
Boiling Point:	350-700+ °F (177-371 °C)	**Melting Point:**	ND
Solubility (H2O):	Negligible	**Specific Gravity:**	0.876-0.979 (API 30.0-13.0)
Evaporation Rate:	Negligible	**VOC:**	ND
Octanol/H2O Coeff.:	ND	**Flash Point:**	>131 °F (>55 °C) minimum
Flash Point Method:	ASTM D-93	**Upper Flammability Limit (UFL):**	ND
Lower Flammability Limit (LFL):	ND	**Burning Rate:**	ND
Auto Ignition:	>505°F (>263°C)		

* * * Section 10 - Chemical Stability & Reactivity Information * * *

Chemical Stability

This is a stable material.

Hazardous Reaction Potential

Will not occur.

Conditions to Avoid

Avoid high temperatures, open flames, sparks, welding, smoking and other ignition sources.

Incompatible Products

Keep away from strong oxidizers.

Hazardous Decomposition Products

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

* * * Section 11 - Toxicological Information * * *

Acute Toxicity

A: General Product Information

Harmful if swallowed.

B: Component Analysis - LD50/LC50

No LD50/LC50's are available for this product's components.

Potential Health Effects: Skin Corrosion Property/Stimulativeness

May cause skin irritation with prolonged or repeated contact. Practically non-toxic if absorbed following acute (single) exposure. May cause dermal sensitization.

Potential Health Effects: Eye Critical Damage/ Stimulativeness

Contact with eyes may cause mild to moderate irritation.

Potential Health Effects: Ingestion

This material has a low order of acute toxicity. If large quantities are ingested, nausea, vomiting and diarrhea may result. Ingestion may also cause effects similar to inhalation of the product. Aspiration may result in chemical pneumonia (fluid in the lungs), severe lung damage, respiratory failure and even death.

Potential Health Effects: Inhalation

Because of its low vapor pressure, this product presents a minimal inhalation hazard at ambient temperature. Upon heating, fumes may be evolved. Inhalation of fumes or mist may result in respiratory tract irritation and 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.

Respiratory Organs Sensitization/Skin Sensitization

This product is not reported to have any skin sensitization effects.

Generative Cell Mutagenicity

This product is not reported to have any mutagenic effects. Materials of similar composition have been positive in mutagenicity studies.

Carcinogenicity

A: General Product Information

Suspected of causing cancer.

This material contains polynuclear aromatic hydrocarbons (PNAs), some of which are animal carcinogens. 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. The presence of carcinogenic PNAs indicates that precautions should be taken to minimize repeated and prolonged inhalation of fumes or mists.

B: Component Carcinogenicity

Fuel oil No. 4 (68476-31-3)

ACGIH: A3 - Confirmed Animal Carcinogen with Unknown Relevance to Humans (listed under Diesel fuel)

IARC: Monograph 45 [1989] (overall evaluation upgraded from 3 to 2B with supporting evidence from other relevant data) (Group 2B (possibly carcinogenic to humans))

Reproductive Toxicity

This product is not reported to have any reproductive toxicity effects.

Specified Target Organ General Toxicity: Single Exposure

This product is not reported to have any specific target organ general toxicity single exposure effects.

Specified Target Organ General Toxicity: Repeated Exposure

This product is not reported to have any specific target organ general toxicity repeat exposure effects.

Aspiration Respiratory Organs Hazard

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.

Other Toxicological Information

Trace amounts of nickel, vanadium, and other metals in slurry oil can become concentrated in the oxide form in combustion ash deposits. Vanadium is a toxic metal affecting a number of organ systems. Nickel is a suspect human carcinogen (lung, nasal, and sinus), an eye, nose, and throat irritant, and can cause allergic skin reaction in some individuals.

* * * Section 12 - Ecological Information * * *

Ecotoxicity

A: General Product Information

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

B: Component Analysis - Ecotoxicity - Aquatic Toxicity

Fuel oil No. 4 (68476-31-3)

Test & Species		Conditions
96 Hr LC50 Pimephales promelas	35 mg/L [flow-through]	

Persistence/Degradability

No information available.

Bioaccumulation

No information available.

Mobility in Soil

No information available.

* * * Section 13 - Disposal Considerations * * *

Waste Disposal Instructions

See Section 7 for Handling Procedures. See Section 8 for Personal Protective Equipment recommendations.

Disposal of Contaminated Containers or Packaging

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

* * * Section 14 - Transportation Information * * *

IATA Information

Shipping Name: Not Regulated

ICAO Information

Shipping Name: Not Regulated

IMDG Information

Shipping Name: Not Regulated

* * * Section 15 - Regulatory Information * * *

Regulatory Information

Component Analysis - Inventory

Component	CAS #	TSCA	CAN	EEC
Fuel oil No. 4 68476-31-3	270-673-5	Yes	DSL	EINECS

* * * Section 16 - Other Information * * *

Key/Legend

EPA = Environmental Protection Agency; TSCA = Toxic Substance Control Act; ACGIH = American Conference of Governmental Industrial Hygienists; IARC = International Agency for Research on Cancer; NIOSH = National Institute for Occupational Safety and Health; NTP = National Toxicology Program; OSHA = Occupational Safety and Health Administration., NJTSR = New Jersey Trade Secret Registry.

Literature References

None

Other Information

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End of Sheet