

MATERIAL SAFETY DATA SHEET

Product Trade Name: FR-66

Revision Date: 09-Apr-2015

Revision Number: 14

SECTION 1. Product and Company Identification

Product Identifier

Product Trade Name: FR-66
Synonyms: None
Chemical Family: Blend
Internal ID Code: HM006663

Product Use

Application: Friction Reducer

Manufacturer's Name and Contact Details

Name and Address: Halliburton Energy Services
645 - 7th Ave SW Suite 2200
Calgary, AB
T2P 4G8
Canada

Emergency Telephone Number: (281) 575-5000

Prepared By

Chemical Stewardship
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SECTION 2. Hazard(s) Identification

WHMIS Classification

WHMIS Hazard Class: D2B Toxic Materials

WHMIS Symbol(s)



Summary of hazards of the product

Hazard Overview: May cause eye and skin irritation. May be harmful if swallowed.

SECTION 3: Composition/information on Ingredients

Substances	CAS Number	PERCENT (w/w)	HMIRA Registry Number	Decision Granted Date
Hydrotreated light petroleum distillate	64742-47-8	10 - 30%	Not applicable	Not applicable
Ammonium chloride	12125-02-9	1 - 5%	Not applicable	Not applicable
Fatty nitrogen derived amides	Proprietary	1 - 5%	9068	April 2, 2015
Ethoxylated alcohol	Proprietary	1 - 5%	9068	April 2, 2015

SECTION 4. First aid measures

Description of first aid measures

Inhalation

If inhaled, remove to fresh air. If not breathing give artificial respiration (AR), preferably mouth-to-mouth. If breathing is difficult, oxygen should be given by trained personnel. If the heart has stopped, trained personnel should begin cardiopulmonary resuscitation (CPR) immediately. Get medical attention immediately.

Eyes

In case of contact, or suspected contact, immediately flush eyes with plenty of water for at least 15 minutes and get medical attention immediately after flushing.

Skin

In case of contact, immediately flush skin with plenty of soap and water for at least 15 minutes. Get medical attention. Remove contaminated clothing and launder before reuse.

Ingestion

Do not induce vomiting. Never give anything by mouth to an unconscious person. If breathing has stopped, trained personnel should begin rescue breathing / artificial respiration (AR) immediately. If the heart has stopped, trained personnel should begin CPR immediately. Obtain medical attention immediately.

Most important symptoms and effects, both acute and delayed

May cause eye and skin irritation. May be harmful if swallowed. Aspiration into the lungs may cause chemical pneumonitis including coughing, difficulty breathing, wheezing, coughing up blood and pneumonia, which can be fatal. May cause eye burns.

Indication of any immediate medical attention and special treatment needed

Notes to Physician

Treat symptomatically

SECTION 5. Fire Fighting Measures

Extinguishing media

Suitable Extinguishing Media

Water fog, carbon dioxide, foam, dry chemical.

Extinguishing media which must not be used for safety reasons

None known.

Special hazards arising from the substance or mixture

Special Exposure Hazards

Decomposition in fire may produce toxic gases. Use water spray to cool fire exposed surfaces.

Advice for firefighters

Special Protective Equipment for Fire-Fighters

Full protective clothing and approved self-contained breathing apparatus required for fire fighting personnel.

Hazardous combustion products

Oxides of nitrogen. Carbon monoxide and carbon dioxide. Chlorine.

SECTION 6. Accidental release measures

Personal precautions and emergency procedures

Protective Equipment

Use appropriate protective equipment.

Environmental Precautionary Measures

Prevent from entering sewers, waterways, or low areas.

Procedure for Cleaning / Absorption

Isolate spill and stop leak where safe. Contain spill with sand or other inert materials. Scoop up and remove.

SECTION 7. Handling and Storage

Precautions for safe handling

Avoid contact with eyes, skin, or clothing. Avoid breathing vapors. Wash hands after use. Launder contaminated clothing before reuse. Material is slippery underfoot. Avoid breathing mist.

Conditions for safe storage and Incompatible materials for storage

Store away from oxidizers. Keep container closed when not in use. Store in a cool, dry location. Store in a well ventilated area. Keep from freezing. Product has a shelf life of 6 months.

SECTION 8: Exposure Controls/Personal Protection

Occupational Exposure Limits

Exposure Limits

Substances	CAS Number	ACGIH TLV-TWA	OSHA PEL-TWA
Hydrotreated light petroleum distillate	64742-47-8	Not available	Not available
Ammonium chloride	12125-02-9	TWA: 10 mg/m ³ STEL: 20 mg/m ³	Not available
Fatty nitrogen derived amides	Proprietary	Not available	Not available
Ethoxylated alcohol	Proprietary	Not available	Not available

Appropriate engineering controls

Engineering Controls

Use in a well ventilated area. Local exhaust ventilation should be used in areas without good cross ventilation.

Personal Protective Equipment (PPE)

Respiratory Protection

Not normally needed. But if significant exposures are possible then the following respirator is recommended:
Organic vapor respirator.

Hand Protection

Impervious rubber gloves.

Skin Protection

Rubber apron.

Eye Protection

Chemical goggles; also wear a face shield if splashing hazard exists.

Other Precautions

Eyewash fountains and safety showers must be easily accessible.

SECTION 9. Physical and Chemical Properties

Information on basic physical and chemical properties

Physical State: Liquid

Color: White

Odor: Sweet hydrocarbon

Odor Threshold: No information available

Property

Values

Remarks/ - Method

pH:

No information available.

pH Concentration of Solution:

No information available.

Freezing Point/Range

< -10 °C

Melting Point/Range

No information available

Boiling Point/Range (C):

No information available.

Flash Point/Range (C):

> 93 °C

Flash Point Method:

No information available.

Autoignition Temperature (C):

> 215

Flammability Limits in Air - Lower (%):

No information available.

Flammability Limits in Air - Upper (%):

No information available.

Evaporation Rate (Butyl Acetate=1):

No information available.

Vapor Pressure @ 20 C (mmHg):

No information available.

Vapor Density (Air=1):

No information available.

Specific Gravity @ 20 C (Water=1):

1.06

Solubility in Water (g/100ml):

Partially soluble

Solubility in other solvents

No information available.

Partition Coefficient/n-Octanol/Water:

No information available.

Decomposition Temperature (C):	No information available.
Viscosity	No information available
Explosive Properties	No information available
Oxidizing Properties	No information available

Other Information

Molecular Weight (g/mole):	No information available.
VOC Content (%)	No information available

SECTION 10. Stability and Reactivity

Conditions of Reactivity

Remarks	Not expected to be reactive.
Conditions to Avoid	None anticipated
Hazardous Polymerization:	Will Not Occur

Chemical Stability

Stable

Sensitivity to Static Discharge

Not available

Sensitivity to Mechanical Impact

Not available

Incompatible materials

Strong oxidizers.

Hazardous Decomposition Products

Oxides of nitrogen. Carbon monoxide and carbon dioxide. Chlorine.

SECTION 11. Toxicological Information
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Routes of entry

Eye or skin contact, inhalation.

Information on Toxicological Effects**Acute effects from exposure****Inhalation**

Inhalation of mist or heated vapors may cause respiratory irritation.

Eye Contact

May cause eye irritation.

Skin Contact

May cause skin irritation. May cause skin defatting with prolonged exposure.

Ingestion

Aspiration into the lungs may cause chemical pneumonitis including coughing, difficulty breathing, wheezing, coughing up blood and pneumonia, which can be fatal.

Chronic effects from exposure**Chronic Effects/Carcinogenicity**

No data available to indicate product or components present at greater than 0.1% are chronic health hazards.

Irritancy of product**Irritation**

May cause irritation

Sensitization of product**Sensitization**

Not confirmed to cause skin or respiratory sensitization.

Mutagenicity**Mutagenic Effects**

Contains no ingredient listed as a mutagen

Carcinogenicity**Carcinogenic Effects**

No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC, NTP, or OSHA.

Reproductive toxicity

Reproductive Toxicity

This product does not contain any known or suspected reproductive hazards

Teratogenicity/embryotoxicity

Teratogenic

Not a confirmed teratogen or embryotoxin.

Toxicologically synergistic material Not available**Acute Toxicity**

Substances	CAS Number	LD50 Oral	LD50 Dermal	LC50 Inhalation
Hydrotreated light petroleum distillate	64742-47-8	> 5000 mg/kg (Rat) (similar substance)	> 2000 mg/kg (Rabbit) (similar substance)	No data available
Ammonium chloride	12125-02-9	1410 mg/kg (Rat) 1220 mg/kg (Rat) 1630 mg/kg (Rat) 1300 mg/kg (Mouse)	> 2000 mg/kg (Rat)	No data available
Fatty nitrogen derived amides	Proprietary	3500 mg/kg (Rat) > 5000 mg/kg (Rat)	> 2000 mg/kg (Rabbit)	> 0.219 mg/L (Mouse) 4h (similar substance)
Ethoxylated alcohol	Proprietary	1,400 mg/kg (Rats)	>2000 and < 5000 mg/kg (Rabbit) (similar substances) 1.78 mL/kg (Rabbit)	No data available

SECTION 12. Ecological Information

Toxicity

Ecotoxicity Effects

Substances	CAS Number	Toxicity to Algae	Toxicity to Fish	Toxicity to Microorganisms	Toxicity to Invertebrates
Hydrotreated light petroleum distillate	64742-47-8	EC50 (72h) > 1,000 mg/L (Skeletonema costatum)	LC50 (96h) > 10,000 mg/L (Scophthalmus maximus) ErL50 (72h) > 1000 mg/L (Pseudokirchneriella subcapitata) EL50 (48h) > 1000 mg/L (Daphnia magna) LL50 (96h) > 1000 mg/L (Oncorhynchus mykiss)	No information available	LC50 (48h) > 10,000 mg/L (Acartia tonsa) EC50 (48h) 1100 mg/L (Daphnia pulex) LC50 (48h) 0.12 mg/L (Daphnia magna)
Ammonium chloride	12125-02-9	EC50 40-70 mg/L (Skeletonema costatum) EC50 (10d) 90.4 mg/L (Navicula sp.) NOEC (10d) 26.8 mg/L (growth rate) (Navicula sp.) EC50 (5d) 1300 mg/L (growth rate) (Chlorella vulgaris)	LC50 (96h) 275 mg/L (Cyprinus carpio) LC50 (96h) 163 mg/L (Pimephales promelas) LC50 (96h) 218 mg/L (Lepomis cyanellus) LC50 (96h) 34 mg/L (Oncorhynchus mykiss) NOEC (28d) 11.8 mg/L (Pimephales promelas)	EC50 (30m) 1618 mg/L (activated sludge, domestic)	TLM96 16 mg/L (Crangon crangon) EC50 (48h) 101 mg/L (Daphnia magna) NOEC (21d) 14.6 mg/L (Daphnia magna)
Fatty nitrogen derived amides	Proprietary	No information available	No information available	No information available	LC50 (21d) = 0.1 mg/L (Daphnia magna) LC50 (48h) = 2.15 mg/L

Ethoxylated alcohol	Proprietary	EC50 (72h) 0.5 mg/L (Scenedesmus subspicatus) (similar substance) EC50 (72h) 0.85 mg/L (Senastrum capricornutum) (similar substance)	LC50 (96h) 1.2 – 6.4 (Brachydanio rerio) (similar substance)	EC0 (30m) >10000 mg/L (Pseudomonas putida) (similar substance)	EC50 (48h) 0.5 – 1.9 mg/L (similar substance)
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Persistence and Degradability

No information available

Bioaccumulation potential

No information available

Substances	CAS Number	Log Pow
Hydrotreated light petroleum distillate	64742-47-8	7.5
Ammonium chloride	12125-02-9	No information available
Fatty nitrogen derived amides	Proprietary	3.2 (estimated)
Ethoxylated alcohol	Proprietary	No information available

Mobility in soil**Results of PBT and vPvB assessment**

No information available.

Substances	PBT and vPvB assessment
Hydrotreated light petroleum distillate	Not PBT/vPvB

Other adverse effects**Endocrine Disruptor Information**

This product does not contain any known or suspected endocrine disruptors

SECTION 13. Disposal Considerations
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Disposal Method Disposal should be made in accordance with federal, state, and local regulations.

Contaminated Packaging Follow all applicable national or local regulations.

SECTION 14. Transport Information
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Canadian TDG

UN Number: Not restricted
UN Proper Shipping Name: Not restricted
Transport Hazard Class(es): Not applicable
Packing Group: Not applicable

IATA/ICAO

UN Number: Not restricted
UN Proper Shipping Name: Not restricted
Transport Hazard Class(es): Not applicable
Packing Group: Not applicable

IMDG/IMO

UN Number: Not restricted
UN Proper Shipping Name: Not restricted
Transport Hazard Class(es): Not applicable
Packing Group: Not applicable

Special Precautions for User: None

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

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

SECTION 15: Regulatory Information

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.

Canadian Regulations

Canadian DSL Inventory

All components listed on inventory or are exempt.

WHMIS Hazard Class

D2B Toxic Materials

WHMIS Symbol(s)



US Regulations

US TSCA Inventory

All components listed on inventory or are exempt.

SECTION 16. Other Information

Preparation Information

Prepared By

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Revision Date:

09-Apr-2015

Update to Format SECTION: 2

Additional information

For additional information on the use of this product, contact your local Halliburton representative.

For questions about the Safety Data Sheet for this or other Halliburton products, contact Chemical Stewardship at 1-580-251-4335.

Key or legend to abbreviations and acronyms

WHMIS: Workplace Hazardous Materials Information System

Key literature references and sources for data

www.ChemADVISOR.com/

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END OF MSDS