



MATERIAL SAFETY DATA SHEET

1. Product and Company Identification

Material Name FRW-800
Revision Date 6/19/2013
Version # 00
Product Use Friction reducer
Manufacturer / Supplier FTS International
2500 HWY 62 West
Chickasha, OK 73018
US
General information: 1-405-222-2300
Emergency 24 Hour Emergency: INFOTRAC: 1-800-535-5053

2. Hazards Identification

Physical State Liquid
Appearance Light yellow, off-white emulsion
Emergency Overview May cause irritation with prolonged contact. Do not get in eyes, on skin, on clothing. Do not take internally. Use with adequate ventilation. Water in contact with the product will cause slippery floor conditions. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. After contact with skin, wash immediately with plenty of soap and water. Use a mild soap if available. Wear suitable protective clothing. Low fire hazard: liquids may burn upon heating to temperatures at or above the flash point. May evolve oxides of carbon (COx) under fire conditions. May evolve oxides of nitrogen (NOx) and sulfur (SOx) under fire conditions.
OSHA regulatory status The following substances in this product is/are hazardous and the reason(s) is/are shown below.
Ammonium Chloride: Eye irritant, HARMFUL
Aliphatic hydrocarbon: Exposure Limit
Oxyalkylated alcohol: Corrosive to eyes, Skin irritant
Routes of exposure Eye, Skin
Eyes May cause irritation with prolonged contact.
Skin May cause irritation with prolonged contact.
Inhalation Not a likely route of exposure. If swallowed a jelly mass may form which in digestion may cause blockage. There may be irritation to the gastro-intestinal tract with nausea and vomiting.
Ingestion Not a likely route of exposure. Repeated or prolonged exposure may irritate the respiratory tract.
Potential environmental effects Not available.

3. Composition / Information on Ingredients

Components	CAS #	Percent
Ammonium Chloride	12125-02-9	1.0 - 5.0
Aliphatic hydrocarbon	Proprietary	10.0 - 30.0
Oxyalkylated alcohol	Proprietary	1.0 - 5.0

Composition comments All concentrations are in percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

4. First Aid Measures

First aid procedures

Eye Contact Immediately flush with plenty of water for at least 15 minutes. If symptoms develop, seek medical advice.
Skin Contact Flush skin with large amounts of water. Use soap if available. If symptoms develop, seek medical advice.

Inhalation	Get medical attention. Do not induce vomiting without medical advice. If conscious, washout mouth and give water to drink.
Ingestion	Remove to fresh air, treat symptomatically, If symptoms develop, seek medical advice.
Notes to physician	Based on the individual reactions of the patient, the physicians's judgement should be used to control symptoms and clinical condition.

5. Fire Fighting Measures

Flammable Properties	Not flammable.
Extinguishing media	
Suitable extinguishing media	Foam, Carbon dioxide, Dry powder, Other extinguishing agent suitable for Class B fires. For Large fires, use water spray or fog, thoroughly drenching the burning material. Water mist may be used to cool closed containers.
Unsuitable extinguishing media	Do not use water unless flooding amounts are available.
Specific Hazards arising from the Chemical	Low fire hazard: liquids may burn upon heating to temperatures at or above the flash point. May evolve oxides of carbon (COx) under fire conditions. May evolve oxides of nitrogen (NOx) and sulfur (SOx) under fire conditions.
Firefighting equipment / instructions	In case of fire, wear a full face positive-pressure self contained breathing apparatus and protective suit.
Specific Methods	Not available.
Hazardous combustion products	Not available.

6. Accidental Release Measures

Personal precautions	Restrict access to area as appropriate until clean-up operations are complete. Use personal protective equipment recommended in Section (Exposure Controls/Personal Protection). Stop or reduce any leaks if it is safe to do so. Ventilate spill area if possible. Spill may be slippery.
Methods for cleaning up	Small spills: Soak up spill with absorbent material. Place residues in a suitable, covered, properly labeled container. Wash affected area. Large spills: Water in contact with the product will create a voluminous, slippery gel. Soak up as thoroughly as possible with inert absorbent material or sawdust. Do NOT hose down area until all possible traces of polymer are removed. Clean up promptly by scoop or vacuum. Dispose of material in compliance with regulations indicated in Section 13 (Disposal Considerations).

7. Handling and Storage

Handling	Do not get in eyes, on skin, on clothing. Do not take internally. Use with adequate ventilation. Do not breathe vapors/gases/dust. Keep containers closed when not in use. Have emergency equipment (for fires, spills, leaks, etc.) readily available. Ensure all containers are labeled. Stir well prior to use.
Storage	Store in suitable labeled containers. Store the containers tightly closed. Store separately from oxidizers.

8. Exposure Controls / Personal Protection

Occupational exposure limits

US. ACGIH Threshold Limit Values

Components	TWA		STEL	
	ppm	mg/m3	ppm	mg/m3
Ammonium Chloride	10 (fume)	Not available.	20 (fume)	Not available.
Aliphatic hydrocarbon	Not available.	Not available.	Not available.	Not available.
Oxyalkylated alcohol	Not available.	Not available.	Not available.	Not available.

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

Components	PEL	
	ppm	mg/m3
Ammonium Chloride	Not available.	Not available.
Aliphatic hydrocarbon	Not available.	Not available.
Oxyalkylated alcohol	Not available.	Not available.

Canada. Alberta OELs (Occupational Health Safety Code, Schedule 1, Table 2)

Components	TWA		STEL	
	ppm	mg/m3	ppm	mg/m3
Ammonium Chloride	Not available.	Not available.	Not available.	Not available.
Aliphatic hydrocarbon	Not available.	Not available.	Not available.	Not available.
Oxyalkylated alcohol	Not available.	Not available.	Not available.	Not available.

Canada. British Columbia OELs. (Occupational Exposure Limits for Chemical Substances, Occupational Health and Safety Regulation 296/97, as amended)

Components	TWA		STEL	
	ppm	mg/m3	ppm	mg/m3
Ammonium Chloride	Not available.	Not available.	Not available.	Not available.
Aliphatic hydrocarbon	Not available.	Not available.	Not available.	Not available.
Oxyalkylated alcohol	Not available.	Not available.	Not available.	Not available.

Canada. Ontario OELs. (Ministry of Labor - Control of Exposure to Biological or Chemical Agents) Components

Components	TWA		STEL	
	ppm	mg/m3	ppm	mg/m3
Ammonium Chloride	Not available.	Not available.	Not available.	Not available.
Aliphatic hydrocarbon	Not available.	Not available.	Not available.	Not available.
Oxyalkylated alcohol	Not available.	Not available.	Not available.	Not available.

Canada. Quebec OELs. (Ministry of Labor - Regulation Respecting the Quality of the Work Environment) Components

Components	TWA		STEL	
	ppm	mg/m3	ppm	mg/m3
Ammonium Chloride	Not available.	Not available.	Not available.	Not available.
Aliphatic hydrocarbon	Not available.	Not available.	Not available.	Not available.
Oxyalkylated alcohol	Not available.	Not available.	Not available.	Not available.

Mexico. Occupational Exposure Limit Values

Components	TWA		STEL	
	ppm	mg/m3	ppm	mg/m3
Ammonium Chloride	Not available.	Not available.	Not available.	Not available.
Aliphatic hydrocarbon	Not available.	Not available.	Not available.	Not available.
Oxyalkylated alcohol	Not available.	Not available.	Not available.	Not available.

Engineering controls

General ventilation is recommended. Use local exhaust ventilation if necessary to control airborrn mist and vapor.

Personal protective equipment

Eye / face protection

When handling this product, the use of safety glasses with side shields is recommended.

Skin protection

When handling this product, the use of chemical gloves is recommended. The choice of work glove depends on work conditions and what chemicals are handled. Please contact the PPE manufacturer for advice on what type of glove material may be suitable. Gloves should be replaced immediately if signs of degradation are observed. Wear standard protective clothing.

Respiratory protection

Where concentrations in air may exceed the limits given in this section or when significant mists.

vapors, aerosols, or dusts are generated, and approved air purifying respirator equipped with suitable filter cartridges is recommended. Consult the respirator/cartridge manufacturer data to verify the suitability of specific devices. In the event of emergency or planned entry into unknown concentrations a positive pressure, full-facepiece SCB should be used. If respiratory protection is required, institute a complete respiratory protection program including selection, fit testing, training maintenance, and inspection.

General hygiene consideration

Use good work and personal hygiene practices to avoid exposure. Keep an eye wash fountain available. Keep a safety shower available. If clothing is contaminated, remove clothing and thoroughly wash the affected area. Launder contaminated clothing before reuse. Always wash thoroughly after handling chemicals. When handling this product never eat, drink or smoke.

9. Physical and Chemical Properties

Appearance:	Light yellow, off-white emulsion
Color	Light yellow, off-white
Odor	Hydrocarbon
Odor threshold	Not available.
Physical State	Liquid
Form	Emulsion
pH	Not applicable.
Melting point	Not available.
Freezing point	-20.0 F (-28.8 C)
Boiling point	212.0 F (100.0 C)
Flash point	212.0 F (100.0 C)
Evaporation rate	Not available.
Flammability limits in air, upper, % by volume	Not available.
Flammability limits in air, lower, % by volume	Not available.
Vapor pressure	0.5 mm Hg @ 100 F (37.7 C)
Vapor density	Not available.
Specific Gravity	1.042
Solubility (water)	Dispersable
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Bulk Density	8.60 lb/gal
VOC	Not available.
Viscosity	585.0 cPs @ 73.4 F (23 C)
Percent volatile	Not available.

10. Chemical Stability Reactivity Information

Chemical Stability	Stable under normal conditions.
Conditions to avoid	Freezing temperatures. Avoid temperatures below 0 and above 93 C which will cause polymer to precipitate.
Incompatible material	Addition of water results in gelling. Contact with strong oxidizers (e.g. chlorine, peroxides, chromates, nitric acid, perchlorate, concentrated oxygen, permanganate) may generate heat,

fires, explosions and/or toxic vapors.

Hazardous decomposition products Under fire conditions: Oxides of carbon, Oxides of nitrogen, Oxides of sulfur.

Possibility of hazardous reaction Hazardous polymerization will not occur.

11. Toxicology Information

Toxicological Data

Components

Ammonium Chloride
Aliphatic hydrocarbon
Oxyalkylated alcohol

Test Results

Not available.
Not available.
Not available.

Sensitization

This product is not expected to be a sensitizer.

Carcinogenicity

Ammonium Chloride

Not listed as a carcinogen by the International Agency for Research on Cancer (IARC), the National Toxicology Program (NTP) or the American Conference of Governmental Industrial Hygienists (ACGIH).

Aliphatic hydrocarbon

Not listed as a carcinogen by the International Agency for Research on Cancer (IARC), the National Toxicology Program (NTP) or the American Conference of Governmental Industrial Hygienists (ACGIH).

Oxyalkylated alcohol

Not listed as a carcinogen by the International Agency for Research on Cancer (IARC), the National Toxicology Program (NTP) or the American Conference of Governmental Industrial Hygienists (ACGIH).

Epidemiology

Not available.

Mutagenicity

Not available.

Reproductive effects

Not available.

Teratogenicity

Not available.

Further Information

Not available.

12. Ecological Information

Ecotoxicological data

Components

Ammonium Chloride
Aliphatic hydrocarbon
Oxyalkylated alcohol

Test Results

Ecotoxicity

FRW-800: EC50: *Vibrio fischeri* 0.25hr: 1,418 mg/L

Persistence and degradability

The organic portion of this preparation is expected to be poorly biodegradable.

Bioaccumulation / Accumulation

Component substances have a low potential to bioconcentrate.

Mobility in environmental media

Not available.

Partition coefficient (n-octanol/water)

Not available.

13. Disposal Considerations

Waste codes

If this product becomes a waste, it is not a hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA) 40 CFR 261, since it does not have the characteristics of Subpart C, nor is it listed under Subpart D.

Disposal instructions

As a non-hazardous waste, it is not subject to federal regulation. Consult state or local regulation for any additional handling, treatment, or disposal requirements. For disposal, contact a properly licensed waste treatment storage, disposal or recycling facility.

Contaminated packaging

Not available.

14. Transport Information

DOT

UN number UN 3082
Proper shipping name ENVIORNMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Ammonium Chloride)
Hazard class 9
Packing Group III
Labels required
DOT reportable quantity 5000 lbs
Additional information
Special provisions
Packaging exceptions
Packaging non bulk
Packaging bulk
ERG number

IATA

UN number UN 3082
Proper shipping name ENVIORNMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Ammonium Chloride)
Hazard class 9
Packing group III
Additional information
ERG code

IMDG

UN number
Proper shipping name PRODUCT IS NOT REGULATED DURING TRANSPORTATION
Hazard class
Packing group
EmS No
IMDG Additional information:

15. Regulatory Information**US federal regulation**

CERCLA (Superfund) Reportable Quantity: Notification of spills of this product is not required.

Superfund amendments and Reauthorization Act of 1986 (SARA)

Hazard Categories	Immediate Hazard:	Yes
	Delayed Hazard:	No
	Fire Hazard:	No
	Pressure Hazard:	No
	Reactivity Hazard:	No

Section 302 - Extremely Hazardous Substances (40 CFR 355): This product does not contain substances listed in Appendix A and B as Extremely Hazardous Substance.

Section 313 - List of Toxic Chemicals (40 CFR 372):
 The product contains the following substance which appear on the List of Toxic Chemicals:
 Ammonium Chloride (CAS# 12125-02-9) 1.0 - 5.0 % (w/w)

Federal Water Pollution Control Act, Clean Water Act, 40 CFR 401.15 / formerly Sec. 307, 40 CFR 116.4 / formerly Sec. 311:
This product contains the following substances listed in the regulation. Additional components may be unintentionally present at trace levels.

Ammonium Chloride: Sec 311

Acetic Acid: Sec 311

Cupric Sulphate: Sec 307, Sec 311

Inventory Status

Country	Inventory Name	On Inventory *
Australia	AICS	No
Canada	DSL	Yes
Canada	NDSL	No
China	IECSC	No
Europe	EINECS	No
Europe	ELINCS	No
Japan	ENCS	No
Korea	ECL	No
New Zealand	NZI	No
United States / Puerto Rico	TSCA	Yes
Phillipines	PICCS	No

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s).

WHMIS Information

Not available.

State Regulation

State Right to Know Laws:

The following substances are disclosed for compliance with State Right to Know Laws:
Ammonium Chloride (12125-02-9)

16. Other Information

Further Information

HMIS® is a registered trade and service mark of the NPCA.

HMIS® ratings

Health: 0

Flammability: 1

Physical Hazard: 0

A HMIS® rating including an * indicates a chronic hazard.

NFPA ratings

Health: 1

Flammability: 1

Instability: 0

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Issue Date

6/19/2013