



MATERIAL SAFETY DATA SHEET

1. Product and Company Identification

Material Name FRW-600
Revision Date 10/23/2012
Version # 04
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 White viscous liquid.
Emergency Overview Warning: Causes skin irritation. May cause eye irritation.

OSHA regulatory status Not regulated.

Routes of exposure

Eyes Avoid contact. Product is minimally irritating to eyes upon direct contact.
Skin Avoid skin contact. Product is minimally irritating to the skin. Prolonged or repeated contact with the skin may result in contact dermatitis causing dryness, chapping and reddening.
Inhalation Not expected to present and inhalation hazard at ambient conditions.
Ingestion Don not ingest. Ingestion of small quantities is usually nonfatal unless aspiration occurs. Aspiration may lead to chemical pneumonitis, which is characterized by pulmonary edema and hemorrhage and may be fatal.

Potential environmental effects Direct contact with this material can cause moderate skin and mild eye irritation. Refer to Section 11 for toxicology information on the regulated components of this product. Overexposure to vapor may cause respiratory tract irritation and central nervous system depression. The estimated acute oral (rat) LD50, acute dermal (rabbit) LD50 and 4-hour inhalation (rat) LC50 values for this material are >5,000 mg/kg, >2,000 mg/kg and >20 mg/L, respectively.

3. Composition / Information on Ingredients

Components	CAS #	Percent
Hydrotreated light distillate	64742-47-8	10 - 30
Ammonium acetate	631-61-8	0 - 6

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 Rinse immediately with plenty of water for at least 15 minutes.
Skin Contact Do not reuse contaminated clothing without laundering. Wash immediately with plenty of water. Remove contaminated clothing and shoes without delay. Get medical attention if pain or irritation persists after washing or if signs and symptoms of overexposure appear.
Inhalation Remove to fresh air. If breathing is difficult, give oxygen. Obtain medical advice if there are persistent symptoms.
Ingestion Only induce vomiting at the instruction of a physician. Never give anything by mouth to an unconscious person. If swallowed, call a physician immediately.

Notes to physician Not available.

5. Fire Fighting Measures

Flammable Properties Not available.

Extinguishing media

Suitable extinguishing media Use water spray, carbon dioxide or dry chemical.

Unsuitable extinguishing media Not available.

Specific Hazards arising from the Chemical Not available.

Firefighting equipment / instructions NIOSH/MSHA approved self-contained breathing apparatus (SCBA) and turnout gear.

Specific Methods Not available.

Hazardous combustion products Carbon monoxide, carbon dioxide, nitrogen oxides and sulfur oxides.

6. Accidental Release Measures

Personal precautions Where exposure level is not known, wear approved, positive pressure, self-contained respirator. Where exposure level is known, wear approved respirator suitable for level of exposure. In addition to the protective clothing/equipment in Section 8 (Exposure Controls/Personal Protection), wear impermeable boots.

Methods for cleaning up Spilled material should be absorbed onto an inert material and scooped up. Flush spill area with water. Product may cause a slip hazard. If slipperiness remains apply more dry-sweeping compound.

7. Handling and Storage

Handling Avoid contact with eyes, skin and clothing. Wash thoroughly after handling.

Storage To avoid product degradation and equipment corrosion, do not use iron, copper or aluminum containers or equipment. Flashpoint determinations on materials of this type are required by certain regulations and scientific standards to be performed using a Pensky-Martens type closed cup test method. This method indicates a flash point greater than 93.3 C (200 F). Although there was no flashpoint detected below 93.3 C (200 F) by the Pensky-Martens Closed Tester method, some flammable vapors were evolved during the test as evidenced by the enlargement of the test flame; therefore, caution should be exercised during storage and handling.

8. Exposure Controls / Personal Protection

Occupational exposure limits

US. ACGIH Threshold Limit Values

Components	TWA		STEL	
	ppm	mg/m3	ppm	mg/m3
Hydrotreated light distillate	Not available.	Not available.	Not available.	Not available.
Ammonium acetate	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
Hydrotreated light distillate	Not available.	Not available.
Ammonium acetate	Not available.	Not available.

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

Components	TWA		STEL	
	ppm	mg/m3	ppm	mg/m3

Hydrotreated light distillate	Not available.	Not available.	Not available.	Not available.
Ammonium acetate	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
Hydrotreated light distillate	Not available.	Not available.	Not available.	Not available.
Ammonium acetate	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
Hydrotreated light distillate	Not available.	Not available.	Not available.	Not available.
Ammonium acetate	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
Hydrotreated light distillate	Not available.	Not available.	Not available.	Not available.
Ammonium acetate	Not available.	Not available.	Not available.	Not available.

Mexico. Occupational Exposure Limit Values

Components	TWA		STEL	
	ppm	mg/m3	ppm	mg/m3
Hydrotreated light distillate	Not available.	Not available.	Not available.	Not available.
Ammonium acetate	Not available.	Not available.	Not available.	Not available.

Engineering controls

General (mechanical) room ventilation is expected to be satisfactory. Emergency eye wash fountains and safety showers should be in the immediate vicinity of any potential exposure.

Personal protective equipment

Eye / face protection

Eyewash equipment and safety shower should be provided in areas of potential exposure. Wear eye/face protection such as chemical splash proof goggles or face shield.

Skin protection

Wear impermeable gloves and suitable protective clothing. Avoid skin contact.

Respiratory protection

Where exposures are below the established exposure limit, no respiratory protection is required. Where exposures exceed the established exposure limit, use respiratory protection recommended for the material and level of exposure.

General hygiene consideration

Before eating, drinking, or smoking, wash face and hands thoroughly with soap and water. Food beverages, and tobacco products should not be carried, stored, or consumed where this material is in use.

9. Physical and Chemical Properties

Appearance:	White liquid.
Color	White
Odor	Petroleum distillate.
Odor threshold	Not available.
Physical State	Liquid
Form	Liquid

pH	6 – 8
Melting point	Not available.
Freezing point	-4°F (-20°C)
Boiling point	212°F (100°C)
Flash point	>215°F (>102°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	Not available.
Vapor density	Not available.
Specific Gravity	1.03 – 1.06
Solubility (water)	Viscosifies
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Bulk Density	8.60 – 8.85 lb/gal
VOC	Not available.
Viscosity	Not available.
Percent volatile	56 - 62

10. Chemical Stability Reactivity Information

Chemical Stability	Stable.
Conditions to avoid	None known.
Incompatible material	Strong oxidizing agents.
Hazardous decomposition products	Ammonia, carbon monoxide, carbon dioxide, nitrogen oxides, and sulfur oxides.
Possibility of hazardous reaction	Hazardous polymerization will not occur.

11. Toxicology Information

Toxicological Data

Components

Hydrotreated light distillate

Test Results

Petroleum distillates, hydrotreated light (CAS# 64742-47-8) has acute oral (rat) and dermal (rabbit) LD50 values of >5 g/kg and >3.16 g/kg, respectively. Prolonged or repeated skin contact tends to remove skin oils, possibly leading to irritation and dermatitis. Direct contact may cause eye irritation. Overexposure to high vapor concentrations, >~700 ppm, are irritating to the eyes and respiratory tract and may cause headaches, dizziness, drowsiness, and other central nervous system effects, including death. Aspiration of minute amounts during ingestion or vomiting may cause mild to severe pulmonary injury and possibly death. In a 90-day oral gavage (rats) study at 100, 500, or 1000 mg/kg, no treatment-related mortalities were observed. There were no significant changes in body weights or food consumption in any dose groups. Increased liver weights were observed in male and female rats a 500 and 1000 mg/kg. Increased kidney weights were observed only in male rats at 500 and 1000 mg/kg. Testes weights were significantly elevated in male rats at 1000 mg/kg. Kidney effects, indicative of light hydrocarbon nephropathy, occurred in male rat kidneys at all dose levels. Histological findings of hepatocellular hypertrophy were seen in the livers of male rats at 1000 mg/kg and in female rats at 500 and 1000 mg/kg. All treatment-related effects were reversible within the 4-week recovery period. Observed kidney

effects (including light hydrocarbon nephropathy and increased kidney weight) are a unique response by male rats to chronic hydrocarbon exposure, which th U.S. EPA has declared `not relevant to humans`. High-dose liver effects (including hepatocellular hypertrophy, or enlarged liver cells) are a direct consequence of the sustained high-fat `hydrocarbon diet`. The No Observed Adverse Effect Level (NOAEL) for this study was 1000 mg/kg.

Ammonium acetate No data available.

Sensitization Not available.

Carcinogenicity

Hydrotreated light distillate None
Ammonium acetate

Epidemiology Not available.

Mutagenicity Not available.

Reproductive effects Not available.

Teratogenicity Not available.

Further Information Not available.

12. Ecological Information

Ecotoxicological data

Components

Test Results

Hydrotreated light distillate The effects on aquatic organisms are due to an external (non-systemic) mode of action, and are significantly reduced (by a factor of 7-20) within 30 minutes due to binding of the product to dissolved organic carbon and inorganic sorbents such as clays and silts.

Ammonium acetate Not available.

Ecotoxicity Not available.

Persistence and degradability Product is expected to be readily biodegradable.

Bioaccumulation / Accumulation Not available.

Mobility in environmental media Not available.

Partition coefficient (n-octanol/water) Not available.

13. Disposal Considerations

Waste codes Not available.

Disposal instructions Recycle if possible. Otherwise dispose to licensed disposal contractor. Comply with all local, state, and federal regulations.

Contaminated packaging Drain container thoroughly. Triple rinse with water. Send to reclaimer or dispose of properly. Comply with all local, state, and federal regulations.

14. Transport Information

DOT

UN number

Proper shipping name Not Regulated.

Hazard class

Packing Group

Labels required

DOT reportable quantity 83,333lbs (Ammonium Acetate RQ=5000lbs)

Additional information

Special provisions

Packaging exceptions

Packaging non bulk

Packaging bulk

ERG number

IATA

UN number

Proper shipping name Not Regulated.

Hazard class

Packing group

Additional information

ERG code

IMDG

UN number

Proper shipping name Not Regulated.

Hazard class

Packing group

EmS No

IMDG Additional information:

15. Regulatory Information

US federal regulation

CERCLA (Superfund) Reportable Quantity: None

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 substance: None

Section 311 hazardous chemical: None

Section 313 hazardous chemical: None

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

*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

Not available.

16. Other Information**Further Information**

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

HMIS® ratings

Health: 2

Flammability: 1

Physical Hazard: 0

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

NFPA ratings

Health: 2

Flammability: 1

Instability: 0

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