PRODUCT INFORMATION

A PRODUCT OF AMERICAN CHEMICAL TECHNOLOGIES, INC.

FR WG CONCENTRATE

TANKSIDE, VISCOSITY BOOSTER

DESCRIPTION:

FR WG Concentrate is the undiluted version of FR WG 200-D premium water-glycol hydraulic fluid.

PERFORMANCE:

FR WG Concentrate is being marketed to assist customers in returning the in-service fluid viscosity back to the 200 SUS @ 100 °F range. Periodically, heat exchangers leak, or too much make-up water is added to a hydraulic system causing the viscosity to fall well below 200 @ 100 °F. Adding FR WG Concentrate will restore the viscosity to its optimum operating level.

Note: Anytime an unusually low viscosity is noted, immediate action should be taken to determine the source of the contaminant (water, die spray, etc.) Under no circumstances should hard water (tap water) be added to water-glycol fluid not should a hydraulic system be operated on water-glycol that has been contaminated with hard water. These hard water ions promote the formation of insoluble soaps and react with additives making them unfit for their intended purposes.

LABORATORY DATA:

Appearance	Clear, amber fluid
Viscosity @ 100 °F, SUS	1,500 – 3,000
Specific Gravity	1.05 - 1.15
pH	8-10
Reserve Alkalinity	25 – 50
Phenols	None
Flash Point, COC, °F	250

HYDRAULIC SYSTEM ANALYSIS:

If the customer lacks the laboratory equipment necessary to check the viscosity, your ACT representative will arrange for sampling of systems and an ACT laboratory analysis of the fluids.

ACT's hydraulic fluid monitoring service is a no-charge, laboratory analysis of in-service water-glycol fluids. This analysis can be performed on FR WG 200-D as well as competitive products. In-service fluids will be analyzed for the following properties:

Viscosity	pH
Reserve Alkalinity	Tramp Oil, %
Particulates, %	Metallics

MATERIAL SAFETY DATA SHEET

This MSDS Complies With 29 CFR 1910.1200 (The Hazard Communication Standard)
This material safety data sheet conforms to the requirements of ANSI Z400.1

SECTION 1 – CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

FR WG CONCEN – FR WG Concentrate

Manufacturer/Supplier:
American Chemical Technologies, Inc.
485 E. Van Riper Road, Fowlerville, MI 48836
Office: 517-223-0300 Fax: 517-223-1703

Emergency Spill Information:

INFOTRAC 1-800-535-5053
24 HOURS/DAY, 7 DAYS/WEEK

SECTION 2 – COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS#	Range % by wt.
Purified Water	7732-18-5	<30%
2-(Diisopropylamino)ethanol	96-80-0	>4%
Morpholine	110-91-8	>3%
20 ppm TWA-OSHA (SKIN) 30 ppm STEL-OSHA 20 ppm TWA-ACGIH (SKIN)		
Decanoic acid	334-48-5	>3%
Non-Hazardous Proprietary	Proprietary	>50%

SECTION 3 – HAZARDS IDENTIFICATION

Emergency Overview: This product has been evaluated and does not require any hazard warning on the label under OSHA criteria.

Potential Health Effects:

Eye Contact: No significant health hazard identified.

Skin Contact: Prolonged or repeated contact may cause skin irritation.

Inhalation: No significant health hazards identified.

Ingestion: Do not take internally. Harmful or fatal if swallowed.

HMIS Code: (Health:2) (Flammability:1) (Reactivity:0)

NFPA Code: (Health:2) (Flammability:1) (Reactivity:0)

SECTION 4 – FIRST AID MEASURES

Eye: Immediately irrigate with running water. If irritation develops get medical attention.

Skin: Thoroughly wash affected areas with soap and water. Remove and launder contaminated clothing before reuse. If irritation develops, get medical attention.

Inhalation: Move to fresh air. Aid in breathing if necessary and get medical attention.

Ingestion: If swallowed, dilute with water and immediately induce vomiting. Never give fluids or induce vomiting if the victim is unconscious or having convulsions. Get immediate medical attention. Never give fluids or induce vomiting if the victim is unconscious or having convulsions and get immediate medical attention.

Primary Routes of Entry: Breathing mists by inhalation or ingestion.

Effects of Acute Overexposure: Prolonged or repeated contact may result in skin or eye irritation. Acute overexposure to morpholine vapors results in respiratory irritation and transient eye irritation. Temporary foggy vision has been reported. Morpholine caused tearing of the eyes, increased saliva, and tremors in rats and rabbits at lethal doses.

Chronic Overexposure Effects: At sub-lethal doses, morpholine caused tearing of eyes, irritation and inactivity. Repeated skin applications with morpholine caused skin, liver, and kidney injury in rabbits. Rats and guinea pigs exposed to 18,000-ppm morpholine exhibited eye and respiratory irritation. Repeated exposures caused lung, liver, and kidney injury. In a 13-week inhalation study with rats, morpholine caused nasal lesions at 100 and 250 ppm; no effects were seen at 25 ppm. In an industry-sponsored study, morpholine was not carcinogenic to rats at 10, 50, or 100 ppm; but did cause ophthalmic and nasal lesions.

Aggravated Medical Conditions: No data is available that addresses medical conditions that are generally recognized as being aggravated by exposure to this product. Please refer to Section (effects of overexposure) for effects observed in animals.

SECTION 5 – FIRE FIGHTING MEASURES

Flashpoint: >200 °F **Method:** C.O.C. (after water has boiled away)

UEL: Not determined.

LEL: Not determined.

Autoignition Temperature: Not available

Flammability Classification: Not Flammable.

Extinguishing Media: Agents approved for Class B (e.g., dry chemical, carbon dioxide, foam, steam) or water fog.

Unusual Fire and Explosion Hazards: There are no known unusual fire or explosion hazards.

Fire Fighting Equipment: Fire fighters should wear an approved self-contained breathing apparatus. As with petroleum oils, maintain oil from spreading.

Hazardous Combustion Products: Incomplete combustion results in oxides of sulfur and carbon.

SECTION 6 – ACCIDENTAL RELEASE MEASURES

General: Spills should be contained and placed in suitable containers for disposal in a licensed facility. RCRA or CERCLA ("Superfund") does not regulate this material. Wear appropriate respiratory protection and protective clothing and provide adequate ventilation during clean up.

Waste Disposal Method: Incinerate or bury in a licensed facility. DO NOT discharge into waterways or sewer systems without proper authority. Dispose of in accordance with all applicable local, state, and federal regulations.

SECTION 7 – HANDLING AND STORAGE

Handling: No special requirements if handled with reasonable care.

Storage: Keep containers closed and protect from freezing.

SECTION 8 – EXPOSURE CONTROLS/PERSONAL PROTECTION

Eye: Chemical splash goggles and a face shield if splashing hazard exists**.**

Skin: Gloves, coveralls, apron, and boots to prevent contact.

Inhalation: If vapors or mists are generated, wear a NIOSH/MSHA approved organic vapor/mist respirator.

Engineering Controls: Control airborne concentrations below the exposure guidelines. Use local exhaust to control vapors/mists.

Other Protective Equipment: Eyewash fountains and safety showers must be easily accessible. Shower after handling.

SECTION 9 – CHEMICAL AND PHYSICAL PROPERTIES

Appearance and Odor	: Clear light brown viscous liquid with glycol odor
pH	: 9.6
Vapor Pressure	: 17 millibars @ 23 °C
Boiling Point	: 221°F
Solubility in water	: Complete
Specific Gravity	: 1.073 (8.95 lb/gal)

SECTION 10 – STABILITY AND REACTIVITY

Stability: Stable.

Conditions to Avoid: No data available.

Materials to Avoid: No data available.

Hazardous Decomposition/Polymerization: No data available.

SECTION 11 – TOXICOLOGICAL INFORMATION

Toxicological Information for morpholine

Oral: LD50 1.05 g/kg (rat) moderately toxic
Inhalation: believed to be practically non-toxic
Dermal:LD50 1.21 g/kg (rabbit) moderately toxic

Irritation Index, estimation of irritation (species)
Skin: (Draize) 8.0/8.0 (rabbit) corrosive
Eyes: (Draize) Believed to be >80-110/110 (rabbit) extremely irritating
Sensitization: although there has been secondary (anecdotal) reports of the potential for morpholine to be a dermal sensitizer in humans, the weight of the available scientific information indicates that morpholine is not expected to be a dermal sensitizer based on animal and human skin patch testing data.

Prolonged and repeated exposure to morpholine vapors causes ocular, nasal, and skin irritation in laboratory animals. Prolonged and repeated inhalation of morpholine vapors did not cause cancer or organ damage in rats exposed for up to 2 years.

SECTION 12 – ECOLOGICAL INFORMATION

Ecological testing has not been conducted on this product.

SECTION 13 – DISPOSAL INFORMATION

Disposal must be in accordance with applicable federal, state, or local regulations.

SECTION 14 – TRANSPORTATION INFORMATION

U.S. Dept. of Transportation

Shipping Name: not regulated
Hazard Class:
Identification number:

SECTION 15 – REGULATORY INFORMATION

TSCA Inventory Status Listed on Inventory: Yes
RCRA Hazard. Waste Number: N/A

This product is a physical hazard and a health hazard according to the OSHA Hazard Communication Standard.

State regulatory Information: (by Component):	**NJ/PA/MA/RTK**
CAS #: 96-80-0 Name: Ethanol, 2-(bis) 1-methyl	No
CAS #: 110-91-8 Name: Morpholine	No
CAS #: 334-48-5 Name: Decanoic Acid	No
CAS #: 7732-18-5 Name: Water	No

SECTION 16 – SPECIAL PRECAUTIONS

This product does not contain or manufactured with Class I or Class II ozone-depleting substances.

Prepared By: Mark D. Latunski
Date Revised: 4/20/2009
Supersedes: 11/29/2005
Date Prepared: 11/21/2002

The information provided herein is believed to be accurate to the best of the company's knowledge as of the date of its issue. We do not warrant or guarantee the information provided and will not be held liable for any loss or damage from its use.