



**COOLANT
CONTROL** INC.

The right chemistry...

...the right solution

Product Bulletin

FRH-200

Fire-Resistant Water Glycol Hydraulic Fluid

Description

FRH-200 fire-resistant hydraulic fluid is specifically designed to meet the demands of today's modern high-pressure hydraulic systems. The inhibitor package contained in **FRH-200** will protect the entire hydraulic system against wear and corrosion.

Performance Benefits

- High degree of fire resistance
- Non Explosive
- Oxidation resistant
- Passes ASTM D2882, 2000 psi pump test using a Vickers V 104C pump and meets the U.S. Steel requirement #171 for 2000 psi fluids
- Liquid and Vapor Phase corrosion protection
- Compatible with rubber seals and packings
- Exceptionally high viscosity index
- Shear stable

Recommended Applications

FRH-200 can be used in virtually every type of hydraulic equipment to help prevent the danger of fire such as:

Die Casting Machines Foundry Machines Coke Oven Door Jacks and Pushers Pelletizing Mill Equipment Electric Furnace-Roof Lift Dolomite Machines Steel Strip Coil Unloaders Clamping Fixtures on Automatic Welders Hydraulic Regulators and Controls Auto pour Units Rod and Strip Coilers Rod Mill, Tube Mill, and Hot Strip Mill Crushers Screw Down Controls Ladle Stoppers	Furnace Chargers and Dischargers Centrifugal Pipe Casting Machines Forging Presses and Extrusion Presses Glass Feeder and Forming Machines Ingot Manipulators Fork Lift Trucks Permanent Mold Machines Scarfing Machines Flying Shears Cranes, Hoists and Elevators Furnace Door Controls Coupling Tighteners Plating Machines Lift and Transfer Tables Grid Machines
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Typical Characteristics

Appearance	Red liquid
Viscosity, SUS @ 100°F	200
Viscosity Index	150
Specific Gravity, 60/60°F	1.086
PH	9.6
Density, pounds/gallon @ 60°F	9.00
Flash Point, °F	None
Fire Point, °F	None
Rust Test, ASTM D665	Pass
Auto-Ignition Temperature, °F (applies after water boils away)	775

Flammability Properties	Wear Protection
FRH-200 is classified as a less hazardous hydraulic fluid. The fluid exhibits no flash or fire point. In an extreme heat situation for a prolonged period of time, water can boil out of the fluid. See <i>Auto-Ignition Temperature</i> under <i>Typical Properties</i> .	FRH-200 is designed to pass the ASTM D2882, 2000 psi pump test using a Vickers V 104C pump. These fluids meet the U.S. Steel requirement #171 for 2000 psi fluids. Many years of service can be expected under typical operating conditions using FRH-200. * See <i>additional information below</i>
Corrosion Protection	Compatible Paints
FRH-200 is well inhibited against liquid phase corrosion of iron, steel, and copper alloys. In addition, it has a very effective vapor phase rust inhibitor to prevent corrosion of reservoirs and components above the liquid level. However, systems utilizing solder, tin, lead, zinc, magnesium or cadmium should not use water-glycol fluids since such fluids may be corrosive to these metals.	Water-glycol fluids are not compatible with most paints, enamels or varnishes. Prior to fluid installation the insides of reservoirs and accumulators should be stripped of paints, unless the paints are known to be compatible with water-glycol fluids. The following companies represent a partial list of those who manufacture compatible paints: Rust-Oleum Corporation - Evanston, IL The Glidden Company - Cleveland, OH Pittsburgh Plate Glass Company - Pittsburgh, PA Coast Paint & Lacquer Division - Houston, TX Sherwin-Williams Company - Cleveland, OH Steelcoat Manufacturing Company - St. Louis, MO
Packing Compatibility	Compatibility With Other Hydraulic Fluids
Experience indicates nitrile (Buna-N) and neoprene seals and packings, normally used for petroleum oils are satisfactory for use with FRH-200. Silicone, butyl, and ethylene-propylene are also suitable materials. Do not use asbestos, leather or cork impregnated materials.	FRH-200 is compatible with all known major brands of hydraulic fluids, in any proportion. They are not compatible with other types of hydraulic fluids such as mineral oil, water-oil emulsions or synthetic phosphate esters, and should not be mixed with these products.
Compatible Pipe Joint Compounds	Viscosity Index
If a system has been assembled with any good grade pipe joint compound, it will operate satisfactorily with FRH-200 hydraulic fluid. New installations or pipes replaced during maintenance operations should be sealed with Teflon ribbon (available from any hydraulic fitting supply house).	FRH-200 provides excellent efficiency through an exceptionally high viscosity index which is stable under the high shearing stresses of hydraulic systems.
Storage Stability	Shear Stability
FRH-200 will withstand long periods of storage under varying temperatures. Freezing and thawing have no ill effects on the properties of this fluid.	Since viscosity of a hydraulic fluid is of utmost importance in determining the pump volumetric efficiency, it is essential that the fluid have a high resistance to shear. Some fire-resistant fluids decrease in viscosity as a result of the shearing action of pumps and valves under continuous use. FRH-200 does not shear under these conditions.

***Pump Pressure Recommendations:**

There are several different conditions in which FRH 200 can be used. They vary in application by operating temperatures, pressures, speed and pump type among other things. Many pump manufacturers have established minimum and maximum limits for such applications. Some of these limits are different from manufacturer to manufacturer on the same pump type.

Typical recommendations for FRH 200 are 3500 psi maximum for piston pumps and 200 psi maximum for vane pumps operating at temperatures at a maximum of 150°F at speeds of 1800 rpm maximum. These limits are generally recommended by the pump manufacturers as well. The use of FRH 200 above the limits should be approved by the pump OEM.

Coolant Control, Inc. is aware of many claims by competitive product manufactures. Although they claim, and may have history of, some products operating outside limits recommended by CCI and the pump manufactures, it is inappropriate to claim that they will perform in every application in the field at said limits. These limits in most cases are outside the performance properties of the pumps putting equipment and people at risk. Such applications must be approved by the equipment OEM.

Coolant Control, Inc. believes where competitive water/glycol based hydraulic fluids have been used in certain applications operating outside these limits with success, that the same limits and performance minimums can be realized with FRH 200.