



ACHIEVAL[®]
FIRE RESISTANT HYDRAULIC FLUIDS



a Recochem Company



KOST® USA offers a complete range of superior Fire Resistant Hydraulic Fluids (FRH) and product support services that aims to:

- Obtain optimum hydraulic system performance
- Prolong the life of hydraulic systems
- Extend maintenance intervals
- Boost productivity
- Lower maintenance costs
- Reduce overall consumption and waste

KOST® USA's premium line of Achieval™ FRH products have been formulated using leading-edge additive technology and with the highest quality raw materials. Achieval™ FRH products have been rigorously tested in both laboratory and manufacturing conditions, and developed in close collaboration with leading hydraulic and machinery manufacturers.

ACHIEVAL[®] FRH₂ 200

FIRE RESISTANT HYDRAULIC FLUIDS

High-pressure and high-temperature environments require hydraulic fluids that can get the job done right, while delivering a superior level of fire protection under stress. KOST® USA's comprehensive line of Achieval™ Fire Resistant Hydraulic Fluids deliver the ultimate performance, durability and protection needed to keep your critical equipment up and running. It's what your system demands.

Achieval™ FRH 200 Delivers:

- Outstanding fire resistance properties, providing a safer work environment
- Superior corrosion protection, extending equipment life
- Excellent shear stability and anti-wear protection, helping to reduce downtime
- High viscosity index, low pour point, and excellent heat transfer and anti foam performance
- Minimum pump and valve wear when used in accordance with OEM recommendations
- High viscosity for a wide-range of applications and reduced inventory costs
- Storage stability for easy handling in the warehouse and reduced waste
- Compatibility with other quality FRH water-glycols, permitting top-off to begin immediately

ACHIEVAL[®] Inhibitors

FIRE RESISTANT HYDRAULIC FLUIDS

KOST USA offers two superior inhibitors for enhancing water glycol (HFC-type) fire resistant hydraulic fluid properties. These inhibitors are specially-formulated to improve the properties of existing new or used products where the performance components have depleted over time.

Achieval™ FRH RA Inhibitor

This specialty fluid is designed to boost the reserve alkalinity of used water-glycol (HFC-type) fire resistant hydraulic fluids. Its purpose is to replenish the vapor phase corrosion inhibitor, as well as other corrosion inhibitors, while maintaining expected anti-wear properties.

Achieval™ FRH AW Inhibitor

This fluid is specially designed to boost the performance of existing new or used water-glycol (HFC-type) fire resistant hydraulic fluids where extra anti-wear and corrosion protection may be required.

These premium water-glycol fire resistant fluids are formulated with diethylene glycol and are designed to provide optimum performance in hydraulic systems where fire resistant fluids are required. Fortified with state-of-the-art additives, Achieval™ FRH₂ 200 delivers improved lubricity, shear stability, excellent corrosion protection, and the overall performance demanded by today's high-performance hydraulic systems. FRH₂ 200 meets the fire resistance performance requirements of Factory Mutual.

Authorized distributors of Achieval™ FRH₂ 200 may source Achieval™ 5226 Concentrate from KOST USA. Please contact us for more information about becoming an authorized distributor of Achieval™ FRH₂ 200.



AACHEVAL[®]

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Think of our products as
Liquid Assets.™



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Materials of Construction for Water-Glycol HFC Fluids

This specialty fluid is designed to boost the reserve alkalinity of used water-glycol (HFC-type) fire resistant hydraulic fluids. Its purpose is to replenish the vapor phase corrosion inhibitor, as well as other

- Packing and Hoses: Natural rubber, BR, SBR, NBR (including carboxylate nitrile seals), Q, CFM, and IIR rubbers can be used as packing materials, as well as PTFE. Polyurethane-based elastomer's, asbestos, leather and cork material packing are not suitable since they absorb water.
- High pressure or maximum pressure hoses and packing with wire, cotton, or synthetic fiber inserts and a coating of natural rubber or the above synthetics may be used without restrictions.
- FXM elastomer's including brands such as Viton are safe for use with water-glycol HFC fluids.
- Board and paper material should not be used for flange and cover seals. Fluid packing compounds or mastics should be used sparingly, so that these do not get into the fluid circuit and lead to valve blockages.
- Water-glycol HFC fluids may dissolve or soften certain pipe thread dopes. It is recommended that either Teflon pressure tape or pipe compounds that have water-glycol compatibility be used. The use of soda-based greases in and around hydraulic circuits should be avoided due to their proneness to emulsify with water-glycol fluids. Grease selection should be restricted to those having good water tolerance such as lithium, calcium, aluminum complex, and calcium sulfonate complex.
- Water-glycol HFC fluids, because of their solvent action, are not compatible with conventional industrial paints. When a system is converted to water-glycol HFC fluids, all internal paints known to be adversely affected should be removed and the surface either left unpainted or treated with a coating that is resistant to water-glycol solution, such as epoxy resin or phenolic resin paints.
- Water-glycol HFC fluids are compatible with the metals normally employed in hydraulic systems. They should not be used in systems incorporating magnesium alloys, because of their reactivity with water. Zinc and cadmium plated parts should be avoided.

Corrosion Testing

At KOST USA, we specialize in corrosion testing designed to estimate the corrosion behavior of alloys in various environments. Our technical experts assemble customized tests to simulate a variety of atmospheric and environmental service conditions. These methods are used to:

- Identify performance parameters of a product, component or material
- Identify areas more prone to corrosion attack (such as cracks and crevices)
- Determine if a product's materials are suited for a specific environment
- Utilize the test data generated to make product improvements
- Testing of materials to verify conformation to various industry standards including ASTM

Corrosion Testing Method

This method is a simple beaker evaluation of the effects of a fluid on metal specimens under controlled laboratory conditions. Specimens of a metal are totally immersed in aerated solutions prepared with corrosive salts for 240 hours (10 days) at 88°C (190°F). The corrosion inhibition properties of the test solutions are evaluated on the basis of the weight change by the metal specimens. This test method will generally distinguish between fluids that are definitely deleterious from the corrosion standpoint and those that are suitable for further evaluation. The results of this test method cannot stand alone as evidence of satisfactory corrosion inhibition.

Results: Free and Clear; No Rust.

ASTM D7043 - This test method is an indicator of the wear characteristics of non-petroleum and petroleum hydraulic fluids operating in a constant volume vane pump. Excessive wear in vane pumps could lead to malfunction of hydraulic systems in critical applications.

Industry expectations are pump wear is less than 100mg for ASTM D7043

Weight Loss	External Lab	External Lab
Ring (mg)	35.1	35.1
Vane (mg)	4.8	4.2
Total (mg)	39.9	39.3



- Recommend in system operating with Eaton/Vickers, Parker/Denison, Rexroth as well as other piston & vane pumps
- Excellent shear stability, wear and corrosion protection
- Meets U.S. Steel Requirement #171

Applicable in most types of hydraulic equipment found in:

Die-Casting
Steel Mills
Mining
Foundries

AchievaAL™ FRH₂ 200 is
Factory Mutual Approved
(finished product formulation)



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Liquid Assets.™



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Typical Properties	200	5226 Concentrate	RA Inhibitor	AW Inhibitor
Color	Red	Red/Orange	Light Yellow	Light Yellow
Viscosity @ 40 C° cSt	40.5	210	N/A	N/A
Viscosity Index	200	N/A	N/A	N/A
Specific Gravity @ 60°F	1.085	1.105	N/A	N/A
Density	9.05	9.23	7.40	7.50
pH	9.5	9.5	N/A	N/A
pH, 5% in Water	N/A	N/A	9.7	9.4
Reserve Alkalinity	20.5	31	N/A	N/A
Reserve Alkalinity in 5% Water	N/A	N/A	50	30

Helpful Shipping Information	200	5226 Concentrate	RA Inhibitor	AW Inhibitor
Steel Drums/Pail Qty	55 Gallons	55 Gallons	5 Gallons	Call
Package Dimensions	23.5"Dx34.5"H	23.5"Dx34.5"H	23.5"Dx34.5"H	Call
Gross Container Weight	≈537 Pounds	≈543 Pounds	≈42 Pounds	Call
Gross Weight on Pallet	≈2198 Pounds	≈2222 Pounds	≈2066 Pounds	Call
Quantity Per Pallet	4	4	48	Call
Pallet Dimensions	45"x45"x39.4"	45"x45"x39.4"	48"x48"x48"	Call
Dilution	Concentrate	Concentrate	Concentrate	Concentrate

Additional AchievaAL® Products Available

Product Name	Dilution	Size	Part Number	UPC Code
AchievaAL 200	Concentrate	275 Gallon Tote	10311	652138103117
AchievaAL 200	Concentrate	330 Gallon Tote	10312	652138103124
AchievaAL 200	Concentrate	Bulk	10313	652138103131
AchievaAL 200	Concentrate	Drum	10314	652138103148
AchievaAL 5226	Concentrate	Bulk	10316	N/A
AchievaAL 5226	Concentrate	Drum	10317	652138103179
AchievaAL 5226	Concentrate	275 Gallon Tote	10315	652138103155
AchievaAL RA Inhibitor	Concentrate	Pail	10320	652138103209
AchievaAL AW Inhibitor	Concentrate	Bulk	10398	N/A

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KOST® USA is the largest family founded manufacturer, supplier and marketer of antifreeze and functional fluids in the United States. Founded in 1985, we are headquartered in Cincinnati, OH. We build both our customers and our own brands through high performance products and superior service, primarily in the automotive & heavy duty aftermarket, as well as in the Oil & Gas sector.

Our products are cool... Our people are warm.