

# Product Bulletin



## Fyrquel® EHC Plus Electro-Hydraulic Control Fluid



### Overview

Fyrquel® EHC Plus Electro-Hydraulic Control Fluid is a phosphate ester based fire-resistant fluid, and is the latest introduction to the Fyrquel® EH Series. This next generation product features the same superior self extinguishing fire properties exhibited from earlier generation Fyrquel® fluids, while providing added performance and sustainability benefits. These fluids are in the class of “non aqueous hydraulic fluids” and also referred to as “synthetic fire resistant fluids”. Fyrquel® fluids are both extremely difficult to ignite and inherently self extinguishing. Other type synthetic fluids are not self extinguishing. Critical equipment should use self extinguishing fluids to get the highest level of protection from leaking fluid fires. Please visit [www.icl-ip.com](http://www.icl-ip.com) and go to the Functional Fluids business unit icon to see a comparison of non-aqueous fire resistant fluid types.

Fyrquel® fluids offer:

- Highest fire resistance
- Inherent self extinguishing property
- High oxidative and thermal stability
- Good hydrolytic stability
- Excellent lubrication properties
- Rated readily biodegradable.

### Fyrquel EHC Plus OEM Approvals

Fyrquel® EHC Plus meets or exceeds GE, Westinghouse, Alstom/ABB, Siemens and most other EHC equipment OEMs.

### Fyrquel® EHC Plus New Generation Fluid Advantages

- Improved air entrainment, less than 3 minutes
- Superior oxidative stability in high temperature services
- Made from more sustainable materials
- Fully miscible with used phosphate ester systems

### Product Mixing

Fyrquel® EHC Plus is fully miscible with other Fyrquel® EH products and may be mixed or topped off in the same reservoir. However, when upgrading to Fyrquel® EHC Plus, a total fluid change is recommended to receive the full benefit of the next generation product. This will also allow flushing or cleaning of the reservoir prior to the change. The only two exceptions to this guideline would be mixing a degraded fluid, identified by a >0.20 TAN fluid acidity condition, with new fluid. The first exception is when performing a corrective partial fluid change to a reservoir containing degraded fluid. Original Fyrquel® EH product should be used for the partial re-fill. The second exception is when performing a total fluid change when replacing degraded fluid. The system should first be cleaned and flushed to remove contamination prior to refilling with Fyrquel® EHC Plus.

### Maintenance & Handling

Fyrquel® products are easily maintained in near original condition using standard off line chemical filtration. The Fyr-Check® Fluid Analysis service is available on request along with other service assists from experienced technical representatives. The new generation fluid products feature equal or better stability for continued long service life. Refer to Material Data Sheets (MSDS) for additional information, storage, handling, and transport guidelines. A review of the MSDS demonstrates that Fyrquel® products have similar profiles as conventional lubricants.

# Fyrquel® EHC Plus Electro-Hydraulic Control Fluid

## Typical Properties

Appearance	clear, transparent liquid
Viscosity	
at 37.8°C (100°F) cST (SUS)	47 (220)
at 98.9°C (210°F) cST (SUS)	5 (43)
ISO Grade	46
Viscosity Index	0
Specific Gravity @ 60/60° F	1.145
Pour Point, °C (°F)	-18 (0)
Water Content, wt. %	0.10 max
Chlorine Content, ppm (micro coulometry)	20
Acid Number, mg KOH/g	0.05
Foaming, (ASTM D-892-72), mL.	10
Color, ASTM	1.5
Particle Distribution (SAE A-6D, tentative)	ISO 15/12 Class 3
Resistivity (OHM/cm)	20.0 x 10 <sup>9</sup> min
Air Entrainment, Minutes,	<3 minutes

## Engineering Design Data

Evaporation Loss, wt. % (22 hrs @ 300° F)	1.50
Coefficient of Thermal Expansion @ 100° F (MI/MI/°F)	0.0003
Surface Tension (dynes/cm) @ 68° F	42
Heat of Combustion (btu/lb)	13,459
Specific Heat (cal/g °C)	
0°C	0.3523
38°C	0.3762
100°C	0.4101
Thermal Conductivity (cal-cm/sec/cm <sup>3</sup> /°C)	
40°C	3.04 x 10 <sup>-4</sup>
94 °C	3.04 x 10 <sup>-4</sup>
146 °C	2.95 x 10 <sup>-4</sup>

## Latent Heat

24.7 kcal/mole
60.3 cal/g
108.8 BTU/lb.

## Vapor Pressure (mm Hg ABS)

420 °F	0.08 mm Hg ABS
430 °F	0.50 mm Hg ABS
450 °F	1.20 mm Hg ABS

## Lubricity Data

### Shell 4-Ball Test

1 kg, load, Scar dia. mm., avg.	0.19
10 kg load, Scar dia. mm., avg.	0.38
40 kg. load, Scar dia. Mm., avg.	0.48

### V-104C Vickers Vane Pump Test (ASTM D-2882)

#### Ring Wear, grs. cumulative

24 hours	0.0037
100 hours	0.0043

#### Vane Wear, grs. cumulative

24 hours	0.0030
100 hours	0.0085

### "FALEX" Lubrication Test (ASTM D-2625)

Wear Test (ASTM-D-2670) 0.0105 scar width, in.

### Extreme Pressure Test (ASTM D-2625)

Transition Load	1,500 lbs.
Transition Pressure	101,000 psi.

### "TIMKEN" Lubrication Test (ASTM D-2714)

Wear Test 1.25 scar width, mm

### Extreme Pressure Test

O.K. Load	55 lbs.
Pressure at O.K. Load	26,250 psi

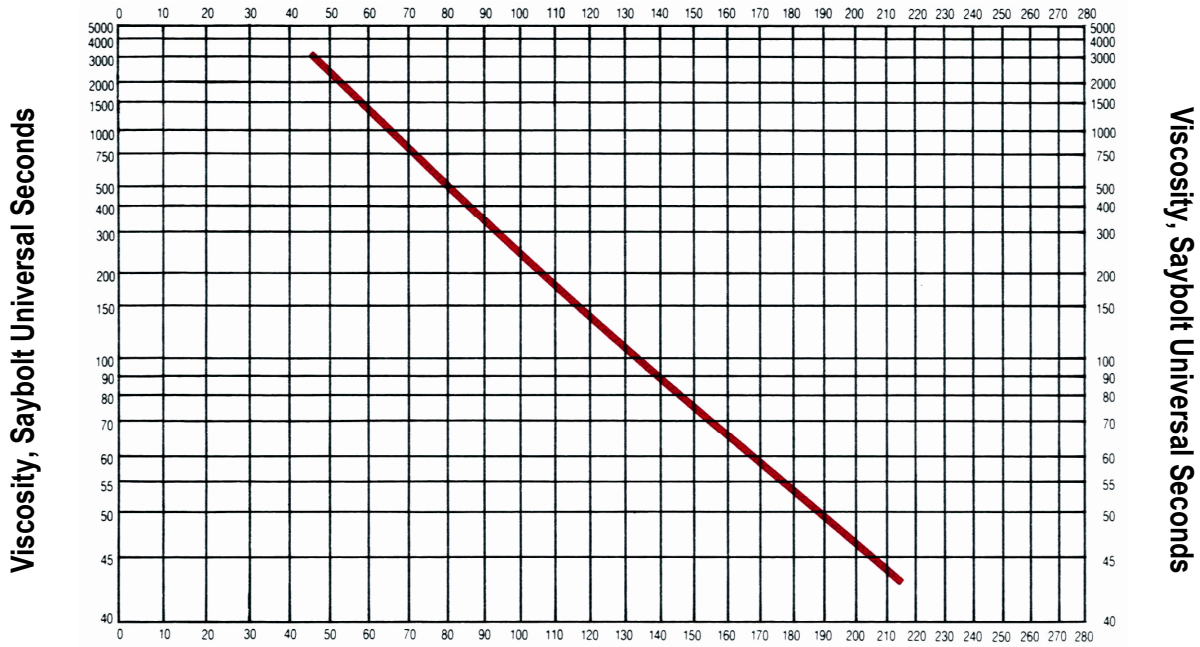
## Safety & Handling

Consult the Material Safety Data Sheet for these products.

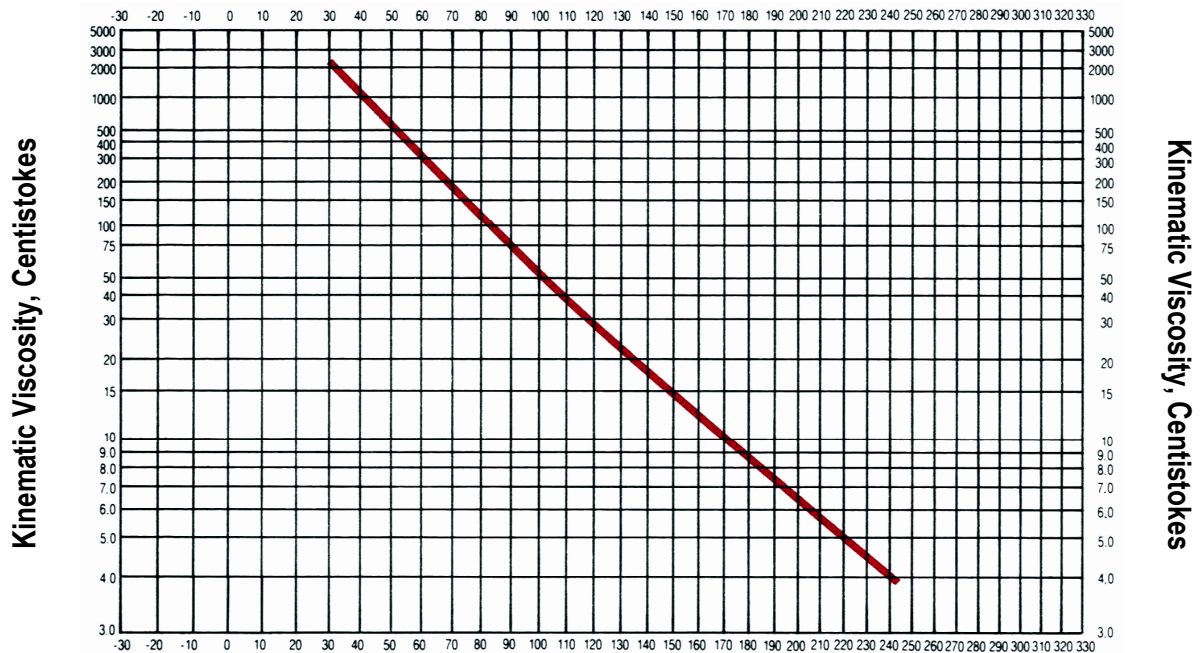
## Shipping Information

Available 55 gallon/208 liter drums.

### Temperature, Degrees Fahrenheit



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For more information about our products and to place an order, please contact your nearest ICL regional sales office:

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