

## 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 ISO HFDR 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.fyrquel.com](http://www.fyrquel.com) or [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
- Not classified or transport regulated under GHS.

#### FYRQUEL® EHC PLUS OEM APPROVALS

Fyrquel® EHC Plus meets or exceeds GE, Westinghouse, Alstom/ABB, Siemens and most other EHC equipment OEMs. For further information please contact your Fyrquel® Representative.

#### FYRQUEL® EHC PLUS NEXT GENERATION FLUID ADVANTAGES

- Improved air entrainment.
- Superior oxidative stability in high temperature services.
- Lowest fluid acidity.
- Higher fluid resistivity.
- Made from more sustainable materials, not classified under United Nations GHS hazard classification.
- Fully interchangeable and mixable with prior generation Fyrquel® EH fluids.
- Switching to this improved modern fluid is as simple as reservoir top off.
- Continues to provide STG operators with the required self-extinguishing phosphate ester fire resistance.

#### PRODUCT MIXING

Fyrquel® EHC Plus is fully mixable and interchangeable with prior generation Fyrquel® EH products and may be mixed or topped off in the same reservoir.

#### 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**

<b>Appearance</b>	<b>clear, transparent liquid</b>
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

Typical Properties are not sales specifications. Sales specifications are available upon request. The Certificate of Analysis will confirm actual values at time of shipment.

**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

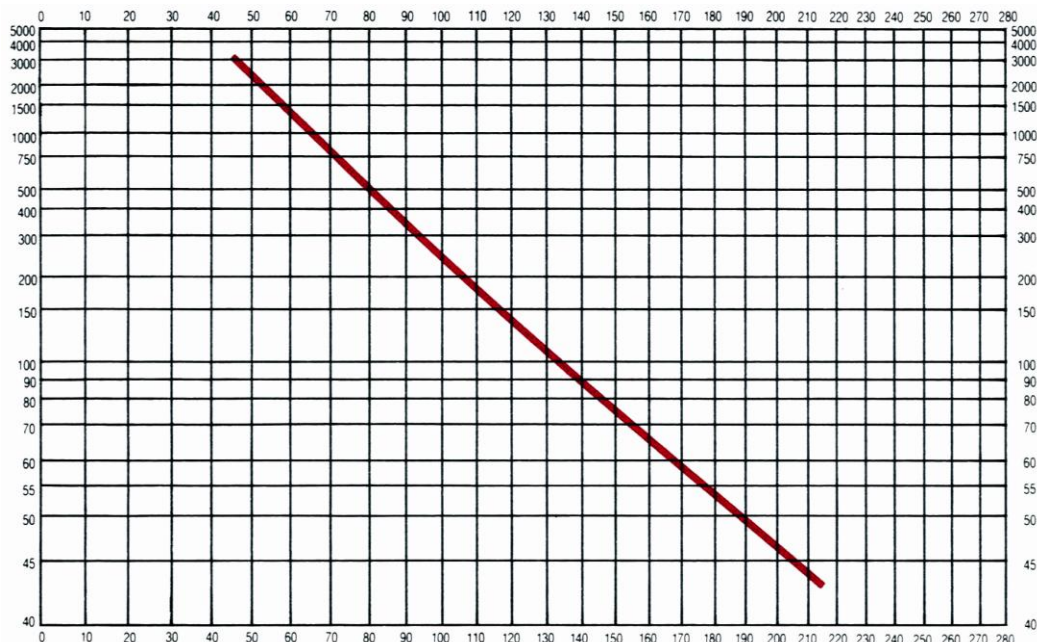
Consult the Material Safety Data Sheet for these products.

### SHIPPING INFORMATION

Available 55 gallon/208 liter drums.

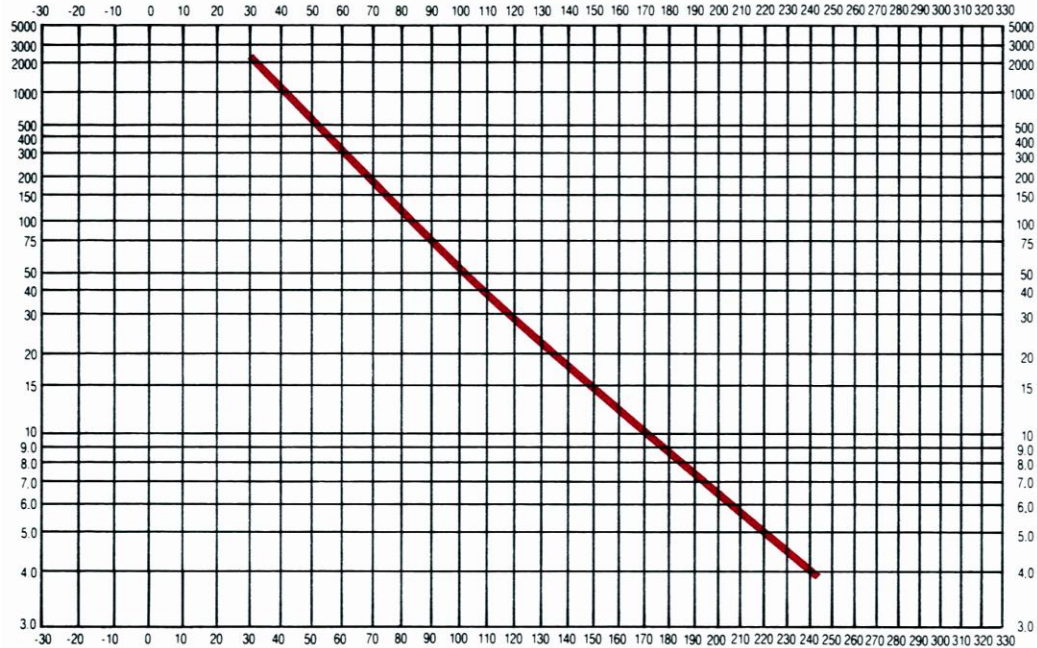
Temperature, Degrees Fahrenheit

Viscosity, Saybolt  
 Universal Seconds



### Temperature, Degrees Fahrenheit

**Kinematic  
Viscosity,  
Centistokes**



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

**AMERICAS REGIONAL SALES OFFICE**

ICL-IP America Inc.  
622 Emerson Road, Suite 500  
St. Louis, Missouri 63141-6742 USA  
Tel: 800-666-1200  
Fax: 314-983-7607

**ASIA PACIFIC REGIONAL SALES OFFICE**

ICL China  
93 Huai Hai Zhong Road #905-909  
Shanghai 200021, China  
Tel: 021-53863336  
Fax: 021-53863336

**EUROPEAN REGIONAL SALES OFFICE**

ICL-IP Europe BV  
Fosfaatweg 48 1013 BM Amsterdam  
P.O. Box 465 1000 AL Amsterdam, Netherlands  
Tel: (31) 20 800 5800  
Fax: (31) 20 800 5805

All information concerning this product and/or suggestions for handling and use contained herein are offered in good faith and are believed to be reliable as of the date of publication. However, no warranty is made as to the accuracy of and/or sufficiency of such information and/or suggestions as to the merchantability or fitness of the product for any particular purpose, or that any suggested use will not infringe any patent. Nothing herein shall be construed as granting or extending any license under any patent. Buyer must determine for itself, by preliminary tests or otherwise, the suitability of this product for its purposes, including mixing this product with other products. The information contained herein supersedes all previously issued bulletins on the subject matter covered.