

# Product Bulletin

supresta™  
BUILT-IN DEFENSE

## Fyrquel® Electro-Hydraulic Control Fluids



### Overview

Fyrquel® Electro-Hydraulic Control Fluids are phosphate ester based fire-resistant fluids formulated with trixylenyl and or butylated phenyl phosphates. The fluids are in the class of “non aqueous hydraulic fluids” sometimes 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. Visit [www.supresta.com](http://www.supresta.com) to see a comparison of fire-resistant fluids. The fluids offer:

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

### Product Mixing

The Fyrquel® products listed in the above box are fully miscible with each other and may be mixed or topped off in the same reservoir. However, when upgrading to a newer generation fluid, we recommend a total fluid change to receive

### Fyrquel® Product Selector

Fyrquel® EHC meets or exceeds GE, Westinghouse, Alstom/ABB, and most other EHC equipment OEMs. Fyrquel® EHC-N meets or exceeds Siemens, Alstom/ABB specifications for a trixylenyl phosphate product with low air release time. Fyrquel® EHC-S has been traditionally recommended for higher temperature service.

### Fyrquel® Series

First Generation	Fyrquel® EHC-N	Trixylenyl phosphate (TXP)
Second Generation	Fyrquel® EHC	Trixylenyl phosphate (TXP) and Butylated phenyl phosphates
Second Generation	Fyrquel® EHC-S	Butylated phenyl phosphates (Higher Temperature Service)

the full benefit of the new fluid. This will also allow 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—the same product should be used for the partial re-fill. The second exception is when performing a total fluid change replacing degraded fluid—the system should first be cleaned to remove built-up contamination prior to refilling with the third generation fluids.

### Maintenance & Handling

Fyrquel® products are easily maintained in like new, clean condition using standard off line chemical filtration and the FyrCheck Routine Fluid Analysis service available on request, along with other service assists from experienced field representatives. The new generation fluid products feature equal or better stability for continued long service life. Refer to Supresta Material Data Sheets (MSDS) for additional information, storage, handling, and transport guidelines. A review of the MSDS will show Fyrquel® products with a low degree of hazard when used as intended.

# Fyrquel® Electro-Hydraulic Control Fluids

## 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. %	0.03
Chlorine Content, ppm (micro coulometry)	20
Acid Number, mg KOH/g	0.03
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)	12.0 x 10 <sup>9</sup>
Air Entrainment, Minutes,	<=5 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

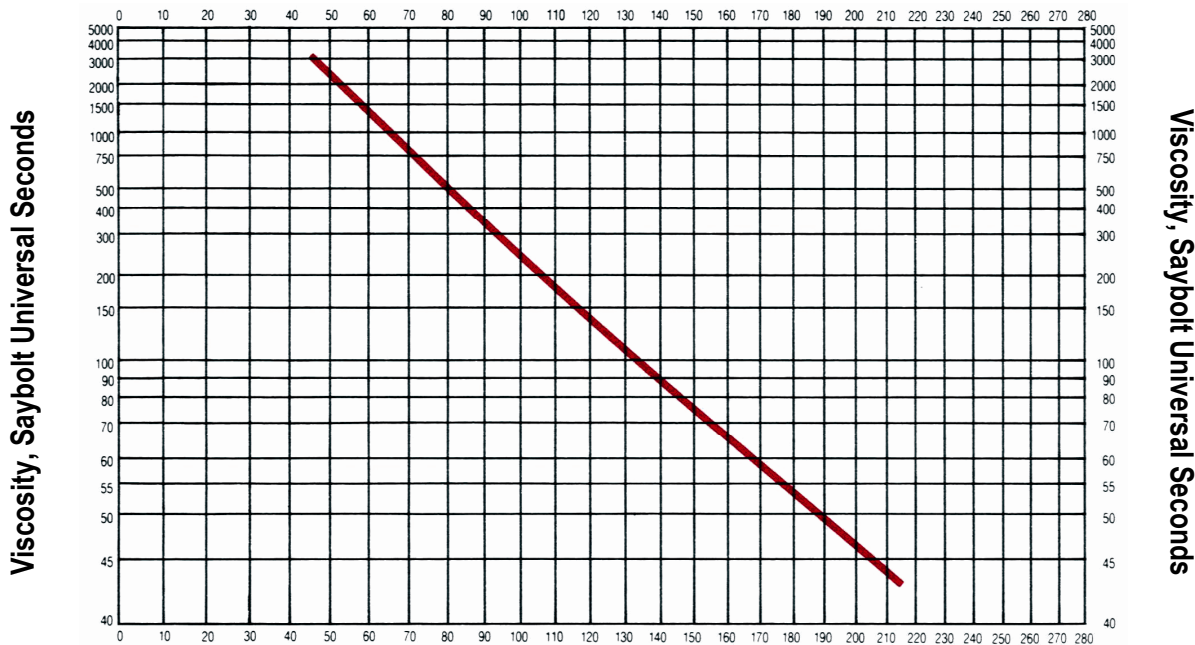
## Safety & Handling

Consult the Material Safety Data Sheet for these products.

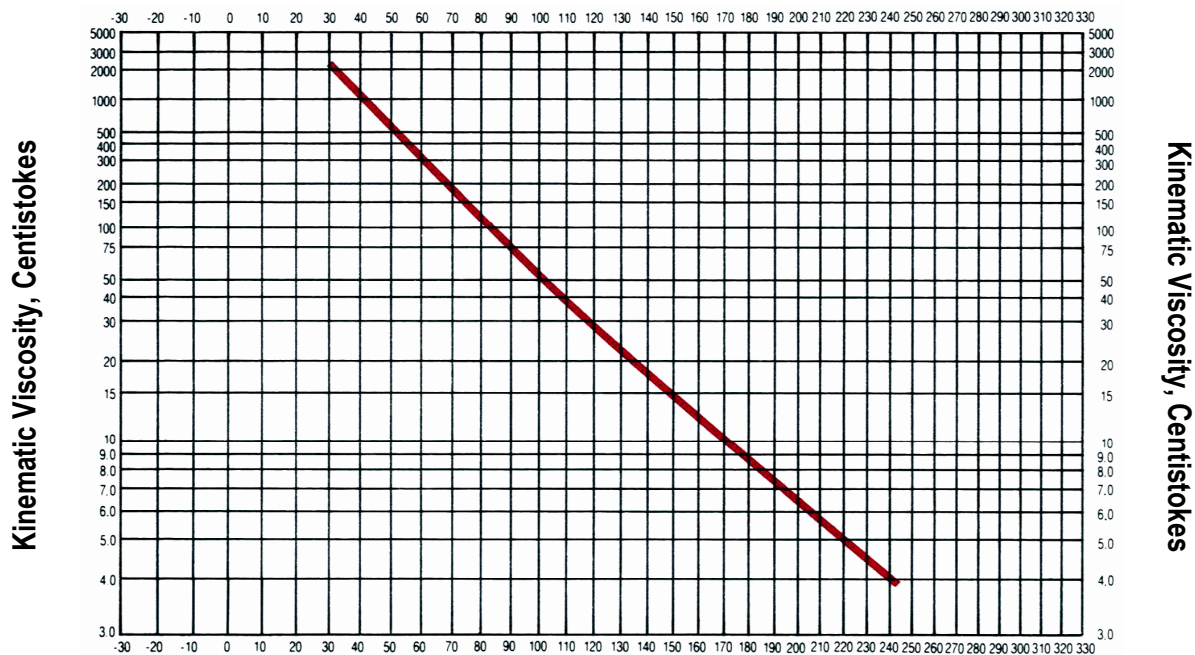
## Shipping Information

Available 55 gallon/208 liter drums.

### Temperature, Degrees Fahrenheit



### Temperature, Degrees Fahrenheit



### Temperature, Degrees Fahrenheit

For more information about our products and to place an order, please contact one of Supresta's regional sales offices.

**AMERICAS REGIONAL SALES OFFICE**  
 Ardsley Park at 420 Saw Mill River Road  
 Ardsley, New York 10502 USA  
 914.269.5900, 800.666.1200  
 fax 914.674.9735

**ASIA PACIFIC REGIONAL SALES OFFICE**  
 12/B, Sun Tong Plaza, No.55 Huai Hai Road West  
 Shanghai 200030 China  
 86 21 5298 9058  
 fax 86 21 5298 9352

**EUROPEAN REGIONAL SALES OFFICE**  
 Hoefseweg 1, PO Box 2501  
 3800 GB Amersfoort, The Netherlands  
 31 33 4534 575  
 fax 31 33 4534578

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.