

# Product Bulletin

## Fyrquel® Fire-Resistant Hydraulic Fluids

### OVERVIEW

**Fyrquel® fluids are triaryl phosphate ester butylated triphenyl phosphates to provide:**

- Self extinguishing fire-resistant properties;
- Superior oxidation and thermal stability;
- Good hydrolytic stability;
- Excellent lubrication properties; and
- Biodegradable fluids.

**Fyrquel® fire-resistant hydraulic fluids are triaryl phosphate ester type synthetic fluids in a range of viscosities used in:**

- Steel and aluminum furnace hydraulics;
- Die cast hydraulics;
- Reciprocating air compressors; and
- Hydraulics.

Fyrquel® fluids are self extinguishing, non-aqueous hydraulic fluids that do not support their own combustion. This self extinguishing property exceeds the limits established for "Less Hazardous Hydraulic Fluids" and incorporates phosphate esters' unique true self extinguishing property easily proven by simple flame and wick tests. Fyrquel® fire-resistant fluids reduce the risk of catastrophic fires.

### SAFETY & HANDLING

Consult the Safety Data Sheet for these products.

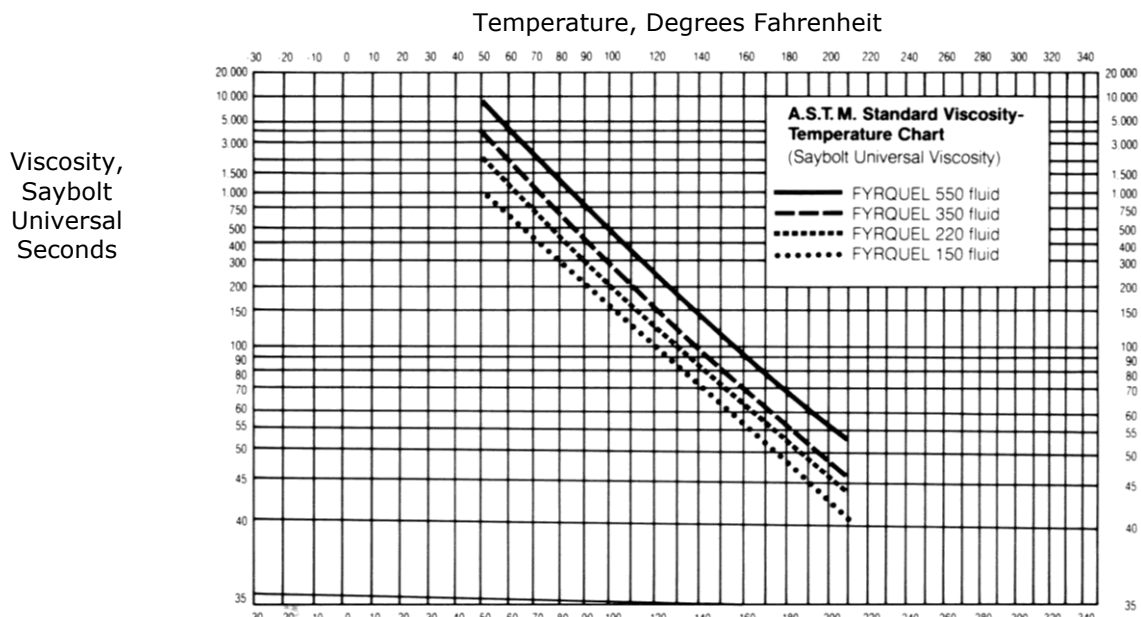
### SHIPPING INFORMATION

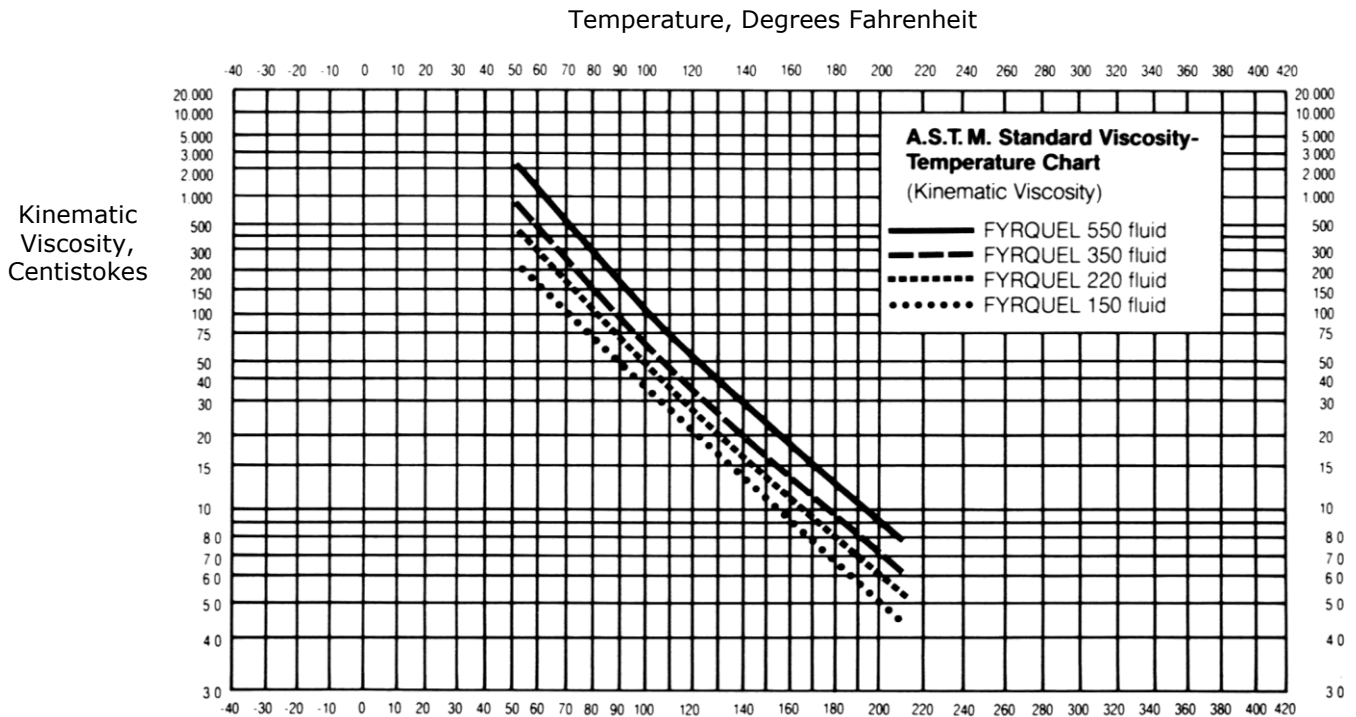
Available in bulk tank trucks, 55 gallon drums, or 5 gallon pails.

### SUPERIOR FIRE PROPERTIES

	Fyrquel®	PAO	Polyol Ester	Mineral Oil
Flash Point, °F	475	455	595	420
Fire Point, °F	675	530	675	465
Autoignition Temperature, °F	1050	730	775	600
Heat of Combustion, kBTU/lb	13.3	17.2	17.1	17.3
Burning after Heat Source Removal	No	Yes	Yes	Yes

### VISCOSITY VS. TEMPERATURE





**TYPICAL PROPERTIES\***

	<u>Fyrquel® 150</u>	<u>Fyrquel® 220</u>	<u>Fyrquel® 300</u>
Appearance	Clear, yellow liquid	Clear, yellow liquid	Clear, yellow liquid
Viscosity, SUS @ 100°F	153	219	302
ISO Grade	32	46	68
Viscosity Index	+25	+25	+25
Specific Gravity @ 60/60°F	1.166	1.150	1.151
Weight (lb/gal) @ 60/60°F	9.71	9.58	9.59
Pour Point (°F)	-10	0	5
Boiling Point (°F @ 760 mmHG)	755	781	795
Water Content (% by weight)	0.05	0.05	0.05
Acid Number (mg KOH/g)	0.03	0.03	0.03
ASTM Rust Test, Procedure A	Pass	Pass	Pass

*\*Typical properties are not Sales Specifications. Sales Specifications are available on request and Certificates of Analysis will confirm actual values at time of order shipment.*

**ENGINEERING DESIGN DATA**

	Fyrquel® 150	Fyrquel® 220	Fyrquel® 300
Evaporation Loss, wt. % (22 hrs @ 300°F)	1.50	1.50	1.50
Coefficient of Thermal Expansion @ 100°F (ml/ml/°F)	0.0003	0.0003	0.0003
Thermal Conductivity @ 77°F (btu/hr/ft <sup>2</sup> /°F/ft)	0.0721	0.0706	0.0721
Surface Tension (dynes/cm) @ 68°F	42	42	43
Refractive Index @ 68°F	1.555	1.551	1.554
Heat of Combustion (btu/lb)	13,367	13,459	13,757
Specific Heat (btu/lb/°F)			
@ 100°F	0.376	0.376	0.381
@ 300°F	0.441	0.442	0.444

**LUBRICITY DATA**

Shell 4-Ball Test			
1 kg load, Scar dia. mm, avg.	0.25	0.20	0.21
40 kg load, Scar dia. mm, avg.	0.62	0.54	0.56

**COMPATIBILITY WITH MATERIALS OF CONSTRUCTION**

Fyrquel® fluids are triaryl phosphate esters designed for industrial application and have different compatibility compared to alkyl aryl type phosphate esters that are used for aviation application. A Fyrquel® Compatibility guideline bulletin is available on request from your Fyrquel® Representative or can be self served on [www.fyrquel.com](http://www.fyrquel.com). The bulletin will list Fyrquel® fluid compatibility with common materials of construction, including seals and o-ring material, metals and coatings. If there are questions please contact a Fyrquel® Fluids Representative.

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

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