

FULLY SYNTHETIC, BIODEGRADABLE, FIRE RESISTANT HYDRAULIC FLUID

DESCRIPTION:

Safety Fluid FR formerly **EcoSafe FR** fluids represent a significant advancement in fire-resistant hydraulic fluid technology. These fully synthetic and biodegradable formulations deliver performance superior to premium anti-wear mineral oils, and offer significant performance and environmental advantages over other fluid options – including other synthetics. Safety Fluid FR fluids are used in industrial and mobile equipment, including high-pressure systems, hydrostatic drives, systems with servo valves, and all robotics.

Safety Fluid FR fluids are based on a very high VI, polyether polyol base stock combined with a non-metallic additive package. Unlike phosphate and polyol ester-based fluids, they do not break down when exposed to water, minimizing potential for fluid degradation and system damage. As a result, fluid changeout intervals are extended under even the most severe operating conditions.

Safety Fluid FR fluids are classified as FM Approved industrial fluids by Factory Mutual and meet stringent criteria for biodegradability and low toxicity.

ADVANTAGES:

Excellent Lubricity – Safety Fluid FR fluids offer excellent lubricity, for outstanding pump life under the most severe conditions. The fluids meet or exceed the pump performance of premium, anti-wear mineral oils, even at 5,500 psi (380 bar) operating pressure. Shear stability is excellent. And all three grades earn a 12-stage rating in the FZG Gear Test, demonstrating high level protection against wear and scuffing.

Hydrolytic Stability – Unlike phosphate esters, polyol esters and vegetable oils, Safety Fluid FR fluids will not break down and react with water, minimizing fluid degradation and acid formation that can damage and eventually destroy hydraulic pumps.

Non-Sludge or Varnish Forming – The fluids are oxidatively stable and will not degrade to form varnish or sludge, contributing to long-term system cleanliness while extending maintenance intervals and overall service life.

High Temperature Stability – Safety Fluid FR fluids are very stable at high temperatures and resistant to thermal degradation up to 120°C (250°F).

All-Weather Service – The high viscosity indices of Safety Fluid FR fluids enable them to handle wide temperature extremes. The fluids also have low pour points necessary for cold weather start up.

Material Compatibility – Safety Fluid FR fluids are completely compatible with commonly used seals, hoses and metals. Detailed compatibility data is available upon request.

SPECIFICATIONS:

Typical Performance Properties*

Rexroth 1,100 Hour Endurance Test (2600 rpm, 85°C [185°F], 380 bar)	Pass
Brugger Value (DIN 51347)	>40 N/mm ²
Vickers 104C Vane Pump Test, ASTM D2882 (2000 psi, 1200 rpm, 100 hours, 65°C [150°F], 7.5 gpm, 3.5 gallon sample)	<5mg total wear
Four Ball Wear, ASTM D2266 (1800 rpm, 1 hour, 75°C [167°F], 40 kg load)	0.35 mm
Four Square Gear Test (FZG) (1760 rpm, 90°C [194°F], 1600 ml sample)	Pass, all 12 stages
Eaton Corporation 35VQ25 (formerly Vickers) Industrial (I-286-S), Mobile (M-2950-S)	Pass
Turbine Oil Stability Test, ASTM D943 (95°C [203°F], iron and copper catalysts, 60 mls water) Time to 2.0 Acid Number Increase	>2,000 hours
Seal Compatibility (1,000 hours @ 100°C [212°F]) Buna-n, Viton, Polyurethane (@60°C), EPR, Butyl, PTFE	Pass
OECD Ready Biodegradability Test Method 301 B, 28 days, Requirement: >60%	70.9%

*Typical properties, not to be construed as specifications.

Typical Physical Properties*

	SAFETY FLUID FR-46	SAFETY FLUID FR-68	SAFETY FLUID FR-100
Viscosity @ cSt @ 40°C (100°F, SUS)	48.9 (250)	69 (350)	94.8 (480)
Viscosity @ cSt @ 100°C (210°F, SUS)	9.35 (57.5)	12.6 (69.8)	16.8 (86.6)
Viscosity Index	178	185	192
Pour Point, °C (°F)	-48 (-55)	-45 (-50)	-40 (-40)
Density (lbs/gal) @ 60°C (140°F)	8.19	8.21	8.25
FM Approved	Yes	Yes	Yes



**COAST LUBRICANTS
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