



MIL-PRF-46170E RADCOLUBE® FRI70



RADCOLUBE® FRI70

HYDRAULIC FLUID, RUST INHIBITED, FIRE RESISTANT, SYNTHETIC HYDROCARBON

This product is a synthetic hydrocarbon base hydraulic fluid for use in the -40°C to 200°C (-40°F to 392°F) temperature range in recoil mechanisms and ground vehicle and equipment hydraulic systems.

NATO Code: H-544

Qualification Number: HF-78, HF-79, HF-80, HF-82, HF-83

Qualification Date: 5/17/2019, 3/11/2021, 3/16/2021, 7/20/2021, 7/20/21

ISO 9001:2015 Certification No: C2021-00038

Shelf Life: 24 Months from DOM

Manufactured: LaFox, IL 60147 Cage: IRVC4



NATIONAL STOCK NUMBERS (NSN)	
9150-01-332-7819	Pint
9150-00-111-6256	Quart
9150-00-111-6254	Gallon
9150-00-111-6255	5 Gallon Pail
9150-01-158-0462	55 Gallon Drum



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PROPERTY	TEST LIMITS	TYPICAL RESULTS	TEST METHOD
Acid Number	0.20 mgKOH/g maximum	0.17	ASTM D664
Autoignition Temperature	343°C, minimum	378	ASTM E659
Compatibility	Paragraph 3.4.1	Conforms	Paragraph 4.5.2
Corrosion Protection, (Humidity Cabinet) sand blasted and polished panels 100 ±1 hours at 48.9 ±1.1°C	Paragraph 3.4.2	Conforms	ASTM D1748
Corrosiveness (Bimetallic Couple)	Paragraph 3.4.3	Conforms	ASTM D6547
Corrosiveness and Oxidation Stability 168 hrs at 121 ±1°C Metal Specimen weight change			ASTM D4636 Procedure 2
Cadmium Anod	±0.2 mg/cm ² , max	-0.031	
Steel Grade 1010	±0.2 mg/cm ² , max	0.016	
Aluminum Alloy	±0.2 mg/cm ² , max	0.023	
Magnesium	±0.2 mg/cm ² , max	0.000	
Copper	±0.6 mg/cm ² , max	0.000	
Percent change in viscosity at 40°C	± 10%, max	0.40%	
Change in acid number	0.30 mgKOH/g, max	-0.07	
Separation of insoluble material or gumming of the fluid	None	None	
Evaporation Loss 22 Hours at 149 ±0.5°C	5%, max	1.70%	ASTM D972
Fire Point	246°C, min	248	ASTM D92
Flash Point	218°C, min	222	ASTM D92
Foaming Characteristics			ASTM D892
Foaming Tendency			
Volume at end of 5 minute blowing period at 24°C	65mL, max	0	
at 94°C	65mL, max	5	
at 24°C after test at 94°C	65mL, max	0	
Foam Stability			
Volume at end of 10 minute setting period at 24°C	0 mL, max	0	
at 94°C	0 mL, max	0	
at 24°C after test at 94°C	0 mL, max	0	
High Temperature/High Pressure Spray Ignition	Paragraph 3.4.4	Conforms	FTM 6052
Isothermal secant bulk modulus at 40°C and 27.6 MPa	1,379 MPa, min	1,760	ASTM D6793
Linear Flame Propagation Rate	0.30 cm/s, max	0.16	ASTM D5306
Low Temperature Stability -40°C/6°C for 72 hrs	Paragraph 3.4.5	Conforms	FTM 3458



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PROPERTY	TEST LIMITS	TYPICAL RESULTS	TEST METHOD
Particulate Contamination			FTM 3012
Particle Count			
5-25µm	10,000	303	
26-50µm	250	0	
51-100µm	50	0	
over 100µm	10	0	
Gravimetric method	0.5 mg/100mL, max	0.5	
Pour Point	-54°C, max	-72	ASTM D97
Relative Density at 15.6°C/15.6°C	Report	0.848	ASTM D1298
Rubber Swell, Standard Synthetic Rubber NBR-L (168±0.5 hours at 70 ± 2.5 °C)	15.0 - 25.0%	15.2%	ASTM D4289
Steel on Steel wear			
Test Load 147N	0.30 mm, max	0.30	
Test Load 392N	0.65 mm, max	0.53	
Storage Stability 24 ± 3°C for 12 months	Paragraph 3.4.8	Conforms	FTM 3465
Trace Sediment	0.005 mL, max	0.000	ASTM D2273
Viscosity			ASTM D445
at -40°C	2600 cSt, max	2047	
at 40°C	19.5 cSt, max	14.7	
at 100°C	3.4 cSt, min	3.67	
Water	0.05%, max	0.01	ASTM D445
Water Sensitivity, Light Transmittance	90%, min	99.6%	Paragraph 4.5.1
Workmanship	Paragraph 3.4.9	Conforms	Paragraph 3.4.9