



# MIL-PRF-87257C RADCOLUBE® FR257



## **RADCOLUBE® FR257**

HYDRAULIC FLUID, FIRE RESISTANT, LOW TEMPERATURE, SYNTHETIC HYDROCARBON BASE, AIRCRAFT AND MISSILE

Synthetic, fire resistant hydraulic fluid consisting of synthetic hydrocarbon base oils and additives. Safe for use in low temperature aircraft.

NATO Code: H-538

Qualification Number: AFPET/PTPS 19-011

Qualification Date: 18 July 2019

ISO 9001:2015 Certification No: C2021-00038

Shelf Life: 24 Months from DOM

Manufactured: LaFox, IL 60147 | Cage: 1RVC4



NATIONAL STOCK NUMBERS (NSN)	
9150-01-388-7769	Quart
9150-01-386-6687	Gallon
9150-01-391-2087	5 Gallon Pail
9150-01-387-4577	55 Gallon Drum



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PROPERTY	REQUIREMENT	TYPICAL RESULTS	TEST METHOD
Acid number, mg KOH/g	0.20 max	0.08	ASTM D664
Relative Density at 15.6°C/15.6°C	Report	0.827	ASTM D1298
Barium content, mg/kg	10 max	0	ASTM D5185
Color	Conform	Conforms	ASTM D1500
Compatibility	Conform	Conforms	Paragraph 4.4.2
Corrosiveness and oxidation stability 168 hours at 135°C ± 1°C			ASTM D4636
Change in acid number, mg KOHg	0.20 max	-0.04	
Percent change in viscosity at 40°C	±10%	-2.02%	
Metal specimen weight change, mg/cm <sup>2</sup>			
M-50 steel	±0.2	0.008	
Aluminum	±0.2	0.016	
Magnesium	±0.2	0.016	
Cadmium plated steel	±0.2	-0.054	
Copper	±0.6	-0.016	
Separation of insoluble materials or gumming of the fluid	None	None	
Evaporation loss 6.5 hours at 135°C, weight percent	20% max	10%	ASTM D972
High temperature-high pressure spray ignition	Conform	Conforms	FED-STD-791 Method 6052
Flame propagation cm/sec	0.5 max	0.2	ASTM D5306
Flash point, °C	160 max	182	ASTM D92
Fire point, °C	170 max	194	ASTM D92
Foaming Characteristics at 24°C			ASTM D892
Foaming tendency, mL volume at end of five minute blowing period	65 max	40	
Foam stability, mL volume at end of ten-minute settling period	0 max	0	
Four-ball, test condition A, scar diameter, mm			ASTM D4172
1 kg load	0.21 max	0.21	
10 kg load	0.30 max	0.28	
40 kg load	0.65 max	0.48	
High temperature stability			Paragraph 4.4.3
Percent change in viscosity at 40°C	±5%	0.04%	
Change in acid number, mg KOHg	0.1 max	0.02	
Formation of precipitate or insoluble material	None	None	
Isothermal secant bulk modulus at 40 °C and 27.6 MPa (4000 psig), MPa (psi)	1379 Mpa (200,000 psi) min	1467 (212,770)	ASTM D6793



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PROPERTY	REQUIREMENT	TYPICAL RESULTS	TEST METHOD
Low temperature stability 72 hours at -54°C ± 1°C	Conform	Conforms	FED-STD-791 Method 3458
Particulate contamination Particle count, AS4059 Contamination Class Particle size range NAS 1638 (ISO 11171) Differential, micrometers 5-15 (6-14 <sub>(c)</sub> ) 16-25 (15-21 <sub>(c)</sub> ) 26-50 (22-38 <sub>(c)</sub> ) 51-100 (39-70 <sub>(c)</sub> ) Over 100 (Over 70 <sub>(c)</sub> ) Gravimetric analysis, mg/100 mL	8000 max 1425 max 253 max 45 max 8 max 1.0 max	1250 105 28 6 0 0.0	ISO 11500       ASTM D4898
Pour point, °C	-60 max	< -80	ASTM D97
Rubber swell, standard synthetic rubber, NBR-L percent change in volume	19.0% to 30.0%	22.87%	ASTM D4289
Storage stability (after 12 months)	Conform	Conforms	FED-STD-791 Method 3465
Viscosity stability at -54°C mm <sup>2</sup> /sec 3 hours 72 hours	2500 max 2500 max	2129 2178	ASTM D2532
Viscosity, mm <sup>2</sup> /sec at -40°C at 40°C at 100°C	550 max 6.7 min 2.0 min	447 6.7 2.2	ASTM D445
Water, mg/kg	100 max	36	ASTM D6304
Workmanship	Conform	Conforms	ISO 9001:2015