

ExxonMobil Mobil Aero HF

Category: Fluid, Lubricant

Material Notes:

Mobil Aero HFA, HF, and HFS are formulated for aircraft systems where use of hydrocarbon-based hydraulic fluids is required. They are low viscosity products, high VI (viscosity index) fluid with excellent low temperature properties, good anti-wear performance, and good chemical stability. Mobil Aero HFA and HF are composed of mineral base oil stock and contain shear-stable VI improvers; Mobil Aero HFS is a synthetic polyalphaolefin-based fluid. Mobil Aero HFA is a premium quality fluid that meets the requirements of the U.S. Military specification MIL-H-5606A (now obsolete). It has a very high VI and is suitable for use at temperatures down to -54 °C (-65 °F). While this quality fluid is no longer used by the U.S. Military, it is still used in some older, small private, and commercial aircraft. It is also used in industrial and commercial equipment requiring good fluidity at very low temperatures, where Mobil Aero HFA provides long, trouble-free service over a wide range of operating conditions. Mobil Aero HF is a premium quality fluid that is approved against the most current version of U.S. Military specification MIL-PRF-5606. It has physical properties very similar to Mobil Aero HFA, and also meets "super-clean" requirements required by modern aircraft hydraulic systems. It is intended primarily for military aircraft, but it is also used as a hydraulic fluid for small private and commercial aircraft, and as a strut fluid in landing gear of large commercial aircraft. It is a NATO Code Number H-515 fluid. Mobil Aero HFS is a synthetic polyalphaolefin lubricant that is approved against the most current version of U.S. Military specification MIL-PRF-83282. It does not contain a viscosity index (VI) improver. It is designed for use at temperatures down to -40 °C (-40 °F). It provides lower flammability and volatility and improved stability, but has a higher viscosity at low temperature then Mobil Aero HF. It meets the "super-clean" requirements. It is intended primarily for U.S. military aircraft.It is a NATO Cod

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Physical Properties	Metric	English	Comments	
Specific Gravity	0.881 g/cc	0.881 g/cc	ASTM D4052	
API Gravity	28.5°	28.5 °		
Viscosity Measurement	370	370	Index; ASTM D2270	
Viscosity Measure	450 cSt	450 cSt	Kinematic Viscosity; ASTM D445	
	@Temperature -40.0 °C	@Temperature -40.0 °F		
	1950 cSt	1950 cSt	Kinematic Viscosity; ASTM D445	
	@Temperature -54.0 °C	@Temperature -65.2 °F		
Kinematic Viscosity at 40°C (104°F)	13.8 cSt	13.8 cSt	ASTM D445	
Kinematic Viscosity at 100°C (212°F)	5.1 cSt	5.1 cSt	ASTM D445	

Mechanical Properties	Metric	English	Comments
Bulk Modulus	1.379 GPa	200.0 ksi	Isothermal secant at 40°C, 4000 psig
Four Ball Wear	0.800 mm	0.0315 in	40 kg, 75°C, 1200 rpm; ASTM D4172



Mechanical Properties Thermal Properties	Metric Metric	English English	Comments Comments	
Pour Point	-66.0 °C	-86.8 °F	ASTM D97	
Flash Point	90.0 °C	194 °F	ASTM D93	

Component Elements Properties	Metric	English	Comments
Barium, Ba	0.00010 %	0.00010 %	
H20	0.0040 %	0.0040 %	

Chemical Properties	Metric	English	Comments
Total Acid Number	0.030	0.030	

Descriptive Properties	Value	Comments
Color	red	
Copper Strip Corrosion, ASTM D130	2E	72 hrs @ 135°C
Filtration Time, minutes/100 mL	3	
Foam Sequence I, ASTM D1139	30/0	
Low Temperature Stability	pass	72 hrs @ -54°C
Oxidation Corrosion Stability	pass	168 hrs @ 135°C
Particle Count, 100+ microns	5 max	
Particle Count, 15-25 microns	1000 max	
Particle Count, 25-50 microns	150 max	
Particle Count, 50-100 microns	20 max	
Particle Count, 5-15 microns	10000 max	
Particulate Contamination, mg/100 mL	0.1	
Rubber Swell, %	19 to 30	Nitrile Rubber, 168 hr @ 70°C
Sonic Shear Stability, KV change %	15 (max)	@ 40°C

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