ExxonMobil Marine Lubricants

Mobil Aero HF Series

Aviation Hydraulic Fluids

Product Description

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.

Features and Benefits

Mobil Aero HF Series aviation hydraulic fluids are mineral oils designed to meet the demanding requirements of commercial and military aircraft applications. These high quality formulations have a long history of excellent performance and provide long, trouble-free service over a wide range of operating conditions. Product features and potential benefits include:

Features	Advantages and Potential Benefits
Excellent low temperature properties	Optimum performance in low ambient conditions
Good chemical and oxidation stability	Resists the formation of acidic constituents, varnishes, and deposits
High Viscosity Index (VI)	Helps maintain film thickness and viscosity over a wider range of operating temperatures.
Meets "super clean" requirements of U.S. Spec. Mil-PRF-5606 or MIL-PRF-83282	Reliable performance of servo-valves and hydraulic components

Applications

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 -54ºC (-65ºF). 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 it 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 approved as 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 VI improver. It is designed for use at temperatures down to -40ºC (-40ºF). 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 and is approved as a NATO Code Number H-537 fluid.

Specifications and Approvals

Military Specification	HFA	HF	HFS
MIL-H-5606A (obsolete)	X		
MIL-PRF-5606		X	
MIL-PRF-83282			X
NATO Code H-515		X	
NATO Code H-537			X

Typical Properties

Typical Characteristics	HFA	HF	HFS
Color	Red	Red	Red
Gravity, API	29	29	34.5
Specific Gravity, 60ºF/60ºF	0.882	0.882	0.852
Pour Point, ºC	-60 max	-60 max	-55 max
Flash Point, COC, ºC	93 min	-	205 min
Flash Point, PMCC, ºC	-	82 min	-
Acid Number, mg KOH/g	0.03 (0.2 max)	0.03 (0.2 max)	0.03 (0.1 max)
Barium Content, ppm	-	10 max (1)	10 max
Kinematic Viscosity, cSt			
At 205ºC	-	-	1.1 (1.0 min)
At 100ºC	5.1	5.1 (4.9 min)	3.5 (3.45 min)
At 40ºC	13.9	13.9 (13.2 min)	14.1 (14.0 min)
At -40ºC	460 (500 max)	460 (600 max)	2000 (2200 max)
At -54ºC	1950	1950 (2500 max)	-
At 130ºF	10.7 (10.0 min)	-	-
Viscosity Index	370	370	128
Low Temperature Stability			
72 hours at -54ºC	Pass	Pass	-
72 hours at -40ºC	-	-	Pass
Copper Corrosion, 72 hours at 135ºC	2e max	2e max	-
Oxidation Corrosion Stability , 168 hours at 135ºC	Pass	Pass	Pass
Water Content, ppm	50 (100 max)	50 (100 max)	50 (100 max)
4-Ball Wear Scar, mm, 1hour, 1200 rpm, 75ºC, 40 kg	0.8 (1.0 max)	0.8 (1.0 max)	0.56 (0.65 max)
Evaporation Loss, wt%			
6 hours at 71ºC	15 (20 max)	15 (20 max)	-
6.5 hours at 205ºC	-	-	13 (20 max)
Particle Count			
5-15 microns		10000 max	10000 max
15-25 microns		1000 max	1000 max

Typical Characteristics	HFA	HF	HFS
25-50 microns		150 max	150 max
50-100 microns		20 max	20 max
100+ microns		5 max	5 max
Particulate Contamination, mg/100 mL	-	0.3 max	0.3 max
Filtration Time, minutes/100 mL	-	6 (15 max)	6 (15 max)
Foam, ASTM D892 Seq I, mL/mL	30/0 (65/0 max)	30/0 (65/0 max)	10/0 (65/0 max)
Nitrile Rubber L Swell, %, 168 hours at 70ºC	19.0 to 30.0	19.0 to 30.0	18.0 to 30.0
Shear Stability, ASTM D 2603 Option B, % Loss in KV at 40ºC	15 max	15 max	-
Bulk Modulus, psi, Isothermal Secant at 40ºC, 4,000 psig	200,000 min	200,000 min	-
Bulk Modulus, psi, Isothermal Secant at 40ºC, 10,000 psig	-	-	200,000 min

Health and Safety

Based on available information, this product is not expected to produce adverse effects on health when used for the intended application, following the recommendations provided in the Material Safety Data Sheet (MSDS). MSDSs are available upon request through your sales contract office, or via the Internet on http://www.exxonmobil.com. This product should not be used for purposes other than its intended use. If disposing of used product, take care to protect the environment.