

Mobil® Aero HF Series

Aviation Hydraulic Fluids

Description

Mobil aviation hydraulic fluids Aero HFA, HF, and HFS are offered for aircraft systems where use of hydrocarbon hydraulic fluids is required. They are low viscosity, high VI (viscosity index) fluids with excellent low temperature properties, good anti-wear performance, and good chemical stability.

Application

Mobil Aero HFA is a premium quality fluid that meets the requirements of the U.S. Military specification MIL-H-5606A (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 US Military, it is still used in some older, small private, and small 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. It is also used as a hydraulic fluid for small private and small 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 HFA and HF are composed of mineral oil base stocks and contain shear-stable VI improvers.

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 -40°C (-40°F). It provides better flammability and volatility, improved stability, but has a higher viscosity at low temperature than Mobil Aero HF. It meets the “super-clean” requirements. It is intended primarily for US Military aircraft. It is approved as a NATO Code Number H-537 fluid.

Typical Characteristics

Physical properties are listed in the table on back. Values not shown as minimum or maximum are typical and may vary within modest ranges.

Health and Safety

Based on available toxicological information, it has been determined that this product poses no significant health risk when used and handled properly. Information on use and handling, as well as health and safety information, can be found in the Material Safety Data Sheet which can be obtained from your local distributor; via the Internet on <http://www.exxonmobil.com>; or by calling 1-800-662-4525 and selecting prompt 2.

For additional technical information or to identify the nearest U.S. ExxonMobil supply source, call 1-800-662-4525.

Typical Characteristics HF Series	HFA	HF	HFS
Color	Red	Red	Red
Gravity, API	29	29	34.5
Specific Gravity, 60 °F/60 °F	0.882	0.882	0.852
Pour Point, °C	-60 max	-60 max	-55 max
Flash Point, COC, °C	93 min	-	205 min
Flash Point, PMCC, °C	-	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 205 °C	-	-	1.1 (1.0 min)
At 100 °C	5.1	5.1 (4.9 min)	3.5 (3.45 min)
At 40 °C	13.9	13.9 (13.2 min)	14.1 (14.0 min)
At -40 °C	460 (500 max)	460 (600 max)	2000 (2200 max)
At -54 °C	1950	1950 (2500 max)	-
At 130 °F	10.7 (10.0 min)	-	-
Viscosity Index	370	370	128
Low Temperature Stability			
72 hours at -54 °C	Pass	Pass	-
72 hours at -40 °C	-	-	Pass
Copper Corrosion			
72 hours at 135 °C	2e max	2e max	-
Oxidation Corrosion Stability			
168 hours at 135 °C	Pass	Pass	Pass
Water Content, ppm	50 (100 max)	50 (100 max)	50 (100 max)
4-Ball Wear Scar, mm			
1hour, 1200 rpm, 75 °C, 40 kg	0.8 (1.0 max)	0.8 (1.0 max)	0.56 (0.65 max)
Evaporation Loss, wt%			
6 hours at 71 °C	15 (20 max)	15 (20 max)	-
6.5 hours at 205 °C	-	-	13 (20 max)
Particle Count			
5-15 microns		10000 max	10000 max
15-25 micron		1000 max	1000 max
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 70 °C	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 40 °C	15 max	15 max	-
Bulk Modulus, psi			
Isothermal Secant at 40 °C, 4000 psig	200,000 min	200,000 min	-
Bulk Modulus, psi			
Isothermal Secant at 40 °C, 10,000 psig	-	-	200,000 min

(1) Applies to product approved under MIL-PRF-5606H