



## Mobil Aero HF Series - Aviation Hydraulic Fluids

### Aviation Hydraulic Fluids

#### Product Description

Mobil Aero HFA and HF 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.

#### Features and Benefits

Mobil Aero HF Series aviation hydraulic fluids are 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
High Viscosity Index (VI)	Allows equipment operation over a wide range of temperatures
Excellent low temperature properties	Provides high performance operation in low ambient conditions
Good chemical and oxidation stability	Resists the formation of acidic constituents, varnishes, and deposits
Meets "super clean" requirements of U.S. Spec. MIL-PRF-5606 (Aero HF)	Ensures reliable performance of pumps, servo-valves and other hydraulic system components

#### Applications

Mobil Aero HFA is a premium quality fluid that meets the quality 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.

## Specifications and Approvals

Mobil Aero Grade	HFA	HF
MIL-H-5606A (obsolete) quality level	X	
MIL-PRF-5606 approved		X
NATO Code H-515		X

## Typical Properties

Mobil Aero Grade(1)	Test Method	HFA	HF
Color	Visual	Red	Red
API Gravity		30	29
Specific Gravity, 60°F/60°F	ASTM D 4052	0.872	0.872
Density at 60°F, lb/gal	ASTM D 4052	7.26	7.26
Pour Point, °C	ASTM D 97	-64 (-60 max)	-62 (-60 max)
Flash Point, COC, °C	ASTM D 92	107 (93 min)	107
Flash Point, PMCC, °C	ASTM D 93	92	96 (82 min)
Acid Number, mg KOH/g	ASTM D 664	0.03 (0.2 max)	0.04 (0.2 max)
Barium Content, ppm	ASTM D 5185	-	<1 (10 max)
Kinematic Viscosity, cSt	ASTM D 445		
at 100°C		5.2	5.2 (4.9 min)
at 40°C		14	14.0 (13.2 min)
at -40°C		450 (500 max)	450 (600 max)
at -54°C		1900	2000 (2500 max)
at 130°F		10.4 (10.0 min)	-
Viscosity Index	ASTM D 2270	370	370
Low Temperature Stability	FTM 791.3459	Pass	-
72 hours at -54°C	FTM 791.3458	-	Pass
Copper Corrosion, 72 hours at 135°C	ASTM D 130	1b (2e max)	1b (2e max)
Oxidation Corrosion Stability, 168 hours at 135°C	ASTM D 4636	Pass	Pass
Water Content, Karl Fischer, ppm	ASTM D 6304	50 (100 max)	50 (100 max)
4-Ball Wear Scar, 1 hour, 1200 rpm, 75°C, 40 kg, mm	ASTM D 4172	0.6 (1.0 max)	0.6 (1.0 max)
Evaporation Loss, wt %	ASTM D 972		
6 hours at 71°C		-	12 (20 max)
Particle Count	Auto Counter		
5-15 microns			1000 (10000 max)
15-25 microns			100 (1000 max)
25-50 microns			30 (150 max)
50-100 microns			5 (20 max)
100+ microns			0 (5 max)
Particulate Contamination, mg/100 mL	ASTM D 4898		0.2 (0.3 max)

Mobil Aero Grade(1)	Test Method	HFA	HF
Foam, Seq I, mL/mL	ASTM D 892	36/3 (65/0 max)	37/2 (65/0 max)
Nitrile Rubber L Swell, 168 hours at 70°C, %	FTM 791.3603	27	27 (19 to 30)
Shear Stability, Option B, Loss in KV at 40°C, %	ASTM D 2603	15 max	15 max
Bulk Modulus, Isothermal Secant at 40°C, 4,000 psig, psi		200,000 min	200,000 min
(1) Values not identified as min/max are typical and may vary within modest ranges			

### Health and Safety

Based on available toxicological information, this product is not expected to produce adverse effects on health 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 (MSDS) which can be obtained from your local distributor or via the Internet on <http://www.exxonmobil.com/lubes>

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