

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 Magazity Inday (M)	Allows equipment operation over a wide range of
High Viscosity Index (VI)	temperatures
Evaluation to margina properties	Provides high performance operation in low ambient
Excellent low temperature properties	conditions
Cond chamical and evidation atability	Resists the formation of acidic constituents, varnishes, and
Good chemical and oxidation stability	deposits
Meets "super clean" requirements of U.S. Spec. MIL-PRF-	Ensures reliable performance of pumps, servo-valves and
5606 (Aero HF)	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	Χ		

MIL-PRF-5606 approved	X
NATO Code H-515	X

Typical Properties

Flash Point, COC, °C	HF	
Specific Gravity, 60°F/60°F ASTM D 4052 0.872 Density at 60°F, Ib/gal ASTM D 4052 7.26 Density at 60°F, Ib/gal ASTM D 4052 7.26 Pour Point, °C ASTM D 97 -64 (-6 Flash Point, COC, °C ASTM D 92 107 (9 Flash Point, PMCC, °C ASTM D 93 92 Acid Number, mg KOH/g ASTM D 664 0.03 (0 Barium Content, ppm ASTM D 5185 -	Red	
Pensity at 60°F, Ib/gal ASTM D 4052 7.26 Pour Point, °C ASTM D 97 -64 (-6 Pash Point, COC, °C ASTM D 92 107 (9 Pash Point, PMCC, °C ASTM D 93 92 Acid Number, mg KOH/g ASTM D 664 0.03 (0 ASTM D 5185 - Kinematic Viscosity, cSt ASTM D 445 ASTM D 445 ASTM D 445 ASTM D 445 ASTM D 40°C ASTM D 2270 ASTM D 2270 ASTM D 2270 ASTM D 370 ASTM D 2270 ASTM D 370 ASTM D 4636 Pass ASTM D 4636 Pass ASTM D 4636 Pass ASTM D 4172 ASTM D	29	
Pour Point, °C Flash Point, COC, °C Flash Point, COC, °C Flash Point, PMCC, °C ASTMD 93 92 Acid Number, mg KOH/g ASTMD 664 0.03 (C ASTMD 5185 - Kinematic Viscosity, cSt ASTMD 445 ASTMD 450 (5) ASTMD 2270 ASTMD 130 FTM 791.3459 Pass Pass Pass Pass ASTMD 130 ASTMD 130 ASTMD 130 ASTMD 4636 Pass ASTMD 4636 Pass ASTMD 4636 Pass ASTMD 4636 ASTMD 4636 Pass ASTMD 472 O.6 (1.1990) ASTMD 472 ASTMD 4898 Foam, Seq I, mL/mL ASTMD 892 36/3 (6)	0.872	
Flash Point, COC, °C Flash Point, PMCC, °C ASTM D 93 92 Acid Number, mg KOH/g Barium Content, ppm ASTM D 5185 - Kinematic Viscosity, cSt ASTM D 445 At 100°C At 40°C At 40°C ASTM D 2270 ASTM D 2270 ASTM D 270 ASTM D 4636 Pass ASTM D 472 ASTM D 4898 ASTM D 48	7.26	
Acid Number, mg KOH/g	60 max) -62 (-60	max)
Acid Number, mg KOH/g Barium Content, ppm ASTM D 5185 - Kinematic Viscosity, cSt at 100°C 5.2 at 40°C 450 (5 at -54°C at 130°F ASTM D 2270 370 Low Temperature Stability 72 hours at -54°C Copper Corrosion, 72 hours at 135°C ASTM D 130 ASTM D 4636 Pass Water Content, Karl Fischer, ppm 4-Ball Wear Scar, 1 hour, 1200 rpm, 75°C, 40 kg, mm Evaporation Loss, wt % ASTM D 972 36 hours at 71°C Particle Count 5-15 microns 100+ microns Particulate Contamination, mg/100 mL ASTM D 892 36/3 (6 Nitrile Rubber L Swell, 168 hours at 70°C, % FTM 791.3603 27	93 min) 107	
### Barium Content, ppm	96 (82 n	nin)
Kinematic Viscosity, cSt at 100°C at 40°C 14 at -40°C 450 (5 at -54°C 1900 at 130°F 10.4 (1 Wiscosity Index Low Temperature Stability FTM 791.3459 Pass 72 hours at -54°C Copper Corrosion, 72 hours at 135°C Copper Corrosion Stability, 168 hours at 135°C ASTMD 130 1b (2e Dividation Corrosion Stability, 168 hours at 135°C ASTMD 4636 Pass Water Content, Karl Fischer, ppm ASTMD 6304 4-Ball Wear Scar, 1 hour, 1200 rpm, 75°C, 40 ASTMD 972 6 hours at 71°C Particle Count Auto Counter 5-15 microns 15-25 microns 25-50 microns 100+ microns Particulate Contamination, mg/100 mL ASTMD 892 36/3 (6 Nitrile Rubber L Swell, 168 hours at 70°C, % FTM 791.3603 27	(0.2 max) 0.04 (0.2	2 max)
at 100°C at 40°C at 40°C at -40°C at -40°C at -54°C at -54°C at 130°F at 130°C at 1	<1 (10 m	nax)
14 do°C		
### 450 (5) ### 45	5.2 (4.9	min)
at -54°C 1900 at 130°F 10.4 (1 Viscosity Index ASTM D 2270 370 Low Temperature Stability FTM 791.3459 Pass 72 hours at -54°C FTM 791.3458 - Copper Corrosion, 72 hours at 135°C ASTM D 130 1b (2e Oxidation Corrosion Stability, 168 hours at 135°C ASTM D 4636 Pass Water Content, Karl Fischer, ppm ASTM D 6304 50 (10 4-Ball Wear Scar, 1 hour, 1200 rpm, 75°C, 40 ASTM D 4172 0.6 (1.4 kg, mm ASTM D 972 - 6 hours at 71°C - - Particle Count Auto Counter - 5-15 microns - - 15-25 microns - - 25-50 microns - - 50-100 microns - - 700+ microns - - 8-70-100 microns - - 9-80-100 microns - - 100+ microns - - 9-90-100 microns - - 100-100 microns - - <td< td=""><td>14.0 (13</td><td>3.2 min)</td></td<>	14.0 (13	3.2 min)
### 130°F ### 10.4 (1	500 max) 450 (60	0 max)
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Low Temperature Stability FTM 791.3459 Pass 72 hours at -54°C FTM 791.3458 - Copper Corrosion, 72 hours at 135°C Oxidation Corrosion Stability, 168 hours at 135°C Water Content, Karl Fischer, ppm ASTM D 4636 ASTM D 4636 Pass Water Content, Karl Fischer, ppm ASTM D 6304 ASTM D 4172 0.6 (1.0 kg, mm Evaporation Loss, wt % ASTM D 972 Auto Counter 5-15 microns 15-25 microns 15-25 microns 100+ microns Particulate Contamination, mg/100 mL ASTM D 4898 Foam, Seq I, mL/mL ASTM D 892 36/3 (6) Nitrile Rubber L Swell, 168 hours at 70°C, % FTM 791.3603 27	(10.0 min) -	
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Copper Corrosion, 72 hours at 135°C Oxidation Corrosion Stability, 168 hours at 135°C Nater Content, Karl Fischer, ppm 4-Ball Wear Scar, 1 hour, 1200 rpm, 75°C, 40 kg, mm Evaporation Loss, wt % Shours at 71°C Particle Count 5-15 microns 15-25 microns 100+ microns Particulate Contamination, mg/100 mL ASTM D 4898 Foam, Seq I, mL/mL Nitrile Rubber L Swell, 168 hours at 70°C, % FTM 791.3603 ASTM D 130 Pass ASTM D 4636 Pass ASTM D 6304 ASTM D 472 0.6 (1.0 ASTM D 472 ASTM D 472 ASTM D 472 36/3 (6) Pass ASTM D 4898	-	
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ASTM D 4172 0.6 (1.0 Evaporation Loss, wt % ASTM D 972 5 hours at 71°C 5 hours at 71°C 5 -15 microns 6 hours at 71°C 7 hours a	00 max) 50 (100	max)
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Foam, Seq I, mL/mL Nitrile Rubber L Swell, 168 hours at 70°C, % FTM 791.3603	100 (10	00 max)
Particulate Contamination, mg/100 mL ASTM D 4898 Foam, Seq I, mL/mL ASTM D 892 36/3 (6) Nitrile Rubber L Swell, 168 hours at 70°C, % FTM 791.3603 27	30 (150	max)
Particulate Contamination, mg/100 mL ASTM D 4898 Foam, Seq I, mL/mL ASTM D 892 36/3 (6 Nitrile Rubber L Swell, 168 hours at 70°C, % FTM 791.3603 27	5 (20 m	ax)
Foam, Seq I, mL/mL ASTM D 892 36/3 (6 Nitrile Rubber L Swell, 168 hours at 70°C, % FTM 791.3603 27	0 (5 ma	x)
Nitrile Rubber L Swell, 168 hours at 70°C, % FTM 791.3603 27	0.2 (0.3	max)
	(65/0 max) 37/2 (65	5/0 max)
	27 (19 to	o 30)
Shear Stability, Option B, Loss in KV at 40°C, % ASTM D 2603 15 max	ax 15 max	
Bulk Modulus, Isothermal Secant at 40°C, 4,000 200,00	000 min 200,000) min

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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