EASTMAN

Technical Data Sheet
Eastman™ HALO 157

Applications

- Aviation turbine oil (ato)
- Helicopter oil

Key Attributes

- A purpose designed lubricant with a viscosity of 9 cSt @ 100ºC and 12,700 cSt @ -32ºC
- Excellent load carrying and antiwear performance
- Excellent shear stability
- Good corrosion resistance
- Good elastomer compatibility
- Greater inter-gear film thickness
- High temperature stability

Product Description

For many years MIL-PRF-23699 approved engine lubricants were employed in helicopter gearboxes, ensuring a common lubricant for both engines and transmission systems. More recently, high-load-carrying oils have been evaluated and found to offer advantages over conventional-load-carrying MIL-PRF-23699 oils. These higher-load-carrying oils, complying with specification DOD-PRF-85734, were originally intended only for engine applications. The two MIL spec oils are thus of identical viscometric properties. Operators considered that lubrication performance of gearboxes could be enhanced by a higher-viscosity, high-load-carrying lubricant possessing improved corrosion-protective qualities.

Eastman HALO 157™ is a clear, amber-colored fluid with a faintly aromatic odor reminiscent of turbine engine oils. It is based on selected polyol esters, the inherent characteristics of which are enhanced by additives. It is also fully compatible and miscible with other oils approved to specifications MIL-PRF-23699 and MIL-PRF-7808.

Multiple tests have been completed in bearing and gearbox rigs and flight evaluations, culminating in the NATO standard (AIR STANDARD ACS 4035) for a 9-cSt advanced helicopter gearbox lubricant.

Typical Properties

Property	Test Method	Typical Value, Units
General		
Density		
@ 15°C	ASTM D 1298	0.986 kg/L
Viscosity, Kinematic		
@ 100°C	ASTM D 445	8.92 mm^2/s
@ -32°C	ASTM D 445	12700 mm^2/s
@ 40°C	ASTM D 445	52.8 mm^2/s
Total Acid Number	SAE ARP5088	1.15 mg KOH/g
Pour Point	ASTM D 97	-51 °C
Flash Point	ASTM D92	263 °C
Evaporation Loss		
6.5 hrs @ 205°C	ASTM D 972	2.3%
Rubber (Nitrile) Compatibility		
AMS 3217/1, 72 hr @ 70°C, % Swell	FED-STD-791, 3604	7.1%
Rubber (Fluorocarbon) Compatibility		
AMS 3217/4, 72 hr @ 205°C, % Swell	FED-STD-791, 3604	5.9%
Corrosion & Oxidation Stability @ 175°C, 72 hrs		

Aluminium Weight Change	FED-STD-791, 5308	-0.01 mg/cm^2
Copper Weight Change	FED-STD-791, 5308	-0.04 mg/cm^2
Magnesium Weight Change	FED-STD-791, 5308	-0.01 mg/cm^2
Silver Weight Change	FED-STD-791, 5308	-0.03 mg/cm^2
Sludge, 10 micron filter	FED-STD-791, 5308	0 mg / 100 ml
Steel Weight Change	FED-STD-791, 5308	-0.01 mg/cm^2
Total Acid Number Change	FED-STD-791, 5308	0.28 mg KOH/g
Viscosity @ 40°C	FED-STD-791, 5308	7.5%
Air Release Value @ 50°C	ASTM D 3417	2.44 minutes
Corrosion Inhibition Ball Corrosion Test	SAE ARP4249	Pass
Compatibility with MIL-PRF-23699 (all grades), MIL-PRF-7808 (all grades) & DOD-PRF-85734	FED-STD-791, 3403	Pass
Ryder Gear @ 100°C	FED-STD-791, 6508 (modified)	205% of Calester A
FZG Load Carrying Capacity Test for Transmission Lubricants A/16.6/90	CEC Method L-07-A-095	13/13+ Failure Load Stage

Storage

All product should be stored under cover. Where outside storage is unavoidable drums should be laid horizontally to avoid the possible ingress of water and the obliteration of drum markings. Products must not be stored above 60ºC, exposed to hot sun or freezing conditions.

Comments

Properties reported here are typical of average lots. Eastman makes no representation that the material in any particular shipment will conform exactly to the values given.

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