



Castrol 5000

Lubricating Oil
Aircraft, Turbine, Engine, Synthetic Base

Description

Castrol™ 5000 is a clear, amber-colored fluid having the appearance of a thin oil with a faint aromatic odor. It is based on a blend of high quality hindered esters and additives used to offer a product with excellent high temperature and oxidation stability, good load-carrying properties and complete compatibility with engine and accessory constructional materials, such as metals and elastomeric sealing compounds.

Application

Castrol 5000 is a 5 centistoke "Type 2" synthetic lubricant designed for use in modern gas turbine engines operating at bulk oil temperatures exceeding those which "Type I" oils can successfully withstand.

Specification

Castrol 5000 is qualified to MIL-PRF-23699F STD specification and is approved for use in a wide range of military gas turbine engines and aircraft accessories. Castrol 5000 is approved for aero/marine/industrial gas turbine engines manufactured by the following:

Avco-Lycoming Allison

General Electric Pratt & Whitney (Div. of United Technologies)

Rolls Royce Power Systems (Div. of United Technologies)

Compatibility

Castrol 5000 is completely compatible with all other MIL-PRF-23699F Std, 5 centistoke gas turbine lubricants. Changing to Castrol 5000 can be done by topping-up. Since the various 5 centistoke oils exhibit different seal swelling characteristics, the engine/accessory manufacturer's approval should be obtained for any proposed oil change.

Castrol 5000 is compatible with other synthetic gas turbine engine oils, but it is unwise to mix grades of different viscosity.

Castrol 5000 is not compatible with mineral oils and while it is miscible with phosphate ester hydraulic fluids, the latter will have a detrimental effect such as coking propensity and resistance to corrosion.

Special seals are required when using Castrol 5000. The following material types are suitable:

Silicone Rubber Viton (Fluorocarbon) Rubber

Nitrile Rubber P.T.F.E.

Nylon

The following paint finishes have been found suitable:

Up to 220°C approx. Above 220°C

Polyurethane Silicone/Epoxy/Aluminum

Phenolic Resin Sermetel W

Rolls Royce PI 219

Caution

While certain grades of the above materials have been found fully compatible with Castrol 5000, it is advisable to confirm with the manufacturer and/or the oil supplier that specific constructional materials are suitable for use with this class of fluid.

Typical Characteristics

Description	Specification Requirements	Typical
Viscosity, cSt @ 210°F	5.00 - 5.50	5.1
@ 100°F	25.0 Min.	26.5
@ -40°F	13,000 Max.	8100
Flash Point, °F, min.	475	500
Pour Point, °F, max.	-65	-70
Total Acid Number, max.	0.50	0.01
Evaporation, % weight, max.	10	3.5
Foaming		
Sequence I, ml. initial; ml. final	25-0	20-0
Sequence II, ml. initial; ml. final	25-0	15-0
Sequence III, ml. initial; ml. final	25-0	20-0
Rubber Swell, % Change "H" Rubber	+5.0 to +25.0	+11.8
Rubber Swell, % Change "F" Rubber	+5.0 to +25.0	+11.2
Thermal Stability and Corrosivity @ 525°F, 96 hrs		
Viscosity Change @ 100°F, %, max.	5.0	0.7
Total Acid Number Change, max.	6.0	4.8
Metal Weight Change, mg/cm, max.	4.0	0.1
Corrosion and Oxidation Stability @ 400°F, 72 hrs		
Viscosity Change @ 100°F, %	-5.0 to +25.0	+19.6
Total Acid Number Change, max.	3	0.9
Contamination, mg/100 ml., max.	50	4.8
Metal Weight Change, mg/cm, max.		
Steel	+/-0.2	+0.01
Silver	+/-0.2	-0.02
Aluminum	+/-0.2	+0.01
Magnesium	+/-0.2	-0.02
Copper	+/-0.4	-0.04
Shear Stability, Viscosity Change, %, max.	4.0	0.5
Sediment 1.2 Micron Filter, mg/l, max.	10.0	1.3
Total Ash, mg/l, max.	1.0	0.3
Trace Metals Content, ppm, max.		
Aluminum (Al)	2	0.4
Iron (Fe)	2	0.3
Chromium (Cr)	2	0.2
Silver (Ag)	1	0.1
Copper (Cu)	1	0.1
Tin (Sn)	11	1.8
Magnesium (Mg)	2	0.1
Nickel (Ni)	2	0.8
Silicon (Si)	Report	0.8
Lead (Pb)	Report	1.1
Molybdenum (Mo)	Report	0.5

Subject to usual manufacturing tolerances.

Additional Information

Storage Stability

Ideally, Castrol 5000 should be stored indoors, however, outdoor storage of sealed containers is acceptable, provided some form of primary protection from the elements is available. Under such conditions, Castrol 5000 has a storage life in excess of five years, but, as a precaution, samples should be taken after two years and checked for compliance with the original specification. Thereafter, it is recommended that samples should be taken and checked annually.

In the presence of water, synthetic ester lubricants will slowly hydrolyze even at normal ambient temperatures and, at elevated temperatures, this process accelerates to an unacceptable rate. It is, therefore, important that the exposure to moisture is prevented.

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