



Product Data

Castrol 399

Lubricating Oil
Aircraft Turbine Engine, Synthetic Base

Description

Castrol™ 399 is a light amber, low viscosity (3 cSt @ 100°C) synthetic base lubricating oil for aircraft gas turbine engines which require lower volatility and higher load carrying capacity than is obtainable with conventional mineral oil lubricants. It is composed of a synthetic ester base stock compounded with suitable additives to impart resistance to oxidation, corrosion, foaming, and to minimize wear. It is characterized by unusually clean engine performance, excellent shear stability, and long-term storage life.

Temperature Range

Castrol 399 is designed to operate over the temperature range of -54°C to 149°C (-65°F to 300°F).

Application

Castrol 399 is designed for use in the lubrication of high performance aircraft gas turbine engines and specific helicopter transmissions.

Castrol 399 is a synthetic ester based fluid and may adversely affect certain paints and elastomers. It should not be used in systems designed solely for petroleum base fluids as serious deterioration of rubber parts, coatings, paints and other organic materials may result. Paints and elastomers resistant to these effects are commercially available. It is compatible with fluids meeting the requirements of MIL-L-6085 and MIL-L-23699.

Specification

Castrol 399 meets all of the requirements of, and is qualified under Military Specification MIL-PRF-7808L, Grade 3.

Typical Characteristics

TEST (ASTM)	DESCRIPTION	RESULT
D 287	Gravity API @ 16°C (60°F), degrees Specific Gravity @ 16°C (60°F), g/ml Pounds per Gallon	16.7 0.95 7.9
D 445	Kinematic Viscosity, cSt @ 100°C (212°F) @ 40°C (104°F) @ -40°C (-40°F)	3.23 12.1 2000
D 2532	Viscosity @ -54°C (-65°F) for 35 minutes, cSt Viscosity Change, %, 3 hrs @ -54°C (-65°F)	11,300 0
D 92	Flash Point, COC, °C (°F) Pour Point, °C (°F)	216 (421) <-60 (<-76)
D 972	Evaporation Loss, % wt 6 1/2 hrs @ 204°C (400°F)	24
FTM 3212	Foaming Characteristics Static: Foam Volume, ml Collapse Time, sec.	50 9
FTM 5003	Deposition Test (WADC) Deposit Rating Neutralization No. Change Viscosity Change @ 40°C (104°F), % Oil Consumption, ml	0.5 2.7 20 50
FTM 5321	Lead Corrosion, mg/m ² , 1 hr @ 163°C/325°F	-0.06
FTM 5305	Corrosion @ 232°C (450°F) Silver, mg/m ² Bronze, mg/m ²	-0.3 -0.2
FTM 5307	Corrosion Oxidation Stability, 96 hrs @ 200°C (392°F) Aluminum, mg/cm ² , wt change Silver, mg/cm ² , wt change Bronze, mg/cm ² , wt change Iron, mg/cm ² , wt change M-50 Steel, mg/cm ² , wt change Magnesium, mg/cm ² , wt change Titanium, mg/cm ² , wt change	-0.06 -0.03 -0.16 +0.04 -0.02 -0.02 -0.04

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TEST (ASTM)	DESCRIPTION	RESULT
FTM 5307	Corrosion, Pitting or etching Oxidation, Viscosity @ 40°C (104°F), Change, % Total Acid Number, Change	None +6 1.9
D 1947	Load-Carrying Capacity, Ryder Gear 2 Determinations, kN/m	478
D 2273	Particulate Contamination, mg/liter	1.0
Spec	Filter Time, minutes/quart	10
D 664	Total Acid Number, mgKOH/gm	0.2
FTM 3604	Elastomer Compatibility Characteristics NBR-H, 168 hrs @ 70°C (150°F), % Swell	+27
FTM 3432	F-A, 72 hrs @ 175°C (347°F), % Swell Tensile Strength, % Change Elongation, % Hardness Change	+18 -23 -9 -9
Spec	Storage Stability 48 hrs @ 110°C (230°F), gm/m ² 168 hrs @ 110°C (230°F), gm/m ²	-0.3 -0.6
Spec	Workmanship	Pass
Spec	Trace Element Content Aluminum, ppm Chromium, ppm Silver, ppm Copper, ppm Tin, ppm Magnesium, ppm Nickel, ppm Titanium, ppm Silicon, ppm	0.0 0.0 0.0 0.0 0.7 0.0 0.0 0.0 0.0

Subject to usual manufacturing tolerances.

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