



ADVANCED SYNTHETIC AVIATION TURBINE OIL

NATO CODE O-163

DESCRIPTION

Turbonycoil 400 is a lubricating oil with a viscosity of 4 cSt at 100°C. It is based on neopentyl polyol esters with high thermal stability, fortified with carefully selected anti-oxidant, anti-wear and anti-corrosion additives. Because of its specific formulation, Turbonycoil 400 has naturally a brown colour.



APPLICATIONS

- Turbines of military and commercial aircrafts and helicopters, recommended in hot engines and when low fluidity at low temperature is needed
- Accessories (APU, starter, IDG, etc.)

Turbonycoil 400 has been used since 1999 by two Air Forces, as an alternative to MIL-PRF-7808 Gr. 3 on Lockheed Martin F-16 in Turkey, and as an alternative to MIL-PRF-23699 Class STD on Boeing F-18 in Canada (due to the cold climate in that country). The Canadian Air Force has reported a significant decrease in maintenance cost of the accessory gearbox drive using Turbonycoil 400 compared to a competitor product.

Turbonycoil 400 is also used on Lockheed Martin F-22 Raptor and Lockheed Martin F-35A Lightning II.

SPECIFICATIONS * / OEM's & Airframers reference

- Approved MIL-PRF-7808 L Gr. 4
- Listed in Comac CMS-OL-201

* **Approved:** The product has been approved by the relevant authority. The product is referenced on the applicable qualified product list.

CHARACTERISTIC	UNIT	TYPICAL RESULT	MIL-PRF-7808 GRADE 4 LIMIT	TEST METHOD
Density at 20°C	kg/dm ³	0.962	report	ASTM D4052
Kinematic Viscosity at 100°C	mm ² /s	4.01	min. 4.0	ASTM D445
at 40°C		17.8	min. 17.0	
Viscosity at -51°C after 35 minutes	mm ² /s	19530	max. 20000	ASTM D2532
after 3 hours		19600	max. 20000	
Viscosity Change after 3 hours	%	0.2	max. 6.0	
Flash Point, COC	°C	240	min. 210	ASTM D92
Acid Number	mg KOH/g	0.2	max. 0.50	ASTM D664
Evaporation Loss, 6 h 30 at 204°C	%w	7.6	max. 15.0	ASTM D972
Static Foam Test at 40°C				
Foam volume / Collapse time	cm ³ /s	10/0	max. 100 / max. 60	FTM-S-791-3213

CHARACTERISTIC	UNIT	TYPICAL RESULT	MIL-PRF-7808 GRADE 4 LIMIT	TEST METHOD
Thermal Stability 96 h at 274°C Change of Viscosity at 40°C Acid Number Change Steel Weight Change	% mg KOH/g mg/cm ²	- 0.3 2.1 0.3	max. 5.0 max. 6.0 max. 4.0	FTM-S-791-3411
Oxidation and Corrosion Test, 40 h at 220°C Change of Viscosity at 40°C Acid Number Change Metal Weight Change Aluminium Silver Iron Steel / M50 Titanium Bronze Magnesium Deposits	% mg KOH/g mg/cm ² mg/cm ² mg/cm ² mg/cm ² mg/cm ² mg/cm ² mg/cm ² % w	+12.2 3.2 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	-5.0 to +25.0 max. 4.0 max. +/- 0.2 max. +/- 0.2 max. +/- 0.2 max. +/- 0.2 max. +/- 0.2 max. +/- 0.4 max. +/- 0.4 max. 0.2	ASTM D4636
Metal Trace Content Si Sn Ti Ni Fe Mg Al Cu Ag Cr	mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg	0.6 0.0 0.0 0.0 0.0 0.0 0.3 0.0 0.0 0.0	max. 2.0 max. 1.0 max. 1.0 max. 2.0 max. 2.0 max. 2.0 max. 2.0 max. 1.0 max. 1.0 max. 2.0	ASTM D5185 Induction Coupled Plasma Spectroscopy
Rubber Swelling AMS 3217/1 168 h at 70°C	% vol.	22	12 to 35	FTM-S-791-3604
Contamination Particles Filtration Time	mg/dm ³ min./dm ³	0.3 15	max. 5.0 max. 30	FTM-S-791-3013
Corrosion test at 232°C Silver Bronze	mg/cm ² mg/cm ²	- 1.1 - 1.1	max. +/- 4.50 max. +/- 4.50	FTM-S-791-5305
Lead Corrosion Test	g/m ²	- 0.4	max. 9.3	FTM-S-791-5321

The values above are typical values. They do not constitute any contractual commitment.

Sales specifications are available on request. The present technical data sheet replaces all the previous editions.