



ADVANCED SYNTHETIC AVIATION TURBINE OIL

NATO CODE O-163 – MIL-PRF-7808 L Grade 4

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 special formulation, Turbonycoil 400 has naturally a light dark colour.



MAIN APPLICATIONS

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

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.

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 D 445
- Kinematic viscosity at 40°C	mm ² /s	17.8	min. 17.0	ASTM D 445
- Viscosity at -51°C after 35 minutes	mm ² /s	19530	max. 20000	ASTM D2532
- Viscosity after 3 hours		19600	max. 20000	
- Viscosity change after 3 hours	%	0.2	max. 6.0	
- Flash point, COC	°C	240	min. 210	ASTM D 92
- Acid number	mg KOH/g	0.2	max. 0.50	ASTM D 664
- Evaporation loss, 6 h 30 at 204°C	%w	7.6	max. 15.0	ASTM D 972
- Static foam test at 40°C				
- Foam volume / Collapse time	cm ³ / s	10 / 0	max. 100 / max. 60	FTM-S-791-3213

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.





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	%	- 0.3	max. 5.0	FTM-S-791-3411
acid number change	mg KOH/g	2.1	max. 6.0	
steel weight change	mg/cm ²	0.3	max. 4.0	
- Oxidation and corrosion test, 40 h at 220°C				
change of viscosity at 40°C	%	+12.2	-5.0 to +25.0	ASTM D4636
acid number change	mg KOH/g	3.2	max. 4.0	
metal weight change				
Aluminium	mg/cm ²	0.0	max. +/- 0.2	
Silver	mg/cm ²	0.0	max. +/- 0.2	
Iron	mg/cm ²	0.0	max. +/- 0.2	
Steel / M50	mg/cm ²	0.0	max. +/- 0.2	
Titanium	mg/cm ²	0.0	max. +/- 0.2	
Bronze	mg/cm ²	0.0	max. +/- 0.4	
Magnesium	mg/cm ²	0.0	max. +/- 0.4	
Deposits	% w	0.0	max. 0.2	
- Metal trace content				
Si	mg/kg	0.6	max. 2.0	Induction Coupled Plasma Spectroscopy
Sn	mg/kg	0.0	max. 1.0	
Ti	mg/kg	0.0	max. 1.0	
Ni	mg/kg	0.0	max. 2.0	
Fe	mg/kg	0.0	max. 2.0	
Mg	mg/kg	0.0	max. 2.0	
Al	mg/kg	0.3	max. 2.0	
Cu	mg/kg	0.0	max. 1.0	
Ag	mg/kg	0.0	max. 1.0	
Cr	mg/kg	0.0	max. 2.0	
- Rubber swelling AMS 3217/1 168 h at 70°C				
	% vol.	22	12 to 35	FTM-S-791-3604
- Contamination				
particles	mg/dm ³	0.3	max. 5.0	FTM-S-791-3013
filtration time	min./dm ³	15	max. 30	
- Corrosion test at 232°C				
silver	mg/cm ²	- 1.1	max. +/- 4.50	FTM-S-791-5305
bronze	mg/cm ²	- 1.1	max. +/- 4.50	
- Lead corrosion test				
	g/m ²	- 0.4	max. 9.3	FTM-S-791-5321

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