

AEROSHELL TURBINE OIL 390

AeroShell Turbine Oil 390 is a 3 mm²/s synthetic diester oil incorporating a carefully selected and balanced combination of additives to improve thermal and oxidation stability and to increase the load carrying ability of the base oil.

APPLICATIONS

AeroShell Turbine Oil 390 was developed primarily as an improved 3 mm²/s oil for British turbo-jet engines. AeroShell Turbine Oil 390 is fully approved for a wide range of turbine engines.

More recently, because of the low temperature characteristics of AeroShell Turbine Oil 390, there is interest in using this oil in auxiliary power units (APU) in order to overcome the effects of cold soak. Normal practice is to shut down the APU during cruise, the APU then experiences cold soak, often prolonged, and when the unit is started there is considerable difficulty resulting in the unit not coming up to speed in the given time, thus causing a hung start.

In such cases where the APU is subject to a long cold soak the viscosity of standard 5 mm²/s oils used in the APU will increase from 5 mm²/s at 100°C to typically 10,000 mm²/s at -40°C. At this much higher viscosity the oil cannot flow easily leading to a large viscous drag within the APU, thereby contributing to the difficulty in starting. AeroShell Turbine Oil 390 on the other hand experiences a much smaller viscosity increase (typically 2000 mm²/s at -40°C) with a reduction in viscous drag which is often sufficient to overcome hung start problems.

All experience to date shows a considerable improvement in cold reliability of the APU when AeroShell Turbine Oil 390 is used.

SPECIFICATIONS

U.S.	-
British	Approved DEF STAN 91-94
French	-
Russian	Analogue to IPM-10, VNII NP 50-1-4f and 4u, and 36Ku-A
NATO Code	-
Joint Service Designation	OX-7

EQUIPMENT MANUFACTURER'S APPROVALS

AeroShell Turbine Oil 390 is approved for use in all models of the following engines:

Honeywell	GTCP 30, 36, 70, 85, 331 and 660 APUs Starters, Turbo compressors
Pratt & Whitney Canada	PW901A APU
Rolls Royce	Conway, Spey, Tay, M45H
Turbomeca	Astazou, Artouste, Bastan, Marbore, Makila, Turmo

NOTES

PROPERTIES	DEF STAN 91-94	TYPICAL
Oil type	–	Synthetic ester
Density @ 15°C	kg/l –	0.924
Kinematic viscosity @ 40°C @ 100°C @ –54°C	mm ² /s 16.0 max 4.0 min 13000 max	12.9 3.4 <13000
Pourpoint	°C –60 max	–68
Flashpoint, Cleveland Open Cup	°C 225 min	225
Foam characteristics	Must pass	Passes
Trace element content	Must pass	Passes
Elastomer compatibility, swell tests		
– nitrile	% 14 to 26	Within range
– viton	% 15 to 25	Within range
– silicone	% 16 to 24	Within range
Solid particle contamination		
– sediment	mg/l 10 max	<10
– total ash of sediment	mg/l 1 max	<1
Corrosivity	Must pass	Passes
High temperature oxidative stability	Must pass	Passes
Load carrying ability	Report	Passes

A viscosity/temperature chart is shown at the end of this section.