Technical Data Sheet

AeroShell **Turbine** *Oil 555*

AeroShell Turbine Oil 555 is an advanced 5 mm^2/s synthetic hindered ester oil incorporating a finely balanced blend of additives to improve thermal and oxidation stability and to increase the load carrying ability of the base oil.

DESIGNED TO MEET CHALLENGES

Main Applications

- AeroShell Turbine Oil 555 was specifically developed to meet the high temperatures and load carrying requirements of SST engines and the DEF STAN 91-100 (formerly DERD 2497) and XAS-2354 specifications. AeroShell Turbine Oil 555 was also designed to give enhanced performance in current engines.
- More recently with the need to transmit more power and higher loads through helicopter transmission and gearbox systems (many helicopters use a synthetic turbine engine oil in the transmission/gearbox system) it has become apparent that the use of a very good load carrying oil, such as AeroShell Turbine Oil 555 is necessary. This in turn has led to the development of a U.S. Military Specification, DOD-L-85734, which covers a helicopter transmission oil against which AeroShell Turbine Oil 555 is fully approved.
- AeroShell Turbine Oil 555 contains a synthetic ester oil and should not be used in contact with incompatible seal materials and it also affects some paints and plastics.

Specifications, Approvals & Recommendations

- Approved DOD-PRF-85734A (US)
- Approved DEF STAN 91-100 (British)
- Note: both UK and US production are manufactured to the same formulation.
- NATO Code O-160
- Joint Service Designation OX-26
- Pratt & Whitney : Approved 521C Type II
- General Electric : Approved D-50 TF 1
- Allison : Approved EMS-53 (Obsolete)
- **AeroShell Turbine Oil 555 is approved for use in all models of the following engines:**
- Honeywell : Auxiliary Power Units GTCP 30, 36, 85, 331, 660 and 700 series
- General Electric : CT58, CT64, CF700, CJ610
- Motorlet : MD601D, E and Z
- Pratt & Whitney : JT3, JT4, JT8, JT9, JT12, PW4000
- Pratt & Whitney Canada : ST6, PW200
- Rolls-Royce : Gem, Gnome, M45H, Olympus 593, RB199
- Turbomeca : Adour
- **AeroShell Turbine Oil 555 is approved for an increasing number of helicopter transmissions, whilst details are listed below, it is important that operators check latest status with the helicopter manufacturer. In all cases it is important to check compatibility with seals used in the transmission/ gearbox.**
- US Military : Approved for helicopter transmission specification DOD-PRF-85734A
- Eurocopter : Approved for Super Puma, for other helicopters check with Eurocopter
- Agusta : Approved for A109 and A129 models, for other models check with Agusta
- Bell Helicopter Textron : Approved for all Bell turbine engined powered helicopters
- Boeing Vertol : Approved for Chinook
- McDonnell Douglas : Approved
- MBB : Approved
- Sikorsky : Approved for S-61N (note other types such as the S-70 and S-76 do not use synthetic turbine oils in the transmission)
- Westland Helicopters : Approved for some models

For a full listing of equipment approvals and recommendations, please consult your local Shell Technical Helpdesk.

Typical Physical Characteristics

Properties			DOD-L-85734	Typical
Oil type			Synthetic ester	Synthetic ester
Kinematic viscosity	@98.9°C	mm^2/s	5.0 to 5.5	5.4
Kinematic viscosity	@37.8°C	mm^2/s	25.0 min	29.0
Kinematic viscosity	@-40°C	mm^2/s	13000 max	11000
Flashpoint Cleveland Open Cup		°C	246 min	>246
Pourpoint		°C	-54 max	Below -54
Total Acidity		mgKOH/g	0.5 max	0.3
Evaporation Loss 6.5 hrs	@204°C	% m	10.0 max	2.6
Foaming			Must pass	Passes
Swelling of Standard Synthetic Rubber - SAE-AMS 3217/1, 72 hrs	@70°C	swell %	0 to 25	14
Swelling of Standard Synthetic Rubber - SAE-AMS 3217/4, 72 hrs	@204°C	swell %	0 to 25	14
Thermal Stability / Corrosivity 96 hrs - metal weight change	@274°C	mg/cm^2	4 max	-0.97
Thermal Stability / Corrosivity 96 hrs - viscosity change @37.8°C		%	5 max	-1.2
Thermal Stability / Corrosivity 96 hrs - Total Acid Number Change		mgKOH/g	6 max	2
Corrosion & Oxidation Stability 72 hrs	@175°C		Must pass	Passes
Corrosion & Oxidation Stability 72 hrs	@204°C		Must pass	Passes
Corrosion & Oxidation Stability 72 hrs	@218°C		Must pass	Passes
Ryder Gear Test, Relative Rating Hercolube A		%	145	>145
Bearing test rig, Type 1 ½ conditions - Overall deposit demerit rating			80.0 max	22
Bearing test rig, Type 1 ½conditions - Viscosity change at 37.8°C		%	-5 to +30	21
Bearing test rig, Type 1 ½ conditions - Total acid number change		mgKOH/g	2 max	0.83
Bearing test rig, Type 1 ½ conditions - Filter deposits		g	3 max	0.5
Sonic shear stability - viscosity change	@40°C	%	4 max	Nil
Trace metal content			Must pass	Passes
Sediment		mg/l	10 max	Passes
Ash		mg/l	1 max	Passes

These characteristics are typical of current production. Whilst future production will conform to Shell's specification, variations in these characteristics may occur.

Health, Safety & Environment

- **Health and Safety**

  Guidance on Health and Safety is available on the appropriate Material Safety Data Sheet, which can be obtained from http://www.epc.shell.com/

- **Protect the Environment**

  Take used oil to an authorised collection point. Do not discharge into drains, soil or water.

Additional Information

- AeroShell Turbine Oil 555 is also approved for use in the industrial and marine versions of the Rolls-Royce RB211-22 and Olympus engines, General Electric LM 100, 250, 350, 1500 and 2500 engines.
- **Advice**

  Advice on applications not covered here may be obtained from your Shell representative.