



# AeroShell Turbine Oil 555

AeroShell Turbine Oil 555 is an advanced 5 mm<sup>2</sup>/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.
- AeroShell Turbine Oil 555 is approved for use in all models of the following engines:
    - GE: CT58, CT64, CF 700, CT7 and CJ series
    - Honeywell: T53, AL5512, ALF502, LF507, TPE331, CTS800
    - Pratt & Whitney: JT series, PW 4000
    - Rolls-Royce: LiftFan, Tyne, Gem, Adour, M45H, Olympus, RB199
    - Safran Helicopter Engines: MTR390, RTM322
  - APU:
    - Honeywell: Most APUs

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.

### Specifications, Approvals & Recommendations

- DOD-PRF-85734A
  - DEF STAN 91-100 (British)
  - NATO Code O-160
  - Joint Service Designation OX-26
  - Pratt & Whitney 521C Type II
  - General Electric D-50 TF 1
  - Allison EMS - 53 (Obsolete)
- Airbus Helicopters : Approved, for models please check with Airbus Helicopters
  - Bell Helicopter Textron : Approved for all Bell turbine engined powered helicopters
  - Boeing Vertol : Approved for Chinook
  - MD Helicopters: 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)
  - Leonardo Helicopters : Approved. For models please check with Leonardo Helicopters

For the latest approval, please confirm with the equipment manufacturer.

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

## Typical Physical Characteristics

Properties			Method	DOD-PRF-85734A	Typical
Oil type				Synthetic ester	Synthetic ester
Kinematic viscosity	@100°C	mm <sup>2</sup> /s	ASTM D445	4.90 to 5.40	5.2
Kinematic viscosity	@40°C	mm <sup>2</sup> /s	ASTM D445	23.0 min	26.5
Kinematic viscosity	@-40°C	mm <sup>2</sup> /s	ASTM D2532	13 000 max	11 000
Flashpoint (Cleveland Open Cup)		°C	ASTM D92	246 min	258
Pourpoint		°C	ASTM D97	-54 max	<-60
Total Acidity		mgKOH/g	SAE-ARP-5088	0.75 max	0.4
Evaporation Loss 6.5 hrs	@204°C	% m	ASTM D972	10 max	1.5
Foaming characteristics		ml	ASTM D892	Must pass	Passes
Swelling of Standard Synthetic Rubber - SAE-AMS 3217/1, 72 hrs	@70°C		FED-STD 791 M.3604 and M.3433	5 to 25 max	14
Swelling of Standard Synthetic Rubber - SAE-AMS 3217/4, 72 hrs	@204°C		FED-STD 791 M.3604 and M.3433	5 to 25 max	14
Thermal Stability / Corrosivity 96 hrs - metal weight change	@274°C	mg/cm <sup>2</sup>	FED-STD-791 M.3411	4.0 max	Passes
Thermal Stability / Corrosivity 96 hrs - viscosity change		%	FED-STD-791 M.3411	5.0 max	1.4
Thermal Stability / Corrosivity 96 hrs - Total Acid Number Change		mgKOH/g	FED-STD-791 M.3411	6.0 max	2.6
Corrosion and Oxidation Stability 72 hrs	@175°C		FED-STD 791 M.5308	Must pass	Passes
Corrosion and Oxidation Stability 72 hrs	@204°C		FED-STD 791 M.5308	Must pass	Passes
Corrosion and Oxidation Stability 72 hrs	@218°C		FED-STD 791 M.5308	Must pass	Passes
Ryder Gear Test, Relative Rating Hercules A		%	FED-STD-791 M.6508	145 min	Passes
Bearing test rig, Type 1 ½ conditions - Overall deposit demerit rating	100hrs		FED-STD-791 M.3410	80.0 max	Passes
Bearing test rig, Type 1 ½ conditions - Viscosity change	@40°C	%	FED-STD-791 M.3410	0 to +35	Passes
Bearing test rig, Type 1 ½ conditions - Total acid number change		mgKOH/g	FED-STD-791 M.3410	2.0 max	Passes
Bearing test rig, Type 1 ½ conditions - Filter deposits		g	FED-STD-791 M.3410	3 max	Passes
Sonic shear stability - viscosity change	@40°C	%	ASTM D2603	4 max	0.3
Trace metal content		ppm	ASTM D5185 or D6595	Must pass	Passes
Sediment		mg/l	FED-STD-791 M.3010	10 max	Passes
Ash		mg/l	FED-STD-791 M.3010	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**

This product is unlikely to present any significant health or safety hazard when properly used in the recommended application and good standards of personal hygiene are maintained.

Avoid contact with skin. Use impervious gloves with used oil. After skin contact, wash immediately with soap and water.

Guidance on Health and Safety is available on the appropriate Safety Data Sheet, which can be obtained from <https://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.