Technical Data Sheet

AeroShell Oil *W 15W-50*

AeroShell Oil W 15W-50 is a unique blend of high quality mineral oil and over 50% synthetic hydrocarbon base stocks, plus the AeroShell Oil W ashless dispersant additive system. This semi-synthetic blend offers high performance in a wide variety of applications and conditions. The synthetic base stock performance provides for better cold temperature pumping and protection than single grade oils. In addition, the blend of synthetic and high quality mineral base stocks provide high temperature performance superior to that of other fully approved aircraft piston engine oils. The mineral base stocks help disperse lead by-products of combustion, thereby keeping engines free of "grey paint" or lead sludge that can be a problem with some fully synthetic oils.
The anti-wear additive system in AeroShell Oil W 15W-50 provides outstanding wear protection for critical camshafts, lifters and other high wear components.
The anti-corrosion additive package in AeroShell Oil W 15W-50 helps protect low usage engines and engines in high humidity climates against rust and corrosion of critical engine parts such as camshafts and lifters.
AeroShell Oil W 15W-50 provides superior anti-corrosion protection for all types of certified aircraft piston engines. When used with proper maintenance procedures, the product provides maximum protection and improves the likelihood that aircraft engines will reach TBO. In addition, this product provides outstanding high temperature oxidation protection for hot running engines. It is designed to keep engines cleaner with less sludge and varnish build-up in critical ring belt and other areas.

DESIGNED TO MEET CHALLENGES

Performance, Features & Benefits

- Provides excellent rust and corrosion protection for aircraft engines.
- Promotes engine cleanliness, fights wear, offers excellent anti-foam properties.
- Helps reduce oil consumption by up to 50% and provides superior oil flow at low temperatures.
- Compatible with other approved aircraft piston engine oils.
- Functions as an all season oil, no seasonal changes needed.
- Reduces fuel consumption by up to 5% over single grades.
- Provides superior high temperature oxidation stability.
- AeroShell Oil W 15W-50 is not recommended for use in automotive engines. For automotive engines converted for use in aircraft, the specific engine manufacturer or the conversion agency should be consulted for proper oil recommendation.

Main Applications

- AeroShell Oil W 15W-50 is intended for use in certified four-stroke cycle aircraft piston engines. AeroShell Oil W 15W-50 is superior to single grade oils in almost every application.

  It offers easier starting, better lubrication after start-up, reduced wear, reduced corrosion and rusting, and improved cleanliness with oil pressures and temperatures equal to that of single grade SAE 50 oils at fully warmed up conditions.
- The anti-corrosion additive system is designed to prevent rust or corrosion in all types of aircraft piston engines. In comparative testing of camshaft rusting under high humidity conditions, AeroShell Oil W 15W-50 was almost entirely rust free while other camshafts conditioned on other oils showed sometimes heavy rusting on cam lobes and bearing surfaces.
- These results indicate that AeroShell Oil W 15W-50 can provide maximum anti-corrosion protection for aircraft piston engines, when combined with proper maintenance practices and proper operating conditions.
- Because of the improved flow characteristics of AeroShell Oil W 15W-50, operators may observe slightly lower oil temperatures in some aircraft. On larger aircraft, the oil cooler flap will normally compensate for this change. However, in small aircraft, oil temperature could be reduced slightly. Operators should always check the oil temperature to ensure that they are in the range specified by the manufacturer. Most manufacturers recommend cruising oil temperatures between 82 to 93^{0}C (180 to 200^{0}F). Oil temperatures significantly below this range can result in excessive water and fuel contamination in the crankcase.

Specifications, Approvals & Recommendations

- AeroShell Oil W 15W-50 was developed in co-operation with Textron Lycoming and Continental Motors and conforms to their specifications 301F and MHS-24A respectively. This oil is also approved under Military Specification MIL-L-22851 which is now obsolete and has been replaced by the SAE J-1899 specification. AeroShell Oil W 15W-50 is also approved for use in all Pratt & Whitney radial aircraft engines.
- In addition AeroShell Oil W 15W-50 meets the provisions of Lycoming Service Bulletin 446C and 471, plus Service Instruction 1409A and meets the American FAA Airworthiness Directive 80-04-03 which specifies special anti-wear requirements for certain engine models.
- AeroShell Oil W 15W-50 already contains, in the correct proportions, an anti-wear additive equivalent to the Lycoming additive LW 16702; operators who use AeroShell Oil W 15W-50 DO NOT need to add this Lycoming additive to the oil.
- AeroShell Oil W 15W-50 is qualified for use in all Continental Motors' liquid cooled and air cooled aircraft piston engines.
- U.S : Approved SAE J-1899 Grade Multigrade
- British : Approved SAE J-1899 Grade Multigrade
- NATO Code : 0-162 Obsolete
- Joint Service Designation : OMD-162
- Textron Lycoming : 301F Service Bulletins 446C and 471, Service Instruction 14909A
- Continental : MHS 24A, SIL 99-2
- Pratt & Whitney : Service Bulletin 1183-S
- FAA : Airworthiness Directive 80-04-03 R2

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

Typical Physical Characteristics

Properties			SAE J-1899 Multigrade	Typical
Oil type			-	Mixed synthetic hydrocarbon and mineral
SAE Viscosity grade			Multigrade	Multigrade
Colour			-	4
Density	@15°C	kg/l	Report	0.860
Kinematic viscosity	@40°C	mm^2/s	-	140
Kinematic viscosity	@100°C	mm^2/s	-	19.6
Viscosity Index			100 min	157
Pour Point		°C	Report	-39
Flashpoint		°C	220 min	238
Total Acidity		mgKOH/g	1.0 max	0.01
Sulphur		% m	0.6 max	0.2
Copper corrosion 3 hrs	@100°C		1 max	1
Copper corrosion 3 hrs	@204°C		3 max	2
Ash content		% m	0.011 max	0.006
Trace sediment			Must pass	Passes
Foaming tendency			Must pass	Passes
Elastomer Compatibility 72 hrs	@70°C	swell %	Must pass	Passes
Elastomer Compatibility 72 hrs	@150°C	swell %	Must pass	Passes
Trace metal content			Must pass	Passes
Compatibility			Must pass	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

- **Advice**

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