Technical Data Sheet

AeroShell Oil *W100*

Mineral ashless dispersant oil for aircraft piston engines

AeroShell W Oils were the first non-ash dispersant oils to be used in aircraft piston engines. They combine non-metallic additives with selected high viscosity index base stocks to give exceptional stability, dispersancy and anti-foaming performance. These additives leave no metallic ash residues that can lead to deposit formation in combustion chambers and on spark plugs, which can cause pre-ignition and possible engine failure.

DESIGNED TO MEET CHALLENGES

Performance, Features & Benefits

- Promotes engine cleanliness
- Helps keep engines sludge free
- Helps reduce oil consumption
- Helps engines reach TBO (Time Between Overhaul)
- Protects highly stressed engine parts against scuffing and wear.

Main Applications

- AeroShell W Oils are available in three different viscosity grades:

  AeroShell Oil W80 - AeroShell Oil W100 - AeroShell Oil W120.
- The suffix for each grade corresponds to the viscosity of the oil at 210°F in Saybolt Universal Seconds.
- AeroShell W Oils are intended for use in four-stroke (four-cycle) certified reciprocating piston engines, including fuel-injected and turbocharged engines. AeroShell W Oils are 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.
- Most radial engine operators use AeroShell Oil W120 in warm weather operations with AeroShell Oil W100 or AeroShell Oil W 15W-50 being used in cooler ambient temperatures.
- AeroShell Oil W100 or AeroShell Oil W 15W-50 are the common choices for most operators of Lycoming and Continental flat engines but, during colder parts of the year, use of AeroShell Oil W80 in place of AeroShell Oil W100 would be an excellent choice.
- Although some aircraft engine manufacturers and rebuilders/ overhaul agencies suggest in their service bulletins the use of a straight mineral oil in new or newly overhauled engines, other rebuilders or manufacturers, especially for engines such as the Lycoming O-320H and O/LO360E, allow either ashless dispersant or straight mineral oil for break-in, whereas ashless dispersant oils are mandated for break-in for all turbocharged Lycoming engines. Operators should check with engine manufacturers or rebuilders for the correct recommendation for the specific engine and application.

Specifications, Approvals & Recommendations

- SAE J1899 SAE 50
- The U.S. specification SAE J1899 replaces MIL-L-22851D
- Although it was planned to replace the British Specification DERD 2450 with a DEF STAN specification this has now been put into suspension and instead the SAE specification has been adopted.
- Russian: MS-20
- Joint Service Designation: OMD-250
- Textron Lycoming: 301F
- Continental: MHS 24B
- Pratt & Whitney: Service Bulletin 1183
- Curtiss Wright: Various Service Bulletins – refer to relevant Bulletin
- Franklin Engines: Various Service Bulletins – refer to relevant Bulletin

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

Typical Physical Characteristics

Properties			Method	SAE J1899 Grade 50	Typical W 100
SAE Viscosity grade					50
Density	@15°C	kg/m³	ASTM D4052	Report	887
API Gravity			ASTM D287	Report	27.8
Kinematic Viscosity	@40°C	mm²/s	ASTM D445	Report	204
Kinematic Viscosity	@100°C	mm²/s	ASTM D445	16.3 to 21.9	18.1
Viscosity Index			ASTM D2270	95 min	> 96
Pour Point		°C	ASTM D5949	-18 max	< -21
Flash Point		°C	ASTM D92	243 min	> 250
Total Acid Number		mgKOH/g	ASTM D664/974	1.0 max	< 0.5
Sulphur		%m	ASTM D4951	1.0 max	0.38
Copper corrosion 3 hrs	@100°C		ASTM D130	1 max	1a
Ash Content		%m	ASTM D482	0.011 max	< 0.004
Trace sediment		ml/100ml	ASTM D2273	Must pass	Passes
Foaming tendency			ASTM D892	Must pass	Passes
Trace metal content		ppm	ASTM D4951	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**

  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

- **Advice**

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