Technical Data Sheet

AeroShell Oil *W80*

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 cycle (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 40
- 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-14
- Joint Service Designation: OMD-160
- 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 40	Typical W 80
SAE Viscosity grade					40
Density	@15°C	kg/m³	ASTM D4052	Report	883
API Gravity			ASTM D287	Report	28.6
Kinematic Viscosity	@40°C	mm²/s	ASTM D445	Report	139
Kinematic Viscosity	@100°C	mm²/s	ASTM D445	12.5 to 16.3	14.5
Viscosity Index			ASTM D2270	100 min	102
Pour Point		°C	ASTM D5949	-22 max	< -24
Flash Point		°C	ASTM D92	225 min	> 240
Total acidity		mgKOH/g	ASTM D664/974	1.0 max	< 0.4
Sulphur		%m	ASTM D4951	0.8 max	0.3
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**

  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.