

# AEROSHELL OILS W65, W80, W100 and W120

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.

## APPLICATIONS

AeroShell W Oils are available in four different viscosity grades:

AeroShell Oil W65 – 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 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 engine manufacturers and overhaulers suggest in their service bulletins the use of a straight mineral oil in new or recently overhauled engines for break-in, other rebuilders and manufacturers especially for engines such as the Lycoming O-320H recommend use of an AeroShell W Oil for break-in. Operators should therefore check with engine rebuilders or manufacturers for the correct recommendations for the specific engine.

## AEROSHELL W OILS

- Promote engine cleanliness
- Help keep engines sludge free
- Help reduce oil consumption
- Help engines reach TBO (Time Between Overhaul)
- Protect highly stressed engine parts against scuffing and wear

## SPECIFICATIONS

The U.S. specification SAE J-1899 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 abeyance and instead the SAE specification has been adopted.

AEROSHELL OIL	W65	W80
U.S.	Approved J-1899 SAE Grade 30	Approved J-1899 SAE Grade 40
British	—	Approved J-1899 SAE Grade 40
French	—	(AIR 3570 Grade SAE 40)
Russian	—	MS-14
NATO Code	—	O-123 Obsolete
Joint Service Designation	—	OMD-160

AEROSHELL OIL	W100	W120
U.S.	Approved J-1899 SAE Grade 50	Approved J-1899 SAE Grade 60
British	Approved J-1899 SAE Grade 50	Approved J-1899 SAE Grade 60
French	(AIR 3570 Grade SAE 50)	(AIR 3570 Grade SAE 60)
Russian	MS-20	—
NATO Code	O-125 Obsolete	O-128 Obsolete
Joint Service Designation	OMD-250	OMD-370

( ) indicates the product is equivalent to specification.

### EQUIPMENT MANUFACTURERS APPROVALS

AeroShell W Oils are approved for use by the following engine manufacturers:

<b>Textron Lycoming</b>	301F
<b>Teledyne Continental</b>	MHS 24B
<b>Pratt &amp; Whitney</b>	Service Bulletin 1183-S
<b>Curtiss Wright</b>	Various Service Bulletins – refer to relevant Bulletin
<b>Franklin Engines</b>	Various Service Bulletins – refer to relevant Bulletin

### AEROSHELL OIL

Typical Properties	W65	W80	W100	W120
SAE viscosity grade	30	40	50	60
Colour ASTM	2.0	4.0	4.0	5.0
Density @ 15°C kg/l	0.886	0.887	0.889	0.894
Kinematic viscosity mm <sup>2</sup> /s @ 100°C	11.0	14.5	20.2	24.8
@ 40°C	84	126	213	288
Viscosity Index	115	115	110	120
Pourpoint °C	-25	Below -22	Below -18	Below -18
Flashpoint Cleveland Open Cup °C	227	Above 240	Above 260	Above 240
Carbon residue % m	0.2	0.3	0.2	0.25
Total acidity mgKOH/g	0.01	<0.1	<0.1	<0.1
Sulphur % m	0.1	0.13	0.14	0.18
Copper corrosion @ 100°C	1	1	1	1
Ash content % m	0.006	0.006	0.006	0.006

A viscosity/temperature chart is shown at the end of this section.

These products are made in more than one location and the approval status and typical properties may vary between locations.