



AeroShell[®] GREASES

Premium military approved greases for the aviation industry

Product Description

Shell offers a complete line of eight aviation greases designed to fill almost every lubrication need of the aviation community. The product line consists of eight products each designed for specific applications. Six of the Shell aviation greases are based on Microgel[®], an inorganic thickening agent. The seventh grease is soap type grease specifically designed to provide the unique lubricant requirements of helicopter main and tail rotor bearings. The eighth grease is thickened with lithium complex soap and is approved against both Boeing and military specifications.

Applications

Whenever an aircraft is certified, all of the lubricants are specified for each application point on the type certificate. The type certificate will specify, either by military specification number or by specific product names, those products, which are qualified to be used. The FAA regulations state that only products qualified for specific applications can be used in certified aircraft. Therefore, in aviation it is the responsibility of the aircraft owner or designated representative to determine which products should be used. Lubricant recommendation charts for specific aircraft should be consulted, or the original airframe manufacturer should be contacted for specific product recommendations.

The Products

- **AeroShell Grease 5** is high temperature aircraft wheel bearing and engine accessory grease. It is made with high viscosity base oil and a Microgel[®] non-melting inorganic thickener, providing excellent load carrying ability and resistance to water washout. It has a useful temperature range of -10° F (-23° C) to +350° F (+177° C). This grease is increasingly being used in high temperature industrial applications, such as drying ovens. **AeroShell Grease 5** is qualified under the former MIL-G-3545C (obsolete) specification.
- **AeroShell Grease 6** is general-purpose airframe grease used primarily in plain and anti-friction bearings. It is made with a Microgel[®] inorganic thickener, which provides outstanding low temperature torque properties and resistance to water. It has a useful temperature range of -40° F (-40° C) to +250° F (+121° C). It is also used in other non-aviation applications requiring excellent low temperature lubrication properties. **AeroShell Grease 6** is qualified under MIL-G-24139A and MIL-G-7711A (obsolete) specifications.
- **AeroShell Grease 7** is low temperature multipurpose aviation grease recommended for instruments and general airframe lubrication of turbine powered aircraft as well as highly loaded gears and actuator screw mechanisms. It is made with synthetic diester base oil and a Microgel[®] non-melting inorganic thickener, which provides a useful temperature range of -100° F (-73° C), to +300° F (+149° C). **AeroShell Grease 7** is qualified under the MIL-PRF-23827C specification.

- **AeroShell Grease 14** is the leading multipurpose helicopter grease used for most helicopter main and tail rotor bearings (where specified). It is made with mineral base oil and a calcium soap thickener which provides outstanding protection against moisture, corrosion & fretting. It has a useful temperature range of -65° F (-54° C) to +200° F (+93° C). **AeroShell Grease 14** is qualified under MIL-G-25537C specification.
- **AeroShell Grease 16** is a superior anti-friction bearing grease recommended for anti-friction bearings operating under load at high speeds and high or low temperatures. It is made with a blend of synthetic polyolester and mineral oil and Microgel non-melting inorganic thickener, which provides long life and high water resistance. It has a useful temperature range of -65°F (-54°C) to +400°F (+204°C). **AeroShell Grease 16** is qualified under MIL-G-25760A (obsolete) and Boeing Materials Specification BMS 3-24A.
- **AeroShell Grease 17** is extreme pressure multipurpose grease recommended for heavily loaded sliding steel surfaces where protection against seizure and corrosion is desired; e.g. bogie pivot pins on jet aircraft landing gear assemblies. It is made with synthetic diester base oil, molybdenum disulfide and Microgel® non-melting inorganic thickener, which provides outstanding anti-friction bearing lubrication. It has a useful temperature range of -100° F (-73° C) to +300° F (+149° C). **AeroShell Grease 17** is qualified under MIL-G-21164D specification.
- **AeroShell Grease 22** is versatile multipurpose grease recommended for aircraft wheel bearings, engine accessories and airframe lubrication, and for general anti-friction bearings operating at high speeds and at high or low temperatures. It is made with synthetic base oil and Microgel® non-melting inorganic thickener, which provides excellent anti-wear properties and load carrying capacity. It has a useful temperature range of -85° F (-65° C) to +400° F (+204° C). **AeroShell Grease 22** is qualified under MIL-PRF-81322F Grade 2 and DOD-G-24508A specifications.
- **AeroShell Grease 33** is multipurpose airframe grease specifically developed for Boeing to be used in roller bearings, actuator screws and other airframe equipment. It is made with synthetic base oil and a Lithium Complex thickener, which provides enhanced corrosion resistance and load-carrying capacity. It has a useful temperature range of -100° F (-73° C) to +250° F (+121° C). **AeroShell Grease 33** is qualified under MIL-PRF-23827C and Boeing Specification BMS 3-33A.

Typical Properties of Shell Aeroshell Greases

	5	6	7	14	16	17	22	33
Aeroshell Greases	5	6	7	14	16	17	22	33
Product Code	70025	70026	70149	70014	70016	70017	70022	70024
Thickener	Microgel	Microgel	Microgel	Calcium	Microgel	Microgel	Microgel	Lithium complex
Oil Type	Mineral	Mineral	Synthetic Diester	Mineral	Mineral/Synthetic Polyolester	Synthetic Diester	Synthetic Hydrocarbon	Synthetic Base Oil Blend
Viscosity @ 100°C, cSt (ASTM D 445)	31.8	5.5	3.1	3.1	6.0	3.1	5.8	3.4
Useful Temp. Range, °F	-10 to +350	-40 to +250	-100 to +300	-65 to +200	-65 to +400	-100 to +300	-85 to +400	-100 to +250
Dropping Point, °F (ASTM D2265)	500+	500+	500+	300	500+	500+	500+	420+
Penetration @ 77°F (ASTM D217)								
Unworked	281	287	283	267	290	287	271	290
Worked	284	300	296	273	308	295	275	297
Evaporation in 22 hrs (ASTM D2595)								
Test Temperature, °F	300	250	210	210	350	210	350	250
Loss, wt%	1.0	1.3	0.5	6.8	3.8	0.6	4.3	<10 (500hr)
Corrosion								
Copper Strip, 24 hrs @ 212°F (ASTM D4048)	max 1b	max 1b	max 1b	max 1b	max 1b	max 1b	max 1b	max 1b
Anticorrosion (ASTM D1743)	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass
Bomb Oxidation, @ 210°F (ASTM D942)								
Pressure Drop @ 100 hrs, psi	6	9	9	3	5	8	4	0.5
@ 500 hrs, psi	15	15	14	6	10	15	10	5

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Typical Properties of Shell Aeroshell Greases (cont'd)								
Aeroshell Greases	5	6	7	14	16	17	22	33
Product Code	70025	70026	70149	70014	70016	70017	70022	70024
Water Resistance (ASTM D1264)								
Loss, %w, @100°F	0.5	2.0	0.8	7.2	1.8	1.0	0.5	<6 (@175°F)
Anti-friction Bearing Performance (ASTM D3336)								
Temperature, °F	300	250	250	200	350	250	350	250
Time, Hrs	600+	2000+	2460	1700+	400+	2850	400+	1200+
Mean Hertz Load, Kg. (ASTM D2596)	37	33	60	---	57	60	45	60
Oil Separation (FED-STD-791. 321)								
30 hrs @ 212°F, wt%	0.5	0.7	3.0	2.0	3.5	0.9	---	2.0
30 hrs @ 350°F, wt%	---	----	---	---	4.3	---	4.7	---
Color	Amber	Brown	Amber	Tan	Brown	Gray	Amber	Kelly Green
Qualified Under Specifications	Former MIL-G- 3545C (obs)	MIL-G- 24139A	MIL-PRF- 23827C Type II	MIL-G- 25537C	Former MIL-G-25760A (obs); BMS 3-24	MIL-G-21164D	MIL-PRF- 81322F Grade 2; DOD-G- 24508A	MIL-PRF- 23827C Type I; BMS 3-33A

Handling & Safety Information

For information on the safe handling and use of this product, refer to its Material Safety Data Sheet at <http://www.equivashellmsds.com>. For more information and availability, call **1+800-782-7852** or visit the World Wide Web: <http://www.shell-lubricants.com/>.