Technical Data Sheet

AeroShell **Fluid *61 (NA)***

Synthetic hydrocarbon hydraulic fluid for aircraft

AeroShell Fluid 61 is a synthetic hydrocarbon base hydraulic fluid specifically inhibited to provide excellent oxidation stability for the oil and good corrosion preventive protection to the hydraulic system.

DESIGNED TO MEET CHALLENGES

Main Applications

- AeroShell Fluid 61 is designed for use where a fire resistant preservative grade hydraulic fluid is required and is suitable for operational use as well as preservation of components during storage and shipment.
- AeroShell Fluid 61 has an operating temperature range of –40°C to +200°C.
- AeroShell Fluid 61 is compatible with AeroShell Fluids 4, 31, 41 and 71.
- AeroShell Fluid 61 is a synthetic oil and should not be used in contact with incompatible seal materials.
- Chlorinated solvents should not be used for cleaning hydraulic components which use AeroShell Fluid 61. The residual solvent contaminates the hydraulic fluid and may lead to corrosion.

Specifications, Approvals & Recommendations

- MIL-PRF-46170E Type I
- The previous US specification revision covered two grades, Type I and Type II. The only difference between the two grades is that Type II is dyed red for aerospace use whereas Type I is undyed.
- NATO Code H-544

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

Typical Physical Characteristics

Properties			Method	MIL-PRF-46170E Type I	Typical
Oil type				-	Synthetic Hydrocarbon
Colour				Undyed	Undyed
Relative density	@15.6/15.6°C		ASTM D4052 / D1298	-	0.854
Kinematic Viscosity	@40°C	mm^2/s	ASTM D445	19.5 max	14.8
Kinematic Viscosity	@100°C	mm^2/s	ASTM D445	3.4 min	3.6
Kinematic Viscosity	@–40°C	mm^2/s	ASTM D445	2600 max	2304
Pour Point		°C	ASTM D97	-54 max	< - 69
Flash Point		°C	ASTM D92	218 min	221
Fire Point (COC)		°C	ASTM D92	246 min	251
Total Acid Number		mg KOH/g	ASTM D664	0.2 max	0.17
Evaporation Loss	22h @ 149°C	%m	ASTM D972	5 max	4
Low temperature stability 72 hrs			FED-STD-791-3458	Must Pass	Passes
Autoignition temperature		°C	ASTM E659	343 min	377
Water Content		mg/kg	ASTM D6304	500 max	140
Gravimetric analysis		mg/100ml	ASTM D4898	0.5 max	0.3

Properties			Method	MIL-PRF-46170E Type I	Typical
Particulate contamination, number of particles per 100 ml in size range			FED-STD-791-3012	Must Pass	Passes
Foaming Characteristics Sequences I,II,III Tendency/Stability		ml/ml	ASTM D892	65/0	Passes
Trace sediment		ml	ASTM D2273	0.005 max	< 0.001
Rubber swell, L rubber	@70°C	%	ASTM D4289	15.0 to 25.0	15.8
4-Ball Wear, 75°C - scar dia	147N load/1200 rpm	mm	ASTM D4172	0.30 max	0.28
4-Ball Wear, 75°C - scar dia	392N load/1200 rpm	mm	ASTM D4172	0.65 max	0.41
Rust Prevention			ASTM D1748	Must pass	Passes
Corrosion & oxidation stability 168 hrs - metal weight change	168h at 121°C		ASTM D4636	Must Pass	Passes
Corrosion & oxidation stability (168 hrs @ 121°C) - viscosity change	@40°C	%	ASTM D4636	±10 Max	<10
Corrosion & oxidation stability 168 hrs - acid number change	168h at 121°C	mgKOH/g	ASTM D4636	0.3 max	<0.3
Corrosivity			ASTM D6547	Must pass	Passes
Water Sensitivity			MIL-PRF-46170	90 min	99

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.