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.