



# AeroShell Fluid 4

AeroShell Fluid 4 is a mineral hydraulic oil with very good low temperature characteristics and capable of operating over a wide temperature range. AeroShell Fluid 4 is composed of a mineral oil base stock and a complex additive package which results in a product with excellent low temperature flow and anti-wear properties, exceptional antifoam characteristics, and excellent oxidation stability. AeroShell Fluid 4 is dyed red.

## DESIGNED TO MEET CHALLENGES

### Main Applications

AeroShell Fluid 4 is intended for use as a hydraulic fluid in undercarriage retraction mechanisms, flap jacks and control mechanisms, brakes, shock absorbers, automatic pilots, oleo legs, tail wheels, servo units, etc. AeroShell Fluid 4 is also suitable for lubricating de-icing pumps and gearboxes.

AeroShell Fluid 4 should be used in systems with synthetic rubber components and must not be used in systems incorporating natural rubber. The latter systems require castor base fluids with which AeroShell Fluid 4 is not interchangeable.

AeroShell Fluid 4 is compatible with AeroShell Fluids 31, 41, 51, 61 and 71, although it is not recommended that AeroShell Fluid 4 is used in systems which require the use of a superclean fluid nor should it be mixed with superclean fluids for operational reasons.

Chlorinated solvents should not be used for cleaning hydraulic components which use AeroShell Fluid 4. The residual solvent contaminates the hydraulic fluid and may lead to corrosion.

### Specifications, Approvals & Recs

Meets MIL-H-5606A (US)

(Obsolete – see AeroShell Fluid 41)

Meets DTD 58.5 (Obsolete - see AeroShell Fluid 41)

Approved DEF STAN 91.48 Grade Normal (European production only) (British)

Approved DCSEA 415/A (French)

Analogue to AMG-10 (Russian)

NATO CODE H-520 (European production only)

Joint Service Designation OM-18 (European production only)

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

### Typical Physical Characteristics

Properties	DEF STAN 91-48 Grade Normal	Typical (European Production)
Oil Type	Mineral	Mineral
Kinematic viscosity @ 100°C mm <sup>2</sup> /s	4.0 min	5.30
Kinematic viscosity @ 40°C mm <sup>2</sup> /s	13 min	14.1
Kinematic viscosity @ -40°C mm <sup>2</sup> /s	500 max	491
Kinematic viscosity @ -54°C mm <sup>2</sup> /s	3000 max	2300
Flashpoint (Pensky Martin Closed Cup) °C	81 min	105
Pour Point °C	-60 max	< -60
Total acid number mgKOH/g	0.2 max	0.01
Relative Density @ 15.6/15.6°C	-	0.87
Evaporation @ 100°C %m	20 max	10
Colour	Red	Red

Properties	DEF STAN 91-48 Grade Normal	Typical (European Production)
Copper corrosion	2 max	Passes
Low temperature stability	Must pass	Passes
Shear stability	Must pass	Passes
Foaming characteristics	Must pass	Passes
Phosphorus content % m/m	0.035 to 0.050	Passes
Oxidation & corrosion stability 168 hrs, metal weight change @ 135°C	Must pass	Passes
Oxidation & corrosion stability 168 hrs, change in viscosity @40°C %	-5 to +20	+2.0
Oxidation & corrosion stability 168 hrs, change in acid number mgKOH/g	0.2 max	+0.1
Anti-wear properties, scar diam mm	1.5 max	0.95
Rubber swell 168 hrs, vol change @ 70°C %	19 to 30	25

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

AeroShell Fluid 4 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 Material Safety Data Sheet, which can be obtained from your Shell representative.

### ▪ 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.

