

## Anvol WG 46

Fire resistant hydraulic fluid

### Description

Castrol Anvol™ WG 46 is an HF-C type water-glycol fire resistant hydraulic fluid, containing anti-wear additives and corrosion inhibitors. It provides excellent protection against rust and vapor phase corrosion. In hydraulic pump tests, Anvol WG 46 has shown high levels of anti-wear performance. Its foam resistance, low temperature flow, emulsion stability and storage stability are also excellent.

### Application

Anvol WG 46 is for use in hydraulic systems where, in the event of fluid leakage, there is a significant risk of ignition. Examples of applications include furnace doors, die-casting machines, forging machinery and mining equipment. It can be used in vane, gear or piston-type pumps with pressures up to 3000 PSI. As with any water containing fluid, continuous high temperature leads to excessive evaporation. The water content should be checked regularly in service and any corrections made by addition of distilled or de-ionised water. Occasional monitoring of alkalinity is recommended to ensure the correct level of corrosion inhibition. Care should be taken to ensure the hydraulic system is designed for using water glycol based fluids. Care should also be taken to ensure the compatibility of Anvol WG 46 with paints, seals and metals, and also ensure that the hydraulic pumps and filters used are suitable. A thorough draining and flushing procedure should be followed when converting from other fluids to water glycol based solutions. Anvol WG 46 is fully compatible with nitrile, neoprene, silicone, nylon, butyl rubber and fluropolymer seal materials. Anvol WG 46 meets the fire resistance requirements of: 7th Luxembourg Report FM Global 6930

### Advantages

- Excellent anti-wear performance: gives wear protection and reduces downtime from unscheduled maintenance
- Excellent Fire resistance: cannot be ignited in spray ignition tests
- Excellent glycol in water stability: true solution means longer service and storage life
- Outstanding corrosion protection: provides protection below the liquid surface and in the vapour phase
- Exceptionally low pour point: ensures consistent performance over a wide temperature range

## Typical Physical Characteristics

Test	Method	Units	Anvol WG 46
ISO Viscosity Grade	-	-	46
Appearance	-	-	Hazy red fluid
Density @ 15°C	ISO 12185/ASTM D4052	g/ml	1.07
Kinematic Viscosity @ 0°C	ISO 3104/ASTM D445	mm <sup>2</sup> /s	405
Kinematic Viscosity @ 40°C	ISO 3104/ASTM D445	mm <sup>2</sup> /s	46
Kinematic Viscosity @ 60°C	ISO 3104/ASTM D445	mm <sup>2</sup> /s	24
Viscosity Index	ISO 2909/ASTM 2270	-	>200
Pour Point	ISO 3016/ASTM D97	°C	-51
pH @ 20°C	-	-	9.2
Water Content	Calculated	%	39
Air Release Value	ISO 9120/ASTM D3427	Mins	7
Foam Seq I	ISO 6247/ASTM D892	mls	10/0
Rust Test (24 hrs distilled water)	ISO 7210/ASTM D665A	-	Pass
Vickers V-104 Pump Wear Test (1900 psi, 1200 rpm, 100 hours, 65°C)	ASTM D2882 (modified)	mg	<20

### SHCMOEI Seventh Luxembourg Report

Corrosion Test, 28 days Wt loss/gain, mg	Limits	-
Steel	11 max	0.5
Copper	11 max	1.2
Zinc	22 max	1.3
Aluminium	5.0 max	1.1
Brass	11 max	1.2
Vickers 104C Vane Pump Test (IP281/80) 250 hours, 104 bar, 50°C		
Total WEight Loss, mg	500 max	59
Filterability (NFE 48692) Filterability Index (FI)	2 max	1.3

Subject to usual manufacturing tolerances.

## Additional Information

**Compatibility of Anvol WG 46 with hydraulic components:** **Metals** – Compatible with all common metals and passes the corrosion tests for Type HF-C fluids as detailed in the SHCMOEI Seventh Luxembourg Report. **Seal materials** – Suitable materials are: Nitrile PTFE, Neoprene (Chloroprene) Silicone, Viton Nylon, Natural Rubber Butyl Rubber. **Filters** – Most metal types are compatible, but some paper elements can be damaged by water and only types approved for high water content fluids should be used. **Paints** – Fire resistant water glycols soften and lift most paints. Vinyl or epoxy resin based are compatible. When changing from mineral oil to water-glycol, all paint in the system should be removed unless it is known to be a compatible type. **Fluid maintenance:** In service water can be lost by evaporation and this must be periodically replaced to maintain the correct viscosity and optimum fire resistance. Water content can be determined directly by Laboratory analysis. Only condensate, distilled or de-ionised water should be used for top-up. The required quantity of water should be slowly added to the reservoir with the system running to ensure thorough mixing. **Operating temperature range:** From -20 to +60°C. Anvol WG will remain fluid down to approx -50°C, however, the increased viscosity will limit actual low temperature running. Care must be taken at temperatures above 60°C so water evaporation does not occur too readily and reduce fire resistant properties.

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