



Formerly Known As: FR WG 200-D

# Shell Water-Glycol S2 C 46

- Fire Resistant
- Antiwear Performance
- Corrosion Protection

## High Performance Water-Glycol Hydraulic Fluid

Shell Water-Glycol S2 C 46 is a fire-resistant hydraulic fluid and is recognized by FM Global as a less flammable industrial fluid. Shell Water-Glycol S2 C 46 was developed and designed specifically to operate at system pressures of 2000–4000 psi depending on pump type (vane or piston). The formulation contains more than a sufficient amount of water to prevent the propagation of fire in the event of a hydraulic line rupture near an ignition source.

## DESIGNED TO MEET CHALLENGES

### Performance, Features & Benefits

#### • Fire Resistant

A fire-resistant fluid may be used to avoid the risk of fluid ignition in the event of a leak. Fire-resistant fluids are specially formulated lubricants and greases that are more difficult to ignite and do not propagate a flame from an ignition source. Because of its water content, this product has the ability to prevent flame propagation when fire occurs. Recognized by FM Global as a less flammable industrial fluid Shell Water-Glycol S2 C 46 reduces fire hazards related to personal safety in storage, handling, and use which could help lower insurance premiums.

#### • Heat Transfer Properties

Water based fluids such as Shell Water-Glycol S2 C 46 are excellent heat transfer media. Water glycol fluids in general have marked advantages over typical mineral oil based formulations in this respect. One of the most effective protection against fire and explosion is to prevent leakage with proactive servicing, and maintenance and care of the system.

#### • Low Pump Wear

A high level of anti-wear protection is built into Shell Water-Glycol S2 C 46. Shell Water Glycol S2 C 46 is designed to be resistant to mechanical shear resulting in stable viscosity, helping to protect components against wear.

#### • Corrosion Protection

Shell Water-Glycol S2 C 46 will afford corrosion protection to a wide variety of metals including aluminum, copper, brass, cast iron, steel and other metals commonly used in hydraulic circuitry.

#### • Seal, O-Ring and Hose Compatibility

Shell Water-Glycol S2 C 46 can be used in systems that contain a wide variety of seal, gasket and hose materials. Elastomers such as natural rubber, Buna-N, Buna-S and Neoprene are compatible with the fluid. Other materials such as Viton and Teflon are also compatible. The only seal and gasket configurations that are not acceptable are leather, cork, cellulose or other substances that will absorb water and either swell or deteriorate as a result.

### Main Applications



- Die Casting Equipment
- Welding machines
- Molten metal handling devices
- Continuous casters
- Hot strip mills
- Slag granulators
- Hot metal presse

## Specifications, Approvals & Recommendations

- FM Global

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

- **Fluid Maintenance**

Shell Water-Glycol S2 C 46 will retain its optimum fire protection, impart excellent rust and corrosion protection and prolong the hydraulic system component life only with good maintenance. Maintaining the alkaline reserve gives maximum corrosion protection and proper filtration of dirt and sludge is essential for a well maintained fire resistant fluid.

It is essential to maintain the correct amount of water in the Shell Water-Glycol S2 C 46. Viscosity measurements at 40°C will provide information if water make up is required. If the viscosity is high, then water should be added to the system. Contact your Shell representative for guidance on water addition for viscosity correction and other specific maintenance practices.

The water must be deionized, distilled, reverse osmosis or steam distillate.

## Compatibility & Miscibility

- Care should be taken when converting from a mineral oil to a water-based or synthetic anhydrous fluid. Prior to converting, it is important to review the equipment OEM requirements to confirm compatibility of the fluid with system components (seals, hoses, filter materials, paints) and also on the need to derate pumps when using different fluids. Even when using compatible fluids, a small quantity of mineral oil can impair the fire resistance and stability of the new fluid. Advice on applications not covered here may be obtained from your Shell representative.

## Typical Physical Characteristics

Properties			Method	Shell Water-Glycol S2 C 46
ISO Viscosity Grade				46
Appearance				Clear to slightly hazy, red fluid
Kinematic Viscosity	@0°C	mm <sup>2</sup> /s	ASTM D445	287.1
Kinematic Viscosity	@40°C	mm <sup>2</sup> /s	ASTM D445	46.0
Kinematic Viscosity	@80°C	mm <sup>2</sup> /s	ASTM D445	14.7
Viscosity Index			ISO 2909	202
Density	@15°C	kg/m <sup>3</sup>	ASTM D4052	1 080
Pour Point			ASTM D97	-48
pH				9.5
Reserve Alkalinity	mL		ASTM D1121	19.0 - 23.0

These characteristics are typical of current production, variations in these characteristics in future production 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 on applications not covered here may be obtained from your Shell Representative.