

SHELL TURBO® Fluid DR 46

Fire resistant hydraulic and lubricating fluid for turbines

SHELL TURBO® Fluid DR 46 is a fire-resistant hydraulic fluid based on Tri-Aryl Phosphates manufactured from carefully selected raw materials.

Performance Features and Benefits

- **Excellent fire resistant**
SHELL TURBO® Fluid DR 46 is inherently fire-resistant, offering high flash point, high fire point and high auto ignition temperature. It eliminates the risk of fire, potentially caused by mineral oil products.
- **Good oxidation stability**
To provide long service life under normal operating conditions.
- **Good hydrolytic stability**
SHELL TURBO® Fluid DR 46 is to a great extent able to withstand rapid decomposition of the Ester base fluid under the influence of moisture and water in the oil system.
- **Good demulsibility**
To enable rapid separation from water for improved service intervals.
- **Good air release**
Rapid air-release minimizes air entrapment in lubrication and governor control systems in order to ensure safe operation of the whole equipment.
- **Low foaming**
Minimal tendency for foaming to provide proper lubrication and heat transfer.

Main Applications

- **Lubrication of steam- and gas turbines**
SHELL TURBO® Fluid DR 46 can be used as lubrication oil for main bearings in steam- and gas turbines, generators and cooling pumps.
- **Hydraulic fluid**
It can be used as hydraulic fluid in electrohydraulic governor control systems in steam- and gas turbines.
Advice on applications not covered in this leaflet may be obtained from your Shell Representative.

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Specifications, Approvals, and Recommendations

SHELL TURBO® Fluid DR 46 is approved by relevant original equipment manufacturers, e.g. ABB, GEC, Siemens, Westinghouse.

SHELL TURBO® Fluid DR 46 appears in the FM Approvals Guide against project identification number 3024866 as an approved fire resistant hydraulic fluid for turbine applications.

Compatibility

Packing, Seals and Hoses

The following materials are recommended for use with SHELL TURBO® Fluid DR 46: Butyl rubbers, Nylon, PTFE, and Viton rubber (depending on operation temperature range).

Painted Surfaces

Attention must be paid to painted surfaces. Epoxy paints are seen as resistant to SHELL TURBO® Fluid DR 46.

Fluid Conditioning

In order to ensure a long fluid life it is essential to keep the fluid clean and dry and to maintain a low level of acidity. Special advice for the treatment of the product in service can be requested from your supplier.

Handling and Safety Information

For information on the safe handling, storage, or use of this product, refer to its Material Safety Data Sheet at <http://www.epc.shell.com/>. If you are a Shell Distributor, please call 1+800-332-6457 for all of your service needs. All other customers please call 1+800-237-8645 for all of your service needs.

Protect the Environment

Do not discharge into drains, soil, or water.

Typical Physical Characteristics

SHELL TURBO® Fluid DR 46	Test Method	46
ISO Viscosity Grade		46
Kinematic Viscosity: @ 40 °C, cSt @ 100 °C, cSt	ASTM D 445 ASTM D 445	43.4 5
Specific Gravity @ 15°F kg/m ³	ASTM D 1298	1.130
Flash Point, COC, min °C	ASTM D 92	270
Fire Point COC, min °C	ASTM D 92	368
Auto Ignition Temp., °C	ASTM D 2155	575
Pour Point, °C	ASTM D 5949	-20
Neutralization Number, mg KOH/g	ASTM D 974	0.04
Water separability @ 54 °C min	ASTM D 1401	40/40/0
Water content m-%	ASTM D 1744	0.06
Cleanliness	ISO 4406	15/12
Air release @ 50 °C min	ASTM D 3427	1

These characteristics are typical of current production. While future production will conform to Shell specifications, variation in these characteristics may occur.