



Formerly Known As: Neptune® AW 46

Shell Biodegradable Hydraulic Fluid 46

- USA EPA VGP compliant
- Non-Sheening
- Polyalkylene glycol (PAG) based

Advanced Water Soluble Hydraulic Oil

Shell Biodegradable Hydraulic Fluids are fully synthetic PAG (Polyalkylene Glycol) based, non-aqueous hydraulic fluids. These fluids are formulated from a high VI, fully synthetic base stock, coupled with a non-metallic additive package that provides the properties demanded by high-performance hydraulic systems. These fluids also have excellent low temperature properties and are resistant to oxidative and thermal degradation. Particularly suited for applications mandating compliance with USA EPA 2013 Vessel General Permit (VGP) requirements for environmentally acceptable lubricants.

DESIGNED TO MEET CHALLENGES

Performance, Features & Benefits

- **Excellent wear protection**

Shell Biodegradable Hydraulic Fluids have exceptional load carrying anti-wear performance over a wide range of temperatures. The ISO 46 provides antiwear performance based on FZG test results.

- **Water Solubility**

Shell Biodegradable Hydraulic Fluids are heavier than water and dissolve completely.

- **Hydrolytic Stability**

Shell Biodegradable Hydraulic Fluids will not hydrolyze in the presence of water. This protects hydraulic systems from decreased equipment life and potential system failure due to the presence of harmful acids (increased Total Acid Number values).

- **All Weather Service**

With high viscosity indices and low pour points. Shell Biodegradable Hydraulic Fluids may be used year-round, eliminating season changeovers. One Shell Biodegradable Hydraulic Fluid may replace multiple viscosity grade oils.

- **Material Compatibility**

Shell Biodegradable Hydraulic Fluids are typically not soluble with petroleum-based oils. The fluids are compatible with seals and hoses commonly found in hydraulic systems. Contact Shell for more detailed compatibility information related to paints, plastics, and elastomers.

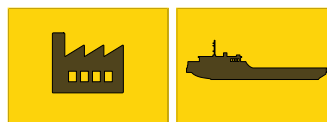
- **Lower Environmental Impact**

An 'environmentally acceptable lubricant' as defined by the USA EPA 2013 Vessel General Permit.

Offers reduced impact of leaks or accidental spillage into aquatic and marine environments compared to conventional mineral hydraulic oils thanks to their higher biodegradability* (*Publication EPA 800-R-11-002)

Particularly suited for applications mandating compliance with USA EPA 2013 Vessel General Permit (VGP) requirements for environmentally acceptable lubricants.

Main Applications



Fluids can be used in industrial, marine and mobile equipment, including high-pressure systems, systems with servo valves and all robotics.

Specifications, Approvals & Recommendations

- Meets requirement of United States Environmental Protection Agency's (EPA) 2013 vessel general permit (VGP)

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

Typical Physical Characteristics

Properties	Method	Shell Biodegradable Hydraulic Fluid 46
Viscosity grade		46
Kinematic Viscosity @40°C mm ² /s	ASTM D445	47
Kinematic Viscosity @100°C mm ² /s	ASTM D445	9.9
Viscosity Index	ISO 2909	203
Density @25°C kg/m ³	ASTM D4052	1 020
Flash Point °C	ASTM D92	255
Fire Point (COC) °C	ASTM D92	285
Pour Point °C	ASTM D97	-39
FZG (A/8,3/90) Fail Stage	ISO 14635-1	12

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

Shell Biodegradable Hydraulic Fluid 46 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.