



Formerly Known As: PANOLIN ORCON SYNTH E

Shell PANOLIN S4 Hydraulic H1 EAL 46

- EU Ecolabel Certified
- USA EPA VGP compliant
- Readily Biodegradable

Hydraulic Fluid - high performance, readily biodegradable, saturated synthetic esters.

Shell PANOLIN S4 Hydraulic H1 EAL has a zinc-free additive technology, formulated with high-performance fully synthetic saturated esters which offers increased machinery efficiency through enhanced oil life and premium wear protection. Readily biodegradable with a low ecotoxicity, particularly suited for use in environmentally sensitive areas and where food is present including food manufacture, fishing, crane lifting, pharmaceutical and animal feed industries.

High-Performance Biodegradable Lubricants

Performance, Features & Benefits

- **Extended oil life**

Shell PANOLIN S4 Hydraulic H1 EAL has an extended oil life and is designed to help equipment operate without interruptions. Longer oil-drain intervals mean less oil being produced, purchased and disposed of.

- **Premium wear protection**

Shell PANOLIN S4 Hydraulic H1 EAL is designed to help equipment operate without interruptions. Shell PANOLIN S4 Hydraulic H1 EAL offers strong wear protection of hydraulic equipment, and protection from the build up of sludge and varnish.

- **Food grade applicability**

Shell PANOLIN S4 Hydraulic H1 EAL complies with strict NSF guidelines (NSF Non-food Compounds Registration) and is acceptable as a lubricant with incidental food contact according to NSF H1 for use in and around food processing.

- **Lower Environmental Impact**

Recommended for use in environmentally sensitive areas: An 'environmentally acceptable lubricant' as defined by the USA EPA 2013 Vessel General Permit and offers reduced impact of leak or accidental spillage into the environment when used in marine environments compared to conventional mineral oils.

Readily biodegradable - biodegraded by over 60% after 28 days in the OECD 301 B carbon dioxide evolution test.

Low Ecotoxicity - Classified as 'not harmful' to bacteria, algae, freshwater and marine invertebrates, and fish when tested as water-accommodated fractions (WAFs) according to OECD and EPA test guidelines.

Main Applications



Specifications, Approvals & Recommendations

- Meets the requirements for EU Ecolabel - NL/027/028
- Meets requirement of United States Environmental Protection Agency's (EPA) 2013 vessel general permit (VGP)
- Meets USDA Bio-preferred programme
- Meets EN 16807-2016 criteria of bio-lubricants and bio-based lubricants
- Biodegradable OECD 301B >60%
- ISO 15380: 2023 HEES
- FoodGrade - NSF H1

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

Compatibility & Miscibility

- It is strongly recommended that an oil sample is taken from the system following changeover and analysed via the Shell Rapid Lubricants Analysis service to confirm the new fluid charge is fit for use.
- This lubricant should not be mixed with other biodegradable hydraulic fluids to ensure that the environmental properties and performance of fluid is maintained. The system should be drained and flushed thoroughly when changing fluids, guidelines on fluid change-over can be found in ISO15380 Annex A.
- This lubricant is compatible with fluoroelastomers (FPM/FKM) such as Viton. Other seal materials and system components such as paints may be adversely affected and advice should be sought from the respective manufacturers.

Typical Physical Characteristics

Properties			Method	Shell PANOLIN S4 Hydraulic H1 EAL 46
Kinematic Viscosity	@40°C	mm ² /s	ASTM D445	48.8
Pour Point		°C	ASTM D97	-57
Flash Point		°C	ASTM D92	242
Density	@15°C	kg/m ³	ASTM D4052	960

These characteristics are typical of production, variations in these characteristics 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

Advice on applications not covered here may be obtained from your Shell Representative.

• Additional Technical Advice

The information and guidance offered for use of Shell PANOLIN products is based on experience and understanding gained through the development and manufacturing of lubricants. The performance of the products can be influenced by a number of variables, not limited to, contamination, operating temperature, equipment application, external environment and material type. It is recommended that you discuss application and fluid recommendations with both your OEM and local Shell

technical representative before the product is used. Advice given is non binding and Shell will not be held liable for any consequence as a result of or through misuse of the fluid.