



Formerly Known As: PANOLIN Trafosynth 2

Shell PANOLIN S4 Transformer

- Readily Biodegradable

Transformer oil - Fully synthetic, readily biodegradable transformer oil.

Shell PANOLIN S4 Transformer is a fully synthetic, readily biodegradable transformer oil for use as an insulating fluid in electrical infrastructure.

High-Performance Biodegradable Lubricants

Performance, Features & Benefits

- **Maintaining System Efficiency**

Excellent viscosity and temperature characteristics can minimize the changes of viscosity with variation in operation temperature, giving true 'multigrade' characteristics.

- **Lower Environmental Impact**

Recommended for use in environmentally sensitive areas - offers reduced impact of leak or accidental spillage into the environment 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.

Specifications, Approvals & Recommendations

- Biodegradable OECD 301B >60%

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.

- **Fluid Compatibility**

Shell PANOLIN Fluids are miscible with mineral oils. However, in order to ensure that the environmental properties and performance of Shell PANOLIN Fluids are maintained, the system should be drained and flushed thoroughly when changing fluids.

Main Applications



Typical Physical Characteristics

Properties			Method	Shell PANOLIN S4 Transformer
Kinematic Viscosity	@40°C	mm ² /s	ASTM D445	13.5
Pour Point		°C	ASTM D97	-60
Flash Point		°C	ASTM D92	249
Density	@15°C	kg/m ³	ASTM D4052	970

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

- It is strongly recommended that storage containers be dedicated for electrical service and include air-tight seals. It is further recommended that electrical insulating oils be stored indoors in climate-controlled environments.

- **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.

- **Storage Precautions**

The critical electrical properties of Shell PANOLIN Transformer Fluid are easily compromised by trace contamination with foreign material. Typically encountered contaminants include moisture, particles, fibres and surfactants. Therefore, it is imperative that electrical insulating oils be kept clean and dry.