



Technical Data Sheet

Formerly Known As: PANOLIN EP GEAR SYNTH

Shell PANOLIN S4 Gear 220

Industrial gear oil - readily biodegradable, saturated synthetic esters

Shell PANOLIN S4 Gear is a synthetic fluid for use in gearing applications such as marine propulsion drives, thrusters and controllable pitch propellers, high-performance and readily biodegradable lubricant, based on saturated synthetic esters for industrial gear drives.

- Extended Life
- Readily Biodegradable

High-Performance Biodegradable Lubricants

Performance, Features & Benefits

- **Increased Wear Protection**

Carefully selected additives provide advanced wear protection over a wide range of conditions, ensuring long component life.

- **Maintaining system efficiency**

Shell PANOLIN S4 Gear Oil has a high viscosity index providing shear stability which helps protect components over a wide temperature range. The low pour point and cold flow characteristics provide protection and performance even in cold climates.

- **Longer Service Life**

Shell PANOLIN S4 Gear Oil has strong oxidative stability at high temperatures which results in reduced fluid degradation, reducing filter blockage and increased viscosity. This helps prevent component failures, frequent filter and fluid changes, downtime, fluid consumption and parts and labour costs.

- **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' when tested as water-accommodated fractions (WAFs) according to OECD and EPA test guidelines. Tested to Industry Standard by 3rd Party Lab, all Shell PANOLIN products are tested against OECD 202.

Main Applications



Specifications, Approvals & Recommendations

- ZF TE-ML 04M

- 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 LubeAnalyst 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.



Typical Physical Characteristics

Properties			Method	Shell PANOLIN S4 Gear 220
Kinematic Viscosity	@40°C	mm ² /s	ASTM D445	220
Pour Point		°C	ASTM D97	-51
Flash Point		°C	ASTM D92	300
Density	@15°C	kg/m ³	ASTM D4052	923
FZG Test Stage			DIN 51354	12

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

• 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.

