

RENOLIN PG 32, 46

Polyalkylene glycol (PAG)-based fully-synthetic hydraulic and lubricating oils

Description

The importance of polyalkylene glycol-based hydraulic fluids and general lubricating oils is increasing. The raw materials used for the production of polyglycols are epoxides manufactured by synthesis which can be processed to get polymers of a uniform structure but of different chain lengths. Different viscosity grades are formed by just varying the chain length of these polymers.

Since hydraulic oils have to fulfil a large number of requirements the RENOLIN PG products are based on special polyalkylene glycols (PAG) containing additives to increase the aging resistance and to ensure a good wear and corrosion protection.

Application

RENOLIN PG hydraulic fluids and general lubricating oils are recommended for various severe applications e.g. when a high share of sliding friction or continuous high temperatures occur.

The RENOLIN PG series of products are used as general lubricating oils, hydraulic oils and are suitable for lubricating technical gas compressors (no solubility with hydrocarbon gases).

RENOLIN PG oils are NOT compatible with mineral oils, native or synthetic esters and polyalphaolefins (PAO). Do not mix RENOLIN PG products with these oils.

RENOLIN PG products are water miscible. NBR or FKM seals should be used preferably as well two component lacquer. Use of RENOLIN PG in combination with oil gauge glasses made of polycarbonates and plexiglass might lead to stress corrosion cracking under tension.

The use of natural glass or polyamide materials is recommended.

Benefits / Advantages

- **Very good viscosity-temperature behaviour (high viscosity index)**
- **High shear stability**
- **Very low friction coefficient**
- **Excellent wear protection**
- **Excellent oxidation stability and aging resistance**
- **Good corrosion protection**
- **Good air separation**
- **Low foaming**

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Recommendations / method of changing over from mineral oil-based fluids to RENOLIN PG

General recommendations / procedure in conjunction with the recommendations of the bearing and gear manufacturers (according to VDMA Guideline 24 569 and ISO CD 15380).

1. Drain the existing lubricating oil while warm.
2. Carefully drain all circuit components, pipes, pumps, and if necessary, clean mechanically. Pipes should be drained and cleaned with the help of air. Make sure that the system is free of any residual fluid.
3. Elastomers (Seals, pipes and hoses), filter materials, zinc-coated components, paints, all inner materials which are normally compatible with mineral oil should be checked with regard to their compatibility with polyalkylene glycol.
4. A flushing and cleaning procedure is recommended to reduce any residual mineral oil content. The system should be filled with the minimum oil volume which is necessary to operate the system. The cleaning and flushing time depends on the conditions of the whole system (e.g. contamination with ageing products, contamination with oxidation layers, dirt, water, etc.).
5. After the cleaning and flushing procedure the fluid should be drained off – if necessary clean mechanically. Refill the unit with fresh RENOLIN PG.
6. Mineral oil has a lower specific density than RENOLIN PG. Residual mineral oil will lie on top of the surface of the tank. This mineral oil can then be absorbed from the surface.
7. It is recommended to check the filters of the unit after some days. RENOLIN PG has good wetting properties. Contaminants, ageing products from former mineral oil will be absorbed by RENOLIN PG. These contaminants can be filtered out in the system filters.

The recommendations of the manufacturer of the system / unit should be observed regarding the oil change intervals. The condition of the used oil can be checked by oil analyses.

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Typical data:

Product name		RENOLIN PG 32	RENOLIN PG 46	
Properties	Unit			Test method
ISO VG		32	46	DIN 51519
Kinematic viscosity at 40 °C	mm ² /s	32	46	DIN EN ISO 3104
at 100 °C	mm ² /s	7.1	9.7	
Viscosity index	-	194	203	DIN ISO 2909
Density at 15 °C	kg/m ³	1022	1024	DIN 51757
Colour	ASTM	0.5	0.5	DIN ISO 2049
Flashpoint, Cleveland open cup	°C	220	240	DIN ISO 2592
Pourpoint	°C	-51	-48	DIN ISO 3016
Neutralisation number	mgKOH/g	0.2	0.2	DIN 51558-1
Copper corrosion, A24/100	degree of corr.	1	1	DIN EN ISO 2160
Steel corrosion method A – distilled water	degree of corrosion	0	0	DIN ISO 7120
Mechanical testing in the FZG gear test rig, FZG A/8.3/90	failure load stage	> 12	> 12	DIN 51354-2