

Industrial lubricants



LUBRICANTS.
TECHNOLOGY.
PEOPLE.



LUBRICANTS. TECHNOLOGY. PEOPLE.



- _ The world's largest independent lubricants specialist.
- _ Complete product portfolios for industry and motor vehicles.
- _ Leading lubricants OEM of the German automobile industry.
- _ Plants in Mannheim and Kiel.



Facts and figures

COMPANY: FUCHS EUROPE SCHMIERSTOFFE GMBH

HOLDING COMPANY: FUCHS PETROLUB SE

COMPANY HEADQUARTERS: MANNHEIM

LUBRICANTS SPECIALIST: 100% FOCUSED ON LUBRICANTS

COMPREHENSIVE PRODUCT PORTFOLIO:
MORE THAN 2,000 PRODUCTS AND 6,000 ARTICLES

CERTIFICATIONS: DIN EN ISO 9001:2008,
ISO/TS 16949:2009, DIN EN ISO 14001:2004
BS OHSAS 18001:2007, KTA 1401

For more than 80 years, we have been concentrating all our activities and research efforts on the development of innovative lubricants. This specialization means that we are enjoying continuous growth – geographically, technically and in the number of application areas.

Today, FUCHS is a German company that offers high-performance lubricants and associated specialties worldwide in practically all areas of application and industries.

We develop lubricants on an application-specific basis and tailored to our partners' processes. Together, we look for the best lubricant for our customers. This type of collaboration is unique in its form, scope and intensity. We call it a development partnership. This ability is based on one fundamental feature: As a German company with its headquarters in Mannheim, we are the largest independent lubricant specialist, and this independence makes all the difference. We are open to new methods and visionary approaches – a prerequisite for innovations. And innovations are a FUCHS trademark.

THE WORLD OF INDUSTRIAL LUBRICANTS



We understand your products and processes

Whether transmitting energy through fluid media (hydraulic fluids), reducing or transmitting driving forces (transmission oils), producing energy (power stations), cooling (refrigeration oils) or generating compressed air (air compressor oils), the relevant industrial oils have a key task to perform. Many processes only run smoothly with specially-made lubricant solutions. Safety, machinery, processes and systems in particular must be taken into consideration here.

FUCHS industrial lubricants can make a significant contribution to achieving higher productivity and improving efficiency, for example in hydraulic systems, gear units and many other applications. Low varnish turbine oils guarantee fail-safe operation of power stations. Refrigeration oils specially adapted for eco-friendly refrigerants improve the „environmental balance“ of the cold chain. Rapidly biodegradable lubricants present an alternative to hydrocarbon-based lubricants. And energy-efficient hydraulic and transmission oils can make a key contribution to cutting energy consumption.



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Certifications
DIN EN ISO 9001:2008
ISO/TS 16949:2009
DIN EN ISO 14001:2004
KTA 1401

Approvals
Many approvals from well-known component manufacturers, machinery manufacturers, customers, users and OEMs .



REQUIREMENTS FOR HYDRAULIC FLUIDS

Hydraulics concerns the transmission of energy and signals through fluids. For this purpose, mineral oil-based pressure fluids, synthetic fluids and fire-resistant fluids are deployed in hydraulically-driven machines and systems.

Hydraulic components are fitted in a wide range of equipment, including machines for agriculture and construction, materials handling, foodstuffs and packaging, wood working and tool manufacturing. Vehicle manufacturing, ship building, iron and steel engineering, rolling mill technology, the aerospace sector, medical technology, environmental technology and chemistry are among the industries supplied.

Many of these sectors play a key role in the international market, with fluid technology assuming an important position with regard to their competitiveness. Hydraulic oils play a significant part here.



Hydraulic fluids – RENOLIN				
Additive systems, containing Zn		Additive systems, Zn-free (ZAF) P/S technology		
Group I base oil	Group III base oil	Synthetic base oil	Group I base oil	Group III base oil
RENOLIN B 15 VG 46 demulsifying, separate water quickly	RENOLIN MR 46 MC high detergency / dispersancy	PLANTOSYN 3268 (saturated ester – HEES)	RENOLIN ZAF B 46 HT demulsifying, high temperature, separate water quickly	RENOLIN ZAF 46 MC demulsifying, high temperature, separate water quickly
RENOLIN D 15 VG 46 detergency / dispersancy properties	RENOLIN Xtreme Temp 46 „high energy efficiency“	RENOLIN UNISYN OL 46 (polyalphaolefin – PAO)	RENOLIN ZAF 46 D detergency / dispersancy properties	
RENOLIN MR 15 VG 46 high detergency / dispersancy	RENOLIN Xtreme Temp Plus „high energy efficiency – low friction“	RENOLIN PG 46 (polyglycol – PAG)	RENOLIN ZAF 46 DT high detergency / dispersancy, high Brugger value	
RENOLIN Lift 46 „low friction“, anti stick-slip		RENOSAFE Fire Protect 46 (synthetic ester – HFDE)	RENOLIN MWB 46 high detergency / dispersancy, high Brugger value	
RENOLIN MRX 46 „higher corrosion protection“		HYDROTHERM 46 M (water / glycol – HFC)	RENOLIN High Press 46 detergency / dispersancy properties, Brugger value, „Oertlinghaus“	

Example: ISO VG 46, kinematic viscosity 46 mm²/s at 40 °C

More information can be found in our brochure on hydraulic oils.
www.fuchs-europe.com/brochures.html



REQUIREMENTS FOR INDUSTRIAL TRANSMISSION OILS

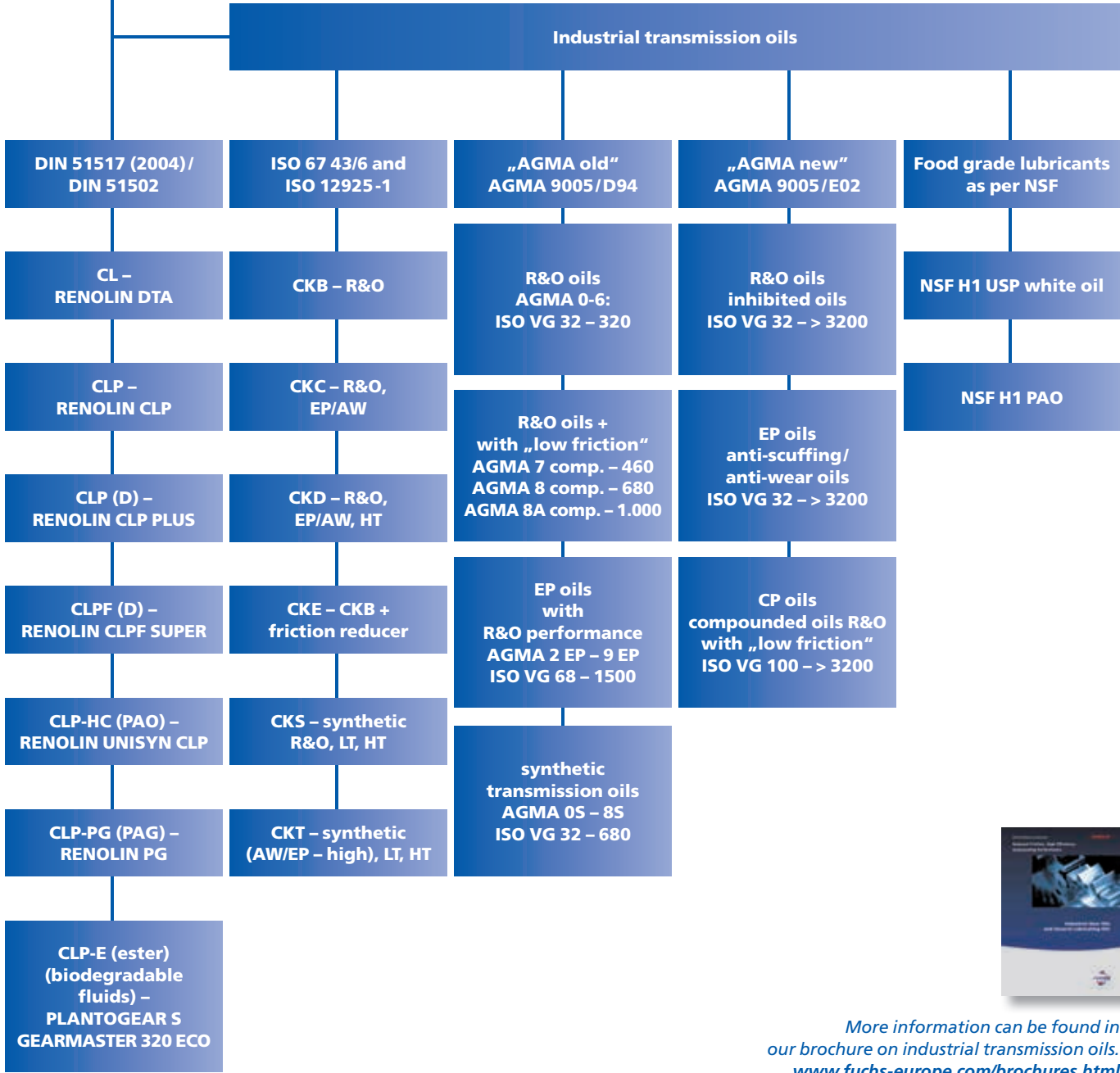
Germany is among the world’s largest producers of drive technology and transmissions. Transmission oil is an important construction element in drive technology and is used in nearly all areas of application.

The demands placed on transmission oils have grown sharply. Further developments in the field of drive technology usually result in an increase in the power density of components: greater performance must be transmitted in ever shorter times. At the same time, the components and gear units are becoming ever smaller and more compact.

As one of the most important and complex machine elements, the transmission oil must cope with these changed conditions and requirements. RENOLIN transmission oils meet and exceed the requirements laid down by well-known global gear manufacturers.

Industrial gear oils/transmission oils

Automotive transmission oils
API GL4, GL5



More information can be found in our brochure on industrial transmission oils. www.fuchs-europe.com/brochures.html

New specification: design requirements – wind turbines and lubricants – ISO 61400/4

The listed product series are available in different viscosity classes.

REQUIREMENTS FOR SLIDEWAY OILS

The slideways for moving supports and workpiece holders are among the most important elements in the flux of forces of a machine tool. The dimensional accuracy and surface finish of the workpieces to be processed are highly dependent on the stick-slip-free operations of the slideways and guide systems. A particularly important factor in achieving optimum accuracy here is the applied slideway oil.

In order to avoid chatter marks on the surface of the workpieces, the slideway must have an sufficiently adhesive lubricating film, even under high levels of contact pressure and at slow feed speeds. This lubricating film guarantees smooth motion, prevents stick-slip and protects from wear.

RENEP slideway oils are highly compatible with metal working fluids and cutting oils and guarantee a high level of machine availability and wear protection.

Slideway oils		
with tackifier adhesion, demulsifying	without tackifier demulsifying, separate water quickly	without tackifier emulsifying, stable emulsion
RENEP 68 KN	RENEP CGLP 68	RENEP 2K-VG 68
RENEP 220 KN	RENEP CGLP 220	RENEP 4K-VG 100
		RENEP 5K-VG 220

PLANTOLUBE CGLP 68, 220 – rapidly biodegradable slideway oils

More information can be found in our brochure on slideway oils.
www.fuchs-europe.com/brochures.html



REQUIREMENTS FOR AIR COMPRESSOR OILS

Today, compressed air is an important energy carrier for many technical fields of application. The reliable generation of compressed air is crucial for many users and for this reason air compressors are of key importance in many industry sectors.

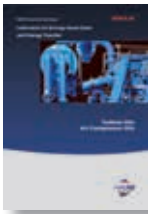
Because short service lives or failures can lead to downtimes, use of the right lubricant is a prerequisite for the safe and economical operation of plants. Over the last few years compressed air systems have been optimized, leading to tougher requirements being set in terms of modern air compressor lubricants.

In order to reliably meet these demands, FUCHS has developed a special range of RENOLIN air compressor lubricants and subjected them to stringent practical tests. RENOLIN air compressor oils guarantee seamless operation, high service lives, a low depositing tendency and the highest level of technical performance.

Air compressor oils

Air compressor oils			
Piston compressors, rotary compressors, vane compressors		Screw compressors, turbocompressors	
Mineral oils VDL - DIN 51506	Synthetic oils (based on PAO or ester) VDL - DIN 51506	Mineral oils	Synthetic oils (PAO-based) (ester-based)
RENOLIN 503 VG 68	RENOLIN UNISYN OL 68 (PAO-based)	RENOLIN ETERNA 32/32 SGV	RENOLIN UNISYN OL 32 (PAO-based)
RENOLIN 504 VG 100	RENOLIN UNISYN OL 100 (PAO-based)	RENOLIN ETERNA 46/46 SGV	RENOLIN UNISYN OL 46 (PAO-based)
RENOLIN 505 VG 150	RENOLIN UNISYN OL 150 (PAO-based)	RENOLIN ETERNA 68/68 SGV	RENOLIN UNISYN OL 68 (PAO-based)
RENOLIN 506 VG 220	RENOLIN SE 68 (ester-based)	RENOLIN SC 32	RENOLIN SE 68 (ester-based)
RENOLIN VDL 100 DD	RENOLIN SE 100 (ester-based)	RENOLIN SC 46	
RENOLIN VDL 150 DD		RENOLIN SC 68	
		RENOLIN SC 46 MC	
		RENOLIN COOL+ (group III base) (very robust, high service life)	

More information can be found in our brochure on air compressor oils.
www.fuchs-europe.com/brochures.html



REQUIREMENTS FOR PAPER MACHINE OILS

The daily paper requirements of our modern society require huge quantities to be produced by paper and tissue manufacturers. Indeed, according to the Association of German Paper Manufacturers (VDP), around 22.7 million tons of paper and cardboard were produced in Germany alone in 2011. The paper making machines used – the central units of any paper mill – therefore clearly need to be extremely reliable.

The lubrication of the components employed in the wet end and dryer sections makes a significant contribution to this requisite reliability. Consequently, paper making machine lubricants used in the wet end production sections must meet strict requirements in terms of corrosion protection and water resistance, while those used in the dryer sections need to provide both oxidative and thermal resistance. In addition to this, excellent wear protection must be guaranteed for all lubricated components.

RENOLIN paper machine oils are robust lubricants tried and tested over an extensive period of time that reliably lubricate the bearing and gears of paper machines and protect them from wear and deposits.

Paper machine oils

Paper machine lubricants
Zinc and ash-free additive technology

Mineral oil-based

PAO-based, fully synthetic

Hydraulic oil: RENOLIN ZAF series

RENOLIN PA 100

RENOLIN UNISYN CLP PA (ISO VG 150–320)

Transmission oil: RENOLIN CLP series

RENOLIN PA 150

RENOLIN PA 220

Calender oil: Based on special polyglycols RENOLIN SynGear 220 HT

More information can be found in our brochure on paper machine oils.
www.fuchs-europe.com/brochures.html



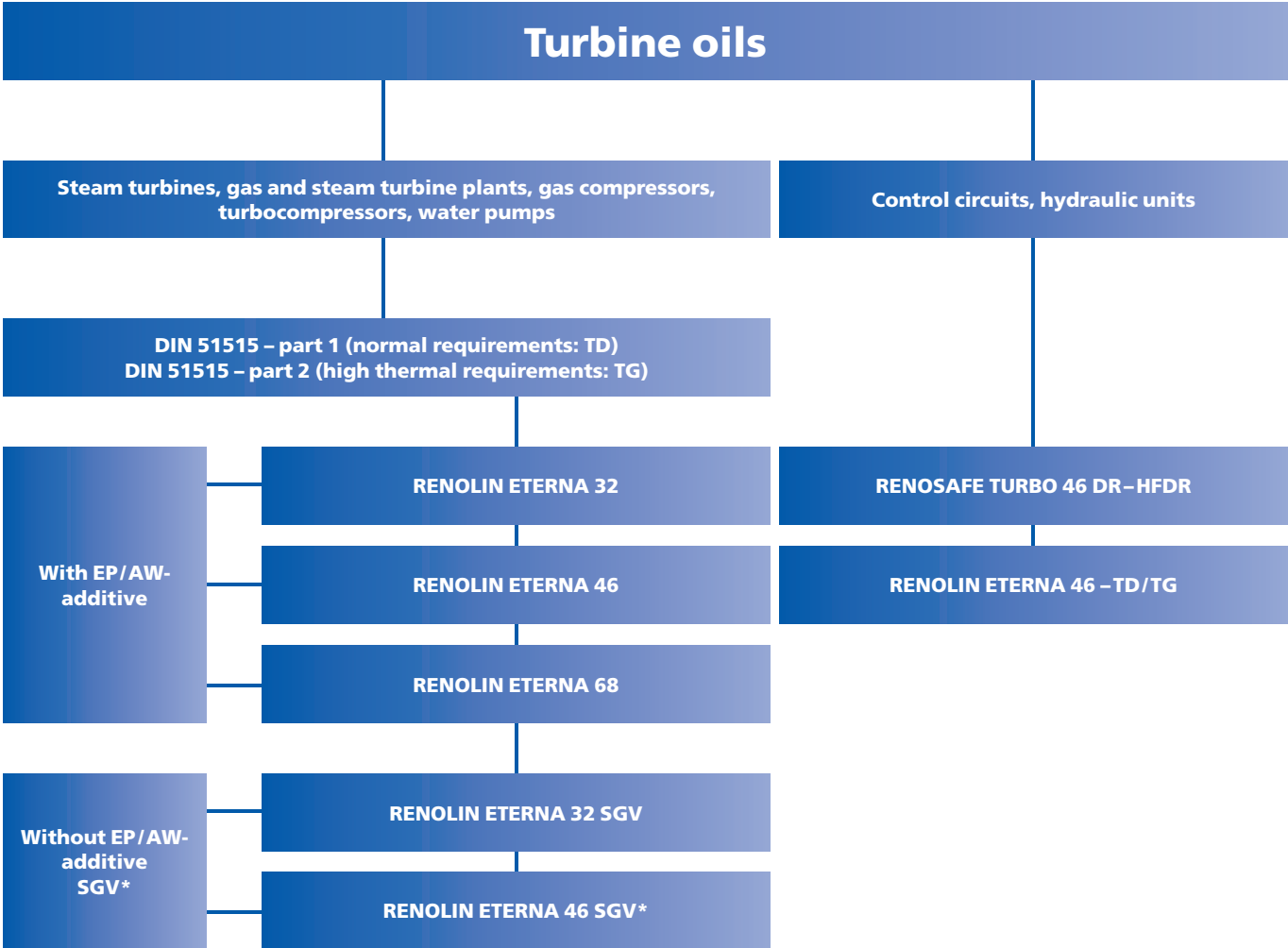
REQUIREMENTS FOR TURBINE OILS

Global energy demand continues to grow. Alongside the construction of new power stations, it is becoming increasingly important to raise efficiency in energy production.

As a result of the application of new technologies in power stations and the improvement in the efficiency of gas and steam turbines with ever higher performance, tougher requirements are also set regarding the performance of the lubricants used.

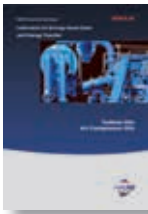
FUCHS has developed the RENOLIN ETERNA and RENOLIN ETERNA SGV ranges of turbine oils in order to meet these demands for plants both with and without heavy-duty gears.

RENOLIN ETERNA products are the latest generation of „low/no varnish“ turbine oils. They are composed on the basis of modern, highly stable base oils and are universally deployable.



*SGV: Synthetic gas compressor (Synthese Gas Verdichter)

More information can be found in our brochure on turbine oils.
www.fuchs-europe.com/brochures.html



REQUIREMENTS FOR REFRIGERATION OILS

Refrigeration oils assume a special position in the field of lubricants and lubricant technology. The long service life expected of refrigeration compressors is closely connected with the high quality requirements set for the lubricating oil. Its interaction with other substances, most notably with the refrigerant, at an extreme variance of high and low temperatures places very specific demands on the lubricating oil in the circuit.

The main task of the refrigeration oil is to ensure the sufficient lubrication of all moving driving gear parts of the refrigeration compressor. In addition, depending on the design of the compressor, heat must be dissipated from the hot components and the sealing of the compression chamber and, if necessary, also the valves, must be guaranteed.

RENISO refrigeration oils are ultra-dried and have a high degree of thermal and chemical stability. The raw materials used are of the highest quality and purity.

Refrigeration oils

Mineral oils (MO) for NH ₃ and R22	RENISO K-Series
for HFCKW (turbo compressors)	RENISO TES 100
for hydrocarbons (e.g. R600a - hermetic compressors)	RENISO WF-Series
Synthetic hydrocarbon for NH ₃	RENISO UltraCool 68 NEW
Polyalphaolefin (PAO) for NH ₃ , CO ₂ (not miscible) and hydrocarbons	RENISO SYNTH 68
Polyalkylene glycols (PAG) for NH ₃ (miscible with NH ₃) and hydrocarbons	RENISO PG 68 RENISO GL 68
Alkyl benzenes (AB) for R22 and hydrocarbons	RENISO SP-Series
Alkyl benzenes (AB) for R22, hydrocarbons and NH ₃	RENISO S-Series
Polyol esters (POE) for HFC/FC, e.g. R134a, R404A, R507 for HFO and HFO/HFC blends	RENISO TRITON SE-/SEZ-Series
Special polyol esters (POE) for CO ₂ (transcritical and subcritical)	RENISO C-Series
Special polyalkylene glycol (PAG) for CO ₂ transcritical systems (heat pumps, a/c systems)	RENISO ACC-Series NEW
Polyalkylene glycol (PAG) for CO ₂ and HFC/FC (screw compressors, e.g. in heat pumps)	RENISO PAG 220 C
Polyalkylene glycols (PAG) for R134a in vehicle a/c systems and for NH ₃ (miscible with NH ₃)	RENISO PAG-Series
Special polyalkylene glycols (PAG) for HFO-1234yf and R134a vehicle a/c systems	RENISO PAG 1234 NEW

More information can be found in our brochure on refrigeration oils.
www.fuchs-europe.com/brochures.html





Other industrial oil specialties:
Fire-resistant hydraulic oils, rapidly biodegradable lubricants, heat transfer oils, specialties

HYDROTHERM 46 M	HFC – water / glycol. Meets and exceeds DIN ISO 12922, 7. Luxembourg Report, fire-resistant
PLANTO LUX AT- S	HFDU – synthetic ester, water-free, Factory Mutual USA approved, fire-resistant
SOLCENIC	HFAS (solutions) and HFAE (emulsions) for mining applications, OEM approvals granted
RENOSAFE FIREPROTECT	HFDU – the latest generation of synthetic ester oils, meets and exceeds DIN ISO 12922
RENOTAC	Adhesive oils – based on mineral oil
PLANTOTAC	Adhesive oils – rapidly biodegradable
RENOLIN THERM	Heat transfer oils – on a mineral oil basis, on a synthetic basis
RENOLIN E10/ELTEC	Insulating oils – as per IEC
PLANTOSYN	Biodegradable hydraulic oils – saturated ester oils, in accordance with EU Ecolabel
PLANTOGEAR	Biodegradable transmission oils – saturated ester oils, in accordance with EU Ecolabel
RENOLIN GAS 68	Universal gasometer sealing oil with low pourpoint

The information contained in this product information is based on the experience and know-how of FUCHS EUROPE SCHMIERSTOFFE GMBH in the development and manufacturing of lubricants and represents the current state-of-the-art. The performance of our products can be influenced by a series of factors, especially the specific use, the method of application, the operational environment, component pre-treatment, possible external contamination, etc. For this reason, universally-valid statements about the function of our products are not possible. The information given in this product information represents general, non-binding guidelines. No warranty expressed or implied is given concerning the properties of the product or its suitability for any given application.

We therefore recommend that you consult a FUCHS EUROPE SCHMIERSTOFFE GMBH application engineer to discuss application conditions and the performance criteria of the products before the product is used. It is the responsibility of the user to test the functional suitability of the product and to use it with the corresponding care.

Our products undergo continuous improvement. We therefore retain the right to change our product program, the products, and their manufacturing processes as well as all details of our product information sheets at any time and without warning, unless otherwise provided in customer-specific agreements. With the publication of this product information, all previous editions cease to be valid.

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Innovative lubricants require experienced advice

Every lubricant change should be preceded by expert consultation on the application in question. Only then can the best lubricant system be selected. Experienced FUCHS engineers will be happy to advise on products for the application in question and also on our full range of lubricants.



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