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LUBRICANTS FOR HYDRAULIC SYSTEMS

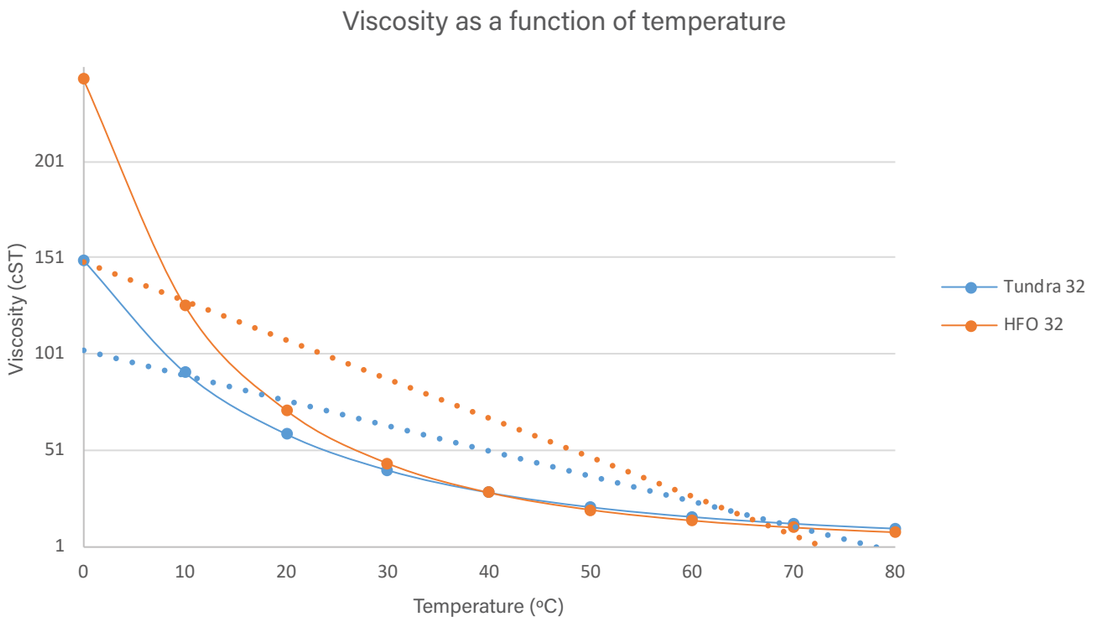
LIQUID TECHNOLOGY

	ISO 6743 HL DIN 51524 (TEIL 1)		ISO 6743 HM DIN 51524 HLP (TEIL 2)		ISO 6743 HV DIN 51524 HVLP (TEIL 3)		DIN 51524 HLP-D (TEIL 3)	
Mineral	Fluid L	100	HFO Hydro S Hydro NT	100	Hydro HVI HVC HVC SX HVX Tundra	150 180 200 300	Hydralux HV	150
Biodegradable					Fluid Bio Fluid Bio S	220 140		
Synthetic					Hydro Eco HV ESCA Hydro P ESCA Hydro Food	180 160 140		
Non-flammable	Hydro Fire (46, 68, biodegradable) Firex 46 (water, glycol)							

GRAPH SHOWING VISCOSITY AS A FUNCTION OF TEMPERATURE

The viscosity index is a value that shows the behaviour of the viscosity of the oil in relation to temperature variations. The higher the viscosity index, the less the viscosity of the fluid is influenced by the temperature.

Normal viscosity index = +/- 100
High viscosity index = from +/- 125 to +/- 400

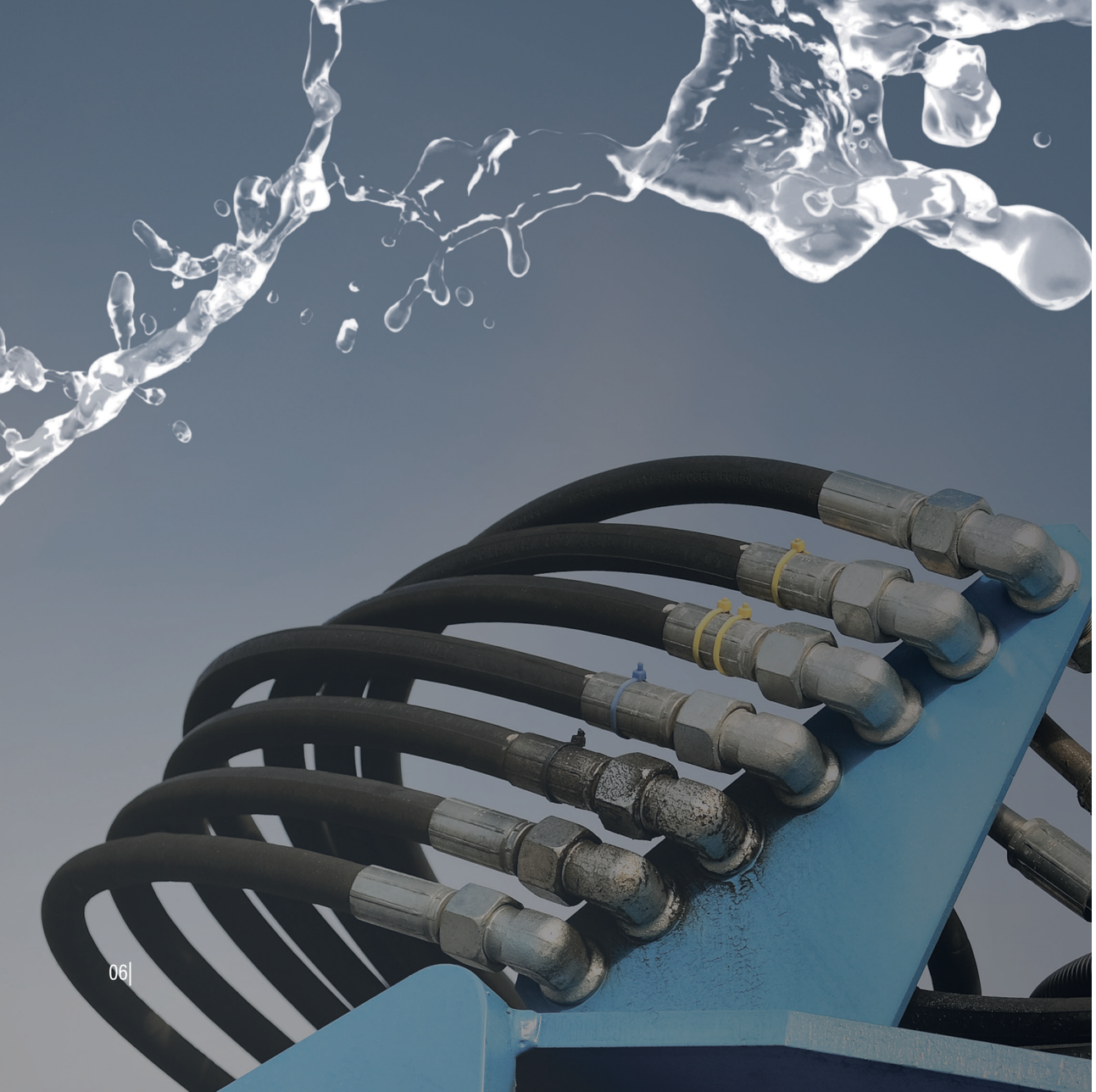


GENERAL HYDRAULIC APPLICATIONS

Product and description	Standards	Viscosities	Viscosity index
Fluid L Fluid L is an inhibited hydraulic fluid that is resistant to oxidation, corrosion and foaming. This oil is particularly recommended for hydraulic systems with low operating pressures up to 150 bar. FLUID L may also be used for: - General lubrication and the lubrication of moderately loaded cogs in an oil bath. - Lubrication of vacuum pumps, in particular those with the ISO VG 100 viscosity grade.	DENISON HF1 DIN 51524 HL ISO 6743/2 FC ISO 6743/4 HL NFE 48603 HL	100 - 150	100
HF0 HF0 is an all-round hydraulic oil that has been developed for systems which require an ISO HM class. This oil, as all hydraulic oils in the Unil range, contains anti-wear, anti-oxidation and anti-foaming additives which enables it to provide optimum protection to hydraulic systems and hydraulic circuits of mobile equipment. It guarantees good lubrication and filterability.	CINCINNATI P38(ISO32)/ P68(ISO32)/P55(ISO46)/ P70(ISO46)/P54(ISO68)/ P69(ISO68) DENISON HF0/HF1/HF2 DIN 51524 Teil 2 HLP DIN 51506 VDL ISO 6743 HM ISO 6743 DAG/DAH KOMATSU KES07.841.1 NFE 48600 HM NFE 48603 HM NFE 60200 HM SWEDISH STANDARD SS 15 54 34 Class A VICKERS I 286S VICKERS M2952S	22 – 32 – 46 – 68 – 100	100

GENERAL HYDRAULIC APPLICATIONS, ZINC-FREE

Product and description	Standards	Viscosities	Viscosity index
Hydro S HYDRO S is a hydraulic oil with zinc-free, anti-wear additives. On request, HYDRO S 46 and HYDRO S 68 can be filtered to 3 microns absolute during manufacture. They are then supplied under the name HYDRO NT 46 NAS 6 and HYDRO NT 68 NAS 6. HYDRO S has a wide range of uses: INDUSTRY: All hydraulic systems with vane pumps, worm or worm-wheel pumps up to 350 bar (plastic injection machines, etc.). PUBLIC WORKS: All hydraulic circuits in mobile equipment which require ISO HM class oil.	CINCINNATI P68(ISO32)/ P69(ISO68)/P70(ISO46) DENISON HF0 DIN 51524 Teil 2 HLP ENGEL Presses (grade 46) ISO 6743 HM LVD ISO (grades 46 and 68) NETSTAL Presses (grade 68) NFE 48600 HM NFE 60200 HM	15 – 22 – 32 – 46 – 68	100



GENERAL HYDRAULIC APPLICATIONS, FILTERED TO 3 MICRONS (NAS 6)

Product and description	Standards	Viscosities	Viscosity index
Hydro NT HYDRO NT is a zinc-free hydraulic oil, filtered to 3 µ in order to meet the NAS 6 cleanliness class. That is why this oil is extremely suitable for hydraulic systems with servo and proportional valves and for machines that are subject to high demands for the contamination class and the filtrability of the oil, such as spray machines. Furthermore, Hydro NT has powerful cleaning properties for valves and high thermal stability with excellent oxidation stability.	ISO 6743 HM DIN 51502 HLP-D DIN 51524 Teil 2 HLP	46 – 68	100

WITH INCREASED VISCOSITY INDEX AND WATER-ABSORBING CAPACITY

Product and description	Standards	Viscosities	Viscosity index
Hydralux HV HYDRALUX HV has detergent properties (up to 3% water absorption without any risk of corrosion or wear and tear) and is particularly recommended for equipment that is sensitive to contamination by water and when significant temperature variations may occur (increased viscosity index). Ideal for use on public works, agriculture and machines that work in the heaviest conditions (ambient temperature, humidity, dust, dirt, etc.).	DIN 51524 Teil 3 HLP-D ISO 6743 HV MAN N698 NFE 48603 HV NFE 60200 HV VICKERS I 286S VICKERS M2950S	32 – 46 – 68	170

WITH INCREASED VISCOSITY INDEX

Product and description	Standards	Viscosities	Viscosity index
Hydro HVI The high-quality base oils and additives (which include stabilised zinc) guarantee excellent performance under the heaviest conditions. The increased viscosity index provides almost constant viscosity during temperature changes. This ensures that machines remain optimally lubricated and protected. Extremely suitable for industrial applications, installations with heavy loads, rolling stock, etc. This liquid is available in various colours.	ISO 6743 HV DIN 51524 Teil 3 HVLP DENISON HF2 VICKERS M2950S VICKERS I 286S CINCINNATI P69(ISO68)/ P70(ISO46) US STEEL 127/136 NFE 48603 HV	15 – 32 – 46 – 68	150
HVC HVC is a hydraulic oil with a viscosity index of 180. It is particularly recommended for hydraulic systems that have to operate under great temperature variations and pressures (> 350 bar). It may be used indiscriminately for worm or worm-wheel pumps, piston pumps and rotary vane pumps. HVC enables oil stocks to be rationalized. HVC has a characteristic green colours that facilitates the detection of any leaks.	CINCINNATI P68(ISO32)/ P69(ISO68)/P70(ISO46) DENISON HF0 DIN 51524 Teil 3 HVLP ISO 6743 HV NFE 48603 HV SS 155434 VICKERS I 286S VICKERS M2952S	15 - 22 – 32 – 46 – 68 – 100	180
HVX HVX is recommended for hydraulic systems that are subjected to extremely broad temperature variations and/or operate at extremely high pressures. The HVX fluids meet and exceed the requirements for shear resistance of machines on public works.	Ford M6C 32 CINCINNATI P68(ISO32)/ P69(ISO68)/P70(ISO46) DENISON HF0 DIN 51524 Teil 3 HVLP ISO 6743 HV NFE 48603 HV VICKERS I 286S VICKERS M2950S	22 - 46	200

RESISTANT TO EXTREMELY LOW TEMPERATURES

Product and description	Standards	Viscosities	Viscosity index
HVC SX The HVC SX hydraulic fluid is specifically recommended for all hydraulic systems that are subjected to extremely low temperatures, particularly loading ramps of ships, lorries, pallet loaders cold stores, loading and unloading docks, frozen storerooms, etc. HVC SX is a high-quality, zinc-free EP hydraulic oil based on specially selected solvent refined base oils. This oil has a low pour point. It can be used at temperatures as low as -40°C without any problems.	DENISON HF0 DIN 51524 Teil 3 HVLP ISO 6743 HV NFE 48603 HV	15	180
Tundra The TUNDRA hydraulic fluids are specifically recommended for all hydraulic systems that are subjected to extremely low temperatures, particularly loading ramps of ships, lorries, pallet loaders cold stores, loading and unloading docks, frozen storerooms, etc. However, it is also suitable for the aviation industry, such as flap movement, etc. The exceptionally low pour point of this oil makes it perfectly usable at temperatures as low as -50°C (solidification point is -63°C!). Completely zinc-free.	CINCINNATI P68(ISO32)/ P69(ISO68)/P70(ISO46) DENISON HF0 DIN 51524 Teil 3 HVLP ISO 6743 HV NFE 48603 HV SS 155434 VICKERS I 286S VICKERS M2952S	15 22 32	>220 >250 >250

WITH ENERGY-SAVING PROPERTIES

Product and description	Standards	Viscosities	Viscosity index
Hydro Eco HV HYDRO ECO HV is a hydraulic oil developed to enable hydraulic systems to perform with the best possible energy efficiency. It is a zinc and ash-free, synthetically based oil, with special additives that provide an extremely low coefficient of friction (less friction within the machine), an increased viscosity index, and extended oil-change intervals. HYDRO ECO HV can be perfectly used for achieving considerable energy savings and lower maintenance costs on installations with high process pressures, such as die-casting machines and hydraulic presses. Minimum purchase of 2000l.	Bosch Rexroth RE 90220 CINCINNATI P68(ISO32)/ P69(ISO68)/P70(ISO46) DIN 51524 Teil 3 HVLP DENISON HF0/HF1/HF2 Eaton 35VQ25 GM LS-2 ISO 11158 SAE MS 1004	46	180

WITH BIODEGRADABLE NATURE

Product and description	Standards	Viscosities	Viscosity index
Fluid Bio FLUID BIO is an environmentally friendly (biodegradability > 95%) plant-based oil and is recommended wherever the living environment can be threatened by leaks or oil loss, such as for vehicles and hydraulic equipment in the forestry and agriculture sectors, etc. The additives incorporated in FLUID BIO provide extremely good pressure and anti-corrosion properties and a good resistance to oxidation at temperatures up to a maximum of 70°C.	CEC-L-33 A-93	32	220
Fluid Bio S FLUID BIO S is an environmentally friendly (biodegradability > 95%) hydraulic oil with a synthetic base (saturated esters). It is used for hydraulic systems that operate under heavy-duty conditions and wherever oil with high anti-wear properties and a highly stable viscosity index is required. Thanks to its synthetic base oil, FLUID BIO S has excellent resistance to oxidation, good pumpability at low temperatures and can be used for extended oil-change intervals.	ISO 6743 HV DIN 51524 Teil 3 HVLP	22 – 46	140

FOR THE FOOD INDUSTRY

Product and description	Standards	Viscosities	Viscosity index
ESCA Hydro Food The ESCA HYDRO FOOD hydraulic oils were developed for use in the food industry. These oils are available in ISO 32 to 68 viscosities. Particularly suited for hydraulic systems in the food and pharmaceutical industries. Can also be used for lubricating conveyor chains at ambient temperature. The ESCA HYDRO FOOD oils prevent the risks of occasional contact with foods.	NSF H1 USDA H1 KOSHER HALAL	32 – 46 – 68	140
ESCA Hydro P ESCA HYDRO P is a synthetic hydraulic oil based on polyalphaolefins (PAO). The specific additives guarantee excellent anti-wear and "EP" properties. In addition, the increased viscosity index significantly improves system performance. ESCA HYDRO P oils meet the requirements of the FDA 21 CFR 178.3570 and are H1 registered for processes where occasional contact with food may occur. All ESCA H1 registered products are manufactured in accordance with ISO 21.469: 2006, HACCP and GMP programmes. ESCA H1 lubricants do not contain any ingredients of animal origin or genetically modified products and they are KOSHER and HALAL certified.	InS H1 USDA H1 ISO 6743/4-L-HS DIN 51524 Teil 3 HVLP KOSHER HALAL	15 –32 – 46 – 68 – 100	160

FIRE-RETARDANT

Product and description	Standards	Viscosities	Viscosity index
Hydro Fire HYDRO FIRE is a water-free synthetic fluid based on organic esters (this oil is more than 90% biologically degradable). It is highly recommended for hydraulic installations located in zones where there is a fire hazard (heat sources or highly flammable materials), in particular, in the event of a rupture of pressurized pipelines. HYDRO FIRE meets the safety requirements for the mining, steel and glass industries, and also the requirements for industrial furnace doors and machines used for die-casting molten metal.	CEC-L-33 A-93 (biologically degradable >90%) ISO 6743 HFDU	46 - 68	180
Firex FIREX, is a product based on water and glycol, and can be used in all hydraulic systems for equipment in the mining or steel industries, injection machines, equipment under pressure in foundries as well as equipment in environments where there is a fire hazard or where absolute safety is required.	ISO 6743 HFC	46	195

QUALITY GUARANTEE

Unil Lubricants works on an exclusive basis with an extensive and high-performance laboratory. This laboratory is also commercially active in the field of condition monitoring. In this way, we can also offer solutions through proactive maintenance that can drastically extend the lifespan of your machine.

Various quality controls
All Unil lubricants are subjected to extensive quality controls both before, during and after production. The production manager takes a sample of the delivered product upon receipt of the base oils and other raw materials. The raw materials are only accepted and taken into production if they comply with all the predefined specifications.

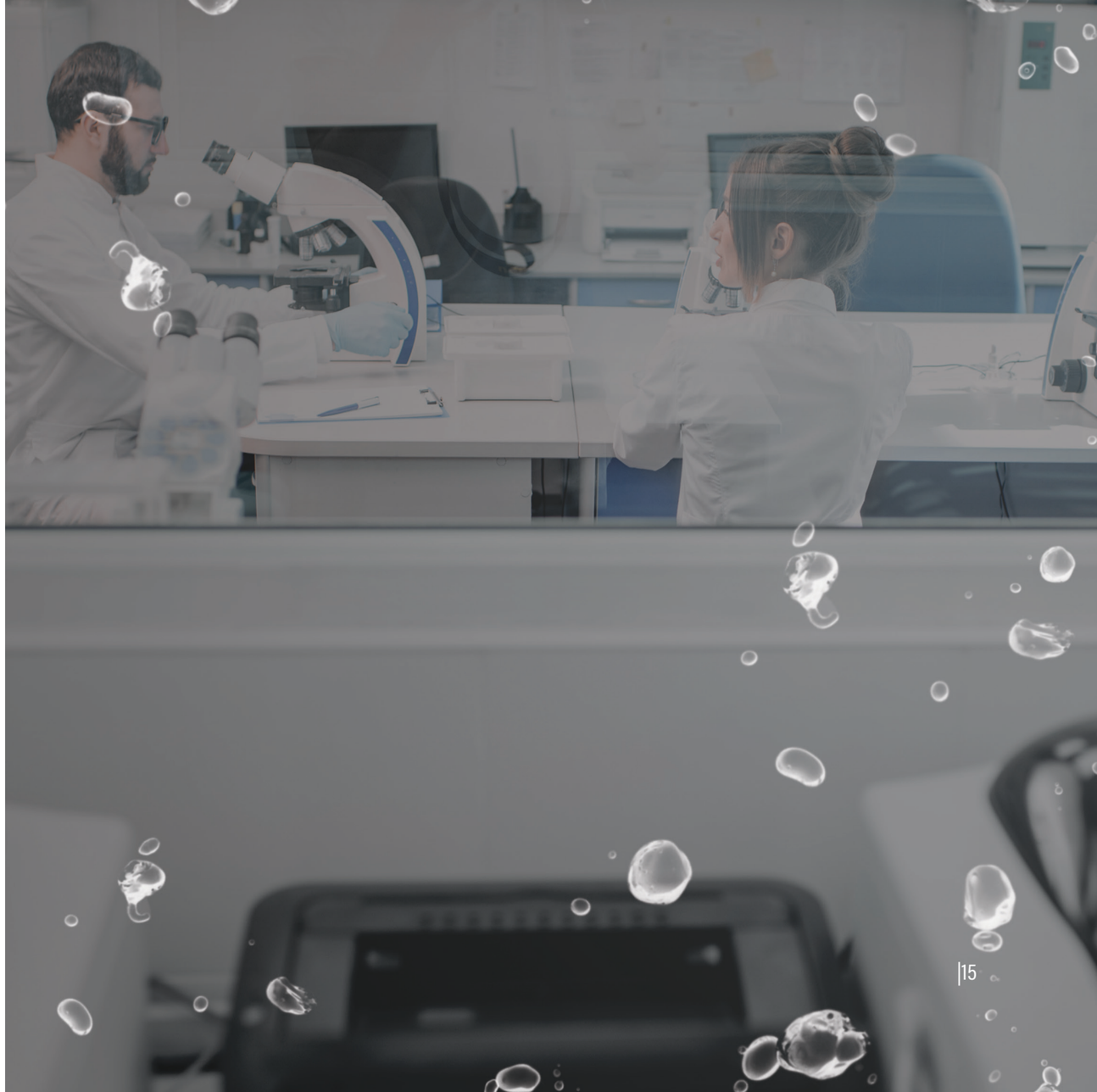
After the production of a certain product, a sample is taken from the production tank. This sample undergoes a similar number of tests as the first sample, where it is checked for viscosity at 40° C and 100° C, colour, viscosity index, but also for water content and content of phosphorus, zinc, magnesium, calcium and sulphur. In addition, additional critical tests may be imposed on products developed for specific applications.

After filling the products in smaller packages such as an IBC or a barrel, a third sample is taken. This sample undergoes the previous tests again to make sure that the quality from raw material to finished product is maintained.

Extra service
Customers of Unil Lubricants can also make use of the expertise of the laboratory services. By carrying out regular analyses, you will be able to carry out proactive maintenance. A proactive maintenance method focuses on the causes of machine wear and tear and defects. This strategy allows considerable savings in terms of machine maintenance, since it is possible to intervene before an issue or defect in the machine is visible. In this way, we can extend the service life of mechanical machines by up to 20%.

This not only ensures that you get the best product for your machine, but also that your machine can continue to run undisturbed with the best care.

If you would like to know more about our lab activities and its analyses, please contact your representative.



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