SUMMER 2025

OELCHECKER

TOP STORY

Biodegradable hydraulic fluids:
a stress test & changes to a standard

Q&A

Lubricant analyses:
more precise results and trends

OILDOC ACADEMY

Current seminar programme

AND MUCH MORE...

CHECK-UP

Team OELCHECK – diversity that makes us strong!

The employees at OELCHECK are a closely-knit team. Everyone plays their part, while retaining their individuality. A prime example of unity in diversity. 115 employees, including 9 trainees, are currently working as part of our successful team. 58 of our employees are female and 57 male. Their average age is 42. If you include our trainees, that makes it 40. The youngest of our colleagues is just 17 years old, the oldest 69. So far, we have had 45 young people start their careers with us, because OELCHECK is also a training company.

The OELCHECK team employs people from 12 different countries. Each one counts equally, regardless of background, age or gender. Inclusion is a given for us. Five of our employees have a disability and two employees of the Raubling-based Wendelstein workshops of the Caritas association work externally for us.

OELCHECK is a family business. We value the safety, health and satisfaction of our employees. Their sense of belonging to OELCHECK is correspondingly high. Over 38 employees have been loyal to our company for more than 10 years. Many of them are still active for OELCHECK.

We love and live diversity! Diversity in a company can make a decisive contribution to its success. It must therefore not simply be taken for granted as a given. Diversity needs to be carefully supported and nurtured.

Here, three aspects are particularly important to us as management:

➔ **Respect and appreciation**
All employees deserve the equal respect and appreciation from their managers. In return, every team member must respect and value their colleagues, regardless of age, gender or background.

➔ **Listen and communicate**
Members of the OELCHECK team are regularly informed about developments in the company. We are cognisant of the fact that communication is not a one-way street. In the same way that we work together, we also plan and debate together.

But each and everyone also needs to be heard. The regular employee surveys as part of the Dream Company Award are anonymous. In contrast, the annual employee appraisals take place in-person. Individual aspects and any difficulties, such as in interactions between colleagues, can also be discussed here. If there is a need for action, management gets involved, who are also involved in many discussions. Management is also always willing to listen to each and every employee.

➔ **Strengthen and connect**
Working together every day creates a sense of belonging. This is reinforced in a targeted manner by regular team events. Celebrating together and sharing experiences build special bonds. You also get to know your colleagues better and appreciate them even more.

Paul Weismann *Petra Bots*

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OELCHECK EXPRESSO

Updated standard: Biodegradable hydraulic fluids – Effects in practice

The current edition of DIN ISO 15380 (2024-10) specifies a minimum proportion of 25 % biogenic raw materials for biodegradable hydraulic fluids of the HEES (synthetic ester) groups. This means that ester fluids that meet all the requirements of DIN ISO 15380, with the exception of the specifications regarding the use of biogenic raw materials, may no longer be designated as HEES!

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Digital, super smart and free – OELCHECK app and online customer portal

Lubricant and fuel analyses from OELCHECK have proven themselves millions of times over and are indispensable in condition monitoring. But we not only provide reliable analytical values and meaningful diagnoses, but also smart tools for handling your data and using it intelligently. See for yourself the benefits of the OELCHECK app and our LAB.REPORT online customer portal!

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Lubricating greases – a new, superior method in use

OELCHECK is one of the few laboratories around the world that examines lubricating greases. Since 2023, wear and additive elements have been determined using the ICP-OES method and prior pressure digestion with microwave. After having analysed more than 40,000 samples, it is now confirmed: the new method enables more precise results, especially when defining trends, and thus even more precise early detection of any damage.

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Dream company OELCHECK – We set the standards!

The Traumfirma (dream company) Award is only awarded to companies that are managed in a respectful and values-based manner. In 2025, OELCHECK was the only company to be honoured as a dream company for the seventh time in a row. In the last employee survey by the independent company Traumfirma GmbH, we once again achieved a fantastic overall score of 80% and set new standards to boot!

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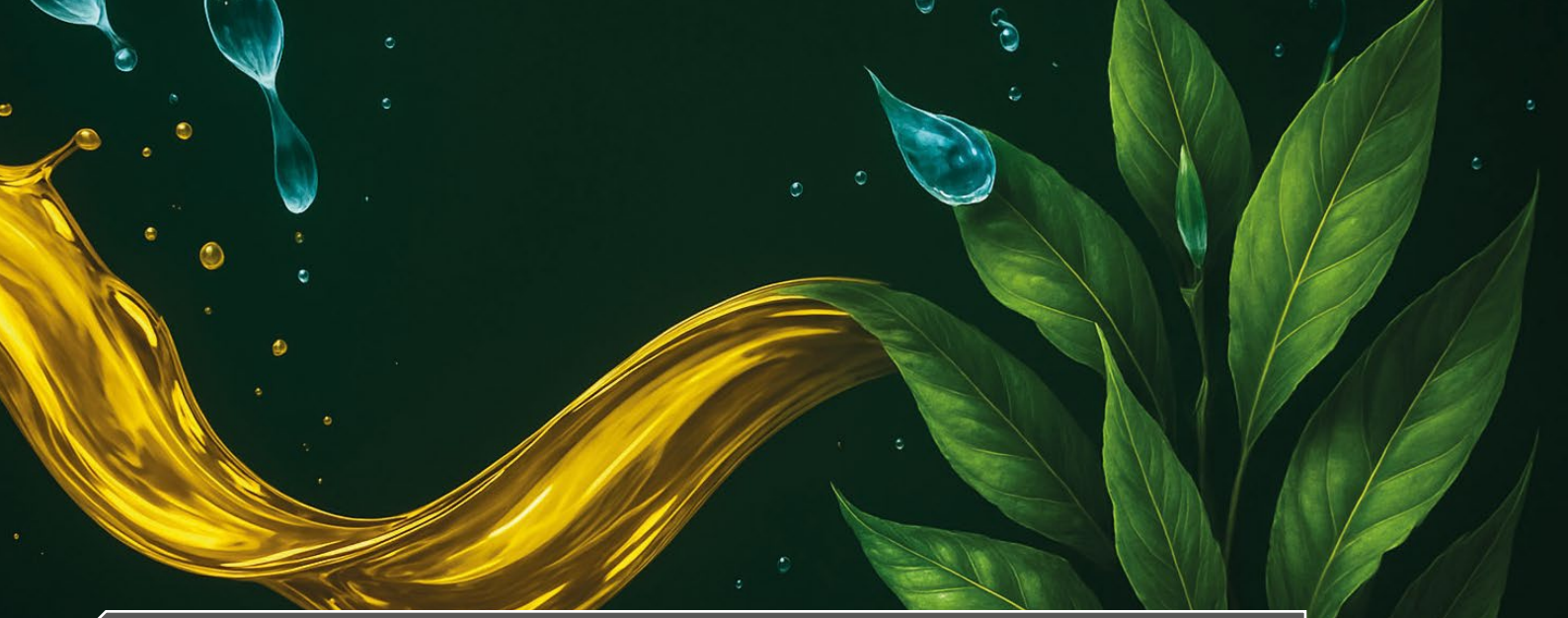


BIO HYDRAULIC FLUIDS STRESS TESTED

We are constantly confronted with questions from our customers that we cannot answer right away. OELCHECK's tribologists and laboratory staff were truly challenged when it came to the behaviour of commercially available, rapidly biodegradable hydraulic fluids in a moist environment. In particular, we were asked whether there are any differences in the resistance of these fluids in combination with moisture and how these can be determined in the laboratory.

This is a tricky question, because there is no specific test procedure for this. However, solving the task can have a decisive impact on the selection and use of rapidly biodegradable hydraulic fluids in practice. It may also have an impact on the further development of these products.

OELCHECK used the "wet" TOST test for the first time for examining rapidly biodegradable hydraulic fluids. This was preceded by intensive consultations with the questioner from the construction industry and discussions with other customers who also use these hydraulic fluids in an aqueous environment. At the end of the examinations with the "wet" TOST test, it was clear that OELCHECK was on the right track.

Fast biodegradable hydraulic fluids

These biodegradable hydraulic fluids are used in ecologically sensitive areas, such as agriculture, forestry, water conservation areas and municipal sectors.

DIN ISO 15380 specifies four classes of these biodegradable hydraulic fluids in DIN ISO 6743-4:

- **HETG:** Triglycerides made from vegetable oils, such as rapeseed or sunflower oil
- **HEES:** Synthetic esters, based on renewable or non-renewable raw materials - both bio-based and non-bio-based
- **HEPG:** Polyglycols
- **HEPR:** Polyalphaolefins and other synthetic hydrocarbons.

In practice, HEES biodegradable hydraulic fluids based on saturated and unsaturated esters are mainly used. These differ in the structure of their fatty acid chains. Saturated synthetic esters are generally more stable and resistant to ageing than unsaturated esters during use. These usually react slightly faster to water and oxidise or age in a shorter period of time.

The TOST test - dry or "wet"

Our examinations focused on the ageing behaviour of biodegradable hydraulic fluids in combination with moisture. For this purpose, we used the TOST (Turbine Oil Oxidation Stability Test) ageing test - in its "wet" version, which has never been used for ester oils before.

The TOST test (Turbine Oil Stability Test) is set out in DIN EN ISO 4263. It is used to determine the ageing behaviour of turbine, gear and hydraulic oils, but also of flame-retardant hydraulic oils with a water-glycol (HFC) base, and other synthetic fluids. The test method exposes the oil to the contaminants that also promote oxidation and deposit formation in practice using oxygen, water, high temperatures and a steel/copper spiral. However, synthetic hydraulic fluids are generally tested without water in accordance with the specifications of DIN EN ISO 4263-3.

In practice, however, biodegradable hydraulic fluids in particular are often used in moist environments. For this reason, we started a trial with the **"wet" TOST test** for the first time. During the test, small amounts of a sample are taken at regular intervals and its acid number (AN) is determined. This indicates the amount of potassium hydroxide required to neutralize the acids, which increase as a result of oxidation, contained in a gramme of oil.

As soon as the acid value of 2.0 mg KOH/g is reached or has increased by 2.0 mg KOH/g, the test run is stopped. The time elapsed up to this point is stated in hours as the test result. The test can be stopped after a certain time (e.g. 1,000 h), which can be freely selected. The shorter the duration, the greater the tendency of the oil to oxidize rapidly.

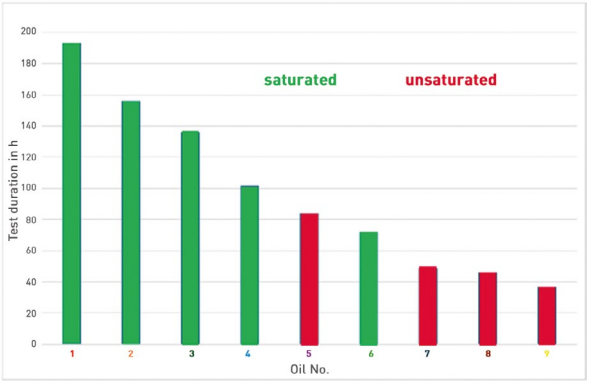
Ten biodegradable hydraulic fluids stress tested

Our specimens for the first "wet" TOST test were ten commercially available, rapidly biodegradable hydraulic fluids, nine of which are HEES-type ester-based (saturated and unsaturated) and one HEPR-type PAO-based.

The test criteria as agreed with our customer:

- ➔ After what time do the specimens achieve a 2.0 mg KOH/g increase in AN compared to fresh oil?
- ➔ Do the hydraulic fluids differ from each other?
- ➔ What is the increase in the acid number when the fluids are tested for 200 hours?

The "wet" TOST test - The first results for nine ester-based biodegradable hydraulic fluids



Stopping criterion: Increase in AN by 2.0 mg KOH/g

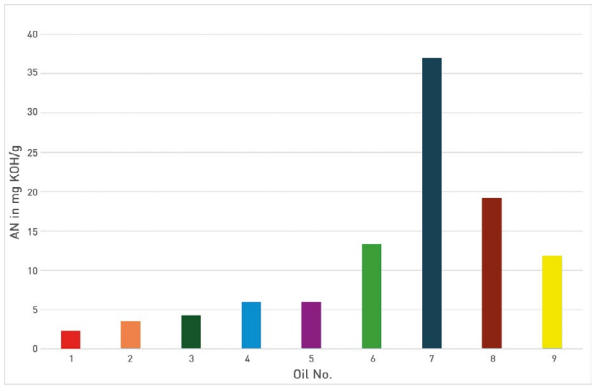
A 2.0 mg KOH/g increase in the AN of a hydraulic oil was the stopping criterion for the first test. Overall, the saturated ester-based products clearly performed better than the unsaturated ones. All of the unsaturated esters, except for one, met the stopping criterion significantly faster than the saturated ones.

After the first results, however, the answer to the second test criterion was already apparent.

- ➔ The "wet" TOST test can differentiate between ester-based hydraulic fluids!

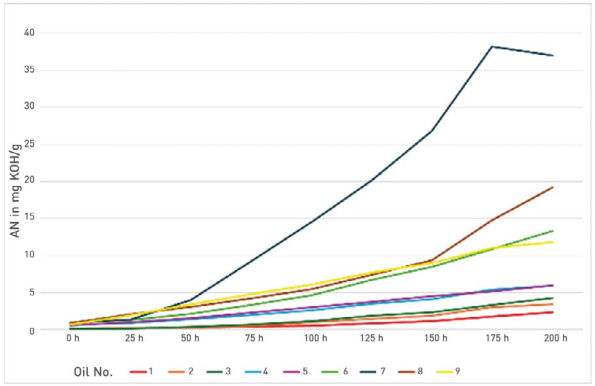
200 hours of testing - even more differentiated results

We wanted an even more precise result and changed the stopping criterion. Instead of ending the test with a 2.0 mg KOH/g increase in AN, we decided to end the test for every specimen only after 200 hours of running time.



AN after 200 hours of running time

200 hours later, the results were quite different from those of the first test run. So we compared the AN trend curves at 25-hour intervals.

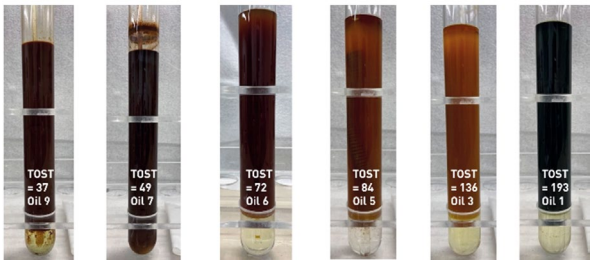


Increase in AN over time

The trend curves showed us that the AN for the biodegradable hydraulic fluids examined developed very differently over time.

While the AN of sample no. 7 was still in the lower middle range after 25 hours, it increased sharply after that. After 50 hours, it was already at its highest and then increased extremely over time.

The other samples also did not show a uniform development. In comparison, however, the increase in AN in the saturated esters (except for no. 6) was also significantly slower over the longer period than in the unsaturated esters. In addition, when looking at the trend curves, it was also possible to clearly differentiate between the saturated esters.



Visual inspection after 200 hours of testing

In the laboratory, we are not only interested in numbers and diagrams, but also in the visual condition of the samples. The labels on the vessels show the results in relation to the evaluation based on the AN increase by 2.0 mg KOH/g.

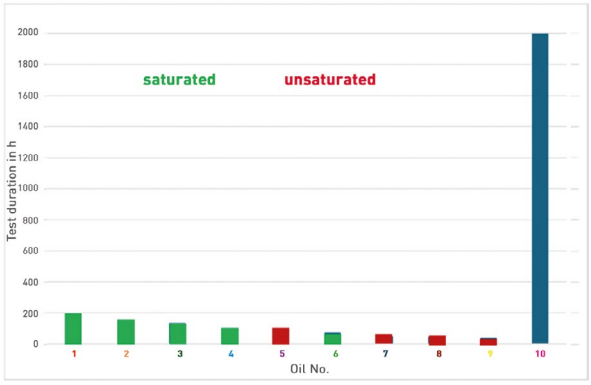
After 200 hours of the "wet" TOST test, we looked at the condition of the biodegradable hydraulic fluids. These differed significantly in their appearance and seemingly also in their potential tendency to form deposits.

While specimen no. 3 still made a fairly good visual impression, massive deposits were already visible for no. 7. On the other hand, sample no. 6 looked slightly better in terms of deposit formation, although it had performed relatively poorly in the 200-hour test.

Nine esters and one PAO

We compared the nine tested ester-based biodegradable hydraulic fluids extensively. But of course, the tenth specimen, a PAO with a low ester content, was also subjected to a "wet" TOST test over 200 hours.

In the "wet" TOST test, the PAO-based biodegradable hydraulic fluid was the absolute leader. We stopped the test after 2,000 hours: After this period of time, the fluid had still not met the stopping criterion of a 2.0 mg KOH/g increase in AN.



Stopping criterion: 2.0 mg KOH/g increase in AN

This was ultimately also to be expected and is only mentioned here for the sake of completeness. One of the aims of our examination was to check whether the "wet" TOST in accordance with DIN EN 4263-1 can also be used to differentiate between different ester-based hydraulic fluids with regard to their ageing resistance in the presence of water.

IN SHORT,

With the "wet" TOST test in accordance with DIN EN ISO 4263-1:

- we determined the time periods after which their AN had increased by 2.0 mg KOH/g compared to fresh oil for the ester-based biodegradable hydraulic fluids examined.
- We were able to prove that different ester-based products can be differentiated in the "wet" TOST test in accordance with DIN EN ISO 4263-1.
- The increase in the acid number of the biodegradable hydraulic fluids was tested for a duration of up to 200 test hours. In addition, we looked at the corresponding trend curves of the individual products at 25-hour intervals. It became apparent that the development of the AN over time for the hydraulic fluids examined is highly differentiated.

This results in the question as to whether the 2.0 mg KOH/g increase in AN compared to fresh oil is a meaningful stopping and evaluation criterion for the "wet" TOST test in accordance with DIN EN ISO 4263-1 for ester-based hydraulic fluids. We are convinced of the possibilities of using the "wet" TOST test for ester-based biodegradable hydraulic fluids, but are discussing even more robust evaluation criteria with our customer.

BIODEGRADABLE HYDRAULIC FLUIDS

CURRENT IMPACT OF DIN ISO 15380, EDITION 2024-10

DIN ISO 15380 specifies the minimum technical and environmental requirements for biodegradable hydraulic fluids. In accordance with DIN ISO 15380, biodegradable hydraulic fluids are divided into different product groups depending on their composition, for which group-specific requirements are defined (see table).

Group	Base oil
HETG	Triglycerides (e.g. rapeseed or sunflower oil)
HEES	Synthetic esters
HEPG	Polyglycols
HEPR	Polyalphaolefins and related

In addition, manufacturers of biodegradable hydraulic fluids can have their products certified in accordance with European or national regulations.

The EU Ecolabel has established itself in Europe, while the Blue Angel ecolabel continues to apply in Germany. Awarding these ecolabels ensures that hydraulic fluids meet the minimum requirements of DIN ISO 15380 as well as the additional requirements of the responsible national or international authorities.

In the current edition, the EU Ecolabel does not define any obligation to use renewable raw materials. However, in accordance with ASTM D6866, the current edition of DIN ISO 15380 (2024-10) has introduced a minimum proportion of 25% of raw materials of biological origin for the HEES (synthetic ester fluids) and HETG (triglycerides, based on e.g. rapeseed or sunflower oil) product groups.

In concrete terms, this means that biodegradable hydraulic fluids that met the requirements of the HEES group according to the previous edition of DIN ISO 15380 can no longer be designated as "HEES in accordance with DIN ISO 15380" if they do not contain the required proportion of biogenic components. This affects many commercially available products.

In addition, fluids from the HEPR group (PAO base fluid or similar) are currently available that meet the requirements of the EU Ecolabel, including biodegradability. However, no requirements for the use of raw materials of biological origin are defined in this group.

As a result, this has given rise to the following situation:

- Ester fluids that fully meet the requirements of ISO 15380, except for the requirements regarding the use of raw materials of biological origin, may no longer be designated HEES.
- HEPR fluids, on the other hand, are allowed even though they do not contain any raw materials of biological origin.

Ultimately, this is a situation that raises questions not only from end users. It remains to be seen whether there will be any further adaptations here in the future.

OELCHECK CONTINUES TO GROW AND EXPAND

Our service makes the difference! And word is getting around. More and more customers are benefiting from OELCHECK's all-inclusive analyses for lubricants and fuels. The number of samples tested is constantly increasing. That's why we're thinking ahead and expanding our buildings once again.

Delivery of containers for the new hazardous materials warehouse

3D sketch of the planned extension to the main OELCHECK building at Kerschelweg 28

More space for coolant analysis

OELCHECK's all-inclusive coolant analyses are an ever-popular product. For this reason, the premises for coolant analysis are now being expanded. The groundbreaking ceremony has already taken place. The additional space for the laboratory adds a total of 70 square metres, as well as three PC workstations for our team leaders and trainees.

New storage for solvents

Our new solvents storage facility has already been completed. The greater the number of samples, the more solvents we need for many of our examinations. For heptane and kerosene, we installed sustainable recovery plants a few years ago already. We use them to reduce costs and protect the environment. But this far from meets our solvents requirements. Our new warehouse for a whole range of other solvent types is specifically designed for hazardous substances. Two large containers have now been placed in an elaborately installed collecting basin in accordance with the extensive specifications. The containers provide space for 36 200-litre drums and also enough space for handling.

New entrance gate in a cool design

The entrance to our main building at Kerschelweg 28 is busy every day. UPS and many other transport companies deliver hundreds of samples daily and suppliers and customers alike come to visit OELCHECK. It can sometimes get quite crowded at the main entrance!

A new entrance gate is now being integrated. It will simplify processes and optimise the climate in the building. All structural improvements are scheduled to be completed by the beginning of 2026. At the latest by then, the crowds and the constant door opening and closing at the entrance gate will be finally over.

OELCHECK TRAINS AND THEREBY INVESTS IN THE FUTURE

We can only be successful in the long term thanks to well-trained employees. This is why OELCHECK trains and thereby invests directly in the future. We provide young people with the necessary equipment and then offer them numerous opportunities for their professional development in our company.

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Congratulations - a great success

In the summer of 2025, five of our trainees took their final exam. Everyone passed! In principle, we hadn't expected anything else. Nevertheless, we kept our fingers crossed for them.

Max Weber was even awarded a book prize for his particularly good grade average. The newly appointed office management administrator will now work for OELCHECK in Technical Assistance and QM. Of the chemical laboratory technicians, Jonas Frank, Markus Rutz and Dustin Witt, Jonas Frank has decided to pursue further training. His two colleagues are continuing their careers at OELCHECK. Just like Lea Straßer, who has very successfully completed her training as a media designer (digital and print).

Welcome to our new trainees!

The apprenticeships at OELCHECK are in high demand in the region. 45 young people have already acquired extensive knowledge for their professional lives with us, and there are more. In autumn 2025, we will welcome Jidapha Busaba, Leopold Dirscherl and Ida Siebert. They will start their training as chemical laboratory technicians. We also welcome Tobias Geisberger, who is starting his training as an office management assistant.

+ An extra only for our trainees

Fresh and healthy food is cooked for our employees every day in the OELCHECK cafeteria. Lunch has always been financially subsidised by us. We now offer another extra for our trainees. For them, lunch costs only €2.90! Now they can tuck in even more!

ELASKON

A WORLD MARKET LEADER AND HIDDEN CHAMPION FROM SAXONY

Insiders all over the world know ELASKON, the market leader for wire rope lubricants. Lubricating and preserving wire ropes is one of the greatest challenges in lubrication technology. Those who master this rank among the top league of lubricant experts. The long-standing company from Dresden exports its special lubricants to over 60 countries. In Germany, automotive and industrial lubricants from the ExxonMobil brand round off the ELASKON portfolio. For example, OELCHECK usually comes into play when it comes to oils for gas engines, injection moulding machines, turbines or industrial gearboxes. ELASKON uses the advantages of analyses and smart tools such as the OELCHECK app and LAB.REPORT. ELASKON customers benefit from this!

From the funicular and suspension railways in ELASKON's home town of Dresden, to the steepest cable car in the world in Switzerland, and to plants in Asia - ELASKON products are indispensable. However, cable car operators too need a different type of lubricant. This is why ELASKON has perfectly supplemented its own portfolio for customers in Germany. Corrosion protection and the preservation of vehicles and machines have been another focus area since the company was founded. The business activities of Esso Sachsen in Chemnitz were taken over in 2006. Since then, ELASKON has been selling automotive and industrial lubricants under the ExxonMobil brand and has built up another large customer base, far from the world of cable cars.

Expertise in close proximity to the customer

ELASKON is an independent, medium-sized company with maximum customer proximity and short decision-making paths. Whether technical advice, support in the sustainable use of lubricants or the reduction of operating costs - the field and in-house staff are qualified and receive ongoing training. In Germany, support focuses mainly on customers in Saxony, Saxony-Anhalt and Thuringia. In addition, ELASKON's key account managers are active locally for customers throughout Germany.

Stadtwerke Görlitz: ELASKON customer – reliable supplier of heat and electricity

Görlitz is closely connected to the Polish neighbouring town of Zgorzelec, on the other side of the Neisse river. The municipal utility Stadtwerke Görlitz (SWG AG) is already working with Polish heat supplier SEC Zgorzelec in the "United Heat" project and will continue to do so in the future. SWG AG supplies electricity, natural gas, drinking water and heat and disposes of wastewater in an environmentally friendly manner. Among other things, Stadtwerke Görlitz provides around 140 gigawatt hours of district heating per year.

In the early nineties, when coal and heating oil were still the main sources of heat in Germany, Stadtwerke Görlitz invested in combined heat and power (CHP). CHP technology generates heat and electricity efficiently and in an environmentally conscious manner. At the time, SWG AG was a pioneer in the field, working to ensure a significant improvement in air quality in the region at the beginning of the nineties.

Today, the municipal utility has 13 CHP modules. These are powered by high-performance MTU natural gas engines. The operational safety of the large units is of the utmost importance. After all, available supply for customers must always be guaranteed. The gas engine oil used plays a decisive role here. ELASKON recommended a Mobil gas engine oil that met all the requirements right from the start. It is highly thermally and oxidatively resistant, keeps engines clean, protects against wear and corrosion and ensures that the systems operate safely and have a long service life.

OELCHECK all-inclusive analyses – for maximum safety

In the interests of sustainable management, gas engine oils are changed based on their condition. This also has a positive effect on Stadtwerke Görlitz's balance sheet.

However, custom oil changes must be supported by regular oil analyses. After all, the oils are subjected to a variety of stresses. A drop in performance can result in serious damage to the expensive engines. So when it comes to oil analysis, ELASKON also works closely with OELCHECK for the gas engines of Stadtwerke Görlitz.

Based on the specifications of the OEM, the gas engine oils are tested approx. every 300 to 1,000 operating hours. The special OELCHECK all-inclusive analysis set for gas engine oils is used for this. In the laboratory, OELCHECK then determines the viscosity, its increase, the wear elements and any impurities, among other things. The potential acidification of the oil and its ageing are considered particularly critically using the AN (acid number), the BN (base number) and the ipH value. Even the smallest changes are documented and commented on in the laboratory reports.

ELASKON's sales representatives work closely with their contact persons at Stadtwerke Görlitz and evaluate the laboratory reports together with them. This is the best way to guarantee a safe oil service life and to detect any impending damage to one of the engines at an early stage.

OELCHECK app and LAB.REPORT – For industry specialists on site

All data, including comments from OELCHECK tribologists, are stored digitally in the LAB.REPORT customer portal. They can be retrieved and forwarded at any time. When deployed on site, ELASKON and Stadtwerke Görlitz employees also benefit from the smart OELCHECK app in combination with individual QR codes on the units.

Customer-specific information as well as details of the individual machines are saved once and are then always available. Only the data of the respective oil sample needs to be added. In addition to entering samples by means of a QR code, the OELCHECK app also offers the option of a direct machine search as well as the option of retrieving laboratory reports, sending photos of the sample as well as recording data in offline mode and transmitting them to OELCHECK later. This saves time and makes working life easier!

ELASKON - quality that lasts
ELASKON Sachsen GmbH & Co. KG can look back on almost 100 years of history. From the very beginning, Dresden has been the headquarters of the family-run company. ELASKON products are sold in more than 60 countries. The ELASKON Group comprises several companies and branches. A total of 100 employees work at three locations, one of which is in Shanghai, China.

www.elaskon.de

All-inclusive analysis kits for your oil and fuel analyses

OELCHECK – THIS TEAM IS UNSTOPPABLE

Our team works with great dedication in the OELCHECK laboratory every day. But the joy of doing things together also continues in their leisure time. On Friday 23 May, the management therefore invited participants to the big OELCHECK Team Olympics at Lake Chiemsee nearby. Team spirit and creativity were the order of the day. More than 90 of our colleagues from all departments participated in the fun. Lots were drawn for ten groups. The groups then tackled the seven experience stations and their tasks. Whether dinghy racing, recognising spices by their aroma, Mega Dart soccer or Farmers' Rally, much excitement and laughter were had. An absolute highlight was the performances that our team members brought to the stage at the creative station with their wealth of ideas and jokes. After an eventful day, the team enjoyed a hearty BBQ buffet in the evening, including music, dance and, of course, a great atmosphere.











On 4 June, just a few days after the Team Olympics at Lake Chiemsee, it was time for the next challenge for our sporty team members. At the Hasenöhrl company run "Teams in Bewegung" (Teams on the Move) in Geitau at Bayrischzell, things got serious. 900 participants from over 60 companies and organisations took part. 11 runners from Turbine OELCHECK competed in the 5.7 km run around the Hasenöhrl farm. Out of 187 mixed teams, consisting of one woman and two men each, Turbine OELCHECK reached sixth place with Nora Bots, Jonas Frank and Markus Schütz!

A great achievement!
We are proud of you!

JOIN THE OELCHECK TEAM!
www.oelcheck.de/jobs

OELCHECK IS DEFINITELY A DREAM COMPANY

What other companies are still dreaming of, OELCHECK has already achieved. Since 2010, the independent company Traumfirma GmbH has put our company to the test every two to three years. OELCHECK was declared a "dream company" in all seven surveys conducted among our employees. This isn't just exceptional - it's unique! No other company surveyed by Traumfirma GmbH has achieved this continuity to date!

The Traumfirma Award is a coveted award. It is awarded exclusively to companies that are managed in a respectful and values-based manner.

Our employees were now again surveyed by Traumfirma GmbH and almost everyone participated in the voluntary, anonymous survey. The survey ensures more transparency in the company and reveals strengths but also weaknesses.

Overall, we achieved a fantastic total score of 80% in 2025 too, and once again received the Dream Company Award. This is reflected in the overall assessment by our employees: 54% of them are "very satisfied" and 36% "satisfied". We definitely all work together in a dream company!

Our ambition

Until the next survey in two years, we want to further increase the number of satisfied and very satisfied employees. To do this,

- we are increasingly promoting our appreciative corporate culture.
- We support our employees with attractive benefits as permitted by tax regulations.
- We strengthen the unique OELCHECK team spirit with shared experiences both at work and beyond.

LUBRICATING GREASES – WHAT IS THE ADVANTAGE OF DETERMINING WEAR AND ADDITIVE ELEMENTS USING THE ICP-OES METHOD?

Our conveyors operate in dusty and often moist environments. They are also subjected to shocks and vibrations. We have the bearing greases examined regularly by you. In addition to any impurities, we are also particularly interested in the wear and additive elements.

In the 2023 summer edition of OELCHECKER, you informed us that you are using a new method for determining these elements. In the laboratory reports, the wear and additive elements are still shown in mg/kg. What advantage does the new method offer us?

Preparing a grease sample for determination using the ICP-OES method

Since summer 2023, we have analysed more than 40,000 samples of a wide range of grease types and applications using the ICP-OES* method and microwave-assisted pressure digestion. The method has proven itself in the laboratory. One particular advantage has emerged: especially when looking at trend curves, a significantly lower fluctuation range can be seen for the wear and additive elements. Ultimately, customers benefit from a clearer trend curve and even more precise comments from OELCHECK tribologists.

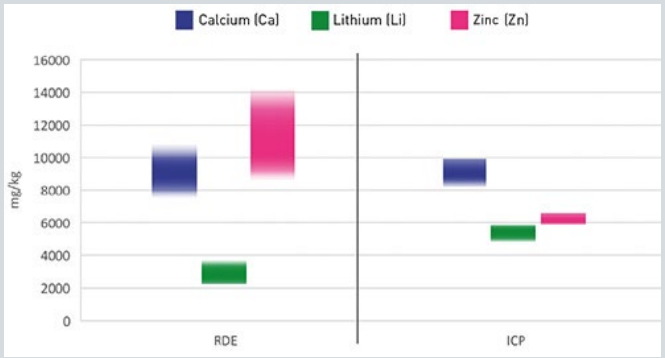
ICP-OES versus RDE-OES - an example illustrates the differences

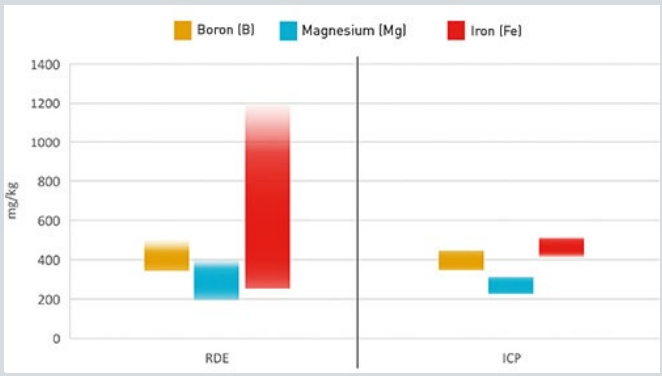
A synthetic lithium complex grease from the main bearing of a wind turbine was examined. This bearing supports the rotor shaft of the system and allows the rotor shaft to rotate.

For four years, we analysed the trend curves of this lubricating grease - in the first two years, we used the RDE-OES** method, then we used the ICP-OES method for the next two years. The diagrams show the values of the most important wear and additive elements - in terms of their fluctuation range over four years. In contrast to the ICP-OES method, the RDE-OES method has significantly higher dispersions - not only for iron, but also for other elements.

These fluctuations did not occur by chance. We found them in many comparative analyses. The reason for this is obvious: during the examination using the ICP-OES method, all disruptive factors are blocked out with the preceding microwave-assisted pressure digestion. This means that any inhomogeneity of the grease sample or mixtures no longer has a distortive effect on the determination of the wear and additive elements.

Comparison of the fluctuation ranges of the RDE-OES method and ICP-OES method for different elements





In the OELCHECK laboratory, nitric acid is "dissolved" in powerful microwave devices before each grease sample is examined. This removes the thickener from the grease. Only the clear, aqueous solution obtained in this way is used in the ICP-OES.

There are no binding standards for performing grease analyses. However, the ICP-OES method allows aqueous solutions extracted from the greases in accordance with DIN EN ISO 11885 to be examined. OELCHECK is not only one of the few laboratories worldwide that examines lubricating greases, but also works to determine the wear and additive elements of greases in accordance with an internationally recognised standard.

IN SHORT,
The determination of the wear and additive elements in lubricating greases using ICP-OES and prior pressure digestion with a microwave has proven to be absolutely successful in the OELCHECK laboratory. Especially when defining trends, it enables more accurate results and thus even more precise early detection of any damage.

** Optical emission spectrometry with inductively coupled plasma*
*** Optical emission spectrometry based on the Rotrode principle*

OELCHECK also answers your questions on the topics of lubricant and fuel analyses as well as tribology.
Contact us by e-mail at info@oelcheck.de or by fax on +49 8034 9047 47.

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CUSTOMER SURVEY

Although OELCHECK is the leading laboratory for lubricant and fuel analyses in Europe, we do not rest on our laurels and are constantly optimising our analyses and services. But how satisfied are OELCHECK customers with us? After all, your opinion is the measure of everything. This is why we conduct customer surveys at regular intervals. The results of the survey from the end of 2024 are now available.

At first glance: five stars for OELCHECK

The maximum of five stars was awarded for the decisive question "How satisfied are you with OELCHECK overall?". 67.5% of participants gave the highest score! This is a significantly higher score than the 48% given in the 2020 survey.

Our individual services were also rated with up to five stars each. Top figures achieved:

- Reliability of the analysis values 4.89 stars
- Straightforward process 4.65 stars
- Speed of analysis 4.37 stars

Thank you to everyone who took part!

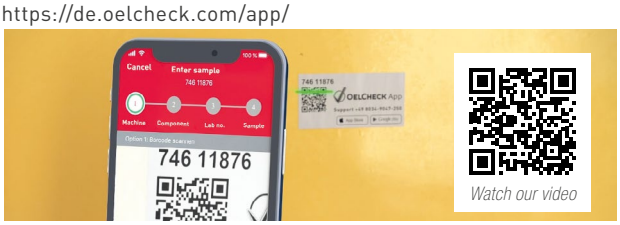
We would like to thank all participants for answering our questions! Above all, their detailed comments and suggestions are an incentive for us to further improve our services. After all, we would also like to see comments in the next customer survey, such as:

"The cooperation with OELCHECK in recent years has always been excellent. The professionalism, reliability and quality of the analyses have consistently exceeded our expectations."

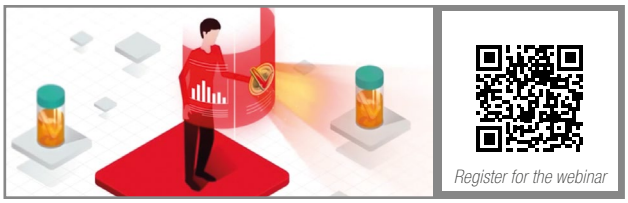
Potential for improvement: we are active

Satisfaction with OELCHECK and confidence in our analyses received excellent scores. However, there is certainly room for improvement in some areas. Above all, our smart digital tools are still known to or used free of charge by far too few of our customers. For this reason, we would like to again take this opportunity to provide you with specific information about the options.

- **The OELCHECK app**
  It's the easiest way to enter samples. No paperwork required! Our video shows how quickly this can be done:
  https://de.oelcheck.com/app/



- **The LAB.REPORT customer portal**
  This allows machines and systems to be managed online and data on all samples to be transmitted digitally.
  See its benefits for yourself:
  Either by attending a 30-minute live webinar...
  Dates and registration: https://de.oelcheck.com/labreport/



... or when visiting the OELCHECK trade fair stand at LUBRICANT Expo, HUSUM Wind or maintenance.

COME AND MEET US!

In the second half of 2025, we will be at four important trade fairs with our own stand! You are welcome to arrange a meeting with us in advance (sales@oelcheck.de). Or just drop by our stand at the trade fairs! We look forward to a lively exchange with you there!

Another extra tip for your visit: let our trade fair team explain the LAB.REPORT customer portal and the OELCHECK app! Invest a few minutes of your time - it's worth it!

HUSUM WIND
16-19/09/2025 | Husum

LUBRICANT EXPO
16-18/09/2025 | Düsseldorf

maintenance
29-30/10/2025 | Munich

BIOGAS Convention & Trade Fair
09-11/12/2025 | Nuremberg

TAE 25. Internationales Kolloquium Tribologie
27-29/01/2026 | Ostfildern

UNITI Mineralöl-technologie-Forum
UNITI Mineral Oil Technology Congress
21-22/04/2026 | Stuttgart

DIGITAL, SUPER SMART AND FREE

OELCHECK APP AND LAB.REPORT

Directly on the machine – sample entry using the OELCHECK app

Don't really enjoy unnecessary paperwork? Then our OELCHECK app is just the thing for you! Combined with your smartphone or tablet, it is the easiest and fastest way to enter your sample data.

➔ **Before we get started:**

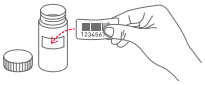
- Download the OELCHECK app free of charge from the App Store or Google Play.

App Store | Google play

- Save your customer-specific information as well as the details of the individual machines once. This data will then always be available.

➔ **Use on-site:**

- Go to the relevant machine or component from which the sample is taken.
- Add the laboratory number from the OELCHECK sample delivery note, the date and any notes.
- Then affix the laboratory number from the OELCHECK sample delivery note to your sample container, take your sample and send it to us in the OELCHECK delivery pouch.



➔ **Important reminders:**

- Are you offline? You can still record the data and submit it later.
- Do you have important photos and/or information for us? Just send them along!
- Would you like to view laboratory reports that you entered digitally? Just take a look in the app!

Want to work even smarter?

Then combine the OELCHECK app with individual QR codes!

- The OELCHECK app uses QR codes to identify the respective machine or lubrication point on a scan.
- We create these codes for you - whether you have a large order or just need one for a single item, simply contact us
- The polyester stickers are oil- and weather-resistant, The polyester stickers are oil- and weather-resistant, 9 x 4.5 cm in size and feature the OELCHECK logo.
- For large systems, all relevant sampling points are simply given individual QR codes.

OELCHECK LAB.REPORT – The online customer portal for industry specialists

Once you know the benefits of LAB.REPORT, you can't do without them. With the smart tool from OELCHECK you can:

- Access all previous laboratory reports, diagnoses, trend curves, recommendations for action and analysis data.
- Identify developments and any need for action at an early stage. LAB.REPORT supports you in this with its search and filter functions.
- Get an overview of all machines and components from which you take samples.
- Enter data and information on new samples quickly and easily online.
- Create your own QR code stickers for your machines to use in combination with the OELCHECK app.
- See in real time what the current status of your samples is during the examination in the OELCHECK laboratory and when you can expect to receive the laboratory report.
- Export your data in various formats, such as CSV, XLS, XML or JSON. You then simply integrate this data into your own systems.
- Automatically share and translate your laboratory reports into different languages and transmit them quickly with one click.

Get to know the most important features of our online customer portal in just 30 minutes! Join one of our interactive live webinars!
Dates and registration: https://de.oelcheck.com/labreport/

OELCHECK Customer Service & Sales (from left to right): Markus Schütz (Key Account Manager), Simone Fellner, Sebastian Gruber, Brigitte Herter, Florian Bergmann, Michaela Stephan, Svea Johannsen, Daniel Hilpert (Head of Department), Julia Groß

Customer service makes all the difference! Our team is here to help!

- **Do you need support in setting up your machine fleet?**
- **Do you want to export only certain data?**
- **Do you want to give colleagues specific access to individual laboratory reports?**

➔ Our OELCHECK team supports you with these and all other individual questions and concerns - personally and directly.
Tel. +49 8034-9047-250

OILDOC SEMINAR PROGRAMME

THE NEXT DATES	
23-25/09/25	Lubrication and oil monitoring for hydraulics
30/09-01/10.	Professional lubricant management Module III in the "Certified Lubricant Expert" series. Can be booked individually.
07-08/10/25	Lubricating greases – Properties, selection and monitoring
14–16/10/25	Lubrication and oil monitoring for turbines and turbo compressors
21–23/10/25	Machine monitoring by means of oil analysis, for beginners *MLA/MLT II certificate course*
10/11/25	Coolant – the underestimated operating fluid
11–12/11/25	Lubrication and oil monitoring for stationary gas engines
-13-14/11/25	Infrared spectroscopy in practice – Understanding and interpreting IR spectra
18–20/11/25	Fundamentals of lubricant application I Module I in the "Certified Lubricant Expert" series. Can be booked individually.
25-26/11/25	Damage to bearings, gears and motors – causes and solutions Module IV of the "Certified Lubricant Expert" series. Can be booked individually.
01–04/12/25	Expert knowledge for lubricant professionals *CLS certificate course – German*
13-15/01/26	Lubrication and oil monitoring for gears
03–04/02/26	Fundamentals of lubricant application II Module II in the "Certified Lubricant Expert" series. Can be booked individually.
10/02/26	Coolant – the underestimated operating fluid
11–12/02/26	Lubrication and oil monitoring for stationary gas engines
26-26/02/26	Machine monitoring by means of oil analysis, advanced course *MLA/MLT II Certificate Course*
03–05/03/26	Fundamentals of lubricant application I Module I in the "Certified Lubricant Expert" series. Can be booked individually.
10-11/03/26	**Varnish Symposium** Detecting, evaluating & preventing deposits
17-18/03/26	Certified hydraulic oil specialist OilDoc Certificate Course
24-26/03/26	Lubrication and oil monitoring for turbines and turbo compressors
20-23/04/26	Expert knowledge for lubricant professionals *CLS certificate course – English*
28-29/04/26	Lubrication and oil monitoring for combustion engines
04-07/05/26	Expert knowledge for lubricant professionals *CLS certificate course – German*
11-12/05/26	Professional lubricant management Module III in the "Certified Lubricant Expert" series. Can be booked individually.
16-17/06/26	Fundamentals of lubricant application II Module II in the "Certified Lubricant Expert" series. Can be booked individually.
16-17/09/26	Damage to bearings, gears and motors – causes and solutions Module IV of the "Certified Lubricant Expert" series. Can be booked individually.
22-24/09/26	Lubrication and oil monitoring for hydraulics
07-07/10/26	Lubricating greases – Properties, selection and monitoring
08-09/10/26	Infrared spectroscopy in practice – Understanding and interpreting IR spectra

Your contact for further training:
OilDoc GmbH
Kerschelweg 29
83098 Brannenburg
Tel. +49 8034 9047700
info@oildoc.de

All of the current dates, detailed seminar content and conditions of participation as well as the links to uncomplicated online registration can be found on our website:

oildoc.com/seminare

The OilDoc team is standing by!

Rüdiger Krethe
Managing Director and seminar leader

He is your contact person for all questions concerning the seminar content, the design of individual in-house seminars and expert opinions.

The OilDoc back office team
from left to right: Stefanie Komma, Carmen Gratzl, Susanne Stadler

If you have any questions about registration, organisation, workflow or billing, our back office team will make sure everything runs smoothly.