



Summer 2018

OELCHECKER

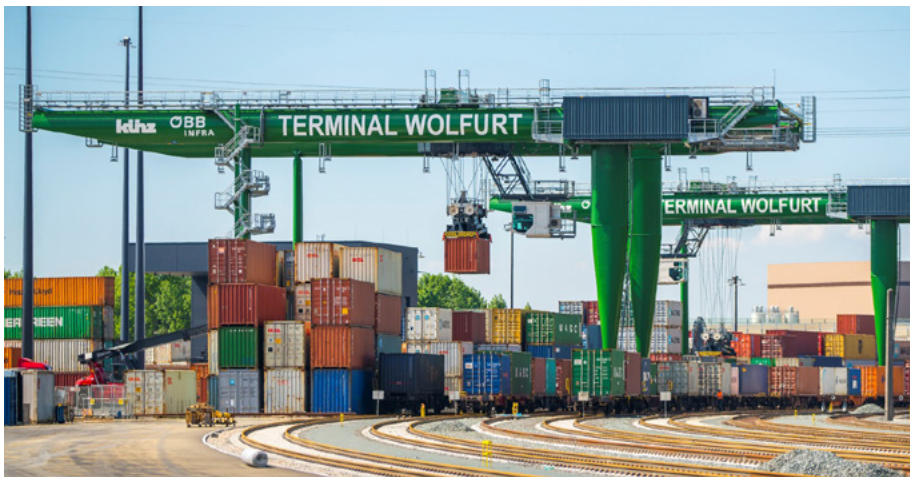
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Künz scores highly in crane building technology and innovation



Künz container cranes at Wolfurt Freight Centre deliver higher loading capacities with significantly lower operating noise.



Austrian firm Künz GmbH has decades of experience in crane construction, which it uses to provide its exacting clients throughout the world with technically and qualitatively first-class products. Whether crane systems for handling containers or rails, electrolysis cranes for zinc, copper, and nickel production or hydraulic steel equipment for constructing and renovating hydroelectric power plants, Künz has the perfect solution for every sector. Following purchase, Künz customers receive an individually tailored maintenance package. The Künz Information System (KIS) is designed for predictive maintenance. This not only enables maintenance work to be carried out efficiently in advance, but also provides important operating information to keep machinery running smoothly. OELCHECK lubricant analyses are an indispensable component of this.

At Künz, technology and innovation are systematically aimed at creating benefit for the customer. In-house design, electrical engineering, automation, and production enable rapid and focused development. Dialogue with customers is a top priority in this process. Customer service accompanies every single phase of each project – from conception and design, to maintenance and ongoing support. Künz offers products and services which fully satisfy the latest market requirements, as well as the specific demands of its customers. Decisive criteria in choosing a Künz system include reliability, service, operating costs, component service life, and maintenance outlay. Automation and digitalisation are also playing an increasingly significant role in these decisions. The already well-established Künz Crane Management System gathers data which provide the crane operator with current operational information about the system, together with any error reports or maintenance notifications. Since 2000, Künz has been supplying automated stacking cranes. These operate in large container terminals, for example, such as those found at the ports of Rotterdam and Hamburg. Here the containers are relocated automatically within zones which are off limits to employees. Automation of these systems is a far greater challenge when personnel need to be able to operate in direct proximity to them. This is the case in railway cargo terminals, for exam-

Check-up

Robots that move with high precision, self-driving lorries and cars, ships and railways without operating personnel – things that we once considered „unworkable“ have now long been a reality. But what about the following story?

In a remote region, several hundred wind turbines tower into the sky. Some of the rotor blades stand still. But above one of the turbines, there's something moving. A four-rotored drone flies directly up to the turbine's nacelle. The flying object has an attachment roughly the size of a football fitted with a vacuum which holds sample bottles for extracting gear oil from on board the turbine. The bottles and gear units are fitted with matching magnetic connections for the sampling point. These are activated automatically as required. The drone docks onto the barcoded sampling points, extracts the oil samples, transmits the system data, including oil type, operating hours, and last lab number to the ground station, and then floats to the collection point with its cargo. With that, it has completed the task – and has done so faster and more economically than any service engineer.

Drones that collect oil samples from hard-to-access systems are still in the development phase at OELCHECK. However, these could soon be part of everyday working reality. In the meantime, drones fitted with cameras are already in operation today – monitoring the rotor blades of wind turbines, inspecting high-voltage lines, or conducting quality control on Airbus passenger jets.

Every technical innovation begins with a vision. Some of these are mocked, but many unjustly. OELCHECK is the best example of this. Our ideas were often laughed at when, back in 1991, we began decoding the language of oil so that the maintenance engineers could also understand it. However, it didn't take long for our customers to recognise the great benefits that our services bring. Today, OELCHECK lubricant and coolant analyses are an indispensable part of condition monitoring.

Barbara Weismann
Yours, Barbara Weismann



ple. Here, intermodal cranes are used to transfer containers from railway freight wagons onto lorries, and vice versa. Here too Künz has developed an automated solution, and now produces intermodal cranes without operator cabins.

Recognising problems before they arise

The economic success of the operators ultimately depends on the reliability, performance, and service life of these systems. Whether container cranes at ports or in railway cargo stations, or electrolysis cranes for zinc, copper, and nickel production, all need to operate around the clock without interruption. Künz customers receive an individually tailored maintenance package that extends from an annual technical inspection all the way to a life cycle cost

agreement. The Künz Information System (KIS) uses predictive maintenance to identify problems before they arise, thereby supporting continuous operation. Many issues can be solved via remote maintenance, saving the customer time, trouble, and most importantly, costs. Künz technicians can also be reached via a hotline around the clock. VPN access enables them to interface with the crane, identify the issue, and propose the ideal solution. This remote access makes it possible to rapidly resume operations.

OELCHECK lubricant analyses – the reliable companion

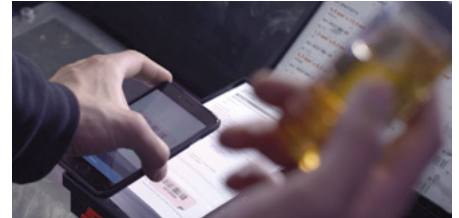
OELCHECK lubricant analyses play an essential role in predictive crane maintenance. These are most important in monitoring crane gear units and the oils used in them. During every larger-scale inspection or in the case of any anomalies, Künz technicians take an oil sample. In the OELCHECK lab, approximately 30 values are then identified, which are examined to determine oil condition, wear, and any contaminants present, in addition to additive degradation. The resulting laboratory report provides Künz technicians either with a green light to continue using the oil charge, or with the appro-

priate information in the event that irregular values are identified. The performance of the gear unit is responsible for the reliable functioning of the entire crane system, which makes rapid transmission of the lab value data especially important.

It's all online with LAB.REPORT

Künz technicians use the www.lab.report online customer portal, which they value for its rapid data transfer capabilities among other benefits. This enables them to submit samples at any time worldwide, manage data and their own projects, and handle translation into other languages. Filter functions allow all data to be presented in a targeted manner and compared. As „master users“, LAB.REPORT also allows them to more rapidly assess the development of individual gear units and other components.

App and QR-Codes perfectly combined



The online customer portal can be used to generate QR-Codes. These can be printed on adhesive strips – which OELCHECK is glad to provide to customers upon request – and then attached to the relevant systems. When submitting new oil samples, technicians can then use their smartphones to scan the QR-Code. The App automatically recognises the system and components and performs all of the subsequent steps. The technician adds information on the service life of the sample in question and scans the barcode of the Sample Information Form, which is identical to the lab number attached by the technician to the sample bottle. The App then transmits the data to OELCHECK. These QR-Codes are now fitted to all Künz crane system gear units at the Port of Rotterdam's APM Maasvlakte II container terminal, which is the world's most modern and is fully automated. 900 QR-Codes are used for the gear units alone. This saves Künz technicians a great deal of time and effort.

Künz – a market leader from Austria

Founded in 1932, Künz GmbH counts among the oldest firms in Vorarlberg's engineering industry. Künz is the leading producer of rail-mounted container cranes in Europe and North America, and the world's foremost manufacturer of automated electrolysis cranes. Künz is also a specialist producer of hydraulic steel equipment for hydropower stations and rack cleaning systems. The Austrian firm is 100% family-owned and operates throughout the world. It places a consistent emphasis on the highest quality products and services, and on the highest level of engineering performance. Of a total staff of 500 employees, Künz engineers account for over 25%.

Further information: www.kuenz.com



From left to right: Max Schuldeis, Dr Christoph Heinzl, Dr Thomas Fischer, David Jäger, and Patrick Schreiber

Reinforcements for the OELCHECK lab

The lab is the most employee-intensive department in our company. This is where the analysis values are determined that form the foundation of the assessments carried out by our diagnostic team. In order to further optimise our lab's performance and expertise, we have recruited three Scientific Team Assistants. These are assigned to our individual lab teams, and form the link between Scientific Director Dr Thomas Fischer, Head of Laboratory Max Schuldeis, and the lab team in question. Patrick Schreiber (MSc Chemistry) has been placed in support of the Action Group, Dr Christoph Heinzl in support of the Physical Processes and

Chromatography/Coolant teams, and David Jäger (graduate chemist) in support of Spectrometry.

Our new colleagues have already familiarised themselves extensively with the equipment, software, operation and calibration, and investigation methods used by their respective teams. They now stand ready to assist the lab teams in the event of any device issues, and to implement required measures in cooperation with Dr Thomas Fischer. They are also supporting the Scientific Director in developing methodology and commissioning new equipment.

The Scientific Team Assistants are also the first point of contact for the different departments of OELCHECK GmbH with any questions concerning the processes and standards that apply in investigations carried out in their team section. They can also be contacted by OELCHECK colleagues in the case of specific customer queries. In this way, they are helping us to speed up workflows, improve internal communication, and process specific customer queries more quickly.

Workplace health promotion at OELCHECK

Employee health and motivation hold a special importance at OELCHECK. After all, only healthy and contented employees can be motivated, efficient, and productive. That's why we have been consistently following the goal of maintaining employee health for a number of years.



For over 14 years now we have offered our employees a modern fitness gym. In our wellness area, employees can make use of a sauna, steam bath, and swimming pool. External trainers take a wide range of courses, including in Nordic walking, which has been on offer for some time, and in high-intensity interval training, which is a more recent introduction. During lunch breaks, employees can choose from a

diverse selection of dishes created to form part of a balanced diet.

In cooperation with German health insurance fund KKH, we have repeatedly focused on specific themes in the context of health promotion. The programme for the first quarter of 2018 was devoted to „spiritual well-being“. The first health day held on this theme was introduced with a talk on the subject of relaxation and nutrition. On the following day, every employee was given the opportunity to take part in a voluntary health check. This included a BMI (body mass index) check, as well as blood sugar, blood pressure, and heart rate variability tests. Heart rate variability (HRV) tests are an excellent method for detecting the underlying causes of illness and preventing disease. This includes activation and slowing of the circulatory system, and testing of the balance between readiness (the sympathetic nervous system) and regeneration (the parasympathetic nervous system). This makes the HRV test a measure of the body's general adaptability. Shoulder and neck massages were also on offer during this day.

To promote stress management, a weekly yoga course was held from January to March. This course, as with both health days, met with considerable interest among our employees.

In May, the focus was then transferred for two days to the theme of „movement“. An active talk on the subject „Get moving“ provided our employees with insights into the importance of regular exercise, and gave them the chance to try out different exercises under instruction with their very own TheraBand, presented to each attendee. In addition to blood sugar, blood pressure, and BMI tests, the health check this time round included a complimentary back check. This was designed to identify muscular strengths and weaknesses, and to reveal any imbalances. This provided our employees with important motivation to pursue necessary exercise.

In order to round off the theme of movement, from the autumn we will be offering our employees a „Healthy backs“ course. Further proposals for strategies to promote healthy living are already being planned. It is our goal to continue to improve the health potential of our employees and to ensure that they feel well in every respect in their places of work.

A team event for the whole family



Our team event this year took place on 15 June 2018 at Hasenöhrl Hof in Bayrischzell. What awaited us there was a rustic location and a large outdoor area, in the midst of a glorious landscape at the foot of the 1,838 metre high Mount Wendelstein. Bright sunshine provided the backdrop to numerous thrilling and adrenaline-fuelled activities.



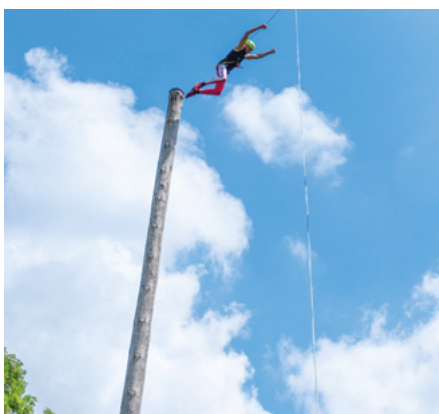
Ten teams vied for victory in a perfectly organised outdoor Olympiad. Each of the different stations required the participants to demonstrate their skill in all kinds of ways...

In a dry ski race, five team members at a time took to the slopes to compete for first place. Coordination and teamwork were required here in order to reach the finish line quickly and without colliding.

We mastered milking with all the dexterity we



could muster, while both skill and speed decided the day when it came to pretzel-catching. Next we took aim with laser rifles in the biathlon event, proving that we don't just stay cool under pressure in the lab or at our desks.



Courage and a head for heights were needed when the time came to climb a 15 m pole.



Armed with a sharp saw and our collective strength, we made short work of sawing our way through a log.



Next it was on to the Skyver, a downhill mountain scooter that we raced down the slopes as quickly as possible, before whizzing over obstacles and around tight curves on mountain bikes and segways.

After lunch together, we were joined on-site by our partners and children. Our younger guests were given the chance to show off their skills as they conquered the play area. All of the stations of the Olympiad were then made available once more for visitors to try out as they pleased.



That afternoon we sat down to enjoy coffee and cake, taking the opportunity to get better acquainted with our colleagues' families.



After that, it was already time for our next challenge! Assembling at a giant table football set, we found ourselves transformed into life-sized footballer figurines lined up on a bar and tasked with getting the ball into our opponents' goal.

The subsequent award ceremony saw the morning's most successful team declared the victors. In addition to fame and honour, the lucky winners were treated to a selection of Hasenöhrl Hof's homemade specialities. Our team event was rounded off with a barbecue buffet and live music. The highlight of the evening was without a doubt a performance by our very own OELCHECK „plattlern“, who demonstrated the folk dancing skills that they had acquired over the course of the afternoon.

All in all, a day sure to be remembered fondly by big and small alike!

Hydraulic fluids and problematic mixtures

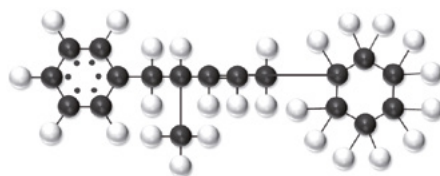
Hydraulic oils account for over 10% of all lubricant consumption, placing them in second position behind engine oils at 40%. They are used to transfer forces and movement, often in quantities of many hundreds of litres and at oil change intervals of several thousand operating hours. They are found primarily in construction and agricultural machinery, injection moulding machines, hydraulic presses, turbine regulator systems, lifts, aeroplanes, loading machinery, and many other pieces of industrial equipment. All of these are dependent on high-performance hydraulic oils. If hydraulic fluids are mixed together, on the other hand, all sorts of problems can arise ...

Hydraulic fluids perform all sorts of different tasks:

- transferring forces and movement
- control functions
- lubricating moving parts, including protecting against wear and reducing friction
- protecting against corrosion
- cooling (temperatures > 100°C possible)
- dampening vibrations

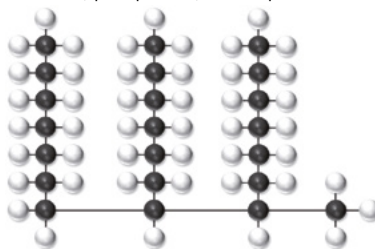
As hydraulic systems are optimised, so the requirements placed on hydraulic fluids increase. Systems are becoming ever more compact and designed for smaller oil quantities. The oil consequently spends less time in the oil container, and has less time to cool to the ideal mineral oil temperature of less than 60°C. At a temperature of 10°C higher, however, the increased oxidation tendency of mineral oils means that oil service life is halved. Due to oxidation, a mineral oil-based hydraulic oil that is changed after 10,000 operating hours at 60°C must be changed after only 2,500 operating hours at 80°C. As such, the oxidation or ageing stability of oils is becoming ever more relevant. Temperatures are not only rising because the oil quantities are falling, but also because pressures are increasing. If only a few years ago oil suited to 400 bar of pressure was needed for hydraulic engines and cylinders, today it is not unusual to encounter demands for oil suited to over 600 bar of pressure. With improved base oils and corresponding additives, modern hydraulic fluids are mastering these higher temperature requirements, as well as increased mechanical strains, and are contributing decisively to the continuous operability of the systems involved. These high demands can often only be met by using synthetic multi-purpose hydraulic oils, which are more suited to long-term use. The advantages of synthetic oils over conventional mineral oils can also be clearly proven using oil analysis.

Advantages of synthetic oils



Chemical structure of mineral oil

Until the turn of the millennium, hydraulic oils were for the most part simply refined and mineral oil-based, with minimal additives. Above all, these were economical. Today, the only mineral oil-based hydraulic fluids still used are mostly HLP oils. Their base oils are oxidation-resistant hydrocracked products (CH) produced using hydrogenation, a hydrogen treatment carried out in the refinery. The Extreme Pressure (EP) and Anti-Wear (AW) active ingredients added in most cases contain a combination of zinc, phosphorus, and sulphur.



Chemical structure of synthetic oil

In addition to hydrocracked oils, which are still very inexpensive, today fully synthetically produced fluids are used. As base oils, these contain poly-alpha olefins (PAOs), saturated or unsaturated ester oils, or polyglycols (PAGs). Pure synthetic oils can remain in use for far longer than previously used products. Their molecular structure exhibits a lower reactivity with oxygen at higher operating temperatures. These oils also contain modern antioxidants based on phenols, amines, or salicylates, which serve to further improve service life.

Synthetic base oils offer the advantage of better viscosity-temperature (VT) behaviour. These oils are thinner at low temperatures and thicker at

higher temperatures than conventional mineral oils. Hydraulic systems filled with these are easier to start, and demonstrate smaller energy losses at high temperatures. A natural viscosity index (VI) as high as in excess of 200 instead of 95 eliminates the need for multigrade additives, which, as non shear-stable additives, can result in the formation of reaction products. These in turn cause deposits and lead to filtration problems.

Synthetic oils therefore minimise the risk of deposits and deliver a better filterability. Their consistently high VI improves cold start behaviour, ensures a stable viscosity level over a wide temperature range, and simplifies control. Flow and churning losses are reduced.

The disadvantages of synthetic oils include their price, which is up to 10 times higher, reduced compatibility with one other, and problematic behaviour with respect to seals, tubing, and coats of paint.

Mixing hydraulic oils

Although lubricants are usually miscible (with the exception of PAGs) – especially if they share the same nominal viscosity and are designed for the same purpose – they are not always compatible with each other. In particular, when zinc-free and zinc-containing HLP mineral oils or PAO or ester synthetic oils are mixed with mineral oils or with synthetic oils from another producer, important characteristics such as air release time, water separation, foaming tendency, filterability, and seal compatibility can be negatively affected.

Mixing of different hydraulic fluids, as happens for example in the case of construction machinery through the exchanging of different attachments on a daily basis, cannot always be avoided.

In the event of difficulties following dismantling or an oil change, questions concerning the compatibility of two hydraulic fluids often arise. OELCHECK tribologists are able to determine the cause of the

difficulties more easily if they have access to the following information:

- exact oil type, with information on base oil types and additives
- working temperatures and pressures
- machine designation and components in use
- usage times of the fluids

A standard analysis, which is conducted using an analysis kit 2 or 4, is usually sufficient to provide an indication of the problem's cause. Sometimes, however, it is necessary to carry out an explicit **compatibility analysis**. For this, the lab requires five samples (each of 1 litre): a fresh oil sample of the two hydraulic fluids used, as well as three mixtures in the ratios 50:50, 95:5, and 5:95.

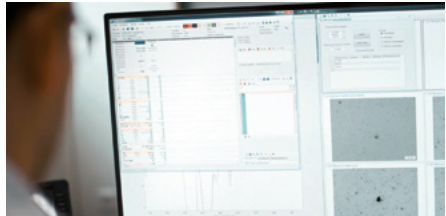
The Sample Information Form must be marked „compatibility test“. The OELCHECK lab will then begin by carrying out the same tests conducted using analysis kit 2.

Air release time, foaming tendency, water separation, and water content are also determined.

In addition, experienced OELCHECK tribologists also assess whether the oils are compatible with one another, and/or what problems may arise from mixing them.

Checking hydraulic fluids and their compatibility

Analysis kit 2 is generally recommended for the



routine testing of mineral-based hydraulic oils from systems with capacities of up to approximately 1,000 litres. In order to assess larger oil charges, or in the case of synthetic oils, analysis kit 4 should be used, which in addition to the following analysis values also determines exact water content in ppm and acidity as AN.

The scope of analysis of set 4 includes:

- Wear metals: iron, chromium, tin, aluminium, nickel, copper, lead, and manganese
- Magnetisable iron: PQ index
- Additives: zinc, phosphorus, sulphur, silicon (anti-foam), calcium, magnesium, barium, boron, molybdenum
- Contaminants: silicon (dust), potassium, sodium, lithium (lubricating grease), water (over 0.1% measured with IR spectroscopy and using a „crackle test“)

- Oil condition: viscosity at 40°C and 100°C, viscosity index, oxidation using FT-IR, odour, and visual impression (diesel effect)
- Oil purity: purity class in accordance with ISO 4406 (particles >4 µ, 10µ, and 14 µ).

Use of additional „individual tests“ (please note: these require a larger quantity of oil) allows compatibility to be assessed more thoroughly still. A precise examination of the system is however always of decisive importance, as a lab analysis does not allow the actual circumstances to be established in detail.

Air release time

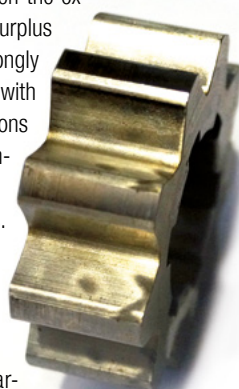


All oils contain air – fresh hydraulic oil contains approximately 9 vol. %. The amount of air that an oil is able to absorb is influenced among other factors by the oil temperature, oil type, viscosity, system pressure, additives, and mixture. The dissolved air itself does not normally cause any disruptions to operation. On the other hand, massive problems can be caused by air release time that is increased in comparison to fresh oil by impurities and oxidation products.

An increased percentage of undissolved air in the form of mostly visible air bubbles can lead to the „springing“ of the oil charge. Exact control and positioning is then no longer possible. In the vicinity of the hydraulic pump – the component with the highest temperature in the circuit – increased quantities of undissolved air become separated. This can lead via implosion to **cavitation**, and in turn to the removal throughout the circuit of material from the components of hydraulic pumps or engines.

In addition, the oxygen-containing air bubbles can also cause the „**diesel effect**“, which is often noticeable in its advanced stage from the darkening of the oil colour by carbon particles (soot).

This effect arises when the oxygen present in the surplus air bubbles is so strongly compressed together with the surrounding carbons of the oil that a spontaneous combustion of this mixture occurs. The relatively small oxygen content results in incomplete combustion and the formation of soot par-



Cavitation damage in a hydraulic gear pump

ticles, as found in a diesel engine. This introduces fine black particles into the oil which can also be found in the filter. Incidentally, air release time cannot be improved with additives – they can only be made worse.



Left: fresh hydraulic oil, right: following the „diesel effect“

Foaming tendency

Foam occurs on the surface of oil charges when air bubbles of a few µ to 1 mm in size separate from within the interior of an oil tank charge, rise to the surface, and then fail to immediately burst or disintegrate. These then form a stable **foam layer on the oil surface**. Foam formation is influenced by the surface tension of the oil, by operating temperature and its effects on viscosity, and by the air intake method. Mixtures of oils of different compositions, impurities, and also oil oxidation can cause an oil to foam more strongly.



Surface foam in a gear unit

Oils are often designated as miscible. This does not mean, however, that oils are always truly „compatible“ with one another. When a PAO-based oil is mixed with a detergent HLP hydraulic oil, or a saturated ester-based bio-oil is mixed with an unsaturated ester, the surface tension of the fluids is altered. It is also possible for differently formulated oils in which foaming tendency has been improved by the addition of silicone-containing additives to change their foaming tendency when mixed, which can lead to the emergence of foam from all possible openings.

For most systems, a foam layer up to 5 cm high presents no issue. Problems arise, however, when a sudden increase in foaming tendency is observed. In these cases, the surface foam can act as an insulating carpet, reducing heat dissipation, or flow from openings in the system. In addition to polluting the environment, the resulting loss of oil can lead to insufficient lubrication.

The more active EP and AW ingredients an oil contains as additives, the more likely it is to form surface foam. Anti-foam additives, which are mostly silicone-based, are added to the oil during production. When mixing oils containing different additives, special caution is recommended in the case of oils with significantly different silicon contents. Even if the oils are approved for the same purpose or meet the same specifications, this does not mean that they will exhibit the same foaming tendency when mixed. Even mixing an oil containing only few additives with an oil that contains many often leads to increased foam formation. In specific cases, the problem can be avoided by adding an anti-foam additive provided by the oil manufacturer. In the majority of cases, however, OELCHECK tribologists are obliged to urgently recommend a complete oil change.

Water separation

Contamination of a hydraulic oil with water is one of the most common causes of damage. Whether it enters the hydraulic system as condensate, as rain, or during the high-pressure cleaning of systems, water accelerates corrosion and cavitation.

Its strong polarity and significantly contrasting density mean that water normally separates quickly from oil. Separation may however be negatively affected by additives and impurities. An excess of water – in hydraulic systems, over 500 ppm – should separate quickly from the oil, allowing it to be diverted to the deepest part of the tank so that it does not participate in oil circulation. For HLP hydraulic oils, the hydraulic oil standard specifies a maximum water separability of 30 minutes. Modern water separators then enable the water to be removed from a hydraulic tank in such a way that none of the potential forms of damage occur.

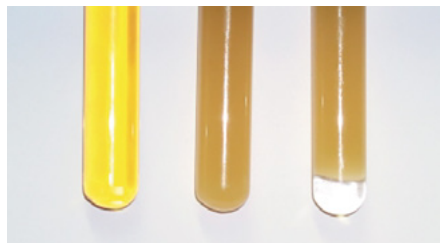


Water is one of the most common causes of damage to hydraulic systems

For hydraulic oils used in construction or agricultural machinery, on the other hand, an opposite effect may also be desirable. The oils in these machines should not deposit the water quickly in the manner of demulsifying fluids, but should instead have a dispersing and detergent effect (HLP-D oils). These must ensure that moisture that has penetrated into the system through hydraulic cylinder movement is neutralised in microdispersed form and suspended.

Filterability

Alongside water, failures in hydraulic systems are most frequently caused by hard contaminants in the form of dust or wear particles.



Hydraulic oil with different water contents. Left: fresh oil, water content 250 ppm. Middle: water content 1,500 ppm – clear oil turbidity. Right: water content 30,000 ppm (3%) – some of the water has already separated.

Hydraulic systems therefore require filters in order to function properly. These ensure that the entire system is able to operate, as well as enabling the longest possible service life for its components and oil. Modern hydraulic fluids must demonstrate good filterability. The average pore width of filter media was previously 10 to 20 μ . Today, however, the filters fitted in these systems have a pore width of 3 to 12 μ .



Hydraulic oil with emulsified water

Lab data on the filterability of an oil describe its behaviour when flowing through a filter. In the event that excessively short filter lifespans are noted following a change of oil or filter, the test results of the used oil should be compared with those of the fresh oil. In practice and in laboratory tests, the oil responsible for the problem often leaves dark, sticky deposits on the filter medium or has a low oil purity. The cause may lie in a differing additive content, or in the differing base oils of the mixed oil types. Filterability testing will ultimately provide information on the cause of the poor filterability and short filter lifespan.



Conclusion

Hydraulic fluids are miscible with one another – with the exception of PAG-based hydraulic fluids. Whether oils which the manufacturer has designated as miscible are also compatible with one another, on the other hand, can only be established by thorough laboratory testing.

To this end, alongside constituent additives and base oils, such characteristics as foaming tendency, air release time, water separation, and filterability must also be examined. In the event that a problem with a hydraulic system caused by mixing incompatible oils does occur, an oil change is generally the only available solution.

Do you have questions about a possible mixture, or about our compatibility tests?

Our OELCHECK tribologists will be happy to advise you.



QUESTION TIME

With the entry of the new General Data Protection Regulation (GDPR) into EU law this year, data protection is the subject of widespread discussion. As it holds my machine and sample data together with my customer data, OELCHECK is entrusted with a large amount of my important information. How safe are my data with OELCHECK?



OELCHECK:

We use and process your data in accordance with established EU law, whilst also meeting the new requirements placed upon us by the GDPR. We have put a great number of measures in place in order to guarantee that your data are safe with us. Our company Data Protection Officer documents and schedules all of these measures in our central data protection management system. We also carry out continuous internal audits in order to ensure compliance with our specified standards. In order to enable you to conveniently register machine and sample data and access the results of analyses, we have placed our LAB.REPORT Internet portal at your service. This is accessed securely by password, ensuring that each user is only able to view and modify their own data after logging in. In addition to password-protected access, our customer portal – just like our online

shop – uses HTTPS-encrypted connections. We generally only gather data that we require to process orders and provide our services. No data is accessed by third parties at any time.

The secured WLAN that we provide for our guests is separate from our internal network, and can only be accessed using a temporary access code. In addition, relevant rooms, such as those containing the servers, are only accessible to authorised personnel. Furthermore, in the event that we print a document for internal purposes that includes a customer address (e.g. a Sample Information Form), these printed documents are kept in a locked shuttle container in accordance with DIN 66399, and are professionally disposed of by a data disposal firm on a regular basis.

We use encryption software which helps to minimise the likelihood of unwanted changes to files containing personal data. An activity log allows us to keep track of any entry, alteration, or deletion of personal data within our CRM system. Any analyses are carried out strictly according to necessity. Transmissions of analysis results are also analysed and evaluated where necessary in accordance with communication protocols.

Our employees are regularly made aware of the importance of data protection (e.g. using informative emails). This is because we can only guarantee protection for your data by ensuring that each individual plays their part.

We have also put various measures in place to ensure that our system remains operational in the long term. To this end we monitor important IT systems and system statuses for availability and utilisation of capacity. Through continuous main-

tenance, we ensure that our technical systems are kept up to date in order to guarantee operational security. We carry out important updates regularly and in a timely manner. We secure our systems continuously according to a multi-generational principle. Our operational data and backup data are separated by firewalls so that not all data are lost in the event of an emergency.

Finally, it should be said that the information we receive from you is not only sensitive data that should not fall into the wrong hands, but also a vital component of the work that we do. It would not be possible for us to produce trend analyses without being able to save analysed values and the diagnoses derived from them in a long-term and reliable fashion.

We value and protect your data just as we do our own, because your data are important to us.

Important information

The new General Data Protection Regulation also stipulates that consent to receive newsletters and other informational material must be renewed. If we do not receive this consent from you, then you will no longer receive this newsletter from us.

By subscribing to the OELCHECK newsletter now on our website, you can ensure that you will always receive the latest information from the world of lubricant and operating fluid analysis!

**Do you have any questions about our data protection policy?
Contact us by email (datenschutz@oelcheck.de) or by fax (+49 8034/9047-47).**



Nov. 13-18, 2018
Hannover, Germany

Visit us!
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