

Specialists

Lubricating greases are highly complex all-rounders and are applied in the most various industries. → Page 7

Product News

New arrivals to the ADDINOL range. We provide the optimum solution to any lubrication-related challenge. → Page 8



THE ART OF OIL · SINCE 1936



➤ **Guaranteed crisis-free: ADDINOL FoodProof Lubricants for the food, pharmaceutical and cosmetics industries**

Food is a basic human and animal need. This makes the production of foodstuffs and luxury foods an extremely crisis-proof industry. Over the last century, there has been a rapid development, in particular in industrial nations, from self-sufficient artisan production towards a technological process of mass production. Today, the production of foodstuffs, as well as the production of drinks, fodder, pharmaceuticals and cosmetics, is among the key industrial sectors in many countries worldwide.

Special usage conditions

Ultra-complex machines and systems that involve a series of special requirements are used in the individual industrial sectors. The lubricants used in these systems must lubricate, cool, seal, clean and protect against friction, wear and corrosion. In addition to these basic tasks, which ensure the smooth and reliable operation of the systems, the lubricants must also comply with the special usage conditions. High stresses, short downtimes, extreme temperatures and aggressive ambient conditions are all on the agenda.

Special requirements

Consumer safety is top priority. Before lubricants can be used in production or packaging processes, the base oils and additives must be tested particularly critically. All ingredients used must have no impact on health and must be odour-free, tasteless and contain no allergens. Beyond the regulations of the NSF H1 certification, they must meet other, usually stricter, national or even religious requirements.

From September 2017, the FoodProof range from ADDINOL will offer an extensive and new range of high quality lubricants for gear units, hydraulic units, chains and compressors in systems used in the production of foodstuffs and fodder, drinks, pharmaceuticals and cosmetics. These lubricants meet and exceed all technical and food law requirements.



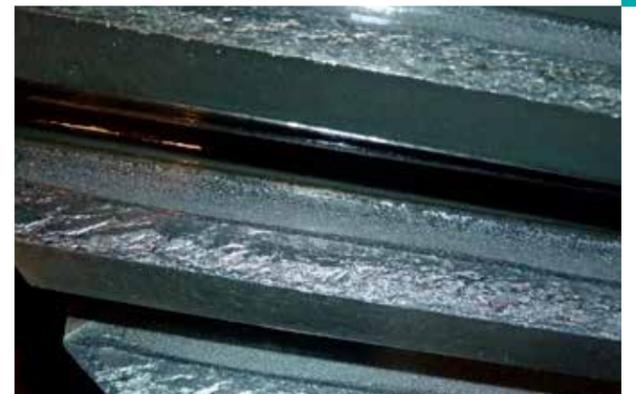
ADDINOL Gas engine oils – Equipped for the technology of the future

The use of gas engines for the generation of energy has undergone a global boom in recent decades. The progress in engine design is advancing quickly and brings about constantly increasing demands for the gas engine oils used. → Page 3



80 years ADDINOL – A story of success

ADDINOL looks back on 80 years of successful company history. We take you on a journey into the past and venture a glimpse on milestones and achievements. → Page 4 and 5



Gear unit damage SOS – ADDINOL Eco Gear to the rescue

The production of cement entails enormous temperatures and forces. Not an easy case for plant components and the lubricant applied. However, ADDINOL Eco Gear masters such challenges without any difficulty. → Page 6



Editorial

Georg Wildegger

Management
ADDINOL Lube Oil GmbH



Shaping success together

Whether companies want to or not, they must constantly adapt or they will not remain successful in the long term. Often, it is easier to imagine and cope with the changes in theory than in practice, but plenty of businesses have lost out because decisions were made too late or restructuring was not taken into consideration at all. The history of ADDINOL Lube Oil GmbH too stems from continuous changes, which have shaped the development of the company since it was founded in 1936.

Until now, the entrepreneurial thoughts and actions of ADDINOL Lube Oil GmbH have been strongly shaped by external changes and influences – always combined with a decision to keep going as before or to follow new paths, even if they seem at first to be full of uncertainty and risk. As far as I, as managing director of ADDINOL Lube Oil GmbH, can see in the company's history, no changes have ever been implemented based solely on a decision by the management alone to change course. Above all else, it is the people who make up the company – i.e. our employees and business partners in Germany and worldwide – who must understand, support and jointly promote changes of course.

This also applies to the global network of ADDINOL sales partners. Their personal commitment represents the brand and the company ADDINOL in their respective countries. Their ideas and visions open new channels for further expanding products and markets. New partners benefit from the experience of long-standing partners. In light of this, we are not only interested in offering our sales partners extensive technical support for the entire product range, but also in creating a platform for new relationships and jointly developing innovative approaches. "Old hands," such as Tiina Suija, who can already look back on 25 years in the lubricants business as managing director of ADDINOL Lube Oil OÜ in Estonia, and new sales partners, such as Niclas Edqvist and Jan Wihlborg from Oljegruppen AB, who joined ADDINOL in Sweden almost two years ago, can benefit from this equally.

Ideas, visions and changes are contributed and implemented by the people at ADDINOL. They ensure the necessary, constant progress of ADDINOL Lube Oil GmbH – and have been doing so successfully for more than 80 years.

ADDINOL – Our partners and their passions



MZA calls home

Between June 30th and July 2nd the second international SIMSON get-together took place at the airfield in Suhl-Goldlauter under the fitting motto "Come home!" After all, 5.5 million vehicles rolled off the production line in Suhl. Even 27 years after the "Wende" the cult is hardly on the wane and at the first weekend in July about 4,500 fans from all over Germany and beyond followed the call of MZA. In addition to popular and well-established events there were some new highlights on the programme as well ...



Estonia is teaming up in motocross

Our Estonian subsidiary ADDINOL Lube Oil OÜ has taken avid interest in motor sports for many years and is official sponsor of the Estonian Motocross Championship. In February 2016 they took the next logical step and presented their own motocross team under the name PMC ADDINOL Honda Racing to the public during the International Tallinn Motor Show ...



... The company MZA Meyer-Zweiradtechnik GmbH is the official licensee of the brand SIMSON and long-standing distributor partner of ADDINOL. Absolute bestsellers are ADDINOL Pole Position High Speed 2T for motor sports and the new collectors' edition of the transmission oil series. The successful sale of spare parts of SIMSON and the original lubricants made in Leuna even calls for an expansion of the premises. By enlarging storage capacity MZA wants to meet logistic shortages caused by the increasing demand.



... The first year of the cooperation was spent by exploring new terrain together. In 2017, the season is in full swing now. Before, the team had no experience at all with the brand ADDINOL. After 18 months of collaboration they are absolutely thrilled and put their full trust in the lubricants made in Leuna. The products are even sold and used in the Honda Off-Road representation and service throughout Estonia.



Öl aus Böhl lubricates new blood

Öl aus Böhl, active in the Audi A3 Quattro Community, has a heart for fast cars. He has chosen a very special project for his commitment. With GreenLion Racing he supports the team of the Bergische Universität Wuppertal, Germany in their participation at the Formula Student – THE international design competition of future automotive engineers ...



... Since 2015 the team has been using lubricants made in Leuna for their prototypes: everything from engine oils over sprays and function fluids to cooler protection is being applied. The support for the optimum selection of the right lubricants is included of course. And thanks to the expert advice from Leuna many a question could be investigated and discussed already.



ADDINOL Central Europe is in love with the puck

The heart of the ice hockey nation Czech Republic is not so much beating for hot wheels but rather for cold ice. As enthusiastic fan Zbynek Vlna, the general manager of ADDINOL Central Europe s.r.o., is absolutely committed to ice hockey. Being an active player he is also dedicating himself to young talents of the team OLH SPARTAK SOBESLAV as coach and supporter ...



... Of course, there is a billboard in the home and training stadium of the traditional local club sponsored by ADDINOL. Our partner also organized the jerseys for the team. And every year they host a hockey tournament inviting teams from all over Czech and from Austria even to fight for the trophy and further prizes.



Equipped for the technology of the future with ADDINOL Eco Gas 4000 XD

For the first time ever, in 2013, more renewable energy plants were constructed in the world than coal and nuclear power plants together, measured by power plant output. Instead of a few large power plants, millions of smaller plants will produce energy in the energy sector of the future. The producers are often also the users of the electricity or heat they produce. This is an opportunity not only for regions in which there is still no established infrastructure for electricity. Rather, private households and companies in industrial countries can also make greater use of their own small power plants, in order to be independent and to reduce electricity and heating costs.

The use of CHPU with gas engines has undergone a global boom in recent decades in the field of renewable energies. Thanks to technological progress, these plants have become increasingly energy-efficient and thus also more cost-efficient. Today, electrical efficiencies of more than 48% are the state of the art for megawatt plants. The development of engine technologies and lubricants as a fluid design element go hand in hand. In some cases, progress in engine technology was only possible in the first place due to the increased performance of gas engine oils.

Product innovation ADDINOL Eco Gas 4000 XD

Following notable successes with ADDINOL MG-40 Extra Plus in the field of contaminated special gases in past years, our research and development department has now scored another coup. ADDINOL Eco Gas 4000 XD is the latest gas engine oil in this successful product range and is specifically customised to the latest engine generation for the use of natural gas and purified special gases. A necessary step forward, according to product manager Sven Köhler, if we want to guarantee reliable and stable operation with our product range even for the most recent of gas engines.

New operating conditions under control

To continue to achieve improved performance data while meeting simultaneously stricter emission standards, manufacturers are turning to new piston designs or changed geometries in the combustion chamber, which bring conventional gas engine oils to their performance limits.

ADDINOL Eco Gas 4000 XD relies on a new additive technology to meet these requirements. It achieves greater thermal-oxidative stability and thus delays oxidation and the consequences of oil ageing. Even with purified special gases, the entry of acidic components cannot be completely ruled out. In this case, ADDINOL Eco Gas 4000 XD's stable alkaline reserve effectively neutralises the acidic components and minimises the risk of corrosive wear.

Thanks to high-quality base oils, evaporation losses are also significantly reduced for ADDINOL Eco Gas 4000 XD, and the balanced additive package effectively reduces deposits

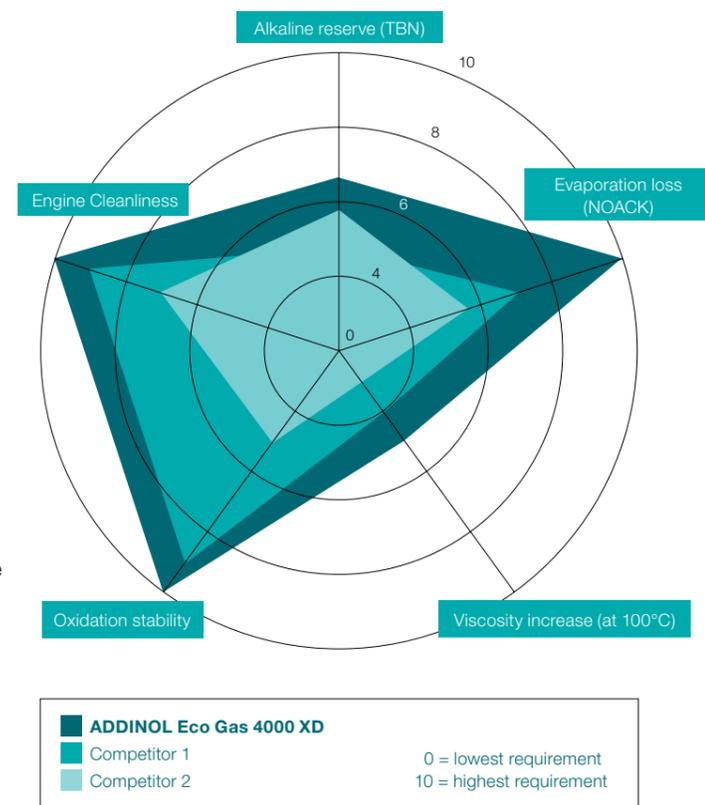
on valves, pistons, piston rings and liners. This, in turn, shortens spontaneous downtimes and minimises failures and contributes to the efficiency of the system. Thanks to the high engine cleanliness, an extended engine life and thus an extended life of the entire system is guaranteed.

Longer oil use for your business

Despite more difficult operating conditions, ADDINOL Eco Gas 4000 XD guarantees a stable lubricant film and, in comparison to conventional gas engine oils, a longer oil change interval. In countless field tests by internationally recognised engine manufacturers such as MAN, MWM, MTU Onsite Energy, Caterpillar or Tedom, ADDINOL Eco Gas 4000 XD achieved outstanding results. The oil has long been setting new standards in countless applications. Thus, by switching to ADDINOL Eco Gas 4000 XD, it was possible to significantly extend the oil change intervals of a natural gas-operated MAN engine, with just a 25 litre oil capacity, which is responsible for the energy supply in a welfare facility in Germany.

ADDINOL Eco Gas 4000 XD has also already proved its worth when operated with purified special gases. For example, a German agricultural association was able to visibly increase the oil change interval of its MWM TCG 2016 C V12 engine (100 litre oil volume) by switching to ADDINOL Eco Gas 4000 XD. In addition, operating reliability for the engine and thus the entire system was also increased. Thanks to the expert evaluation of the oil analyses by the engineers from ADDINOL applications engineering, the oil change intervals have been significantly extended while adhering to the threshold stipulated by manufacturers.

With ADDINOL Eco Gas 4000 XD, we reliably meet the requirements of modern engines with high efficiencies, according to product manager Sven Köhler. In addition, the constant support by our ADDINOL analysis service helps businesses to achieve maximum reliability while complying with the warranty conditions of the OEM and machine failure insurance policies. Maintenance intervals can often be significantly optimised when using ADDINOL Eco Gas 4000 XD. This also means significant cost savings for the operator alongside reliable operation of their plant.



The combination of innovative additive technology and high-quality base oils significantly improves the oxidation stability and neutralisation capacity. Longer oil service lifetimes and higher plant availability enable the optimisation of maintenance intervals with maximum reliability for the gas engine.



Field test engine MWM TCG 2016 V12 C, final diagnosis after 6000 operating hours – Piston head free from deposits



Field test engine MWM TCG 2016 V12 C, final diagnosis after 6000 operating hours – Cylinder head with valves (ignition area): Minimum deposits only without negative effects on valve sealing



Field test engine MWM TCG 2016 V12 C, final diagnosis after 6000 operating hours – Spark plugs: Very clean, thus guaranteeing the best possible distribution of ignition sparks and thus optimal combustion of the gas mixture



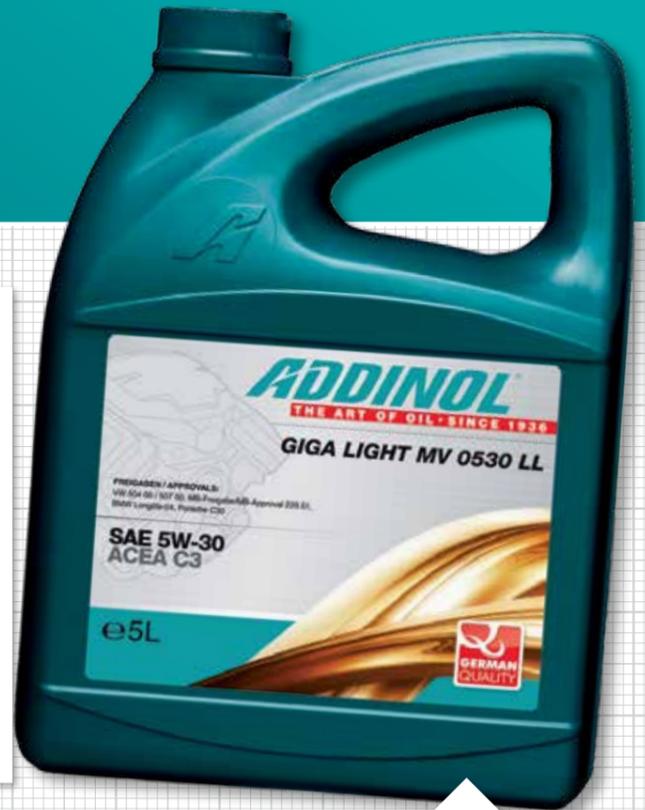
Production capacity
75,000 t fuels &
50,000 t lubricants



© Mineralölwerk Lützkendorf

1949
Leading lubricant manufacturer in the GDR

Back then the famous Trabbi was almost a symbol for the whole country. However, the two-stroke engine oils needed for this car only made up a small share of the production at the Mineralölwerk. On the GDR roads there were also vehicles from western countries after all. The Mineralölwerk produced engine and transmission oils for cars from “the West” meeting international specifications at that time already.



Today
The all-rounder for workshops

ADDINOL Giga light MV 0530 LL is a fully synthetic Low SAPS engine oil of the new generation. It possesses approvals of leading vehicle manufacturers at the highest performance level. On top of that, the high-performance engine oil exceeds the specification ACEA C3.

1936

The year of foundation

In Krumpa, not far away from today's site, the ground-breaking ceremony for the former Mineralölwerk Lützkendorf takes place. In just a few years one of Germany's largest refineries develops. The plant covered the impressive area of 25 km² and soon took the lead in the production of fuel and lubricants by synthesizing brown coal.



© Bundesarchiv Gahlbeck, Friedrich



Today

ADDINOL pursues the tradition and develops innovative high-performance lubricants building on comprehensive experience of previous years. The laboratory at the site in Leuna is equipped with most modern analyses instruments and selected technical testing facilities for in-house tests.

1936

1946

1956

1966

1976

© Mineralölwerk Lützkendorf



1939
Innovative strength

The research & development department has a huge share in the company's success since the very beginning. The first large in-house laboratory was opened in 1939. In 1960 a scientific-technical centre was established as leading scientific institution for mineral oils in Europe.



2007

Expansion

In summer 2007 the extended production facilities and logistics centre are officially opened. Additional tanks, warehouses and production lines are established. An in-house batch blender for producing viscosity index improvers starts operation.



Today Solutions for new technologies

Renewable energies are on the rise. The generation of energy out of resources such as wind, water or biomass entails difficult conditions and highest loads for the respective plants. This calls for high-performance lubricants, which are specifically tailored to the particular requirements.



Especially for toothings and bearings of highest surface finish employed in wind turbines we have developed a completely new gear oil in close cooperation with leading gear manufacturers. ADDINOL Eco Gear W featuring the innovative "Advantec Formula" demonstrably increases efficiency of gears and thus contributes to overall energy efficiency.

Our gas engine oils ADDINOL MG 40-Extra Plus and MG 40-Extra LA have been ensuring the trouble-free run of plants making use of biogas, landfill, sewage, mine as well as natural gas. The latest addition to this product family – ADDINOL Eco Gas 4000 XD – has been designed to meet the requirements of modern plants being operated with natural gas. All products of the ADDINOL gas engine oil range achieve optimum application intervals, highest engine cleanliness and reliable neutralisation capacity.

1986

1996

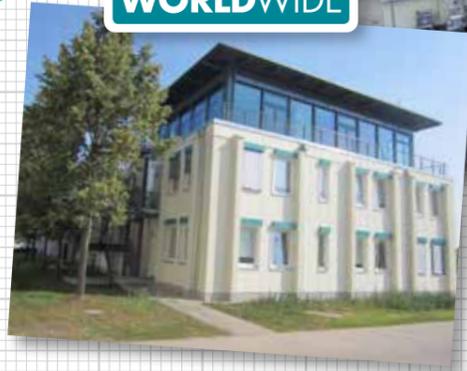
2007

2017

1990 – 2000

Additives in Oil

After the reunification of Germany the company changed its name to ADDINOL, which had been the name of the most famous brand of the former Mineralölwerk Lützkendorf. In 2000 the new headquarters at the chemical site in Leuna are opened.



ADDINOL continues to grow

The ground-breaking ceremony on April 26th, 2016 for the extended central office building was the starting point for numerous changes in administration and production. Not only urgently needed space were provided but also new meeting and conference facilities in order to meet the growing demand for trainings carried out by the engineers of application technology. Changes in production facilities enable an increase of production capacity as well as optimised production processes. These measures meet the growth in the range of special lubricants in particular.

new cans!





Gear unit damage SOS in the Portlandzementwerk, Erwitte – ADDINOL Eco Gear M to the rescue

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Portlandzementwerk Wittekind in Erwitte, North-Rhine Westphalia produces approximately 2,500 tons of cement clinker a day at its plant. Limestone and clay are used as the raw materials for cement production. Extracted from quarries, the coarse stone blocks are broken down in crushing plants at the cement works. For further processing, the Wittekind cement works maintains one rotating furnace and ten shaft furnaces in which the raw powder is heated to approximately 1,400 °C to 1,450 °C. At these high temperatures, the raw powder begins to melt (sinter) and becomes cement clinker. Depending on the cement type, the cooled material is ground with other components, such as gypsum, in the cement mill to create the finished product, the cement. For this, the drum in the mill is rotated horizontally. Inside the cement mill, the grinding bodies, often cast metal or steel balls, and ground material come together and the ground material is crushed.

Many ADDINOL high-performance lubricants are custom-made and, in some cases, are the only reason why some applications are even possible. This is true of the gear oils from the ADDINOL Eco Gear range, which were specially designed for industrial gears. Where conventional gear oils do not adequately counteract wear and where difficult operating conditions can lead to micro-pitting, pitting and, as a result, broken teeth, ADDINOL Eco Gear S and M are used as problem solvers. The use of Eco Gear M successfully prevented significant damage to the gear unit and replacement investments amounting to approximately EUR 700,000 at the cement manufacturer Portlandzementwerk Wittekind Hugo Miebach Söhne KG from Erwitte.

In the Portlandzementwerk Erwitte, the cement mill is operated with a Symetro gear unit type TS 1700B from F. L. Smidth & Co. A/S and is used for approximately 7,000 hours a year. The gear unit, with coated toothings, was mounted on anti-friction bearings and was operated with a conventional mineral gear oil (CLP) from a competitor. In the course of operation, all gear wheels were turned towards the until then passive gear flanks. After a runtime of over 10 years, however, progressive pitting was repeatedly ascertained at all gear stages of the cement mill. Due to the damage, the operator worried about failure of the gear unit and consulted the experts at ADDINOL. As Hans-Joachim Haak, consulting engineer for high-performance lubricants, knows from many years of experience: "People often react too late. Then even almost new gear units can be at risk of wear".



At the recommendation of Mr. Haak, the inspection cover at the Wittekind cement works was first expanded into an opening in the upper section of the housing, in order to enable entry into the inside of the gear unit and thus be able to inspect the gears up close.

Inside the gear unit, the gearing was inspected, the damage indications and the roughness of the flanks were recorded. The inspection showed that the surfaces of all load-bearing gear flanks were rough and cracked. The conventional CLP gear oil previously used was obviously unable to form a stable lubricating film under the high loads and could not provide adequate protection against wear. The impact loads and abrupt forces that occur in the cement mill during the milling process affected the gear unit and the lubricant in equal measure. A millimetre-thick layer of metal chips on the floor of the gear unit provided evidence of the inadequate load-bearing capacity of the previously used lubricant.



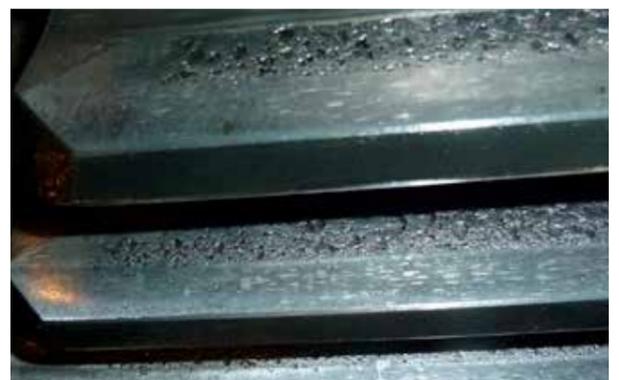
Gear unit inspection from inside



Deposit of metal chips on the gear unit housing floor

If the gear oil used is unable to form an adequate lubricating film, shearing stress on the gear flanks will lead to cracks under the surface. If the lubricating film permanently tears away, the cracks under the surface will progress, combine, and visible pitting on the surface of the coated, load-bearing gear flanks will occur. The sharp-edged breaks have an adverse effect on the gear flank shape and thus the gearing dynamics. In addition, the roughness of the gear

flank surface facilitates metallic contact between the friction pairings if there is an inadequate lubricating film. The wear continues and can result in failure of the gear unit due to bearing damage, since metal abrasion is "dragged" through the bearing together with the oil.



Detailed image of a pinion flank before conversion to ADDINOL Eco Gear 320 M

To enable continued operation of the cement mill despite the damage to the gearing, the operators opted to convert to ADDINOL Eco Gear 320 M. This high-performance gear oil, which is based on mineral base oil components, adapts to the changing load conditions in the gears of the gear unit thanks to its unique Surftec® technology and significantly increases its load-bearing capacity. The previously damaged gear flanks were smoothed again due to the PD effect or plastic deformation. The flank areas on which the transmission of torques still occurs, are stabilised and the previous progressive course of damage is stopped and converted to a degressive course of damage.

Subsequent inspections were carried out to check whether the high-performance gear oil was able to demonstrate its effect in the long-term in the cement mill's gear unit. The condition of the gear flanks had significantly improved. The sharp edges of the breaks were rounded, smoothing had occurred, and the risk of further wear was eliminated. Since conversion to ADDINOL Eco Gear 320 M, the gear unit has been running steadily and fault-free. The regular oil sampling also confirms the reliable protection against wear on the gearing. Based on the analytically determined wear elements, in particular iron, it was possible to note that the use of ADDINOL Eco Gear 320 M had resulted in a measurable reduction in wear elements. Since the oil change at the end of January 2012, the gear unit has worked problem-free for over 35,000 operating hours with the ADDINOL high-performance gear oil.

The ABC of grease lubrication



NSF registration and transportability in central lubricating systems are also taken into consideration. All these factors determine which lubricating grease is used in a specific application. In addition, questions regarding material compatibility and mixability with previously used products must also be considered.

Special case of high temperatures

Not every grease is suitable for lubrication under extreme operating conditions. In particular for long-term lubrication at temperatures greater than +200 °C, greases must exhibit special characteristics. As a combination of PFPE oils and the thickener PTFE, ADDINOL inert greases **ADDIFLON Super 2 EP**, **ADDIFLON PFPE Premium XH 1 and XH 2** as well as **ADDIFLON PFPE Premium FD 2** are ideal for use at temperatures up to +280 °C. They are very high-performing in a wide temperature range and, thanks to high thermal-oxidative stability and low evaporation loss, achieve above average usage times. Therefore, in addition to their use in the high temperature range, inert greases are also used at moderate operating temperatures in order to achieve significantly longer regreasing periods in comparison with conventional greases. They offer reliable protection against wear under high loads and have an outstanding load-bearing capacity and high shearing stability. Thanks to their insensitivity to water, alkaline solutions, acids and organic solvents, they can be used in many industrial applications.

Leading roller bearing manufacturers estimate the share of roller bearings operated with grease lubrication to be over 90 %. In this area of application, lubricating greases are therefore extremely important. In addition, greases are also used to lubricate sliding bearings, gear units, linear systems and taps. But what constitutes a lubricating grease?

Formulation of lubricating greases

Lubricating greases are semi-fluid to solid lubricants, which are produced through the addition of a suitable thickening agent to a liquid base oil. Both the type of the thickener and the type and viscosity of the base oil used influence the performance parameters of the ultimate lubricating grease. Certain characteristics of a lubricating grease can also be specifically improved through the addition of additives and solid lubricants. This concerns in particular the ageing stability, protection against corrosion and wear and the load-bearing capacity.

Typical lubricating greases contain 70 to 95 % base oil, 3 to 30 % thickening agent and 0 to 10 % additives. If solid lubricants are contained, their content is not greater than 10 %. If the content of solid lubricants is greater than 40 %, we refer to a paste. Pastes are preferred for use with very slow movements, or if there is no movement, and are ideal for extreme pressures and high temperatures.

Consistency of lubricating greases

Lubricating greases can be produced in various consistencies, depending on the quantity of thickening agent added. The consistency is a measure for the plasticity of a lubricating grease and determines its strength and smoothness. It is specified in NLGI classes. I.e. it is not the base oil viscosity but the content of thickeners that determines the NLGI class of a lubricating grease. Greases in NLGI classes 1, 2 and 3 are typical roller bearing greases. Greases with higher consistencies in the NLGI classes 4 and 5 or in the highest NLGI class 6 (or block greases) are barely used today.

Tasks of lubricating greases

Lubricating oils, in addition to their lubricating function, also help transport away temperatures and impurities from the lubricating point. By comparison, the more complex lubricating greases have the following tasks:

- › Protection against corrosion
- › Protection against impurities
- › Cushioning of impact loads, damping of noises and vibrations
- › Reduction of friction

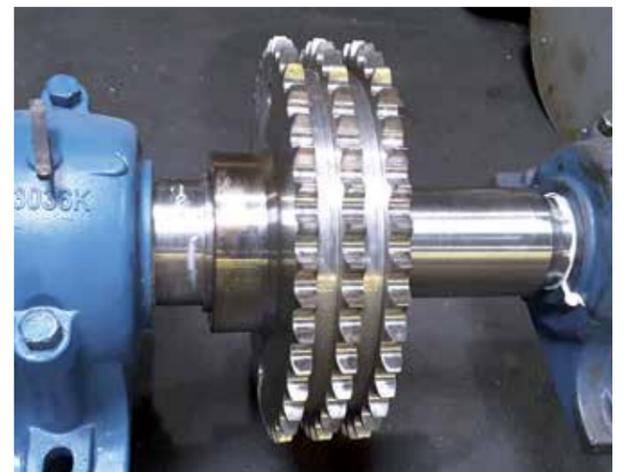


Lubricating grease consistencies are determined by the worked penetration in accordance with DIN ISO 2137.

The right lubricating grease for every application

Although there are universal greases that can be used in many different ways, there is no "grease for all applications". The lubricating greases used are just as versatile and complex as the application areas in industry, construction, automotive engineering and agriculture.

When selecting a suitable lubricating grease for a specific application, conditions such as temperature, speed, loads and lubricating periods are crucial. In addition, application-specific requirements such as biodegradability, water resistance,



The Märkische Faser GmbH in Premnitz, Germany manufactures polyester fibres. In the plant nine roller works form a fibre train unit. Steam passes through quill shaft and rollers and heats the unit to temperatures up to about 180 °C. The bearings of this unit are exposed to high thermal and mechanical loads. These are ideal conditions for ADDIFLON PFPE Premium XH 2. The plants are running without any problems and the Märkische Faser GmbH as well as the responsible partner Öl & Filter in Trebbin are completely satisfied.

Component	Base oil	Thickening agent	Additives	Solid lubricants
Content	70% – 95%	3% – 30%	0% – 10%	≤ 10%
Ingredients	Mineral oil Paraffinic Naphthenic White oil Synthetic oils Polyalphaolefin Ester Polyalkylene glycol Silicone oil Perfluoropolyether Compositions of mineral and synthetic oil Plant oils	Soaps Na, Li, Ca, Al, Ba Complex soaps Na, Li, Ca, Al, Ba Organic Polyurea Polytetrafluoroethylene Inorganic Silica gel Aerosil Bentonite	Ageing inhibitors Corrosion inhibitors Anti-wear additives Adhesives	Graphite Molybdenum disulfide Polytetrafluoroethylene Oxides Phosphates Sulphides Silicates Metal grinding (Cu, Al)

Always ready for high loads – ADDINOL Wear Protect SDE 2

Heavy machinery and equipment used in agriculture, construction and forestry must deliver full power at all times and in all weather. Their components are not only exposed to high and, in part, impact pressure loads and vibrations, but also to humidity and fluctuating ambient temperatures. They therefore need a lubricant with a high pressure-absorption capacity, that reliably protects friction pairings, sliding rails, roller and sliding bearings against corrosion and wear over a long period of use. ADDINOL Wear Protect SDE 2 high load grease is more than capable of meeting these challenges. This special grease with NLGI class 2 is based on carefully selected mineral and synthetic oils and a special calcium soap as a thickener. Even under high demands, vibrations and the impact of water, ADDINOL Wear Protect SDE 2 guarantees stable product properties. It is extremely adhesive and can be used in a temperature range of between -30 and +120 °C.



Ecologically harmless – ADDINOL Ecoplus CA 2

Many applications, in particular in the municipal sectors, but also in agriculture, forestry and construction as well as industry, require lubricating greases that are absolutely harmless on contact with the soil, bodies of water and the sewage system and yet also exhibit stable product properties. Biodegradable ADDINOL Ecoplus CA 2 lubricating grease with NLGI class 2 is based on vegetable base oils and a calcium soap and can be used in a temperature range of between -20 and +80 °C. It is extremely water-resistant and adhesive and reliably protects covers and caps on fire hydrants, sewers, storm drain and surface manholes as well as gas and water gate valves against freezing and corrosion. It can also be used on drill pipes and on roller and sliding bearings under normal loads.



For smooth running – ADDINOL Multi Transmission Fluid 75W-80 & 75W-90

Manufacturers of passenger car transmissions formulate a range of requirements for lubricants. Steady behaviour at low temperatures for smooth starting, soft shifting, maximum load-bearing capacity, reliable protection against wear under high loads as well as long oil change intervals are common to all requirements. The new ADDINOL MTF transmission fluid in SAE classes 75W-80 and 75W-90 exceeds these requirements and can be used universally for passenger cars outside the warranty. The high-performance transmission fluid for manual, synchronised gear units corresponds to API GL-4 and meets the specifications of BMW/Mini MTF LT-1/ LT-2 and Land Rover MTF94, amongst others. Thanks to outstanding thermal-oxidative stability, it ensures clean surfaces in the transmission and achieves a long period of use. Optimum responsiveness even when cold starting, smooth gear shifting and reliable protection against wear are a matter of course.

One for all – ADDINOL Multi Fluid SAE 30 & 40

Many units, e.g in the construction industry, commercial vehicles and marine technology, require lubricants that can be used universally in engines and transmissions, as well as in compressors and hydraulics. Our ADDINOL Multi Fluid SAE 30 and SAE 40 single application engine oils are based on high-quality mineral oil raffinates and innovative additives and meet this requirement. They guarantee high cleanliness in the units thanks to optimal dispersing properties and protect reliably against corrosion and wear, even under extreme loads. In addition, they exhibit optimal friction performance and meet the strict requirements of wet running multi-plate clutches in marine technology. ADDINOL Multi Fluid SAE 30 and SAE 40 are approved for marine transmissions from reputable manufacturers such as Renk, Reintjes and ZF. In addition, they are ideal for use in turbocharged and non-turbocharged diesel engines in mobile and stationary applications, in two-stroke and large diesel engines.



When the going gets hot – heat transfer oil XW 15 HT

Distillation columns, the production of synthetic resins and plastics, heat exchangers in processing facilities, polymerisation vessels, port facilities, the chemical industry – a large number of industrially produced products and production processes need heat. Often a direct heat supply is not possible. In these cases, our ADDINOL XW 15 HT heat transfer oil can be used. In comparison with conventional, mineral products, the synthetic heat transfer fluid exhibits extremely high thermal stability and can be used at a film temperature of up to +380 °C. The systems remain free from deposits and longer usage periods as well as lower top-up rates can be achieved. In addition, synthetic heat transfer fluids have improved coefficients of thermal conductivity, i.e. they achieve optimal heat transfer. The low low-temperature viscosity enables smooth starting and reduced energy consumption. Thanks to the steady flame point, reliable and gentle heating of sensitive and hazardous substances is possible.



The engine specialists

Although ACEA and API are the biggest common denominators of the basic requirements of European or American engine manufacturers, an increasingly striking differentiation between the individual requirements of the individual OEMs can be observed. This trend is reflected in the formulation of engine oils, which must not only comply with generally defined thresholds for harmful emissions and fuel as well as oil consumption, but must also meet specific characteristic values. The ADDINOL Premium range of engine oils stay abreast of this development. With **ADDINOL Premium 0520 FD** and **ADDINOL Premium 020 FE**, two customized, new high-performance engine oils are available. ADDINOL Premium 0520 FD supplements our range for Ford with a fuel-efficiency oil in SAE class 5W-20 for EcoBoost engines, in accordance with specification WSS-M2C 948-B. ADDINOL Premium 020 FE in SAE 0W-20 corresponds to the new VW standard 508 00/509 00. The innovative oils with reduced HTHS viscosity achieve reduced fuel consumption. They have outstanding low temperature properties and, thanks to optimal viscosity, guarantee reliable lubrication in all driving conditions. Increased cleaning capacity and complex protection against wear ensure clean engines and their long service life.

The group from the Upper Palatinate with friendly customer service



Alex Witzsch is responsible for customer support in the field and absolutely content with the new partner.

Quality and customer focus have been the secret to the Bergler family's success in the Upper Palatinate for more than 60 years. In its second generation, this family-run business sets standards and provides its customers from industry, trade and commerce as well as private individuals with a comprehensive service package. Since last year, lubricants made in Leuna have also been added to the product range.

The name Bergler has been a household name in the northern Upper Palatinate since 1949. Back then, Georg Bergler Sr. laid the foundations of the energy supply business when he took over a coal trading company. Under the management of Georg Bergler Jr., the company quickly established itself as a disposal specialist and regional trader in energy and mineral oil. Since 2013, the third generation has been leading the group: Grandchildren Marion, Gerhard and Thomas.

The disposal/commercial vehicles department is a certified specialist disposal business for all waste streams and operates a modern authorised repair shop for the commercial vehicle brands Iveco, Scania and FIAT professional. In addition to professional repairs of engines and gearboxes from all manufacturers, the used car parts and engine services department also offers an online shop for used spare parts. The original line of business in coal trading and the sale of heating oil has steadily developed over the decades and now encompasses the fields of energy trading, fuels, lubricants and petrol stations. This even includes the company's own network of twelve petrol stations in the area between Marktredwitz and Amberg. The group currently employs 450 members of staff in Germany and the Czech Republic

Quality and reliability are writ large throughout the company. The customer, no matter if they are partners from industry, trade or commerce, if they are the municipality or if they are private individuals, is always at the centre. The aim is to offer customers the best possible solution for their requests, with one finger always on the pulse of the latest technical developments.



The company-own fleet of 17 vehicles ensures the reliable and prompt supply of customers in the region.

The lubricants department has existed since 1998. Since 2016, the high-performance lubricants made in Leuna have been included in the extensive product selection, which ranges from automotive lubricants to industrial oils, biodegradable products and lubricants for special applications. The Bergler company was made aware of the lubricant provider from Central Germany by specific customer enquiries about the oils in the turquoise barrel. Their cooperation began with gas engine oils for stationary systems operated with natural gas and special-purpose gas. After all, generating electricity and warmth with combined heat and power units is widespread in this part of the country.

More lubricants from ADDINOL gradually followed. Meanwhile, engine oil and transmission oil for passenger and commercial vehicles, hydraulic fluid and gear oil for industry, and grease have been added to the product range, which is growing fast. Five employees work for ADDINOL both in-house and in the field. Stephan Ertel (lubricants manager) considers the current focus to be industrial lubricants for the food industry and various other sectors. Many large metalworking companies are based in the Upper Palatinate as well as global market leaders in the glass and wood industries.



Active for ADDINOL: Johannes Pecher, Daniel Biebl and Stephan Ertel (from left to right).

Gerhard Bergler is particularly satisfied with the service from Leuna. After all, Bergler and ADDINOL have found

noticeable similarities when it comes to their customer service. Speaking directly to customers, customer focus and quick reaction times are highly valued by both companies. Mr Witzsch (field service) jokes that the only reason to complain might be that there is nothing to complain about! Technical consultation, assistance, order processing and delivery – all processes ensure complete customer satisfaction. The aim is to make the ADDINOL brand even more well known in the region. At present, the company mainly uses regional trade fairs for natural gas and agriculture to connect with customers and potential customers. Success is, after all, always the combined product of high performance and customer satisfaction, according to Bergler. The duo Bergler/ADDINOL provides both, so impressing customers should be easy.

Facts & Figures on the Upper Palatinate

Area: 9,691.03 km²

Location: northeast of the Free State of Bavaria, at the Czech border

Population: 1,092,339

Centre of administration: Regensburg

Languages: High German, Upper Palatine

History: eventful

Climate: continental

Famous sights:

Bavarian Forest, castles and palaces, Walhalla, Regensburg, Weiden, Amberg

Famous people:

Erasmus Grasser, Friedrich V., Johann Andreas Eisenbarth, Christoph Willibald Gluck, Walter Röhl

Agriculture: strong sector

Industry: ore deposits, once heavy industry, tourism, many well-known industrial enterprises around Regensburg, wood processing in the northern region

Growth potential: existing

Trivia: The Zoigl beer and Zoigl pubs are a must-see for every person visiting the Upper Palatinate. It is a way to experience Bavarian traditions and way of life.

Burak – With plenty of horsepower on the Balkan



The brothers Enis and Ediz Çabrati (right and left) in one of their shops alongside their team from workshop and customer service.

Difficult circumstances are no obstacle but rather a challenge to Ediz Çabrati, founder and managing director of the company Burak SH. P.K. in the Republic of Kosovo. In spite of a struggling economy and a difficult political situation, he took his chance and founded Burak back in 1994 as provider of spare parts, lubricants and service for trucks, busses and commercial vehicles. In 2001, Burak became the exclusive distributor partner for ADDINOL lubricants in the Republic of Kosovo and his business has seen quite a successful development since.

Located in Prizren, the second largest city of the Republic of Kosovo, Burak maintains three sales points, one of these including the headquarter, a warehouse and a workshop for trucks as well, covering a total area of 1,500 square meters. Products are delivered through a company-own fleet on a daily basis with four transport vehicles.

Burak is active mainly in the wholesale of spare parts and lubricants; the sales points cater for end customers as well. Today 22 employees work for Ediz Çabrati, six of them are occupied with ADDINOL in sales, customer service and workshop. All of them have broad technical as well as lubrication-related knowledge and experience and provide comprehensive customer support.

With a clear focus on quality products and highest standards Burak offers spare parts of such well-known manufacturers as Bosch, febi bilstein, Hella, Knorr Bremse, MANN Filter, Schaeffler and Wabco, to name only a few. The list of partners is pretty impressive as well. For instance, they have reached bidding agreements for offering original parts from Mercedes-Benz with the distributor in the Kosovo.

Burak is focused on offering goods for all kinds of heavy transport vehicles of prestigious manufacturers such as MAN, Scania, Volvo, Iveco, Schmitz and Kässbohrer as well. On top of that, they are part of "GROUPAUTO International" as the first company from the Kosovo. Groupauto is a network of experts for the distribution of spare parts and services all about passenger cars,

commercial vehicles, trucks and trailers. This organization gathers national groups of independent distributors on a platform of common international strategies. Apart from their strong focus on the automotive sector, they have a number of customers in the industrial field: coal mining and construction industry being obvious partners because of their use of heavy machinery. Besides, they also deliver lubricants to plants in food industry and power supply.

Burak is facing strong international competition and struggles with challenges such as poor fuel quality and old vehicles in their daily work. Their solution: place the customer in the focus, offer comprehensive service and ensure high standards. Loyal customers, for example, get their oil change free of charge. Apart from that, Burak is quite active in the social media channels, publishes news articles, and pushes its automotive products with several sponsoring activities. For example, they sponsor the most famous auto show in the national TV channel: AUTOMAN. Here the most popular lifestyle stars from Kosovo are invited to participate in a carting race during a period of seven months as player for the ADDINOL team.

The aims of Burak are quite ambitious in spite of a poor infrastructure and a struggling economy: achieving absolute customer satisfaction, establishing European standards and advancing development trends in the Kosovo and beyond



Company headquarters including a truck workshop are quite impressive. There are often customer events held on the premises.

Facts & Figures on the Republic of Kosovo

- Area:** 10,887 km² (Smallest country in South-East Europe)
- Location:** heart of the Balkan Peninsula
- Inhabitants:** 1,800,000
- Capital:** Priština
- Languages:** Albanian, Serbian, Bosnian, Romani, Turkish
- History:** quite eventful
- National holiday:** 17th February (Day of independence in 2008)
- Climate:** continental
- Famous sites:** historic city centre and buildings in Prizren, mountain villages, impressive landscape
- Famous people:** Mendi Mengjiqi, Rita Ora, Dua Lipa, Petrit Ceku
- Agriculture:** strong sector
- Industry:** The country is rich in natural resources. Therefore mining is a strong industrial sector (ore, lead, coal, zinc, silver, nickel, cobalt, copper, iron). Apart from that, tourism is a strong industry, as well as food (particularly wine), textile industry and the energy sector. Automotive components industry has specialized in car seats and vehicle parts.
- Growth potential:** trend upwards
- Trivia:** The country is named after the „blackbird field“ (blackbird = kos) near Priština. The people are very hospitable.

on a high level. They cultivate long-term relationships to their partners built on a wide product choice, service and efficiency. As Ediz Çabrati says: "Customers always appreciate optimum functioning of their machines and longevity and that is what we can offer." That is also the reason why he decided to co-operate with ADDINOL: "We appreciate the top-quality and the extensive support provided by the team in Leuna. Both applications advice and order processing are outstanding. Made in Germany is a strong argument here and the expectations coming with this standard are fully met."

Last but not least, social commitment and participation are self-evident parts of being a pioneering entrepreneur for Ediz Çabrati. Therefore, Burak takes part in the campaign "Cleaning Kosovo" and the "Charity Day" for instance.

Over the last years, the business has achieved a stable business development on a healthy level. In 2012 Burak have been involved in the foundation of a second business: ADDINOL Doo in Macedonia. Plans for the future are of course ambitious: Ediz Çabrati and his brother Enis Çabrati as co-owners aim at consolidating the positive trend and further improving service.