



EDITION 20 - 2018

NEWS | PRODUCTS | TECHNICAL HIGHLIGHTS | SPONSORING

LUBEVISION®

Lubevision® is the corporate magazine published by Kroon-Oil B.V.

THE YEAR OF
NEW CHEMICAL
TOOLS

GUARANTEED
KROON-OIL
QUALITY

COOLANTS
À LA
CARTE!

THE KROON-OIL
FOUNDATION
HELPS







+ SUPPORTING
MOTOR SPORTS
TALENT

LUBEVISION®

EDITION 20 - 2018

Lubevision® is the corporate magazine published by Kroon-Oil B.V. that focuses on sharing technical information about lubricants and spreading news about our products and services. Lubevision® is published on an annual basis in Dutch, English and French. You can find back copies of Lubevision® online on our website.

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THE WORLD STAGE AT AUTOMECHANIKA

Kroon-Oil presents itself to you and the world as a one-stop supplier with its new and extensive range of additives.

6



2018 | THE YEAR OF NEW CHEMICAL TOOLS

Kroon-Oil additives

4

KROON-OIL IMPRESSES WITH ITS ECOLOGICAL SOLUTIONS AND ADDITIVES

Automechanika in Frankfurt

6

MEETING YOUR EXPECTATIONS: GUARANTEED KROON-OIL QUALITY

ISO 9001

8

SUPPORTING MOTOR SPORTS TALENT

MP Motorsport | J-Motorsport | Kobus Tuning | Van Loon Racing

9

KROON-OIL CONNECT

High-quality online and business services

10

PRODUCT UPDATE

Kroon-Oil Agri Ultra line | Kroon-Oil additives

14

COOLANTS A LA CARTE!

Top quality coolants with the right specifications

16

THE NEWEST GENERATION OF LUBRICANTS

The Agriculture & Earthmoving Machinery Sector

20

ON YOUR BIKE!

Bicycle care products: Xtreme

22

THE KROON-OIL FOUNDATION HELPS BY SUPPORTING LOCAL INITIATIVES

Social engagement

23

RACING TALENT

Motor sports have been an integral part of Kroon-Oil's DNA for a very long time.

9



ARE YOU READY FOR THE NEXT GENERATION?

The development of ultra-modern low SAPS oils.

20





This is the latest edition of Lubevision®. It's bursting with news and interesting articles about your and our field! Today's complex and modern systems are becoming increasingly reliant on the use of the right types of oil and coolants. As lubricant specialists and one-stop suppliers we are dedicated to guaranteeing the reliability of these advanced and valuable systems to the best of our ability. The latest edition of Lubevision® provides detailed information about how our products contribute to the protection and durability of your equipment.

We have presented our range of oil, coolant and fuel additives on pages 4 and 5. This new range of products is a response to the technical demand for 'chemical tools'. The use of additives may - depending on their properties - result in reduced fuel consumption and/or delay wear and tear as well as resolving any pollution issues. The new Agri Ultra line which was introduced by Kroon-Oil in 2018 promises significant fuel savings. Read more on page 20.

You will also find an in-depth article about coolants on page 16. New demands are being made of modern cooling systems as a result of rapid developments within the automotive industry and changes to engine design. Naturally, car manufacturers use their own metals, sealants and plastics. These are determined by the materials used. Tailor-made coolants have therefore become par for the course rather than exceptions to the rule.

We hope you enjoy reading the 20th edition of Lubevision®. Do you have any questions or comments about one of our articles? Or are you missing a certain topic? Don't hesitate to let us know. We are happy to hear from you!

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2018 | THE YEAR OF NEW CHEMICAL TOOLS

KROON-OIL LAUNCHES A RANGE OF HIGH-QUALITY ADDITIVES

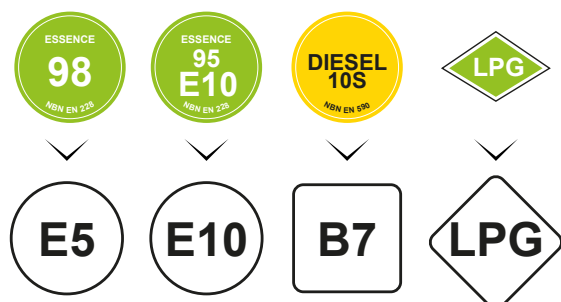
In recent years there has been an increase in the use of additives. Kroon-Oil launched a full product range of additives on to the market in 2018 to meet the urgent technical demand for high-quality additives.

The demand for products with a specific use is a direct result of the use of bio-ethanol as an organic component in petrol or diesel. Biofuels like E10 and E85 reduce CO₂ emissions, however, the green aspect makes these types of fuel more aggressive. This can result in negative effects and even damage to fuel systems for example. However, adverse driving conditions, like traffic jams, are also contributing factors. The use of fuel additive may help resolve these issues.

By 2020 at least 10% of the fuel used for transport purposes will consist of alternative fuel types like biofuel. This has been agreed by the European Union countries. The use of additives will continue to increase as we move towards sustainable growth within the global provision of energy. The highly concentrated formulas - which make up Kroon-Oil's new range - protect, clean and optimise systems like oil, fuel and cooling systems. The use of high-quality additives can, depending on the properties of the various additives, result in lower fuel consumption and/or delay wear and tear as well as resolving any pollution issues. This restores the original efficiency of oil, fuel

and cooling systems.

An extensive, up-to-date and high-quality product range is extremely important to Kroon-Oil. Flexible production policies are extremely important in a dynamic industry like the lubricants industry where constant technical developments require the ability to adapt.

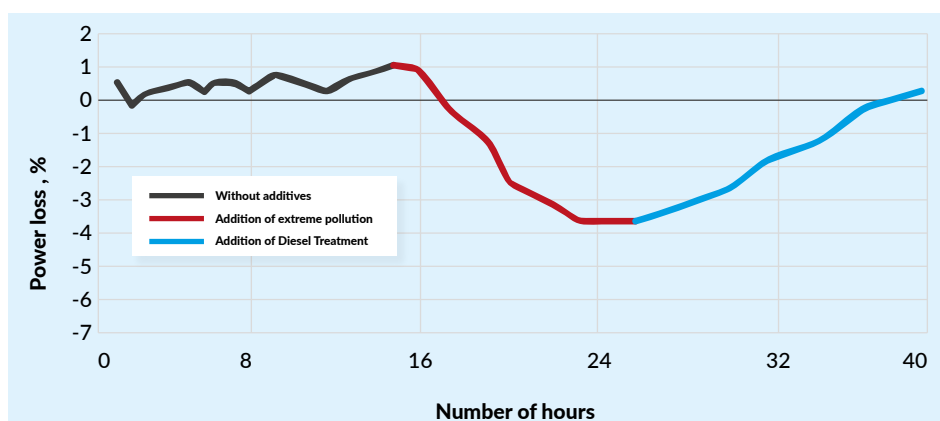


KROON-OIL ADDITIVES



FUEL ADDITIVES

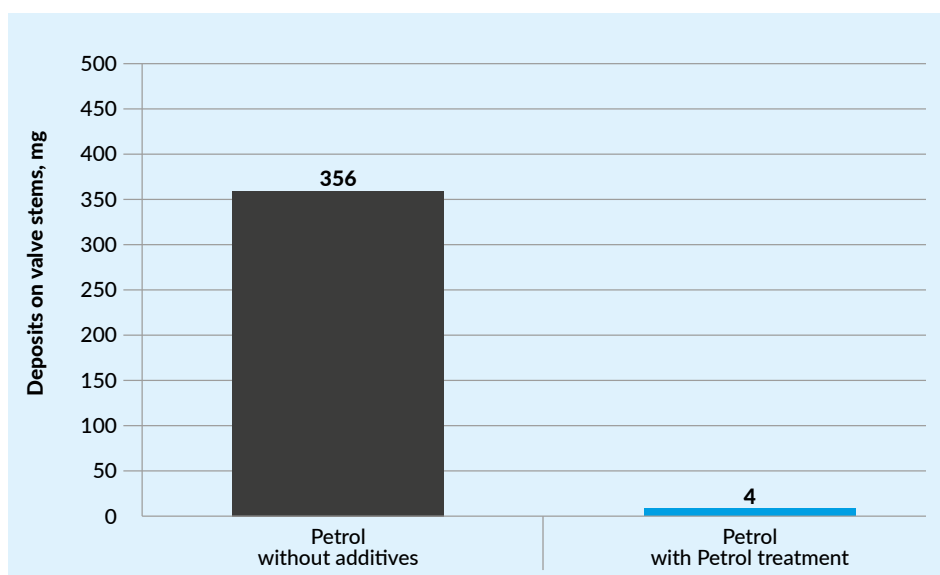
Supplementing fuel with a fuel additive helps keep the system clean, which is essential, and contributes to the engine's optimal performance. Our new range of additives includes products for both petrol and diesel engines. Due to incomplete combustion, the combustion chambers, injection systems and inlet and exhaust valves become contaminated with carbon deposits. A diesel engine with a common-rail fuel injection system is a complicated piece of technology which is susceptible to this process. Diesel Treatment helps keep the entire system's interior clean, ensures maximum performance in the long run and increases its reliability.



You will find an overview of the products on page 15.

Performance improvement of the engine with Diesel Treatment [Part.Nr. 36105]

Measured according to the official CEC TDG F 110 DW10C test method.



Reduction of deposits with Petrol Treatment [Part.Nr. 36106]

Measured according to the official CEC TDG F 05 93 M102E test method.

RADIATOR ADDITIVES

Cooling system additives have been developed to clean contaminated cooling systems. Contamination can be caused by a number of different things: failing to replace the coolant and using the wrong quality coolant can lead to extreme contamination with the resulting adverse consequences. Cleaning the cooling system and using the right quality coolant when refilling it are the best ways to ensure maximum, original reliability.

Find out more about using the right coolants on page 16 of this copy of Lubevision®.

OIL ADDITIVES

Oil additives have a restorative and preventative effect and increase the life span of the engine and its parts. It can also help reduce oil consumption and seal leaks which can eliminate expensive repairs. Keeping an engine's interior clean is essential for ensuring efficiency and reliability. Timely maintenance in compliance with the manufacturer's guidelines and using the right quality motor oil will guarantee maximum reliability, low maintenance costs and maximum performance regardless of the driving conditions. 🏆

“Kroon-Oil has responded to the increasing desire expressed by its distributors to find a one-stop supplier that offers everything they need including a range of additives. The interest shown in this range, consisting of 8 products, has exceeded our expectations.”



f.l.t.r.: Robbert Möckel (Export Manager), Coen van Wingerden (Managing Director), Jacco Nijhuis (Export Area Manager), Marloes Bonder (Export Area Manager), Petran Langeler (Export Area Manager)

KROON-OIL IMPRESSES WITH ITS ECOLOGICAL SOLUTIONS AND ADDITIVES

Kroon-Oil's export activities have been growing for a number of years. Things really started to take-off in 2015. Kroon-Oil currently exports products to over 70 countries. The world's leading trade fair for the automotive service industry, Automechanika in Frankfurt, has become a meeting place for our international distributors from across the globe. "From Chile to Iceland and from Réunion to Taiwan. Everybody makes their way to Frankfurt", explains Jacco Nijhuis, Export Area Manager at Kroon-Oil. "This fair is also an indispensable stage for presenting our wide range of high-quality products, marketing and workshop concepts to new prospects."

The 25th edition of Automechanika in Frankfurt in September 2018 was visited by at least 136,000 people over the course of five days. They were able to visit 5,000 stands. Kroon-Oil was one of them. Kroon-Oil has been a fixed feature at this bi-annual event since 1996.

A FOCUS ON REDUCING OUR ECOLOGICAL FOOTPRINT AND NEW ADDITIVES

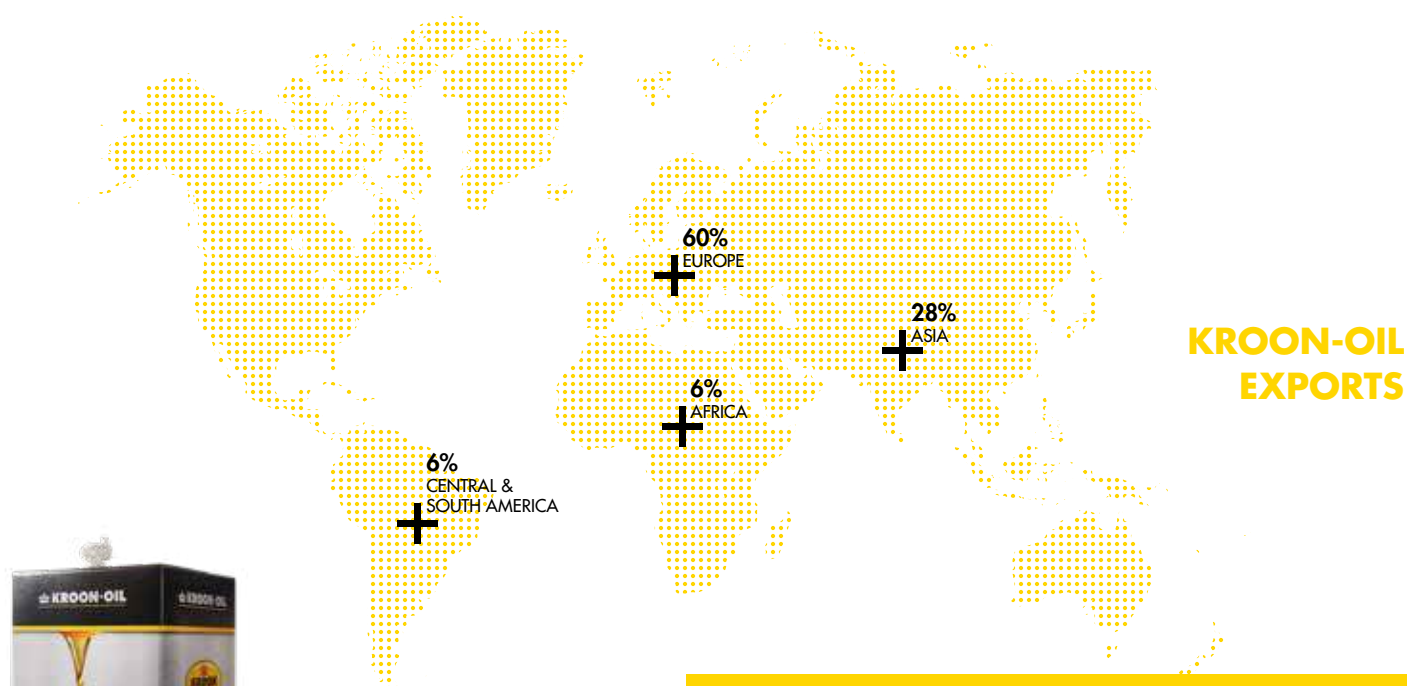
Jacco: "Kroon-Oil presents the 20 litre Bag-in-Box packaging as well as the accompanying display (which can be dismantled) in this edition. We were able to determine that fortunately more and more countries are becoming interested in reducing our ecological footprint. We also focused on the PowerFlush®, a flushing device for automatic transmissions which comes with website advice about the required liquid and adapter level. This concept has become a fixed feature in garages which are part of our home market in the Netherlands and Belgium. Kroon-Oil has supplied more than 450 machines over the course of the past few years. The international interest in this product was overwhelming."

KROON-OIL IS INCREASINGLY BECOMING A ONE-STOP SUPPLIER DUE TO THE LAUNCH OF THE ADDITIVES RANGE

The new Kroon-Oil additives range was also presented to the public for the first time. Jacco: "This is Kroon-Oil's response to the increasing desire expressed by its distributors to find a one-stop supplier that offers everything they need including a range of additives. The interest shown in this range, consisting of 8 products, vastly exceeded our expectations."

The Kroon-Oil stand was a busy place to be. WRC rally driver Jourdan Serderidis, sponsored by Kroon-Oil, even managed to find the time to visit the stand with Kevin Demaerschalk's co-pilot Lara Vanneste - also sponsored by Kroon-Oil.

"We could say that the fair was a big success but we'd rather not. Your success at a trade fair is not something that can be determined in the short-term. Plus, we don't like looking back. We prefer to focus on the future. What I can say is that Kroon-Oil is looking forward to the next edition in two years' time." 🏆



**KROON-OIL
EXPORTS**



Bag-in-Box
Eco-friendly recyclable packaging



You can find extensive technical information about the additives range on page 5 of this edition of Lubevision®. You will find an overview of the products on page 15.

MEETING YOUR EXPECTATIONS: GUARANTEED KROON-OIL QUALITY

The lubricant branch is a dynamic industry where developments are implemented rapidly. This applies to more than just technical developments. Topics like quality, health, safety and the environment are key factors when it comes to maintaining our high standards. We are proud to announce that, as of September 2018, Kroon-Oil completed its transition and now meets the demands set down in the current ISO 9001 standard. ISO is the leading international certification body for quality systems.

This certification means that Kroon-Oil meets the standards and requirements which are part of this ISO certification. ISO certification is a powerful tool, it is a means to help optimise and improve an organisation. Certification is valid for a period of 3 years once awarded.

QUALITY, HEALTH, SAFETY AND ENVIRONMENT

"Gaining ISO 9001 certification was not a goal in its own right for Kroon-Oil. However, it does align perfectly with Kroon-Oil policies for being successful", says Sjuul Jilesen, manager Quality, Health, Safety and Environment (QHSE). "Every day our department focuses on optimising quality controls, meeting the demands made by legislation, ensuring the quality of our products and guaranteeing our REACH obligations which relate to the European act on the production of chemical materials and their trade."

"We have discovered that our policy and focus points have more and more in common with ISO standards. Creating a sustainable relationship with all our stakeholders - clients, suppliers, staff and our direct surroundings - is one of our focus points. Thinking up tailor-made solutions for a client's specific demands and keeping up with technical trends have always been important to Kroon-Oil," explains

Sjuul. "This has been Kroon-Oil's policy for many years. ISO 9001 helps us to further realise our policies. Meeting the new standards is a great addition to our existing operational management."

ISO certification is a powerful tool, a means to help optimise and improve an organisation.

BEING AND REMAINING AN INDEPENDENT SUPPLIER OF LUBRICANTS

Successfully completing the transition necessary for meeting the standards in ISO 9001 means that Kroon-Oil can guarantee the management and control of its processes and that it can continue to improve them. This is an important factor when it comes to guaranteeing Kroon-Oil's core values within a competitive market. Kroon-Oil expects to remain a large and independent supplier of lubricants for many years to come, and creating a sustainable relationship with all the company's stakeholders is one of the ways we can achieve this. 🏆



KROON-OIL'S FOCUS ON QHSE

- » Information for clients about a product's use and characteristics
- » Good working conditions for our employees
- » Competent and motivated employees
- » Corporate social responsibility
- » Focusing on our clients
- » Protecting the environment
- » Flexibility and decisiveness
- » Delivery reliability
- » Meeting the demands made by legislation
- » Product quality
- » Continuous improvement



SPONSOR UPDATE

KROON-OIL & VAN LOON EN ROUTE TO DAKAR 2019!

Follow the updates on www.vanloonracing.nl



SUPPORTING MOTOR SPORTS TALENT

Motor sports have been an integral part of Kroon-Oil's DNA for a very long time. We've been working with big names in the motor racing and motorcycle racing field since the 1960s and 1970s. Famous faces from the racing world who went on to become Kroon-Oil ambassadors include Ron Kluit, Ton van Heugten, Frits Kiggen and, naturally, Boet van Dulmen and Henk Vink. We sponsor individuals to help consolidate our brand quality image and to draw attention to our brand. On the other hand, we can literally put the quality of our products to the test under the toughest circumstances.

We are constantly on the look-out for the right balance when it comes to motor racing in the various segments we operate in. Furthermore, we believe it is important to be visible both in our home markets and abroad. In most cases, our starting point is supporting talent. We collaborate with professional partners who provide us with usable feedback, content and exposure. This is the case for both the technical and marketing side of things. A number of important partners in the motor sports industry include:

MP MOTORSPORT

MP Motorsport is the breeding ground for talent headed for Formula 1. The Dutch racing team's slogan is: "The road to Formula One". The team has numerous cars which participate in Formula 4, Formula Renault, Formula 3 and Formula 2. The different sections all use Kroon-Oil products and feature our collaboration on their cars and team clothes. Numerous, famous drivers - including Max Verstappen - started their careers participating in MP Motorsport.

J-MOTORSPORT

J-Motorsport is a Belgian racing team which is an active Rally Sports participant. The team offers services and facilities to many drivers. The team itself wants to offer talented drivers a platform. The team managed to attract Kevin Demaerschalk and his co-pilot Lara Vanneste who participate in the renowned Belgian championship. They're driving the new Citroën C3-R5 which has been fully fitted out in the Kroon-Oil livery. A Ford Fiesta WRC Ecoboost, prepared by M-Sport, is also being used during the World Rally Championship.



Jordan Serderidis | Ford Fiesta Ecoboost | WRC



Kevin Demaerschalk | Citroën C3-R5 | BRC



Van Loon Racing | Toyota Hilux Overdrive | 'Le Dakar'

KOBUS TUNING

Kobus Tuning is a Dutch racing team and a real family business where all available funds are invested in the sport. Talented Hermen Kobus and his navigator Erik de Wild are currently at the top of their game in their Skoda Fabia R5. They won the three largest rallies in the Netherlands with a wide margin. In addition to being the Dutch champions, the team also won the Dutch R5 challenge and the FIA Benelux Trophy. 🏆



Follow us!



KROON-OIL CONNECT

PROFESSIONAL DATA SERVICE

High-quality online and business services are now par for the course. Kroon-Oil has invested heavily in their online advice tool over the past few years. This tool currently generates more than 3.5 million unique recommendations per year. You have probably come across this tool on our website www.kroon-oil.com. Kroon-Oil Connect also allows you to use our recommendations tool on your online platform.

WHAT DO YOU NEED TO MEET YOUR CUSTOMERS' DEMANDS?

Kroon-Oil Connect offers a variety of options which allow you to make our data available to your clients via your website or webshop. What's in it for you? You create added value for your clients by providing an up-to-date and adequate overview of the necessary lubricants as well as the accompanying information. This also makes your website more relevant for both your clients and search engines. Kroon-Oil Connect has proven to be a successful concept with millions of visitors each year and now you can also reap the rewards.



BANNER | FREE KROON-OIL BANNER ON YOUR WEBSITE

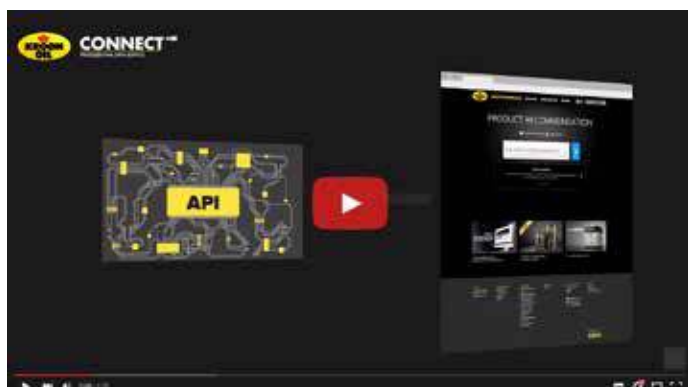
Visitors to your website can use the Kroon-Oil banner on your website to find out which Kroon-Oil products are recommended. How can you gain access to the banner?

Go to the advice banner wizard on www.kroon-oil.com/en/recommendationbanner



DO YOU SELL KROON-OIL PRODUCTS VIA YOUR WEBSHOP?

Please enter your webshop's URL in the advice banner wizard. This option will launch an order button next to the product recommendation. If the visitor then clicks on 'Buy this product', they will be linked to the corresponding product in your webshop.

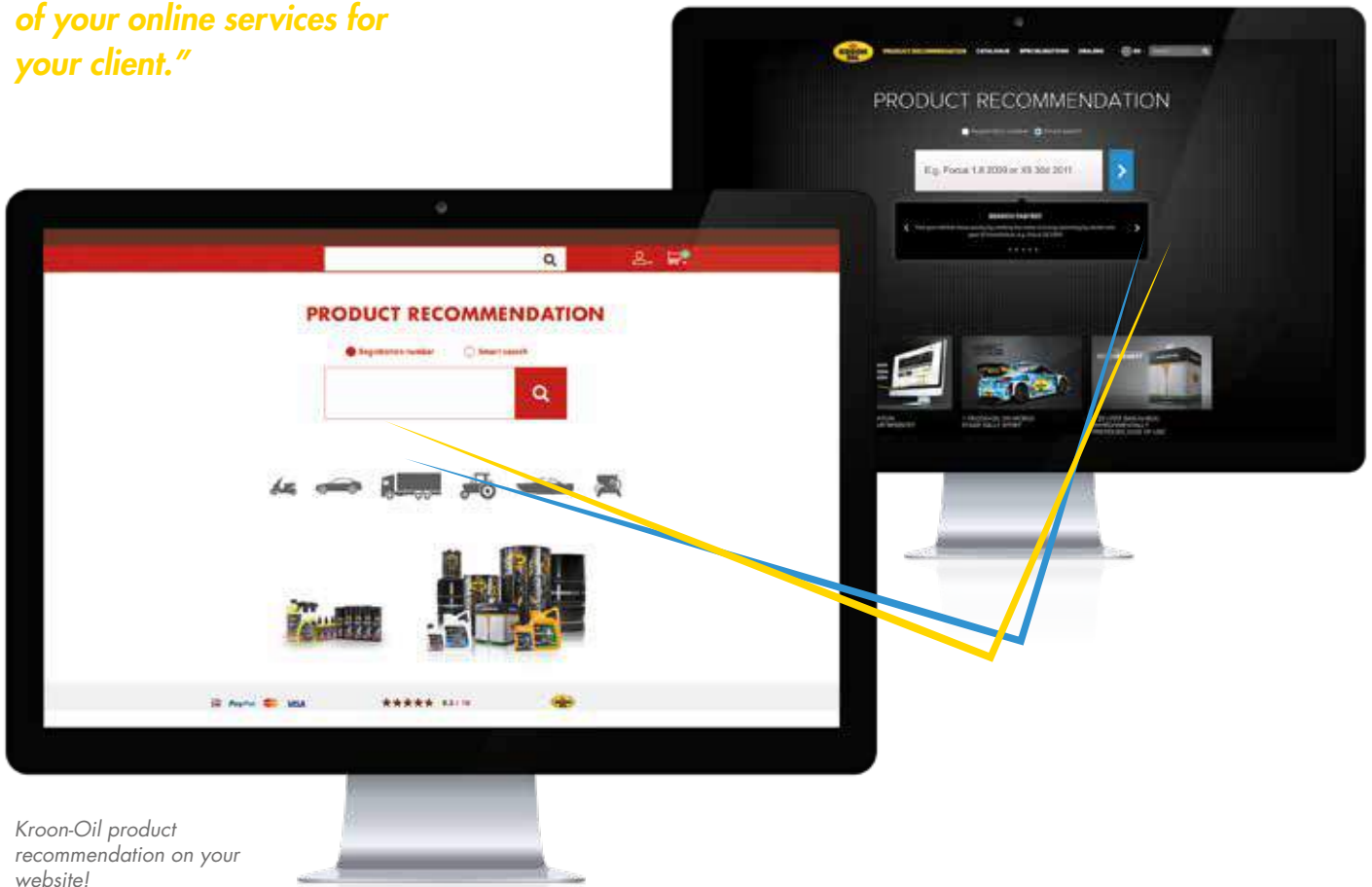


Watch our short animation

Kroon-Oil CONNECT API | Be Connected!

[available in NL & EN]

“Increase the professionalism of your online services for your client.”



Kroon-Oil product recommendation on your website!



API | FREE DIRECT LINK TO ALL OF KROON-OIL'S PRODUCT INFORMATION

Kroon-Oil's range is constantly changing. Specifications are regularly adjusted and new products are constantly being launched. Safety information is kept up-to-date to make sure it meets the applicable standards. These are great developments but can be hard for you to keep up with. Today's data may no longer be relevant tomorrow. This is why it can be useful for you to connect to our API. Kroon-Oil's API can help you get to grips with all our data.

Creating a link to our API means your website will always be up-to-date and provides you with:

- » full access to our technical information (TDS)
- » full access to your safety data sheets (MSDS)
- » full access to all the available product information (images, descriptions, gross prices, EAN codes, part numbers, etc.)




INCREASE YOUR RANGE VIA OUR API, THE WORLD'S LARGEST VEHICLE DATABASE

- » vehicle information (for all vehicles or just the vehicles applicable to your company)
- » vehicle selection using a number plate (passenger vehicles in countries where this service is available)
- » vehicle selection using a TecDoc ID (if you have made a vehicle search function available via your website or webshop)
- » vehicle selection using search criteria like brand, model and type. Or for a certain segment (road traffic, agriculture, two-wheeled vehicles, industrial vehicles or marine vehicles)

HOW DO I GET KROON-OIL CONNECT?

Your website or webshop can be equipped with a link to the API in consultation between your IT department and our IT support department. Interested? Please contact us at marketing@kroon-oil.nl and ask about the conditions.

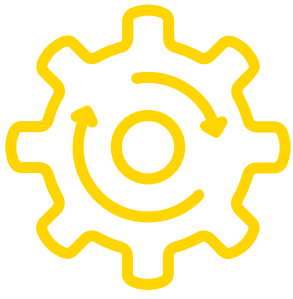
All the product data which is included in the API will be made available to Kroon-Oil's customers for free. A relatively small amount will be charged for using the vehicle data and product advice services. 



J-MOTORSPORT

A successful debut in 2013 during the Wales Rally in Great Britain quickly turned Jourdan Serderidis into a familiar face on the rally sport's world stage. Kroon-Oil has sponsored the successful Greek rally driver since 2017. He took first place at the WRC Trophy in 2017 together with his Belgian navigator Frédéric Miclotte. This year Jourdan Serderidis is driving a Ford Fiesta WRC EcoBoost prepared by M-Sport.





PRODUCT UPDATE

SAVE FUEL WITH THE NEW KROON-OIL AGRI ULTRA LINE

AGRISYNTH LSP ULTRA FE 5W-30

Agrisynth LSP Ultra 5W-30 is a premium and extremely versatile, ultra-modern motor oil suitable for use in the latest generation of diesel engines in agricultural vehicles and earthmoving machinery. The low 5W-30 viscosity combined with the very latest synthetic base oils and an advanced additives package enables significant fuel savings of 2-4%*. All of this while still maintaining maximum engine protection equivalent to a reference mineral 15W-40 motor oil.

Specifications: ACEA E6, E7, E9 | API CJ-4/SN | MB 228.31/228.51 | MAN M 3677/M 3477/M 3271-1 | Volvo VDS-4/VDS-3 | Scania Low Ash | Mack EO-O Premium Plus/EO-N | Renault VI RLD-3/RLD- | Scania LDF-4 | MTU Type 3.1 | Mack EO-M Plus, Cummins CES 20081 | Cat ECF-3, Detroit Diesel 93K218 | Deutz DQC IV-10 LA, JASO DH-2 | Voith class B

SP GEAR LS 1015

SP Gear LS 1015 is a very modern, fuel saving, fully synthetic 75W-90 transmission oil with 'Limited Slip' additives. With the advanced fuel saving additives technology, fuel savings of up to 2%* can be achieved in comparison with traditional mineral products while still maintaining an exceptionally long service life. SP Gear LS 1015 is eminently suitable as a universal Total Drive Line Oil that can often enable product rationalisation, including slip differentials and power trains that require a 'Limited Slip' transmission oil. It has been specially developed for use in the most critical and highly-loaded transmissions such as manual transmissions, transfer boxes, (locking) differentials and final drives.

Specifications: API GL-4/GL-5/MT-1 | MIL-L-2105D/MIL-PRF-2105E, SAE J2360 | MAN 341 Typ Z2/342 Typ S1 | MAN 3343 Typ S | Scania STO 1:0 | Volvo 97310 | ZF TE-ML 05C/07A/12B/12L/12N | ZF TE-ML 16B/16F/17B/19C/21C

AGRIFLUID SYNTH XHP ULTRA

Agrifluid Synth XHP Ultra is one of the highest quality hydraulic transmission and rear axle oils on the market. The use of an ideal mix of (fully) synthetic base oils in conjunction with the unique OSP technology has created a product that combines optimal friction control with fuel economy.

Specifications: API GL-4 | Allison C4 | Case MS1207/MS1209 | Cat TO-2 | John Deere J20A | Massey Ferguson M1141/M1143/M1145 | Volvo WB 102 | ZF TE-ML 03E/05F

AGRISYNTH LSP ULTRA 10W-40

Agrisynth LSP 10W-40 is a premium and extremely versatile, ultra-modern motor oil suitable for use in the latest generation of diesel engines in agricultural vehicles and earthmoving machinery. If the manufacturer so specifies, longer oil change intervals may be applied.

Specifications: ACEA E6, E7, E9 | API CK-4/SN | Deutz DQC IV-10 LA | Mack EOS-4.5 | MB 228.51 | Renault VI RLD-3 | Volvo VDS-4.5 | Cat ECF-3 | Cummins CES 20086 | Detroit Diesel 93K218/93K222 | JASO DH-2 | MAN M 3477 | MTU Type 3.1



AGRIFLUID SYNTH WB

Agrifluid Synth WB is a high-quality hydraulic oil for transmissions and rear axles. Synthetic base oils combined with advanced, modern additives give significantly improved protection against the wear and tear of axles, and various transmission and hydraulic systems. The product also features superior frictional characteristics. It ensures a guaranteed silent and completely creak free operation of wet brake systems, including systems under extremely heavy loads.

Specifications: API GL-4 | Allison C4 | Case MS1207/MS1209 | Cat TO-2 | John Deere J20A | Massey Ferguson M1141/M1143/M1145 | Volvo WB 102 | ZF TE-ML 03E/05F/06K



PROTECT, CLEAN AND OPTIMISE YOUR SYSTEM USING KROON-OIL ADDITIVES



DIESEL TREATMENT

Diesel Treatment is a cleansing diesel additive that leads to lower fuel consumption and cleaner exhaust gases. It cleans and lubricates the entire fuel system.

Part.Nr. 36105



OIL TREATMENT

Oil Treatment is a cleansing motor oil additive. It keeps the entire lubrication system clean for a longer period of time. Oil Treatment is an additive for the new motor oil.

Part.Nr. 36109



PETROL TREATMENT

Petrol Treatment is a cleansing petrol additive. It cleans the entire fuel system, optimises fuel consumption and improves the engine's performance.

Part.Nr. 36106



OIL LEAK STOP

Oil Leak Stop is a revolutionary motor oil additive for reconditioning rubber sealing rings and seals.

Part.Nr. 36110



RADIATOR CLEANER

Radiator Cleaner removes corrosion and limescale from the cooling system. The heat transfer capacity is improved.

Part.Nr. 36107



OIL STABILIZER

Oil Stabilizer is a special motor oil additive with a VI improver. It ensures that the service life of engines is increased.

Part.Nr. 36111



RADIATOR LEAK STOP

Radiator Leak Stop is a unique mixture of natural fibres and surfactants. Together, the substances ensure that hairline cracks and pores in radiators and the cooling system are sealed.

Part.Nr. 36108



OIL FLUSH

Oil Flush is an motor oil additive for the internal cleaning of the engine. It removes varnish deposits, Black and White Sludge, carbon deposits and thickened oil. Add to the used old oil.

Part.Nr. 36170



COOLANTS À LA CARTE!

Coolants have been neglected in the automotive industry for a very long time. In contrast to motor oil developments which follow the latest technological trends implemented by engine manufacturers, cooling systems continued to use conventional BS Afnor quality coolants over the past few decades. Due to rapid developments, changes to engine design and the new demands which are being made of modern cooling systems it became clear that the further development of coolants was just a matter of time. The industry has more than made up for this lack of development. As car manufacturers each have their own preferences when it comes to the metals, seals and plastics used, tailor-made coolants have become the norm rather than the exception.

The standard blue BS Afnor quality has quickly been replaced by a new generation of modern, long-life coolants. Many of which feature a hip colour which is brand-affiliated. We currently need at least 8 different types of coolant, in contrast to the one or two types of coolant necessary 15 years ago, to cover most types of vehicles. It's hard to see the wood for the trees! Many people ask themselves whether we actually need this many different types of coolant. What are the differences? Do these products really differ from each other or is it all about clever marketing? In other words, people are turned off by the lack of information and that is why we believe the time has come to separate fact from fiction starting with the basics: what do modern coolants actually do.

WHAT DO MODERN COOLANTS ACTUALLY DO

The main functions a coolant performs are: effective heat transfer, providing protection against freezing and boiling and, last but not least, protecting all the cooling system's elements from corrosion. Water has the highest thermal conductivity and the highest specific heat of all liquids. The viscosity of water is nice and low which is beneficial for heat dispersion. Pure water is the best coolant.

However, it can only be used within a limited temperature range (sets at 0°C and boils at 100°C) and there is a serious risk of the engine becoming corroded.

DIFFERENCES BETWEEN THE VARIOUS TYPES

Special additives are required to help combat water's negative properties. Mono-ethylene glycol (MEG) is often used to increase water's temperature range. Mono-propylene glycol (MPG), which is more environmentally friendly, is also commonly used. This additive is not as suitable for the automotive sector as the heat transfer properties are significantly lower. Nearly all engines use the same basic fluid which is a 50:50 mix of MEG and water which provides frost protection to a temperature of approximately -40°C. Additives are used which help prevent corrosion, rust, deposits and sludge. Additives should also protect against foaming and cavitation, a type of corrosion caused by imploding bubbles resulting from pressure changes in the cooling system. The additives listed may only form a small percentage of the coolant. However, these additives are what distinguishes the different types of coolant available on the market.

THE 'PROTECTIVE BLANKET' AND POLYMERISATION IN THE PAST

In the past, conventional coolants tended to use inorganic corrosion inhibitors like silicates, phosphates and borates. The signature for these inhibitor systems was that corrosion protection was achieved by fully isolating the component by means of a 'protective blanket'. There are a number of disadvantages linked to this type of protection. A large percentage of the corrosion inhibitors are already used up when all the surfaces are covered in a 'protective blanket' consisting of a number of layers of molecules immediately after the cooling system has been filled. This means there is very little spare capacity to repair any damage to the protective layer if it is required. The active inhibitors will all be used up within a specific time frame. This is why conventional coolants need to be replaced every 2 years. The 'protective blanket' also has an insulating effect. In other words, the heat transfer is hindered by the insulating effect provided by the protective layer.

Furthermore, silicates, a commonly used corrosion inhibitor for aluminium products, are susceptible to polymerisation. Long chains of molecules are formed which lose tension after a period of time. This increases the risk of sludge and the creation of deposits in your cooling system. This is another reason why we recommend replacing your coolant at least every two years! However, regularly changing your coolant has not become as ingrained into our car maintenance routine as say replacing the oil in your car. People often mistakenly believe that the coolant doesn't need to be replaced if the levels are sufficient. As a result, drivers are often hit with unnecessarily high repair costs in the long term. Current break-down statistics demonstrate that cooling system faults are still one of the most common causes of break-downs.

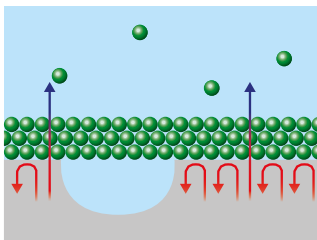
TODAY'S 'SELECTIVE' ORGANIC INHIBITORS

The arrival of a new generation of coolants, with corrosion inhibitors which are based on Organic Acid Technology (OAT), have eradicated most the disadvantages listed above related to the use of traditional coolants. This is due to the fact that OAT inhibitor systems, also known as organic inhibitors, behave very differently. In contrast to traditional inhibitors which immediately form a protective layer, organic inhibitors act selectively. They are not activated until it becomes clear that a chemical interaction is required in an area which may become subject to corrosion. This method provides a number of benefits when compared to traditional coolants:

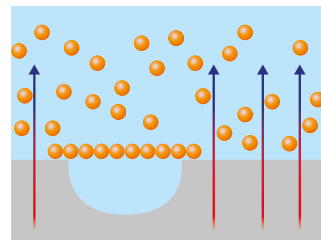
- » Sparing use of corrosion inhibitors due to the selective function
- » Improved cooling due to the absence of a 'thick' insulating, protective layer
- » Chemical stability which prevents weakening chains and the formation of sludge
- » Increased coolant lifespan which means that it doesn't have to be replaced as frequently
- » Unrivalled and long-term protection against corrosion and long-term protection against cavitation

OAT coolants have, understandably, become incredibly popular and modern cars can't do without them. However, there is a disadvantage. Organic inhibitor systems don't work as quickly as traditional mineral inhibitor systems. There needs to be minimal corrosion present before the organic inhibitor system will kick in. In some cases, the effects don't kick in until it is too late. This is especially the case when engine manufacturers use the newest light metal alloys. In addition to their super low weight, these types of alloys are also more susceptible to corrosion which means that immediate corrosion protection is desirable.

"We currently need at least 8 different types of coolant, in contrast to the one or two types of coolant necessary 15 years ago. It's become hard to see the wood for the trees!"



mineral inhibitor technology



organic inhibitor technology

| | Traditional | Hybrid | Lobrid | OAT (fully organic) |
|-------------------|-------------|----------------------|------------------------|---------------------|
| Inhibitors | Mineral | Mix of mineral + OAT | OAT + a bit of mineral | OAT |
| % Mineral | >90 | 10-90 | 1-9 | 0 |
| % Organic | <10 | 90-10 | 91-99 | 100 |

Table 1. Inhibitor ratios for the four types of coolant technologies listed.

'Tailor-made' coolants using both organic and mineral inhibitor technology like silicates, borates, molybdate and nitrates offer a solution. This type of hybrid coolant combines the benefits of modern OAT coolants with the rapid action of traditional coolants. There are currently 4 different types of coolant technologies which can be classified based on the current inhibitor systems used.

It should probably have become clear by now that coolants play a vital role in the reliable functioning of combustion engines. This is the result of extremely effective cooling as well as the optimal and long-term protection provided against corrosion, cavitation and erosion.

PRODUCT SELECTION

The coolant also needs to be compatible with the materials which make up the cooling system. This includes things like plastics, elastomers, a variety of metals and metal alloys. Different car manufacturers have their own preferences when it comes to the materials they use and this, logically, has an effect on the selection of the right inhibitor system. The various demands can no longer be met using a single universal coolant. This is why more and more new types of coolant are being launched which feature corrosion inhibitor packages which have been tailored to provide optimal protection to the materials used in the engine and the cooling system. It is extremely important that the right quality coolant is used and that it meets the OE specifications which have been determined by the car manufacturer when attempting to guarantee the maximum

lifespan of the cooling system. This is par for the course for motor oils but it is not yet as common for coolants.

Organic or OAT coolants have gained an almost mythical reputation and the focus has primarily shifted onto whether or not a coolant is organic. Very little attention is actually paid to the necessary specifications. The price, however, has also taken centre stage! The market has taken advantage of this development and has launched universal organic 'fighting grade' quality coolants. The colour is kept as neutral as possible. This means that weird colour combinations are avoided when mixing coolants. Prices are also kept low by cutting costs when it comes to the inhibitor package. Attractively priced 'fighting grade' coolants can contain up to 50% less inhibitor than official OE quality ones. In many cases, coolants are no longer long life and can only be rated semi-long life at best. This means they need to be replaced every 3 years in contrast to first fill qualities which only need to be replaced every 6 years at the earliest.

"Organic Acid Technology coolants have, understandably, become increasingly popular."



The effect this has had on corrosion protection becomes clear in the ASTM D1384 wear and tear/corrosion test.

| ASTM D1384 wear and tear/corrosion test, weight loss in mg following the test | | | | | | | |
|---|----------------------|-------|--------|--------|-------|-----------|-----------|
| | Type of coolant | Brass | Copper | Solder | Steel | Cast iron | Aluminium |
| ASTM D3306 limits | | 10 | 10 | 30 | 10 | 10 | 30 |
| Coolant -26 (< 2 yrs) | Traditional | 2,2 | 2,1 | 6,0 | 0,9 | 0,5 | 12,3 |
| Coolant LF 12 (< 3 yrs, max. 3% inhibitors) | OAT 'Fighting Grade' | 1,3 | 1,2 | 4,0 | 0,8 | 0,4 | 4,4 |
| Coolant SP 12 (> 6 yrs, min. 6% inhibitors) | OAT | 0,2 | 0,6 | 2,1 | 0 | 0 | 0,9 |

Table 2. Results for our traditional Coolant -26, the 'fighting grade' Coolant LF 12 and our premium Coolant SP 12.

It's clear to see that the weight loss (i.e. wear and tear/corrosion) following the use of Coolant SP 12 is significantly better. All Kroon-Oil Coolants which are part of the SP line have been developed to help provide maximum protection and to ensure a long lifespan. They are also comparable to the 'first fill' OEM qualities which means that they do not need to be replaced on a regular basis.


'Fighting Grades', like Coolant LF 12, have primarily been developed as a competitive alternative to the market demand for universal, cheap coolants. This type of product is superior to traditional and old-fashioned coolants but in no way compares to the premium OE quality coolants.

TOP QUALITY COOLANTS WITH THE RIGHT SPECIFICATIONS

As a company we believe it is important to share general knowledge about coolants. Knowledge is power! Please note that the right quality coolant doesn't have to be more expensive in the long run when comparing them to cheaper 'fighting grade' varieties. You might even save money in the long term. Top quality coolants with the right specifications last significantly longer, result in fewer break-downs and help you avoid expensive repairs to your vehicle. This is why Kroon-Oil has invested so much in its premium Coolant SP range. There are currently 8 different products available which together cover most types of vehicles. The composition and inhibitor technology used by these products has been fine-tuned to meet the type of vehicle the coolant has been developed for including brand-specific colours and specifications. In other words, if you're looking for quality then the coolants which are part of our SP range will always be preferable to universal 'fighting grade' qualities.

"Coolants need to be compatible with the materials which make up the cooling system. This includes plastics, elastomers, a variety of metals and metal alloys. Car manufacturers have their own material preferences. This has an effect when selecting the right inhibitor system."

Please take a look at our product advice on www.kroon-oil.com for à la carte SP Coolant advice! 🍷



THE NEWEST GENERATION OF LUBRICANTS FOR THE AGRICULTURE AND EARTHMOVING MACHINERY SECTORS

THE DEVELOPMENT OF ULTRA-MODERN LOW SAPS OILS

Before, whenever they were advised to use a different type of oil, people tended to think: “Why not use that universal oil we bought in bulk?!” And, in many cases it all worked out just fine. However, today’s complex and modern systems are becoming increasingly reliant on the use of the right type of oil.

Kroon-Oil advises the agricultural and earthmoving machinery sectors in the use of the right lubricants for maximum performance, optimal lubrication and minimal fuel consumption. It is extremely important that lubricant specialists invest in the development of products intended for use with agricultural machinery. Lubricants have increasingly become structural components and specific lubricants for various brands of machinery have become a fixed feature. Our industry is therefore closely involved in the development of things like vehicle brake systems and other components. As a company, we carry out various laboratory and practical tests in collaboration with renowned engine and machinery manufacturers.

We come into contact with the advanced and expensive systems used by modern agricultural mechanisation companies and contractors on a daily basis. These machines need to be able to do their jobs without running into any hitches.

The creation of a universal product is impossible due to the variety of lubrication prescriptions for different parts.

Within the Non-Road sector a shift regarding motor oil prescriptions can clearly be observed towards a new generation of Low-SAPS

motor oils due to developments such as Clean Diesel Technology, stricter exhaust gas emissions (Euro 6 and Tier 4 standards) and the use of bio-diesel fuels. Failing to use the right type of lubrication means that the user is more likely to be “punished”

The very latest generation of high-grade products will make sure that Kroon-Oil will be able to provide an extremely compact package of the latest lubricants now and in the future, which will put the company in an excellent position when it comes to ensuring the safe and worry-free lubrication of mixed vehicle fleets operated by the state-of-the-art agricultural mechanisation companies and contractors.

AGRISYNTH LSP ULTRA FE 5W-30 & 10W-40

Selecting a high quality motor oil which can be used by contractors and agricultural equipment dealers alike is often the best solution for lubricating engines and for preventing errors.

OSP TECHNOLOGY

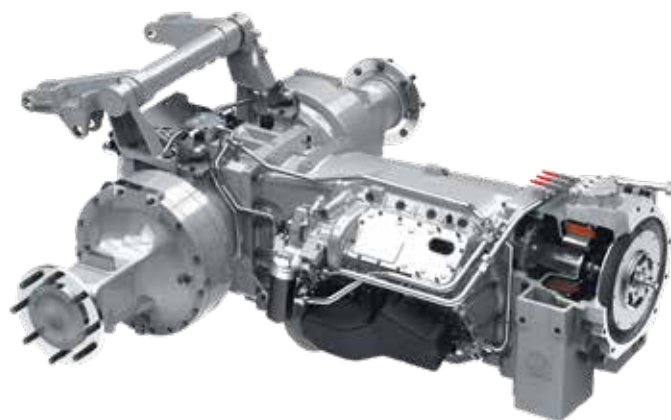
The fuel saving is produced by using the latest generation OSP technology. Kroon-Oil is a pioneer in the market that makes use of this unique base oil technology. This base oil group excels in unequalled friction control and ensures that the transmission, rear axle and hydraulic systems function optimally, stay clean and benefit from reduced frictional resistances for very prolonged use with the lowest operational (fuel) costs.

as the systems will not operate as well as a result. Whenever claims for damages and/or guarantee claims are submitted, vehicle manufacturers and also insurance companies will carry out more detailed checks to make sure that the correct lubricants have been used and the oil change intervals have not been exceeded. Using the wrong lubricant can prove a costly mistake later on and those costs will be added to the costs arising as a result of the usual inconveniences that occur when vehicles cannot be operated or are under repair.

FUEL ECONOMY AND HIGH PERFORMANCE

To limit fuel costs as far as possible, fuel saving lubricants are also urgently needed. Furthermore, lubricants must be optimally resistant to current (bio) diesel fuels. The service life of the engine and power train must be extended and engine performance must remain high. The very latest generation of synthetic lubricants and additive technologies are the answer to all these requirements.

The new Ultra range of motor oils have been developed using the most up-to-date low-SAPS techniques. Their low sulphate ash content makes these oils extremely suited to long-term use in engines fitted with particulate filters and/or catalytic converters. This extends the service life and reliability of engines and exhaust aftertreatment systems. This way a sustainable, fuel-saving and cost-saving development is possible. The Ultra range also shows that it has longevity properties and fully conforms with Euro 6 and Tier 4 standards. 🏰



Complex electronically managed transmissions and final drive trains require the latest generation lubricants in order to maximise exploitation of the fuel saving potential



Want to know more about our Ultra motor oils? You will find an overview of the newest generation of products for modern transmission, rear axle and hydraulic oils on page 14 of this edition of Lubevision®.



The Agri team launched the new Kroon-Oil Agri Ultra range in September 2018 during the largest agricultural fair in the Netherlands - AgroTechniek Holland.



MAINTENANCE IS DEFINITELY A MUST!

- » The Netherlands boasts 35,000 kilometres of cycle paths.
- » There are 22.8 million bicycles in the Netherlands. That's more bikes than people!
- » Over 1.4 million of these bikes are electric.
- » The Dutch cycle a total of about 15 billion kilometres per year. That's nearly 900 kilometres per person.
- » You will find most cyclists out and about between 8.00 and 9.00 o'clock in the morning.
- » 31 May is national cycle to work day.
- » We bike to work, drop our kids off at school and get out and about for fun and to help improve our health and stay in shape.
- » People that cycle to work at least 1x per week are 20% less likely to suffer from stress. People that cycle to work 4x a week reduce this risk by 52%.
- » Bikes are sustainable, environmentally friendly and help reduce traffic jams.

source: fietsersbond.nl | jan-magazine.nl | fietskeus.nl

ON YOUR BIKE!

The Netherlands has long been known for its enthusiastic cyclists. Together the Dutch cycle nearly 15 billion kilometres each year. This is almost 900 kilometres per person, per year. That's something to write home about. Owning a great bicycle is something that many people desire: a trendy one, a sturdy city bike, an attractive kid's bike or one with a basket on the front which allows you to transport your shopping. More and more different types of bikes are being made available. People tend to be drawn to light, aerodynamic models which feature a simple design (fixed gear bikes are a good example). E-bikes and mountain bikes are also becoming increasingly popular. In other words, modern bikes, in all shapes and sizes, are technical miracles. This requires professional maintenance at fixed intervals. This is where Kroon-Oil's year's of experience and history really come into their own.

XTREME

Kroon-Oil has developed a special range of bicycle care products for sports cyclists: Xtreme. This professional range includes the necessary products for lubricating and cleaning every type of (electric) bicycle. They offer powerful cleaning and lubrication for all your bicycle's mechanical parts which will allow you to keep your bike in top notch condition for longer. However, appearances matter too. The regular use of a quality bicycle product can help your bike shine. The products are environmentally friendly too, which is only natural seeing as bikes are the most environmentally friendly mode of transport. There are lubricants for all weather types and the cleaning products are all biodegradable. The Xtreme product range can be used with mountain bikes, BMX bikes, E-bikes, Pedelects, and racing and road bikes. It can also be used for city and touring bikes. 🏆





THE KROON-OIL FOUNDATION HELPS BY SUPPORTING LOCAL INITIATIVES

Giving something back to the area we live and work in. This is the driving force behind the Kroon-Oil Foundation. Because is there anything better than giving something to someone or something just because they need it? As a manufacturer of lubricants, Kroon-Oil B.V. has been socially active since 2014. "And that is extremely rewarding", according to Arnoud van Egmond, financial director at Kroon-Oil.

Arnoud van Egmond is one of the five board members for the Kroon-Oil Foundation. Employees from a variety of disciplines within the company make up the board. He tells us what makes the foundation so special. "It's not hard to donate funds to social foundations when you're a successful company. This is one of the things we do. However, the birth of the foundation has allowed us to do this with more focus and in collaboration with our employees. An arrangement has been made which allows employees to donate Kroon-Oil holiday hours to the foundation. The gross value of the hours is doubled by Kroon-Oil and that amount benefits the foundation. We support numerous local projects on an annual basis. This really helps increase engagement within the company. I'm really proud of what we've achieved."

DE VOEDSELBANK PROJECT

Kroon-Oil B.V. is located in Almelo, a relatively small city with just over 70,000 inhabitants. There are all kinds of initiatives and projects which focus on culture, youth and battling poverty. Van Egmond tells us about De Voedselbank. This organisation recently received funds from the foundation. "De Voedselbank [a food bank] helps Almelo's poorest inhabitants by providing them with food packages. I read an article in the paper pleading for help. They needed money. The foundation was on its very last legs. The board rushed to their

aid the very next work day. De Voedselbank, a carefully structured foundation run by volunteers and dependent on donations invited us to come and visit them. This allowed us to see where the funds donated by the foundation would end up. Seeing the 75 volunteers hard at work left a lasting impression. They are so efficient and dedicated and use a well thought-out system to determine how best to handle the food. A number of food packages were distributed during our visit. It was all a bit surreal. It's hard to imagine so many people living under the poverty level in the Netherlands", says Arnoud.

THE FOUNDATION'S FUTURE

Over the course of the past 4 years, the foundation has become a respected entity in Almelo. "We are satisfied with the foundation's current set-up. Seeing the impact we can make is impressive and rewarding. This is especially the case when helping local, small-scale projects. A donation of 'just' a few hundred euros can bring tears to the eyes of the recipient. It just brings home the fact that even the smallest amount of help can make a huge difference." 🙌

"LET'S JOIN FORCES TO MAKE THE WORLD AROUND US A BIT NICER!"

The Kroon-Oil Foundation is dedicated to improving the learning and living environment in Almelo and the surrounding area. Culture, the environment, safety and sport are important pillars of our society. The Kroon-Oil Foundation supports foundations and projects which contribute to these things. This support could be a financial gift but it could also consist of making materials or people available. Let's join forces to make the world around us a bit nicer. The Kroon-Oil Foundation was created by Kroon-Oil B.V. employees in 2014.

www.kroonoilfoundation.nl

**KROON-OIL
FOUNDATION**



CAN YOU KEEP UP WITH US?
FOLLOW US ON SOCIAL MEDIA FOR
THE LATEST UPDATES

