

LUBEVISION®

The Kroon-Oil B.V. corporate magazine full of news and knowledge related to lubricants

- + ACEA 2016!
- + FUEL-SAVING ENGINE OILS
- + ISN'T EVERYONE DRIVING ELECTRIC CARS?
- + ONLINE ADAPTER ADVICE
- + OIL IN A BAG? THE NEW BIB!



**CHANGING OUR
DRUM BUT NOT
OUR TUNE!**

LUBEVISION®

EDITION 19 - 2017

Lubevision® is the Kroon-Oil B.V. corporate magazine that focuses on sharing technical information related to lubricants and publishing news about products and services. Lubevision is published in Dutch, English and French. Nothing from this issue may be copied in any way whatsoever without written permission from Kroon-Oil B.V.

ALL YOU NEED TO KNOW

ACEA 2016

4

IMPORTANT UPDATE

Kroon-Oil.com

8

A SUCCESSFUL PARTNERSHIP

AD Ukraine

10

CHANGING OUR DRUM BUT NOT OUR TUNE!

Kroon-Oil is very proud to introduce its new large packs

12

FUEL-SAVING ENGINE OILS

Product update

14

IS YOUR BUSINESS READY FOR THE FUTURE TODAY?

Kroon-Oil develops products in line with your needs!

16

ISN'T EVERYONE DRIVING ELECTRIC CARS?

What will the future hold for a lubricants manufacturer?

18

NEW - POWERFLUSH® TPE

Now with online adapter recommendation

20

CUSTOMER SATISFACTION SURVEY 2016/2017

The results of your feedback

21

NEW - BAG-IN-BOX

Kroon-Oil presents the new Bag-in-Box large pack

22

ACEA 2016

In December 2016, it was finally time for the new ACEA release. Read all you need to know about the new sequence here...

4



THE KROON-OIL SPECIALIST

Custom-solutions are becoming the rule rather than the exception. Does this present an opportunity or a challenge? Are you ready for them?

16



ISN'T EVERYONE DRIVING ELECTRIC CARS?

"In 10 years' time, everyone will be driving electric cars, so what does the future hold for you as a lubricants manufacturer?"

18





A great deal is being written about the future of mobility; it is not entirely clear exactly what this future will look like and what the global impact on our sector will be. Even so, we try to already take account of that unknown element as much as possible in the choices we make today.

We are acutely aware that we operate in a polluting sector. That is precisely why it is especially important that we also give our full commitment to those activities in which we can be kinder to the environment, so that our carbon footprint is minimised permanently.

We develop fuel-saving lubricants, we seek alternatives to plastic packaging, and we also implement as many environmentally friendly solutions as possible in our working environment. Corporate social responsibility is rising ever higher on our agenda.

We develop our products in line with market requirements to enable us to continue to supply 'future mobility' with the right lubricants.

There are already alternatives for developing lubricants, for example. These include natural gas and other chemical solutions for obtaining base oil from non-petroleum sources.

What is more, we will see increasing numbers of electric vehicles over the course of time, and that will present challenges for our specialist field. Challenges, but certainly not impossibilities. Whatever the future holds, we will be ready for it.

You might have guessed that this edition of Lubevision has a futuristic feel. We will not be making any predictions, but we will show you what we are already doing in preparation for the future.

We hope you will enjoy reading this edition.

PS. We will very soon be changing our drum but not our tune! We are as proud as a peacock and we will present the result on page 12!

COLOPHON

Editorial team

Rosalie Altena
 Tom Bruggeman
 Jacco Nijhuis
 Bernard Voortman
 Jeroen Smalbrugge

Design and layout

Lieke Verspaget

LUBEVISION® is a publication of:

Kroon-Oil B.V.
 P.O. Box 149
 7600 AC ALMELO
 The Netherlands

Tel.: +31 (0)546 818165

info@kroon-oil.com
 www.kroon-oil.com





European
Automobile
Manufacturers
Association

ACEA 2016 LONG AWAITED UPDATE

In December 2016, it was finally time for the new ACEA release. It was still rather unexpected, though, when the ACEA 2016 engine oil specifications appeared under the Christmas tree! It was long overdue as the last major update was already four years ago, and the industry had been awaiting them anxiously.

The ACEA European Oil Sequences 2016 succeed the ACEA European Oil Sequences of 2012. The most important objectives for the new release are to replace severely outdated engine tests and introduce new tests. These new tests are intended to reliably map out the impact of biofuels on the performance of engine oil.

THE BAR IS SET HIGH

Increasingly stringent emissions legislation is placing significant pressure on the car industry to continuously develop new technologies. The fact that the bar has been set very high (perhaps too high for some parties) was demonstrated recently by the Volkswagen 'Dieselgate' scandal.

Also for determining and testing the performance level of engine

oils, it is very important that the bar is set high. It is necessary to perform tests using current hardware that is representative of the present state of the art. ACEA had a great deal of work to do and that was evident from the fact that ACEA 2012 still included engine tests using PSA TU5 and TU3 engines, among others (these petrol engines were already being used in the Peugeot 205!).

The 2016 overhaul was therefore seized upon in order to introduce a number of new engine tests. These replace a number of 'old' engine tests that are no longer representative of current engine technology. We will examine the most significant changes in this article.

Name of test	Engine used	Performance parameters	Features
CEC L-104	MERCEDES-BENZ OM646 2.2L COMMONRAIL DIESEL ENGINE	<ul style="list-style-type: none"> Piston cleanliness 	<ul style="list-style-type: none"> New test Measures the effect of biodiesel on engine oil quality: Bio-engine test Applies to all C- and A/B-specifications except A3/B3
CEC L-109	-	<ul style="list-style-type: none"> Oxidation increase Increase in kinematic viscosity 	<ul style="list-style-type: none"> New test Provides preventative protection against engine oil oxidation at higher operating temperatures that is caused by biodiesel Stricter limits apply for ACEA A5/B5 and all C-specifications than for ACEA A3/B3 and A3/B4.
CEC L-111	BMW/PSA EP6 1.6L PETROL ENGINE	<ul style="list-style-type: none"> Piston cleanliness Turbocharger cleanliness 	<ul style="list-style-type: none"> This high-temperature oxidation test replaces the aforementioned TU5 engine test. The new EP6 test engine features the required current engine technology, such as direct petrol injection and a turbocharger
CEC L-106	FORD/PSA DV6 1.6L DIESEL ENGINE	<ul style="list-style-type: none"> Viscosity increase at 5.5% soot in the oil Piston cleanliness 	<ul style="list-style-type: none"> Oil dispersion test Replaces the old DV4 engine test (a Ford/PSA 1.4l diesel engine with turbocharger and without intercooler) New DV6 engine test with more recent hardware such as a turbocharger with variable geometry and an intercooler
CEC L-112	-	<ul style="list-style-type: none"> Compatibility of the new generation of elastomers with engine oils 	<ul style="list-style-type: none"> Replaces the old elastomer compatibility test The use of new materials and seals in modern engines makes it necessary to replace the old test with a more representative test

With the exception of a minor adjustment to the phosphorus limit for ACEA C2 (formerly ≤ 0.09 , now $\geq 0.07 \leq 0.09$), no further changes have been made to the chemical SAPS limits for ACEA 2016.

DISCONTINUATION OF PSA TU3 TEST

The valve train scuffing test, also known as PSA TU3, is to be discontinued. This test was used to test wear on the valve train. The old test used the severely out-dated PSA TU3 1.4l petrol engine, which absolutely cannot continue to serve as the reference for the modern valve train designs. What is more, there is a shortage of available parts to enable the TU3 engine to continue to be manufactured. A replacement test is therefore not yet available. To make it possible to test wear on the valve train in petrol engines, ACEA is temporarily relying on the Mercedes-Benz OM646 diesel engine test.

INTRODUCING ACEA C5!

The modified tests are very important but are not really obvious at first glance to outsiders. In order to reveal the differences, the enthusiast must study the sequences of both ACEA 2012 and ACEA 2016 in detail. Far more significant and immediately obvious is the introduction of the new ACEA C5 specification!

This new C5 specification fulfils the long-held wish among OEMs to also have a specification with an HTHS of 2.6 to 2.9 mPas included in the C-category (particulate filter-compatible). It is necessary to combine a lower HTHS [*High Temperature High Shear viscosity at 150°C*] with use of the thin SAE OW-

20 and 5W-20 engine oils in order to fulfil the increasingly stringent requirements relating to exhaust emissions and fuel-saving measures. In terms of performance, the new C5 specification is a copy of the C3 specification, with exactly the same mid-SAPS limits, but obviously with 2% higher requirements in relation to fuel saving.

At present, there is still not a single car manufacturer that prescribes this new C5 specification. Nevertheless, we have already received a variety of queries as to whether we have a product in stock with the new C5 specification.

FIVE SPECIFICATIONS IN THE C-CATEGORY

With the introduction of ACEA C5, the C-category now consists of five different C-specifications; it started once with three. Together with the four different specifications from the A/B-category [for cars without a particulate filter], it became increasingly complex. In order to prevent the number of specifications in the passenger vehicle category from increasing further, ACEA has removed the A1/B1 specification. It was also possible to do this because the new C5 covers the requirements for lower viscosities and HTHS limits of A1/B1 in full. A1/B1 has therefore actually become redundant. C5 provides the same as A1/B1 with regard to fuel saving, with the bonus of compatibility with modern exhaust treatment systems.

IMPORTANT CHANGES IN THE HEAVY DUTY CATEGORIES

- The new CEC L-112 elastomer test (all E-specifications), the two new biodiesel tests CEC L-109 (all E-specifications) and CEC L-104 (E6 and E9 only) also apply to the Heavy Duty specifications.
- The Mack T11 engine test has been replaced with the more recent Mack T8E test. This test measures the relative viscosity at 4.8% soot in the oil and 50% shear loss (loss of viscosity due to shearing).
- Although the older Mack T11 test will continue to form part of the API CI-4, CJ-4, CK-4 and FA-4 approval programmes, continued use of the older Mack T11 test will only be permitted for ACEA E9 (because it is based on API CJ-4).
- No specifications have been introduced or removed in the E-category for 'heavy-duty diesels'. This category therefore still consists of the four familiar engine oil specifications: E4, E6, E7 and E9.
- No changes have been made with regard to chemical limits. Compared with the 'light-duty' categories, the 'tough guys' have therefore come off worst in the ACEA 2016 update.

INTRODUCTION TIME LINE

As ACEA 2016 was only released in December of last year, it is unrealistic to think that the entire lubricants industry can make all of its products compliant with ACEA 2016 overnight. That takes time (and we are being allowed that time). However, important steps have been taken with the ACEA 2016 update to synchronise performance requirements for modern engine oils with the lubricant specifications of the modern generation of engines with state-of-the-art technology.

Thanks to the addition of new tests, but also the replacement of extremely outdated engine tests, we can expect the new ACEA 2016 engine oils to guarantee a good basic quality level for the vast majority of European vehicles.

ACEA is using the timetable below for the introduction of ACEA 2016.

Sequences issue	First allowable use	Mandatory for new claims	Oils with this claim may be marketed until
2004	1 November 2004	1 November 2005	31 December 2009
2007	1 February 2007	1 February 2008	23 December 2010
2008	22 December 2008	22 December 2009	22 December 2012
2010	22 December 2010	22 December 2011	22 December 2014
2012	14 December 2012	12 December 2013	1 December 2018
2016	1 December 2016	1 December 2017	...

THE RULES OF PLAY

- Products to be newly introduced may feature claims according to both ACEA 2012 and ACEA 2016 until 1 December 2017.
- From 1 December 2017, engine oils to be newly introduced may only continue to feature claims according to ACEA 2016 specifications.
- Existing engine oils (introduced prior to 1 December 2017) may continue to feature claims according to the old ACEA 2012 specifications until 1 December 2018.
- After 1 December 2018, products with ACEA 2012 specifications will no longer be permitted.

We have already been working hard for some time to update all of our products to the ACEA 2016 level. All engine oil formulations are being checked and adjusted if necessary in order to comply with ACEA 2016. Over the coming months, the specifications of ever more Kroon-Oil products will change, from ACEA C3-12 to ACEA C3-16 for example. The last number refers to the year of the ACEA sequence in question. It goes without saying that all of our products will comply with ACEA 2016 well before 1 December 2018!

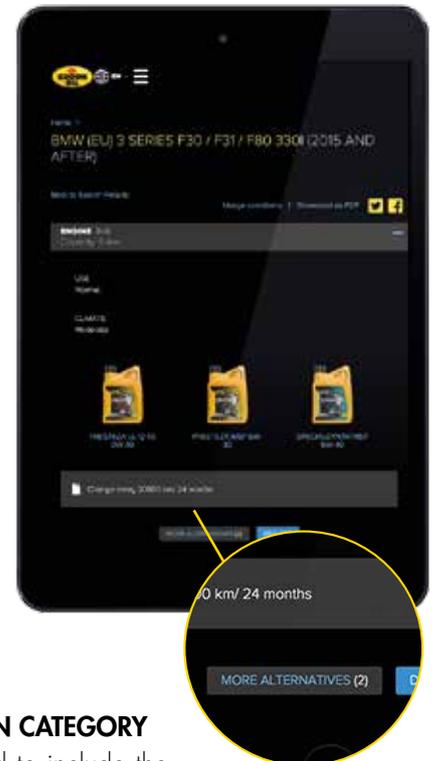




THE KROON-OIL WEBSITE UPDATE

In order to provide you with the best product advice at all times, we continuously invest in maintaining and improving kroon-oil.com. We devote a great deal of care and attention on a daily basis to providing the right advice, and we carry out 'fine-tuning' where possible. A range of features have become available on our website over the last few months.

The number of recommended products that can be used has been increased. If more than three products are suitable for your application, a 'MORE ALTERNATIVES' button appears under the recommendation. When you click this, the website shows multiple possible Kroon-Oil products.



NEW MARINE & WATERSPORT RECOMMENDATION CATEGORY

The recommendations database has been expanded to include the Marine & Watersport category

Using the 'smart search' option, you can now also search for engines, final drives, reversing gear couplings and other components in the Marine & Watersport category. In addition to high-grade products for heavier-duty marine applications, the Kroon-Oil Atlantic product line offers good coverage in the watersport segment.



MORE LANGUAGE OPTIONS

Kroon-Oil products are available in over 60 countries across the world. In all of these countries, customers need accurate product information and lubricant recommendations, and we respond to that by maintaining the Kroon-Oil systems and product labels in over 20 languages. As a result of the recent addition of Norwegian and Turkish, kroon-oil.com is now available in 12 languages. What is more, the website content is adapted as much as possible to the local situation; visitors in China see vehicles from the Chinese car market with local regulations, while visitors in Norway see a Norwegian number plate for identifying a vehicle, as well as the Norwegian language.



EXPANSION OF THE RECOMMENDATION TOOL WITH POWERFLUSH® ADAPTERS

Since the introduction of PowerFlush® and PowerFlush TPE, we have seen a high level of demand for detailed information relating to using the right adapters and connection equipment. For this reason, we have now pooled our ample practical experience into a digital system and added it to the product recommendation section on our website. A PowerFlush® logo is shown alongside product recommendations for automatic transmissions. When you click this, you will see a handy overview of available adapters for the transmission in question. This tool is especially useful for Kroon-Oil wholesalers and garage owners.

SSL CERTIFICATES ON THE KROON-OIL DOMAIN

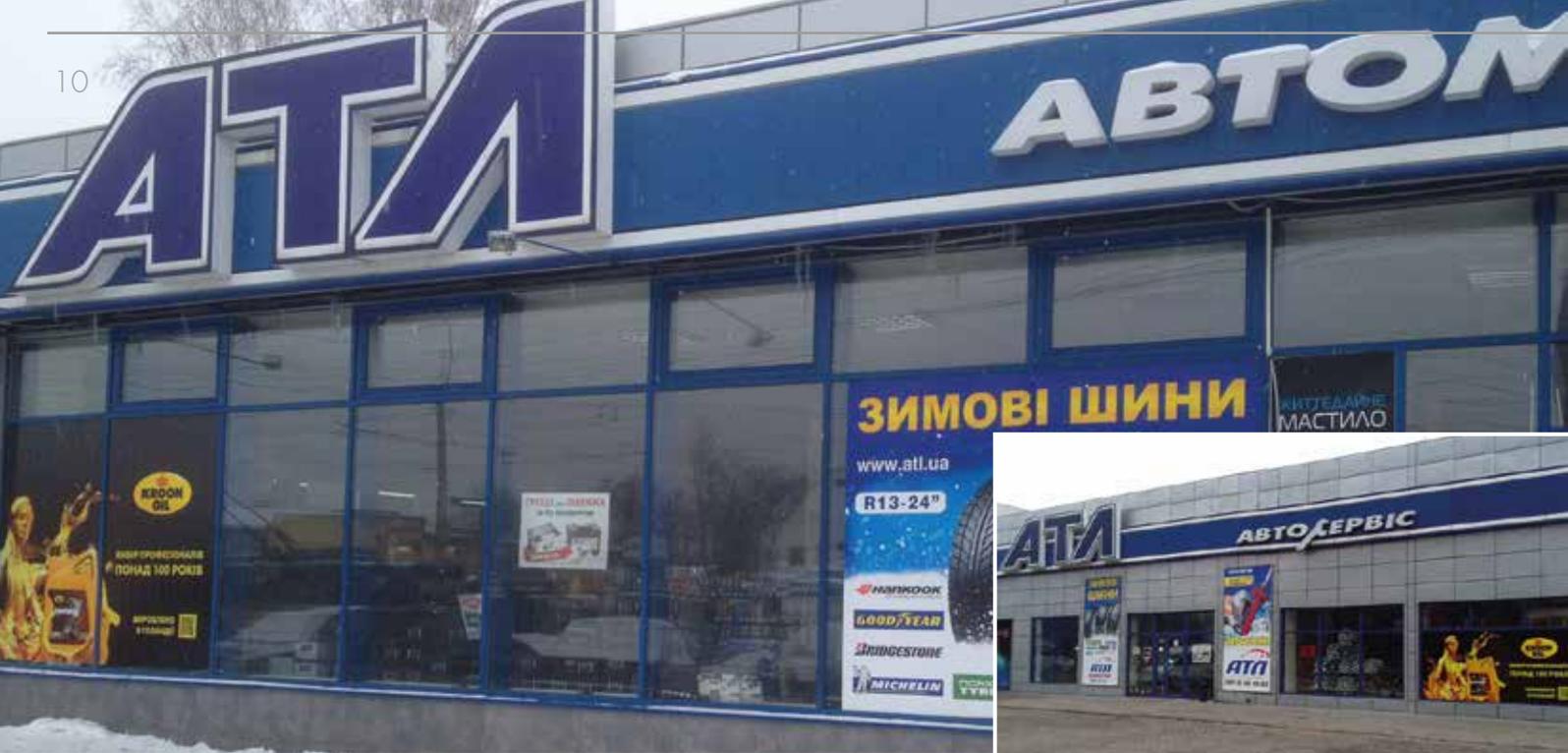
An SSL certificate encrypts data traffic between the browser and the server, so that confidential data are kept secure. The Kroon-Oil website, our brand portal and our customer portal KICK now use this security protocol. An external party verifies the authenticity of the site, and you are therefore assured of secure content and safe use of our websites and services.

 Secure | <https://www.kroon-oil.com/en/>

ABOUT WWW.KROON-OIL.COM

Since the introduction of the first online recommendations tool, the Kroon-Oil website has seen nothing but growth. Since then, users all over the world are being provided with the best oil-related advice in 12 languages. During the past year, the recommendations tool has generated over 2.5 million unique recommendations.

Since the early 90s, Kroon-Oil has had a clear perspective of the developments in the lubricants market. As a result of the significant diversification of oils and the use of oil as a construction component, it has become increasingly difficult to keep track of which products can be used for which application. These early insights already resulted in the development of a database that could be used to generate recommendations. This was initially available on CD-ROM, and later via the Kroon-Oil website. We still devote a great deal of care and attention to providing appropriate advice to this day. Our colleagues are busy every day with refining and expanding recommendations where possible. We also invest considerably in the maintenance and improvement of the Kroon-Oil website.



A SUCCESSFUL PARTNERSHIP

AD UKRAINE

Since 2012, Kroon-Oil has been represented exclusively by ESO Autotechnics, part of AD Ukraine, which in turn forms part of ADI (Auto Distribution International). ADI is one of the largest and most important cooperative wholesalers in the automotive sector and has a global partner network. We are therefore very proud of the successful collaboration and we asked Oleg Kisilitsa, head of product management, and Alexey Mitskevich, Marketing Manager at AD Ukraine, exactly **WHAT** makes this partnership so successful.

Alexey Mitskevich: "First and foremost, there must be trust. Kroon-Oil has proven itself to be a reliable supplier with a high service level. You respond quickly to queries, and you said from day 1 that, 'you are our partner, and we will work with you as the exclusive representative to build our brand in the Ukrainian market'". And that reliability is paying off. By investing jointly in marketing activities, Kroon-Oil is steadily increasing awareness of its brand. You will find Kroon-Oil billboards in various Ukrainian cities, delivery vans feature Kroon-Oil advertisements and shops are being fitted out with Kroon-Oil branding.

"In addition, Kroon-Oil has organised its technical support effectively. The website is commended for its user-friendliness and it was made available in Russian early last year. That is a definite benefit for our customers, because far from all of them are proficient in English", explains Oleg. "Soon, the technicians at Kroon-Oil will be providing some technical

training sessions in order to improve the general level of knowledge and perception regarding lubricants. And we can always count on relevant input even when it comes to technical articles in our AD Style magazine."

We asked Oleg, "what actually made you choose Kroon-Oil at the time? What was the deciding factor? After all, there are many oil brands to choose from that are much cheaper and others with global name recognition."

"Exclusivity was the deciding factor. We had poor experiences in the past with partners who violated the agreements and also began supplying our competitors after a while. We were also very impressed by the wide range of products. It was possible to buy not only all engine oils and gearbox oils, but also coolants and all manner of workshop products from a single partner. After visiting your production facility in Zwijndrecht, we also became convinced of the quality of your products and your

organisation. You work exclusively with renowned suppliers of base oils and additives, while not using regenerated base oils, plus you have many OE approvals. Because the last thing we need is quality issues", stresses Oleg.

On what time scale do you think you can achieve that? "That is difficult to say", replies Oleg... "This is the Ukraine, after all".

Finally, we asked Oleg and Alexey what they expect from the future. "We expect that we can triple the current oil volume over the coming years together with Kroon-Oil, and that AD Ukraine will achieve turnover in excess of 100 million euros."



АВТОТЕХНИКС
ЗАПАСНІ ЧАСТІ & СЕРВІС

AD UKRAINE IN FIGURES

- ESO Autotechnics established in 1994
- Joined AD Ukraine in 2007
- Market leader in parts distribution for passenger and light commercial vehicles
- 5,400 m² warehouse space in Kiev and 13,000 m² across the whole of the Ukraine
- 27 branches
- 4 representative offices
- 675 employees
- Over 120 brands
- 85,000 unique part numbers
- ESO Autotechnics completes 3,700 deliveries per day
- 24-hour delivery in any Ukrainian city and delivery within 2 hours in a city with its own branch.
- This requires an extensive logistics operation and also requires a reliable oil supplier with a wide product range.
- Marketing of AD Ukraine is intensive. The quarterly magazine AD Style is published in-house, with a print run of 7,000. It also organises its own trade fair annually, with visitor numbers ranging from 7,000 to 10,000 professionals. Furthermore, promotional campaigns are run on a regular basis for its customers.



'CHANGING OUR DRUM BUT NOT OUR TUNE'

Kroon-Oil is very proud to introduce its new large packs

NEW



PRODUCT UPDATE



Reducing fuel consumption, and in turn CO2 emissions, have been key concepts in the automotive industry for some time now. We cannot avoid them any longer.

New-generation engines require specific lubricants, which Kroon-Oil also provides. In addition to the familiar OW oils, Enersynth FE OW-20, Helar SP OW-30, Avanza MSP OW-30 and Helar OW-40 that have featured in our product range for some years already, the range has now been expanded with 3 new OW oils: Helar FE LL-04 OW-20, Presteza LL-12 FE OW-30 and Duranza MSP OW-30. The products reduce friction, while ensuring a smooth start and lower emissions.

HELAR FE LL-04 OW-20

Helar FE LL-04 OW-20 engine oil fulfils the latest VAG standard 508.00 / 509.00. What is interesting to note is that the 508.00 standard applies to petrol engines while 509.00 applies to diesel engines. The product is not suitable for engines that require a different specification, and is therefore a good example of a custom-made engine oil.

Helar FE LL-04 OW-20 has a characteristic green colour.



PRESTEZA LL-12 FE OW-30

Presteza LL-12 FE OW-30 is a mid-SAPS engine oil that fulfils the BMW Longlife-12 FE specification. The product is suitable for all BMW petrol engines supplied in Europe from 2002 onwards, and BMW diesel engines from model year 2014 onwards with no more than one turbocharger (all B37 3-cylinder engines, 4-cylinder engines from model year 2014 onwards and 6-cylinder engines from model year 2013 onwards).



DURANZA MSP OW-30

Duranza MSP OW-30 has been specially developed for the latest generation of Ford passenger cars and delivery vans fitted with a catalytic converter and/or particulate filter. It may be used if the Ford specification WSS-M2C950-A is prescribed. This oil also complies with the ACEA C2 specification.



MORE PRODUCT NEWS

PERLUS FG 32

32654 - 5 L CAN

Perlus FG 32 is a hydraulic oil based on food-safe base oils and advanced additives. The H1 registration indicates that the product is suitable for the food industry where occasional contact with food may occur.

Perlus FG 32 does not affect plastic seals, has a good anti-rust effect, and is an effective demulsifier, among other properties.

AVAILABLE
SOON



COOLANT SP 16

32693 - 1 L BOTTLE

Coolant SP 16 is a ready-to-use long-life coolant that is especially suitable for Renault, Nissan and Dacia vehicles. The product can be used in cooling systems of passenger vehicles, delivery vans and freight trucks. Thanks to the patented silicate-free technology based on polycarboxylic acids, Coolant SP 16 offers much longer protection against corrosion than standard coolant qualities. Vulnerable parts such as the radiator, water pump and thermostat have a longer service life as a result. The product provides frost protection down to -38°C .

AVAILABLE
SOON



SP GEAR LS 1015

32704- 1 L BOTTLE

SP Gear LS 1015 is a high quality, long-life transmission oil. The fully synthetic product is suitable for the entire drive line, including locking differentials and drives that require a Limited Slip transmission oil. SP Gear LS 1015 does not affect seals, copes exceptionally well with lengthy oil change intervals and prevents wear. It provides a strong lubricating film under the most difficult conditions.

AVAILABLE
SOON



GEAR GREASE EP 00/000

32343 - 600 G JAR

Gear Grease EP 00/000 is now available in a 600 gram pot! This lithium-based grease with extreme-pressure additives is suitable for central lubricating systems. By using lithium soap as a thickening agent, the product adheres strongly to metal. The additives provide excellent water displacement and effective protection against corrosion and wear, among other benefits. These properties make the product highly suitable for centralised lubrication systems and sealed, but not oil-tight, transmissions.



COMPOUND OGL EP 0/1

32570 - 400 G Q-CARTRIDGE

Compound OGL has recently become available in the special LubeShuttle grease cartridge. The high-grade lubricant grease is composed of an ultra-thick base oil and a mixed-complex soap base, and is suitable for heavy-duty applications in a range of industry sectors. Compound OGL EP 0/1 can be used as a lubricant for fifth wheels and heavy-duty open gears, such as turntables, or drive chains that work in the open air or in a dusty environment.





IS YOUR BUSINESS READY FOR THE FUTURE TODAY?

KROON-OIL DEVELOPS PRODUCTS IN LINE WITH YOUR NEEDS!

The limits on exhaust emissions, fuel saving and other environmental requirements are becoming increasingly important in the changing vehicle fleet. Manufacturers are therefore adapting their engines and systems, and for our part, we are producing lubricants that fulfil the requirements of the various OEMs. The result is a wider range of lubricants with (generally) lower viscosities. So where a 1,500-litre bulk tank used to provide ample coverage for the vehicles being serviced by a universal car mechanic, it now turns out that he needs to use an increasing number of specialised products.

CUSTOM PRODUCTS

A good example is the Ford EcoBoost 3-cylinder engine. Making concessions to the specified 5W-20 is not an option, as the technology will not allow it. In order to reduce internal friction even further, the timing belt runs through an oil bath. If you use a product for this containing a different set of additives, you run the significant risk that the belt, which is intended to last the entire life of the engine, becomes worn prematurely.

Another example is modern products that must not be used for older cars. Helar FE LL-04 0W-20 and Presteza LL-12 FE 0W-30 are ultra-modern engine oils for the latest generation of Volkswagen and BMW models. These products are not backwards-compatible with older models of these makes.

In short, custom-solutions are becoming the rule rather than the exception. Does this present an opportunity or a challenge?

PLENTY OF ROOM FOR MANOEUVRE

There are countless possibilities for keeping the necessary products in stock. Together with your wholesaler, we can advise you regarding the products and container sizes you need.

Switching to larger container sizes could be more cost-effective, for example; the price per litre of a 20-litre container is much cheaper than a 1-litre or 5-litre container. If you use too many 20-litre containers of a particular type, you can switch to the 60-litre drum. The price per litre of a 60-litre container is also even less than that of the 20-litre container. What is more, a practical and attractive stand has been developed for both container sizes that you can use to store the products efficiently. If even the 60-litre container turns out to be too small, a 2x 208-litre assembly on a drum spill pallet could be a good option. The drums are fitted with a pneumatic drum pump, a 10-metre hose reel and a digital drum level gauge. Place this

in the centre of the workshop and you have literally plenty of room for manoeuvre.

NOT ENOUGH SPACE?

Some workshops do not offer enough space for the aforementioned solutions. But even in those cases, we can provide the solution with the mobile oil system, featuring a pneumatic drum pump, digital drum level gauge and 10-metre hose reel or 3-metre hose.

GETTING THE LOOK

In addition to support and advice in relation to our product range, we can also lend you our assistance in achieving a professional look for your business.

This can include:

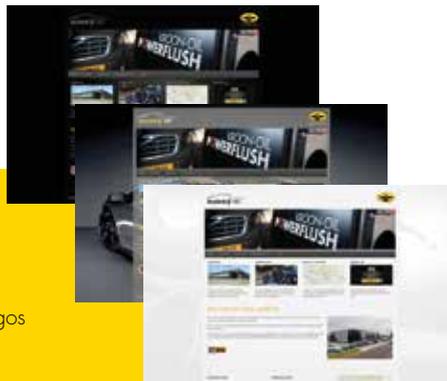
- Corporate clothing
- Cladding
- Light box panels in existing light boxes
- Oval Kroon-Oil light boxes
- Service specialist/dealer wall sign
- Various oil equipment
- Kroon-Oil promotional items

ATTRACTIVE COMPANY WEBSITE

In collaboration with Autosoft, we can also offer you an appealing website that you can use to achieve a professional online profile for an attractive price. The website is ready for the future with responsive technology, whereby the format automatically adjusts to the screen being used. That is important because 80% of internet users view webpages on a tablet or smartphone.

All of this is made even more interesting for you with the Garage Support plan. If you decide to purchase your oil from Kroon-Oil, you can include all of the above equipment solutions in the support plan.

Contact us for further information and details of the terms and conditions.



YOUR OWN PROFESSIONAL WEBSITE

- Own URL
- Choice of 3 modern templates
- Adapted to your corporate identity and logos
- No additional costs, fully ready to use
- Including hosting and email addresses
- Including option to request a workshop appointment
- Social media integration
- Especially for garage businesses
- Including a very user-friendly administration environment and special administration app
- Optimised for generating hits in search engines
- Including Kroon-Oil product advice banner
- Comes with free e-commerce module for 5 used cars (can be expanded as an option)
- Fully responsive, suitable for desktop, tablet and mobile devices



20/60-LITRE DISPLAY

- The drip tray enables the garage to comply with environmental requirements
- Sleek, aesthetically pleasing design

20-litre display

- The price per litre of a 20-litre container is even less than that of the 1-litre and 5-litre containers.
- You won't run out quickly using the 20-litre containers, since you will have a few extra litres available.

60-litre display

- The price per litre of a 60-litre container is even less than that of the 20-litre container
- Easier to work with than upright drums with a drum pump on a drum spill pallet
- No undesirable oil bath on the drum
- Choose a high-quality, tightly closing drum tap that is suitable for re-use (Sette)



300-LITRE LIQUID STORE

- The bulk tank of the future
- Sleek and tidy design
- Easy and tidy to use thanks to the tap and drip tray
- More stock than a 208-litre drum but takes up less space than a bulk tank



“IN 10 YEARS’ TIME, EVERYONE WILL BE DRIVING ELECTRIC CARS, SO WHAT DOES THE FUTURE HOLD FOR YOU AS A LUBRICANTS MANUFACTURER?”

It is not surprising that we are frequently asked this question. Yes, there is certainly evidence of a transition and changing demand. Globally, however, there are still many developments that are resulting in an increase in demand for lubricants for the time being. We are seeing two important trends in this regard: on the one hand, the demand for lubricants is related to the mass motorisation in regions such as Africa and Asia, in particular. On the other hand, it is due to developments relating to electric driving predominantly in richer parts of the world. It is a change that will still take decades to happen.

MASS MOTORISATION

Mass motorisation, which emerged around 1900 following the invention of high-speed combustion engines, is still ongoing and is only accelerating. The need for lubricants manufacturers such as Kroon-Oil also originated from this and it is still growing. Mobility, with all its strengths and weaknesses, has given rise to unprecedented economic growth, and lubricants are still an essential product for lubricating these engines (not forgetting gearboxes and transmissions). Mass motorisation has given rise to a growing demand for lubricants worldwide. Continents such as Africa and Asia (particularly China and India) are making significant steps to catch up and are growth markets in the true sense. For the time being, it is a case of more, more and yet more.

Lubricants are used for many other purposes, of course, such as agriculture, shipping, mining, the energy sector and industry. This last sector is very broad! Lubrication has always been needed, and the production of lubricants is essential in order to keep the world moving.

The other trend is ‘the world is undergoing mass electrification on a large scale’

It is widely known that CO₂ emissions and harmful exhaust emissions need to be limited. A high level of emissions (caused by the combustion of fossil fuels such as coal and natural gas in whatever form they may take) certainly seems to be causing the greenhouse effect. In the long term, global warming will result in climate problems and a rise in the sea level as a result of melting ice caps. Agreements have therefore been reached by countries across the world to drastically limit their CO₂ emissions. That is proving to be a difficult task in practice, however.

Limiting harmful exhaust emissions also plays an important role. Metropolises and large agglomerations in particular often have to contend with smog formation caused by road traffic, industry and power plants. Politicians are searching with might and main for solutions because the situation is increasingly threatening to get out of control and there are significant health risks to residents. On condition that energy is generated in a carbon-neutral way and the electrification of the vehicle fleet is increased, there is a

great deal of benefit to be gained from it.

In theory, mass electrification is a good way of limiting CO₂ emissions. The proviso here is that energy is generated in a carbon-neutral way using wind, solar energy or hydropower. However, it also requires a great many financial and technological sacrifices in order to increase production capacity. That process is irreversible, though, and it has been firmly initiated, particularly in developed countries. Norway, for example, is a country that is performing a pioneering role in this. Part of the reason for this is that Norway generates over 90% of its electricity from hydropower.

There seems to be a momentum at the moment that offers the opportunity to replace combustion engines with electric/hydrogen cars. Whether this is likely to succeed depends largely on politicians who are required to implement policy into regulations, which is something that is more successful in wealthier countries. Fiscal measures are an important tool in doing this, but not all countries have the funds needed for this.

Even so, the demand for lubricants for the automotive channel will ultimately decline, but there is still a long way to go before we reach that point. It is not possible to say exactly how long, but there is a reasonable chance that it will last another 50 years or so. Of course, the market will continuously change during those 50 years, and Kroon-Oil can and will actively respond to this changing market. As a production company with high blending capacity, what type of lubricant is being manufactured is of secondary importance.

In short, lubricants for automotive applications will be needed for a long time yet. Changes are happening, but not at such a speed that we cannot change in time and prepare ourselves for other markets and products. It will certainly not be the case that engine oils and (car) transmission oils will no longer be needed within the next 10 years.

RESPONDING TO DEMAND

If there is no longer any demand for 2-stroke products, we will switch to production of more 4-stroke products; a development that is already under way. If more industrial products are required, then we will switch to manufacturing those. And so on.

WHAT ABOUT WHEN CRUDE OIL RUNS OUT?

There are enough reasons to assume that even this will not cause any problems. There are natural alternatives that provide outstanding lubricants, certainly when you let chemistry loose on them. The Stone Age did not come to an end due a shortage of stones, and neither will that happen due to a shortage of crude oil. Perfect lubricants can be manufactured from natural gas as a raw material, for example, and the natural gas reserves are many times greater than that of crude oil.

Kroon-Oil keeps up to date with global developments; whatever the future brings, we will be ready for it!

‘ Global **production of freight vehicles and cars** is currently almost **100 million per year** and varied between 70 and 90 million during the last ten years.

‘ The **world’s population** is **currently around 7 billion** people and is likely to have increased to **9 billion within 30 years**. Growth is occurring particularly in Africa, India and Asia, where mass motorisation is still fully under way.

‘ **Around 1 billion cars are currently on the road**. This figure is expected to increase to **at least 2 billion**, with the primary power source being: a **combustion engine**. As a percentage share, electric cars are still a large minority.

‘ The average **service life** of a car is somewhere **between 15 and 25 years**.

‘ The total **production** of cars that are **100% electrically powered** (battery or hydrogen-powered) **is currently negligible, but is increasing**. Many car manufacturers are getting on board, although it still costs a lot of money at present. They don’t want to miss out, but are also hedging their bets.

‘ **Diesel engines** for cars account for only a small number among the total worldwide. This is predominantly a **European development** and is a downward trend, particularly due to the costly NO_x exhaust treatment systems and all the political furore as a result of the VW diesel emissions scandal. From a political and environmental standpoint, a diesel engine is becoming increasingly difficult to defend. **From a technical perspective, the costs of making a diesel engine compliant with the latest (future) exhaust emissions requirements are threatening to become excessive.**

‘ Cars with a hybrid engine, plug-in cars and cars with a CNG or LPG engine (varying from country to country) are becoming increasingly popular (whether or not as an interim solution), but are **still fitted with a combustion engine**.

‘ In the Netherlands, roughly 60% of cars are purchased through a business and **fiscal measures are a means of implementing changes**. This was **abolished** de facto on 1 January 2017 as a result of the changing level of additional tax liability. Only, there is still an exemption for completely electric cars that are subject to the reduced rate of 4% and that are purchased before 31 December 2020. This low additional tax liability rate of 4% then applies for no more than 60 months. This electric segment is expected to still increase considerably, but **as a percentage share will still remain low compared with the total number of vehicles on the road**.

KROON-OIL POWERFLUSH® TPE

Kroon-Oil recently introduced PowerFlush® TPE! The successor to our successful PowerFlush® device is even more practical to use! You control the entire machine flushing process by turning just one lever. What is more, the built-in flow indicator uses a buzzer to tell you whether the adapters are connected properly.

- Even easier to use with a single-switch system
- Contaminated oil does not flow through the pump
- Temperature indicator
- Integrated flow indicator with warning buzzer

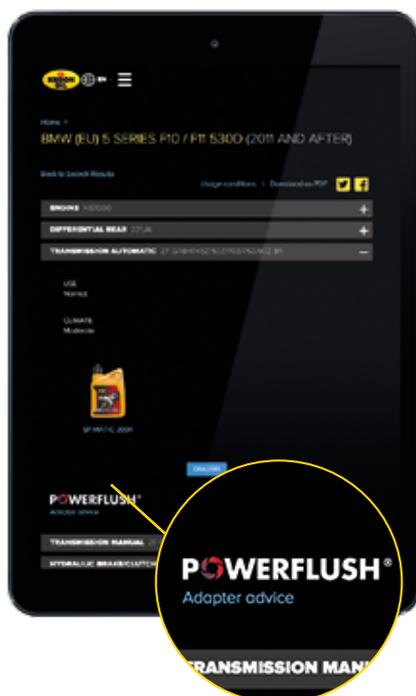
WWW.KROON-OIL.COM | NOW WITH ONLINE ADAPTER ADVICE

Our online advice database has been expanded to include a new function: adapter recommendations! A unique feature that is now available to our customers. From now on, customers can see at a glance which adapter they need for a PowerFlush treatment.

During the past year, all our experience in relation to the adapters needed for machine flushing has been recorded in an extensive database. It already has wide coverage at present and we will continue to add newly available information to this database in the coming months.

HOW IT WORKS

From now on, a PowerFlush logo will be visible next to the lubricant recommendation for an automatic transmission. When you click on it, an overview of possible adapters for this automatic transmission will appear.



single-switch system

temperature indicator

warning buzzer



NEW

Now with online adapter advice | www.kroon-oil.com

CUSTOMER SATISFACTION SURVEY 2017

In April of this year, we asked all of our customers to give us their opinions about us. On average, you gave us a score of 8.5! It is, of course, fantastic when a good score emerges from a customer satisfaction survey; it is a complement to everyone who works hard every day for our company. On the other hand, feedback is always welcome because we are willing to continuously improve.

The main topics that were covered this year were supply reliability, service, product quality and peace of mind. On average, you gave us a score of 8.5 and we are proud of that! We also gave everyone the opportunity to suggest points for improvement. We address these points for improvement and we also implement them where possible. We also came across a few tips that we would certainly like to share with you. They concern things that are already available to our customers, but which probably not everyone may be aware of. We would like to take this opportunity to make you aware of these points. Below are three comments from the survey, with the available solution stated under it.

1. *'An oil module for integrating into other websites would be useful'*

All of our customers are able to integrate a special recommendations banner into their website, which even enables lubricant recommendations to be given on the basis of the vehicle registration number! We also have a web service that enables you to carry all Kroon-Oil product information on your own website (free of charge). This API works with real-time information; whenever we modify something in our systems, such as an image or specification, the information on your website is also adapted automatically. What is more, the API provides a unique (paid-for) means of integrating oil advice into your own website.

For further information about the recommendations banner and Kroon-Oil web services, please get in touch with us by emailing marketing@kroon-oil.nl.

2. *'Good documentation about oil and adapters for flushing'*

At kroon-oil.com, the PowerFlush adapter recommendation has now been integrated. If you search by the registration number or model number of a car with automatic transmission, you automatically see a recommendation for both the ATF and adapters to be used. You can also find a video manual for both PowerFlush and PowerFlush TPE at youtube.com/kroonoiltv.

3. *'A better website. Searching has become a bit more difficult.'* Following the launch of our new website in 2014, we received various queries and comments regarding searching on kroon-oil.com. There are several ways to search on kroon-

oil.com, and the web statistics show that users have since found it easy to navigate the website. As we would like to eliminate any lack of clarity, we have listed the search options briefly below.

The most familiar method is to search by vehicle registration number, while the next most popular method is to search by the make and model of vehicle. You can also search using the internal code for the model series. For example, BMW F11 or Mercedes W211.

Other options

You can enter various search terms in the grey search bar, which is located in the top right-hand corner of the kroon-oil.com website.

1. Searching by part number
2. Searching by product name
3. Searching by viscosity, such as 5W-40
4. Searching by specification, such as ACEA C3
5. If you want to search for a product but you don't know what it is called, 'sewing machine', 'grass mower' and 'saw', for example, will also generate a very specific result
6. You can also search by the type of application, such as: 'H1', 'Agri' or 'industry'

You can find more search tips at www.kroon-oil.com. Type the term 'tips' into the grey search bar in the top right-hand corner and that will take you to the article 'Tips for carrying out searches on the kroon-oil.com website'.



8.5

NEW KROON-OIL Bag-in-Box

It takes some getting used to, a bag of oil. But we have since come around to the idea and we hope you will soon, too!

The Bag-in-Box is the perfect replacement for the 20-litre pail and also for other packaging formats in the future. It is ideal for the packaging, transport and use of lubricants. Plus, it looks pretty cool too.

- The surrounding box made from solid cardboard provides optimal protection during transport.
- Filled packs are easier and more efficient to stack
- The bags have been specially developed in order to store the specific type of fluid
- **The special tap prevents air from entering the pack, making dispensing easy while avoiding spillages!**
- **The strategically positioned handles make it easy to carry and use the box**
- Waste separation is easy
- Bag-in-Box has a lower carbon footprint than plastic alternatives
- Can be used in the existing 20-litre display

Try it for yourself!



efficient logistics | waste reduction | spill-free | easy pouring

recyclable packaging
ecoFRIENDLY 

Multi-layer flexible pouches are more environmentally friendly than rigid packaging for many reasons. Not only do pouches use fewer materials, they also result in savings in terms of storage and transport. And that in turn results in lower CO2 emissions.

What is more, the flexible material enables the end-user to easily squeeze every last drop of product out of the pouch, so there is less waste.



60%

less non-recyclable waste

40%

less volume when stored

90%

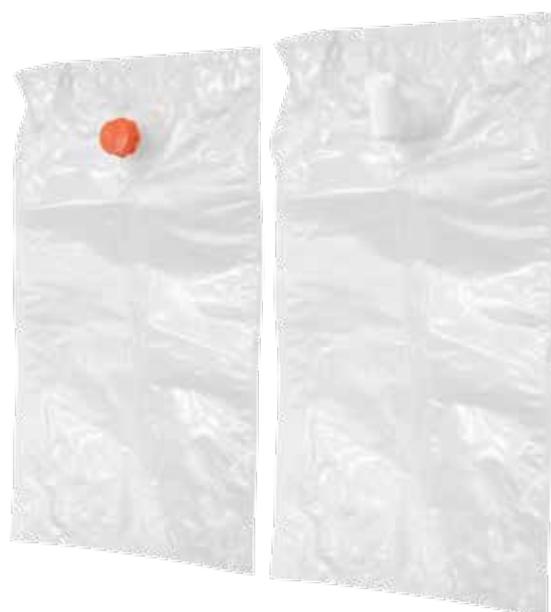
less transport space when packs are empty



100%

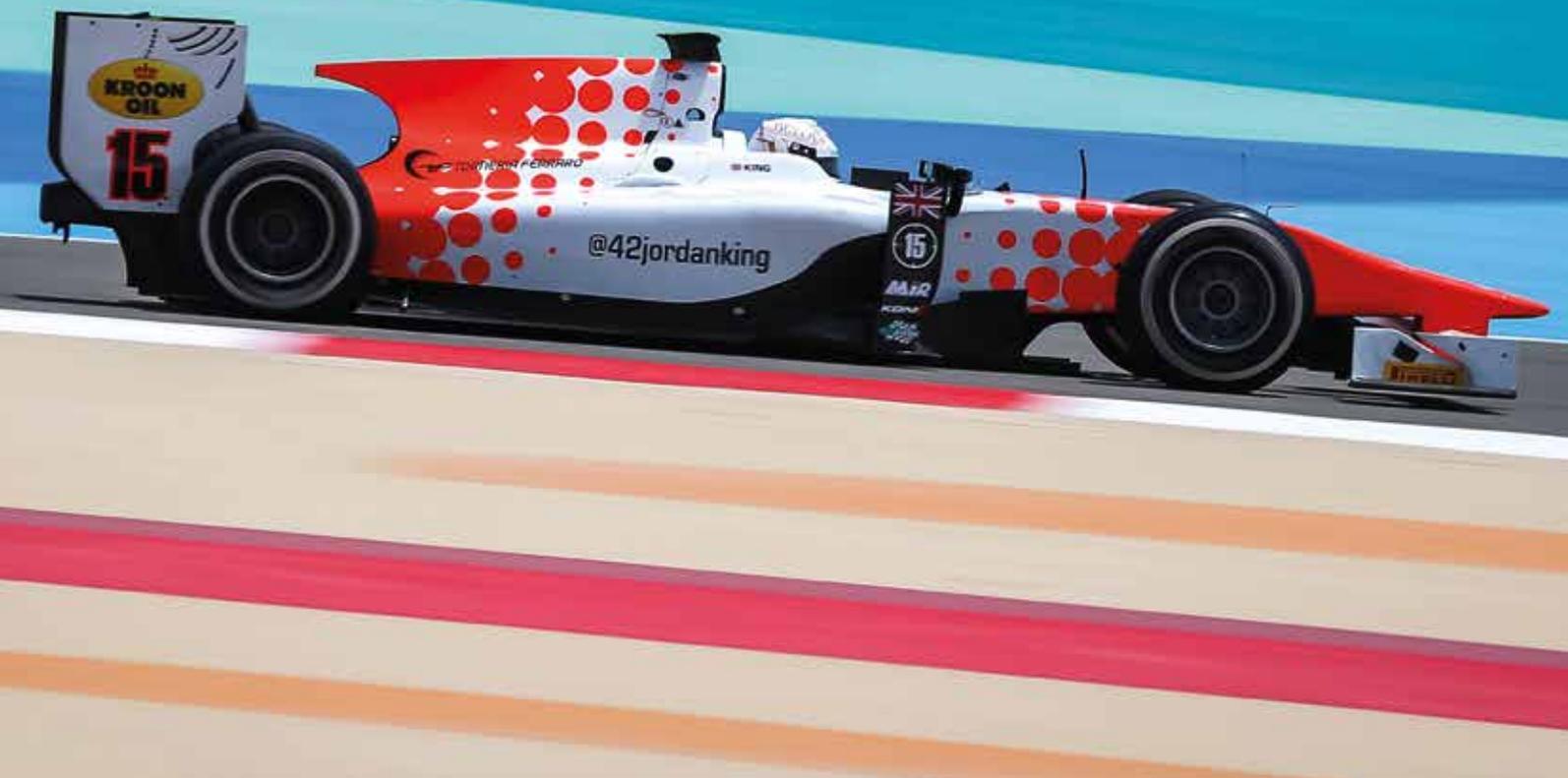
more ease of dispensing and use

The space taken up by part-filled packs during transport has been reduced by as much as 90%. To give one example: Over 300,000 unfilled pouches will fit into one truck (depending on the size, of course). To transport the same number of plastic bottles would need 9 trucks(!)



THIS BAG-IN-BOX PACK WILL BE AVAILABLE SOON

HIGH PERFORMANCE LUBRICANTS
**TOP DRIVERS RELY
ON TOP QUALITY**



MP
MP MOTORSPORT

Bahrain | FIA Formula 2 | 2017
#15 Jordan King

