



THE MARKET REPORT

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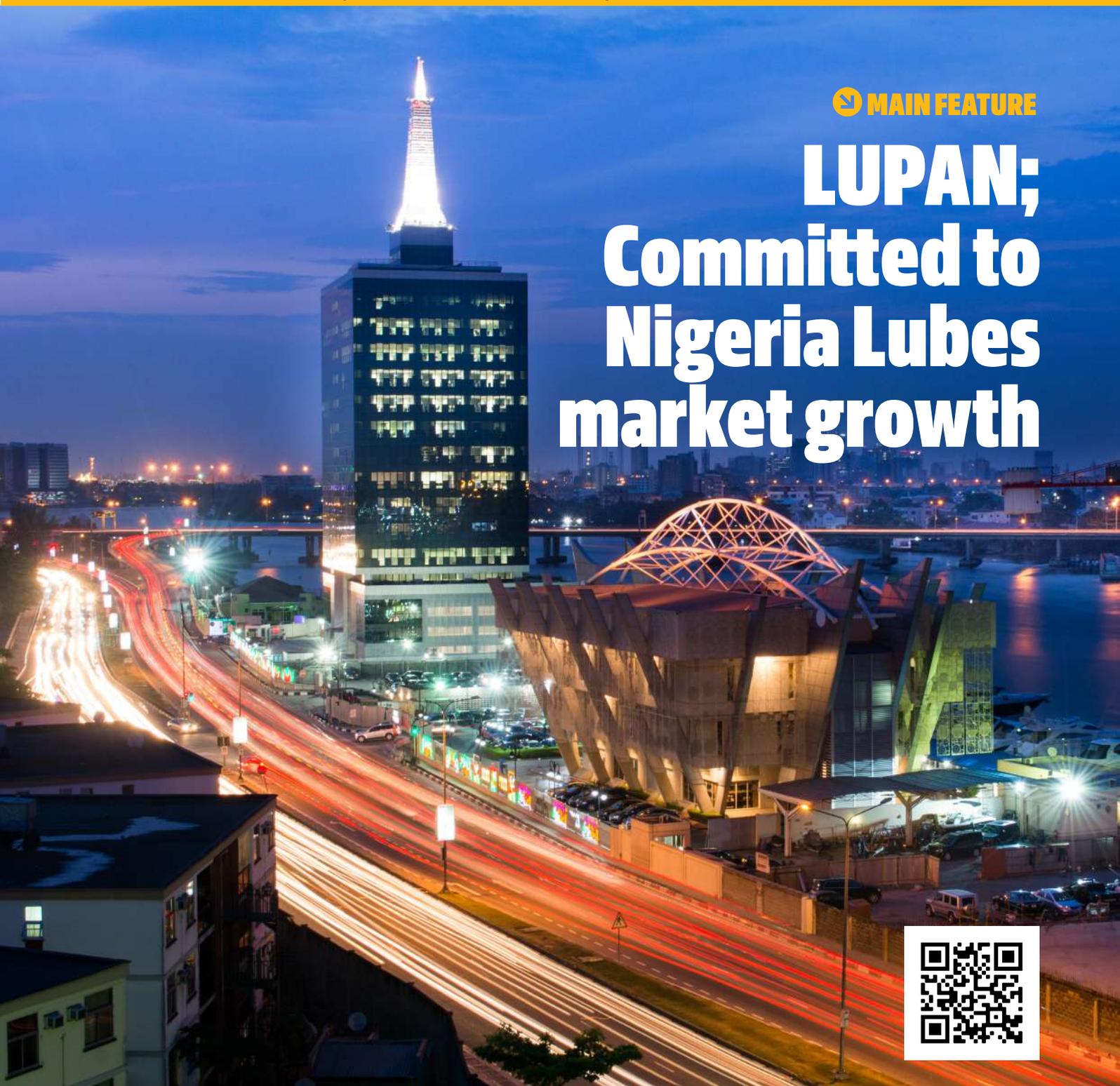
Lubezine®

Focusing on Africa's lubrication needs

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🕒 MAIN FEATURE

LUPAN; Committed to Nigeria Lubes market growth



PLUS: EXPERT INTERVIEW WITH NAGESH RAJAN, LUBRICANTS MANUFACTURING SPECIALIST AT ORYX ENERGIES TANZANIA P.26

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SKF partners with Certas Energy to distribute SKF RecondOil box in the UK

Shell Aviation rolls out a lubricants lifecycle sustainability approach

ADNOC Distribution signs a lubricants agreement with India's HPCL

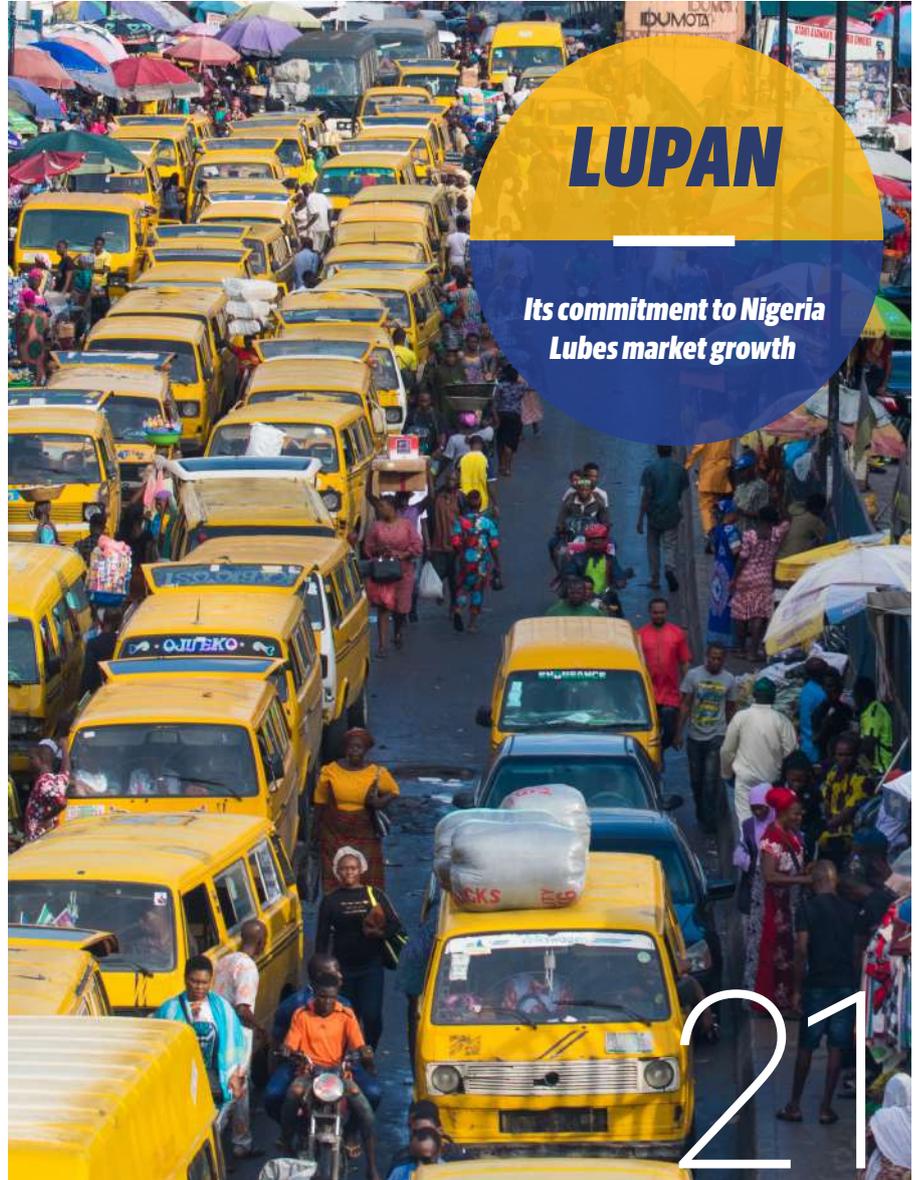
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Cover Image - Victoria Island, Lagos Nigeria, landscape view of the street at dusk

SOURCE | SHUTTERSTOCK/BAS5EY



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Dr. James Wakiru

Lubezine Magazine | Editor-in-Chief

Fostering growth in the lubes industry through Professional Associations

Welcome to the 46th edition of Lubezine, which brings you the happenings in the lubricants industry in the third quarter. This edition is loaded with news from Africa and globally foregrounding the new products, partnerships and features that delve into lubricant-related topics.

In the cover feature, we look at the Lubricants Producers Association of Nigeria (LUPAN), an organization based in Nigeria comprising of lubricants blenders. LUPAN was started in 2009 with the vision of developing and promoting the lubricant industry as it affects the national economy. It has close to 40 members, and its membership is exclusive to corporate bodies licensed to carry on the business of lubricant blending by the regulatory body of the Nigerian petroleum sector, the Nigerian Midstream and Downstream Petroleum Regulatory Authority (NMDPRA). These corporate bodies must be indigenous and operate a standard blending plant accredited by the Agency.

LUPAN has been very instrumental in advocating for the interests of its members while also liaising with government regulatory agencies like the Department of Petroleum Resources (DPR), Standards Organization of Nigeria (SON), and Petroleum Products Pricing Regulatory Agency (PPPRA) among others. The article highlights the activities LUPAN has been involved in to improve Nigeria's lubricants market and its plans.

As is our norm, in the professional interview segment, we bring you experienced experts in the lubes sector to share valuable insights about the industry. This edition features Mr. Nagesh Rajan, the Lubricants Manufacturing Specialist at Oryx Energies Tanzania. Before joining Oryx Energies Tanzania, Mr Rajan worked in Asia for nearly 20 years. As he explains the lubricants business of Oryx Energies; he also helps us understand the similarities and differences between the Asian and African lubricants markets.

A technical article by Andres B. Lantos from WearCheck Argentina on turbine oils looks into lubricant oxidation and varnish formation in turbines and how oxidation

can be checked in turbine oils. It also offers insights into the different strategies that can be adopted to maintain high antioxidant levels in turbine oils.

Sustainability remains a crucial focus in the lubes market, and Oil Marketing Companies (OMCs) are constantly innovating with this subject in mind. FUCHS recently launched a sustainable grease for heavy-duty trucks, Eurol launched biodegradable lubricants, and Shell Aviation introduced a new lifecycle sustainability approach for its AeroShell aviation lubricants to avoid, reduce, and compensate for lifecycle carbon emissions. In Kenya, Vivo Energy's joint venture lubricants blending plant, Shell & Vivo Lubricants (SVL), teamed up with Blowplast and Mr. Green to launch eco-friendly packaging for the Shell-branded lubricants.

More features in this edition include: news updates like ENOC starting distribution of lubricants in Kuwait, Valvoline, Aston and Martin lubricants partnership among others. We welcome you to indulge. ■

Enjoy the read.



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KENYA

Shell & Vivo Lubricants unveils Eco-friendly lubricant packaging

Vivo Energy's joint venture lubricants blending plant; Shell & Vivo Lubricants (SVL) has teamed up with Blowplast and Mr. Green to launch eco-friendly packaging for the Shell-branded lubricants. The new pails are made using post-consumer recycled materials (PCR) which promotes sustainability and reduces carbon emissions.

The 1 litre packs are made with 30% recycled PCR and 70% virgin plastic. Mr Green Africa collects plastics and processes them into pellets before they are mixed with virgin material at the Blowplast plant to make the lubricant containers.

During the packaging unveiling, the General Manager of Shell & Vivo Lubricants Kenya, Mr. Phelix Ogolla, addressed the importance of running a sustainable and responsible business. "As part



From L-R Mr. Green Africa Chief Business Enabling Officer Karim Debabe and CEO Ms. Sonia Orwa, Blowplast MD Mr. Sanjay Brahmabhatt, Shell & Vivo Lubricants Vice President Mr. Ashish Chaturvedi, Shell & Vivo Lubricants General Manager Mr. Phelix Ogolla and Blowplast COO Mr. Mark Alila. SOURCE | VIVO ENERGY

of our journey to be responsible to the environment, we have been exploring what we need to do with our packing to run a sustainable business that is sensitive to the environment and respects the communities

we exist in. Therefore, one of the initiatives we started was to review the content of our specifications in our plastic packaging in line with the Shell guidelines, the output being that we have now

partnered with Blowplast and Mr. Green Africa to use post-consumer recycled material in our plastic packs to deliver that sustainability goal."

The Country CEO Kenya at Mr. Green Trading Africa Kenya Ltd., Sonia Orwa, said, "This is a great moment not only for Mr. Green, Blowplast, and SVL but for the world. We all know we have an enormous plastic challenge, and what we are doing today is to show that we are acting, and not just printing stories on our websites, that we are really taking the plastics in the environment and bringing it back and giving it a new life. For Mr. Green, it is an inspiring moment because this is 30% recycled PCR in this new Shell package. I think we are cleaning the environment and the world knows we need to, but even more so, we are giving livelihoods to many people." ■

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HERCULES GLOBAL

Opening a lubes blending plant in Senegal **P.5**

KENYA

Lubes Africa Ltd launches MaintenancePro Africa

Lubes Africa Ltd, publisher of Lubezine Magazine, has launched MaintenancePro Africa (MPA), which provides lubrication and maintenance advice as well as reliability training. MPA was established to provide responsive maintenance and lubrication optimization solutions and training in Africa.

MaintenancePro Africa helps organizations make the best use of their assets strategically and efficiently while improving the overall health of their assets, resulting in increased efficiency and return on investment (ROI). MPA also analyzes and examines an organization's current health, performs vulnerability

analysis, and ultimately provides solutions that improve asset and process reliability, improve maintenance and safety operations and reduce downtime and failures.

Some services offered include maintenance, lubrication consultancy, and reliability training.

Maintenance consulting includes optimizing asset reliability, setting maintenance goals and key performance indicators, optimizing inventory, optimizing spare parts, and optimizing life property, among other purposes.

Lubrication consultancy services include a lubricant survey, identification of all equipment lubrication points in the plant and the

actual lubricant used, root cause analysis based on oil analysis, recommendations and lubricant selection, and lubricant storage design.

The training will include courses on lubrication reliability and maintenance. Some courses in lubrication cover lubrication fundamentals, contamination control, lubrication Survey and Charting, lubrication failure modes analysis, and lubricant selection and storage. Maintenance courses include advanced maintenance data-driven decision support, failure and failure root cause analysis, Reliability-Centered Maintenance (RCM), safety engineering and management, and many others. ■



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TotalEnergies steps up its marketing activities in Africa

TotalEnergies Marketing Kenya, has been running a lubricants promotion dubbed “beba beba na Rubia” whereby if customers buy a 5L bottle of Total Rubia engine oil, they are given one litre of the same engine oil for free. The promotion targets vehicle owners, passenger and commercial vehicles drivers.

Total Rubia engine oil is used on diesel engines, with mineral and synthetic lubricants to choose from.

In Egypt, TotalEnergies has also been running a similar campaign in that if customers buy Quartz Oil XTRA 9000, INIO 5W-40 or 5W-30 they get quartz T-shirt gift. If they buy the Quartz Oil 7000 S or 5000 SL they get a free sports bag.

In Morocco, TotalEnergies had a second edition of a promotion called Quartz Tombola with the grand prize being a new car. To participate



Mbele iko sawa na Rubia



Découvrez votre nouvelle baie Autofast by CFAO de la station-service TotalEnergies Djoungolo située à la montée Caveau



in this promotion customers, needed to;

- Go to one of the participating gas stations,
- Buy a 5 liter can of Quartz lubricant,
- Take a photo of it and send it by WhatsApp.

Customers are then given further instructions to finalize their participation. Other prizes to be won include bicycles.

In Cameroon, TotalEnergies launched a new lubricant packaging intended for automotive maintenance professionals: Quartz Box. TotalEnergies says this is a ready-to-use solution for garages, it reduces plastic waste by 86% and increases the product volume by 20%. The launch of this box by TotalEnergies Marketing Cameroon was in partnership with 3S Motors, a major player in automobile maintenance. The city of Douala was chosen

as a pilot city of this project, due to the constant increase in demand for automobile maintenance. Soon, the solution will be deployed in several other cities in the country.

Still in Cameroon, TotalEnergies partnered with CFAO Cameroon which operates Autofast car service centres. A new Autofast bay was opened at TotalEnergies Djoungolo, located in Yaoundé at Montée Caveau. It is open 7 days a week and from 7 a.m. to 7 p.m. Motorists will have access to TotalEnergies lubricants, tyres, batteries and spare parts.

This partnership covers five African countries which are Kenya, Senegal, Côte d’Ivoire, Cameroon and Nigeria, with Autofast planning to launch in other countries within Sub-Saharan Africa. ■

Hercules Global opens a lubes blending plant in Senegal

A Senegal based oil marketing company Hercules Global SARL has opened a new lubricants blending plant. The plant which has an annual capacity of 3 million litres produces both automotive and industrial lubricants.

Mr Manoj Solanki the Founder & Managing Director of Hercules Global said his vision of starting Hercules Global and setting up the new blending plant is to offer quality products. “We hope to become pioneer in Lubricants market in Senegal in terms of



SOURCE | HERCULES GLOBAL

the quality and Service and a driving force in Lubricant industry in this part of Africa in the coming years.”

According to Hercules

Global, it is using additives of international standards and blending technology to make quality products and deliver them to the doorsteps of clients, followed up by the after sales service. It has also invested heavily in the lab and equipment for testing the products at each stage to maintain the international standards.

With the opening of the plant, Hercules has also set up its first showroom in Dakar for easy access of the products by end users, retailers and distributors.

Hercules believes in making Senegal a net exporter of Lubricants from its current status of being import dependent through its production facility in coming years. “The first phase for this has already started by exploring the possibilities of exporting to neighboring countries like Mali, Mauritania & Gambia,” added Hercules.

Hercules’s activities comprise of manufacturing, storage, warehousing, transportation, and marketing of its range of lubricants. ■

SIERRA LEONE

Rymax Lubricants to be available in Sierra Leone through a distributor

Rymax Lubricants B.V. has appointed Khalil Fadi Autosparses as the official exclusive distributor of Rymax Lubricants in Sierra Leone.

Khalil Fadi Autosparses started in 2012 as a small automotive parts supplier in Sierra Leone. It has grown over the years to be one of the major players in the automotive and industrial supply sector. Currently, Khalil Fadi Autosparses, is a one-stop destination for a wide range of products, including Automotive and Heavy-Duty lubricants, Car SUV TBR and OTR TIRES, Protective Workwear, Genuine Toyota Parts, Heavy Duty Tools, Power Tools, and welding equipment. It serves some government departments and mining companies.

“The partnership between Khalil Fadi Autosparses and Rymax Lubricants is not only very promising, but it also feels very natural,” stated Khalil Shour, one of the owners of



SOURCE | RYMAX LUBRICANTS

Khalil Fadi Autosparses. “Both our companies pursue the highest level of product quality but will also go the extra mile in servicing the customer

with excellent guidance, and after-sales support.”

Rymax’s Commercial Director and owner Erik Vermeer added, “Khalil Fadi

Autosparses has a noticeable history in working with high-end international brands, operating a successful business and facilitating growth and values we can identify with and find necessary in a partner to expand our business. Rymax Lubricants is a strong brand that we have built ambitiously through the years. We feel that Khalil Fadi Autosparses is the ideal partner to fuel our expansion in the region and we are very happy to have them as a partner.”

Rymax has a product portfolio from passenger car and heavy-duty engine oils, to gear oils and fluids for automotive and industrial applications. Motorcycle, marine, industrial, agricultural, mining and hydraulic lubricants and fluids are also part of what Rymax is offering, as well as a variety of aerosols and additives. A selection of these products will be available in Sierra Leone through the new distributor. ■

NIGERIA

Toyota Genuine Motor Oils launched in Nigeria

Toyota Nigeria Limited has debuted Toyota genuine Motor Oils (TGMO) in the Nigerian market. TGMOs are developed specifically for Toyota vehicles, but these oils can also be used by other vehicle brands.

The TGMO products range launched in the Nigerian market has three lubricants which come in 0W-20, 5W-30 and 15W-40 grades.

According to Toyota Nigeria, the oils offer better efficiency, fuel economy, better cooling

and engine longevity.

Speaking during the launch, the Managing Director of Toyota Nigeria Limited Kunle Ade-Ojo said, “The Toyota Genuine Motor Oil has been introduced specifically for our customer’s vehicle and it is the first time this oil is available in Nigeria. I know a lot of customers might have been used to using other oils, but this oil is specifically made for Toyota vehicles but it can also be used by other vehicle

brands because of its high quality and the research that went into making it.”

He further added, “Toyota Genuine Motor Oils have been rigorously tested to meet the high standards you expect from our brand. As the world is stepping into the future of mobility, Toyota remains persistent in its pursuit of sustainable solutions from developing hybrid vehicles to cutting edge technologies and now the Toyota Genuine

Motor Oils.”

The oils can be found across Toyota’s 7 accredited dealers across Nigeria which are Elizade Nigeria Limited, R.T. Briscoe, Omoregie Motors, Germaine Auto Centre, Mandilas Enterprises Ltd, Kojo Motors Ltd and Metropolitan Motors.

TGMOs comprise of mineral and synthetic oils, and they cater for both petrol and diesel engines. ■

THE LUBES DIARY

EVENTS FROM ACROSS THE GLOBE



OCTOBER 7-10
Palm Desert, California



NOVEMBER 1-2
Birmingham, UK



NOVEMBER 15-16
Barcelona, Spain



NOVEMBER 22-24
Zagreb, Croatia



JANUARY 2024 8-10
Atlanta, Georgia

October 7 - 10

ILMA – 2023 Annual Meeting & 75th Anniversary

JW Marriott Desert Springs Resort & Spa
Palm Desert California
<http://www.ilmaannualmeeting.org/>

October 17 - 18

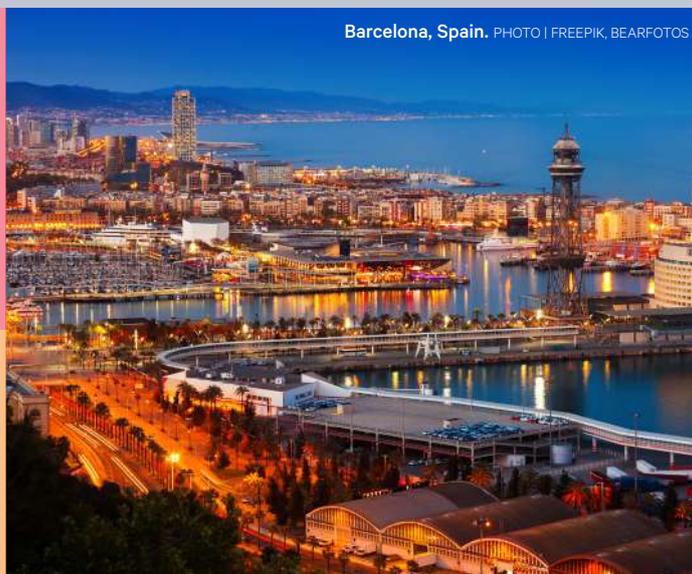
18th ICIS Middle Eastern Base Oils and Lubricants Conference

Jeddah, Saudi Arabia
<https://events.icis.com/website/8329/>

November 1 - 2

Advanced Engineering 2023

Birmingham, UK
<https://www.advancedengineeringuk.com/>



Barcelona, Spain. PHOTO | FREEPIK, BEARFOTOS

November 12 - 15

STLE Tribology Frontiers Conference

Cleveland, Ohio, USA
<https://www.stle.org/tribologyfrontiers>

November 15 - 16

The 2023 European Base Oils & Lubricants Summit

Barcelona, Spain
<https://www.wplgroup.com/aci/event/base-oils-lubricants-summit/>

November 22 - 24

54th GOMA Lubricants & Base Oils Symposium

Zagreb, Croatia
<https://goma.hr/?id=12&L=1>

Nov 30 - Dec 1

17th ICIS Pan American Base Oils and Lubricants Conference

Hyatt Regency Jersey City, United States
<https://events.icis.com/website/8891/>

January 2024 8-10

ILMA – 6th International Metalworking Fluids Conference

Atlanta, Georgia
<https://www.mwconference.org/>

Motor Oils viscosity grades



SOURCE | SHUTTERSTOCK/DAVID TADEVOSIAN

Q IS IT OK TO SWITCH MOTOR OIL WEIGHTS, FOR EXAMPLE, FROM A 5W-20 TO A 10W-30?

A It depends. Some vehicle manufacturers provide a range of recommended motor oil viscosity grades based on the outside temperature in which the car is driven. Other manufacturers recommend the use of only one motor oil viscosity grade. For best engine performance, always follow the manufacturer's recommendations found in your vehicle's owner's manual.

Q IS IT OK TO USE 5W-30 IN A CAR IF THE OWNER'S MANUAL CALLS FOR 5W-20?

A Valvoline does not recommend doing this. Using a heavier grade than recommended may cause decrease in fuel economy, higher engine loads and eventually shortened engine life. Using a lighter grade than recommended may result in excessive mechanical wear and reduced engine life. For maximum engine performance, follow the recommended motor oil viscosity and maintenance schedule provided in your vehicle's owner's manual.

Q WHAT DOES THE "W" IN A GRADE OF MOTOR OIL STAND FOR?

A The "W" in motor oil stands for winter. The first number in the oil classification refers to a cold weather viscosity. The lower this number is, the less viscous your oil will be at low temperatures. For example, a 5W- motor oil will flow better at lower temperatures than a 15W- motor oil. The higher number, following the "W" refers to hot weather viscosity, or how fluid your oil is at hot temperatures. The higher the number, the thicker the oil at a specified temperature.

Q IS THICKER OIL BETTER?

A In some circumstances, thicker oil can be used to compensate for increased bearing clearances (gaps between bearing and rotating shaft) that have developed over the years. A large change in bearing clearances can result in poorer lubrication. For best performance, always follow the recommendations for motor oil viscosity in your vehicle's owner's manual.

Q WHEN DOES IT MAKE SENSE TO USE STRAIGHT WEIGHT OIL (SAE30) VERSUS A MULTIGRADE OIL (5W-30)?

A Straight weight oil is never recommended for use in a system that requires a multi-viscosity oil. Straight weight oils are generally recommended for smaller engines or older vehicles that were made before multi-viscosity oils were produced.

Q IS SWITCHING TYPES OF MOTOR OIL (CONVENTIONAL, SYNTHETIC, ETC) HARMFUL TO MY VEHICLE'S ENGINE?

A Conventional, synthetic blend, synthetic and high mileage motor oils are compatible and will not harm your vehicle's engine. For maximum engine performance, follow the motor oil type recommendation provided in your vehicle's owner's manual. ■

This article is courtesy of Valvoline Global. To find out more about their product range, visit <https://www.valvoline.com/>

E-MOBILITY

Castrol launches new engine oil performance standard for hybrid cars

Castrol has launched a hybrid's engine oil performance standard for its hybrid engine oils range. HYSPEC performance standard is derived from Castrol's tests and 15 industry tests identified as relevant to hybrid operation. This standard can support both car workshops and their customers in identifying the right oil for hybrid cars.

Hybrids operate differently from conventional cars. The switch between an Internal Combustion Engine (ICE) and Electric Motor challenges engine oil in three key areas: increased contamination due to cooler engine temperatures, reduced performance and protection due to engine intermittency, and a reduction in system efficiency due to cooler running and lower oil temperatures.

HYSPEC enables Castrol to demonstrate how its oils for hybrids

perform across these key areas, and Castrol says this is further backed up by the fact that:

- Castrol has conducted a year-long road trial on mild, full, and plug-in hybrids that captured over two billion pieces of data. Combined, the cars travelled over 300,000 kilometres, for more than 7,000 hours – the equivalent to driving 24/7 for more than 42 weeks.
- Castrol has worked with vehicle manufacturers to develop hybrid testing techniques – enabling them to constantly refine their products and improve performance.
- Motorsport is the ultimate testing ground for hybrid technology. Castrol is proud to work with the BWT Alpine Formula 1 Team and Ford M-Sport World Rally Championship team, testing the



SOURCE | CASTROL

engine oils under the toughest conditions.

- To validate the findings, Castrol commissioned a third-party consultancy and external experts to conduct research with service centres, fleet operators and car owners to deliver a wider perspective on global markets.

Castrol's experience and its new hybrid performance standard,

HYSPEC, will assure car workshops dealers and their customers of Castrol's expert knowledge in engine oils for hybrids.

Castrol's portfolio includes many hybrid-ready engine oils. In addition, those badged with the HYSPEC logo demonstrate at least 25% benefit against the HYSPEC standard, across the critical areas of contaminants, engine intermittency and system efficiency. ■

SUSTAINABILITY

Eurol launches food grade and biodegradable lubricants

Eurol Lubricants has launched a food grade lubricant Eurol Lube PL FD and a biodegradable lubricant Eurol Lube PL BIO, which are an addition to the Eurol Lube PL range of lubricants. The Eurol Lube PL range contains dry lubricants that are non-drip which displace moisture, resist water and loosen corroded parts. This range is suitable for open lubrication points like joints, bearings, hinges, cables and conveyors.

Eurol Lube PL FD is made with Eurol SYNGIS Technology which ensures that lubricating



SOURCE | EUROL

and protective properties are maintained in extreme conditions. It also guarantees the lowest possible friction and strong protective properties. The food

grade lubricant is also NSF H1 certified, making it suitable for incidental food contact. This makes it an applicable food-grade lubricant suitable for the food

industry, pharmaceutical industry, hospitality sector, agriculture, and horticulture.

Eurol Lube PL BIO is a plant-derived lubricant that is readily biodegradable.

At the same time, Eurol is introducing an automatic "Refill Aerosol Station," which allows the Specialty series of Eurol Lube PL to be used in a sustainable, refillable air-pressure spray bottle. The Refill Aerosol Station aligns with Eurol's aiming to promote sustainability and significantly reduce waste. ■

CONDITION MONITORING

Arteco launches a coolant analysis service

Arteco has announced the launch of its new 'Coolant Sample Analysis service', a service enabling customers to evaluate samples of coolants used in their applications. This service provides customers with a way to monitor and maintain their coolant systems, and understand the root cause of any quality issues they may be experiencing as well as verify the integrity of their coolants.

Arteco's Coolant Analysis Service offers different packages to cater to various customer needs. This ranges from general quality assessment of the coolant in use, providing insights into the coolant's performance



SOURCE | ARTECO

with respect to the engine or installation, to a full interpretation of the entire system. The comprehensive reporting includes a detailed breakdown of all the analysis performed and an expert interpretation of the overall condition of the coolant, along with the recommended corrective actions.

"We are thrilled to introduce this new initiative to our valued customers. At Arteco, we are committed to delivering advanced innovative solutions that enable our clients to achieve optimal performance. This new service is part of our dedicated effort in offering 'Coolant Monitoring as a Service'. We look forward

to continuing our support to our customers in their journey towards efficient and sustainable system operations," said Alexandre Moireau, General Manager Arteco.

According to Arteco, the launch of this new 'Coolant Sample Analysis Service' empowers customers to take control of their coolant systems and detect any potential issues before they escalate into serious problems; thereby, helping them save time and money. Moreover, customers can use the data to optimise system efficiency, increasing productivity and plan preventive maintenance schedules; thus, reducing downtime and improving system reliability. ■

Condition monitoring drives engine reliability



WearCheck, Africa's leading condition monitoring company, is committed to serving the transport industry with its range of sophisticated analytical techniques.

Our specialist oil, coolant and fuel testing programmes allow customers to reduce maintenance costs, avoid unexpected mechanical failures and ultimately reduce unscheduled downtime.

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Testing and Analysis | Lubricant-Enabled Reliability | Asset Reliability Care

FUCHS Launches a Sustainable Grease for Heavy Duty Truck Trailer Axles

FUCHS Lubricants Co. recently released RENOLIT CSX AWE 0, a calcium sulfonate complex grease for truck trailer axle hubs. RENOLIT CSX AWE 0 is designed to be compatible with existing legacy axle bearing greases for easy replacement.

“This grease demonstrates a significant improvement in lubricating technology. This product is the latest addition to the FUCHS’ portfolio for the heavy-duty truck industry which includes lubricants for transmissions, power steering, braking, motors, shock absorbers, and among others,” said Dr. Nael Zaki, Research and Development manager at FUCHS Lubricants Co.

According to FUCHS, when



SOURCE | FUCHS SE

compared to the industry-standard legacy grease in a third-party side-by-side study, RENOLIT CSX AWE 0 performed better in terms of improved low friction performance, lower running temperature, and improved extreme-pressure performance.

It is also approved by Cummins-Meritor under their O-699 specification for standard and extended wheel-end warranty applications (AxlePak™).

Founded in 1931 as a family business in Mannheim Germany, FUCHS is among the world’s largest independent supplier of lubrication, covering almost every industry and application. The company has 6,000 employees in over 50 countries worldwide. ■

E-MOBILITY

Idemitsu launches cooling fluids for Electric Vehicles

Idemitsu has developed a new E AXLE and Electric Parts Cooling Oil for use across drive units, electronics and battery systems of both electric and hybrid vehicles. The new oil can be used for cooling of e-Axle systems, which are increasingly used in EVs and HEVs. It is made to cool the motors and the power control unit (PCU) in the e-axle system instead of using two different oils for the two parts.

According to Idemitsu, the E AXLE and Electric Parts Cooling oil offers the following;

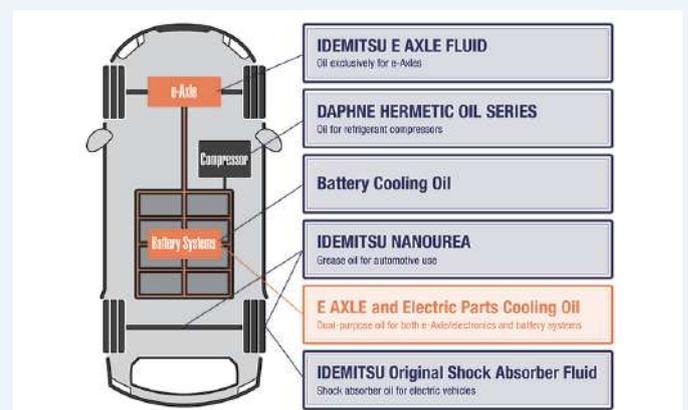
- Simplification of the cooling system as it uses one fluid to cool and lubricate the e-Axle, electronics and battery.
- Enables both superior energy efficiency and lubrication of

gears and bearings

- Attains both cooling and insulation of electronic components

The IDEMITSU E AXLE FLUID series of e-Axle oils currently being developed also includes the IDEMITSU E AXLE FLUID TYPE-G-LV, which enables high energy savings for speed reducers, as well as the IDEMITSU E AXLE FLUID TYPE-C-MV and the IDEMITSU E AXLE FLUID TYPE-C-FE, which can be used for both motor cooling and gear lubrication with high energy savings.

In addition to the newly developed E AXLE and Electric Parts Cooling Oil, Idemitsu has also developed IDEMITSU NANOUREA, a grease for automotive use in motor spindles, hubs, and ball



SOURCE | IDEMITSU

joint bearings, and the IDEMITSU Original Shock Absorber Fluid for use in shock absorbers. This oil has been designed to deliver high quietness levels, energy savings, and low friction characteristics to enhance the drive experiences of electrically powered vehicles.

Idemitsu is a Japan originated energy company and it has been operational since 1911. It currently has 14,000 employees and deals in lubricants, petrochemicals, renewable energy, petroleum transportation and refinery. ■

Hindustan Petroleum venturing into the African lubes market

Hindustan Petroleum Corporation Limited (HPCL) is an Indian energy company looking to extend and expand its international lubricants business in Africa. HPCL outlines the products that will be available in Africa, the countries they already have distributor channels and future plans of expanding the business in other African countries.



Sanjay Kumar Executive Director-Lubes at HPCL.

Tell us more about Hindustan Petroleum Company:

Hindustan Petroleum Corporation Limited, a strategically important player in Oil and Gas sector in India, is an Indian Public Sector Enterprise (PSE) in downstream Petroleum Refining and Marketing sector. It operates two refineries in Mumbai (Maharashtra) & Visakhapatnam (Andhra Pradesh), with a combined production capacity of 20.5 MMTPA. HPCL has a 48.99% stake in a JV with Mittal Energy Investment Pte Ltd for operating an 11.3 MMTPA refinery in Bhatinda (Punjab) & a 16.96% equity stake in Mangalore Refinery & Petrochemicals Ltd, which operates a 15 MMTPA refinery in Mangalore (Karnataka). The Company is setting up a 9 MMTPA greenfield refinery-cum-petrochemical complex at Pachpadra (Rajasthan) through HPCL Rajasthan Refinery Limited (HRRL) with an equity stake of 74%.

It is one of the select few PSEs in In-

dia with Maharatna status, implying higher operational and financial autonomy.

In lubricants business, HPCL has remained the Largest Lubes Marketer (with 17% market share in finished lubes in 2022) in India since FY 2014. It owns and operates the largest Base Oils refinery in India (with 41% market share). With 126 Industrial Distributors, 304 Aftermarket Distributors, 15 International Distributors, 5 strategically placed manufacturing facilities in India and several toll-blending facilities abroad, HPCL's strength in lubricant business lies in strong brand recall, backed up with robust distribution network.

What is driving HP to invest in the African Lubricants market?

HPCL firmly believes that Africa will be driving global economic growth in near future. With our products & services designed and developed for an economy like India, we firmly believe that we are best suited to be solution providers for lubricants requirement of African countries. We wish to partner and be fellow travelers as Africa begins its glorious journey of economic growth.

Which markets/industries are you operating in and targeting?

We operate across all sectors of economy and would be keen to be present the same in new geographies. Our lubricants and specialty grades are used in primary, secondary & tertiary sectors at competitive price points with quality assurance & product innovation of a major brand. We would be targeting presence in Mobility, Manufacturing, Agriculture

& Marine sectors.

What is your product offering in the African market?

We have products spread across entire range of Consumer, Commercial, Industrial and Marine application. We also manufacture genuine oil grades of many of the Indian Automotive OEMs, who also happen to have presence in many of the African countries, which we would attempt to tap into. Our products come branded as HP Lubricants.

Will you be importing or blending lubricants locally in the African market?

While we may commence our marketing through imports, we are keen to commence local blending through local industry players who are in the toll-blending operations.

What is the value proposition customers will get from buying your products?

Cost effective solutions across entire range of operations of a customer with product quality and innovation assurance of a major brand

In which countries can people find your products?

We are in the process of putting in place our Distribution channel across Africa. Our current arrangements are already in place at Kenya, Nigeria, Senegal, Zambia, & Ghana, which we are going to be constantly expanding. We are also available on <https://www.hplubricants.in/hpcl-middle-east> where the customers can reach out to us for immediate assistance on any lubricant related issues



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*Source: India Lubricants Industry-Market Synopsis by Kline, June'23

HYBRIDS LUBRICATION

Liqui Moly launches a lubricant for hybrid vehicle models

German lubricants manufacturer Liqui Moly has launched a new lubricant: Tec AA 0W-8 specifically designed for hybrid models of Mazda and Toyota vehicle brands. Tec AA 0W-8 meets the latest Japanese Automotive Standards Organization Gasoline Low Viscosity (JASO GLV-1) standard, as required for hybrid models from Mazda and Toyota.

“The development of new lubricants continues at full speed. LIQUI MOLY

is launching its thinnest motor oil to date on the market with the Special Tec AA 0W-8. The



SOURCE | LIQUI MOLY

Japanese car manufacturers have always been very open to fuel economy. That was the driving force behind low-viscosity oils, starting with 0W-20. AA 0W-8 offers the absolute maximum in fuel savings and at the same time comprehensive protection for the engine,” said Oliver Kuhn, Deputy Head of the Oil Laboratory at LIQUI MOLY.

Apart from fuel savings and engine protection, the AA 0W-8 oil:

- has been tested for turbochargers and catalytic converters
- saves fuel and reduces pollutant emissions

- offers instant lubrication after cold start
- ensures optimum stability to aging
- has smooth engine running, high lubrication reliability, high shear stability, good engine cleanliness and good wear resistance.

The lubricant is available in the capacities of 1L, 4L, 5L, 20L 60L and 205L. Liqui Moly has been operational for over 60 years and its product range includes: engine oils, gear oils, greases, fuel and oil additives, car care products, and service products. ■

E-MOBILITY

Gulf Oil launches a range of EV fluids

India’s lubricants manufacturer, Gulf Oil International has introduced a new line of lubricants for Electric Vehicles. The Gulf EV Fluids range has an EV transmission fluid, EV brake fluid and EV coolant fluid. This range has products for a hybrid Electric Vehicle and a full Electric

Vehicle.

For the hybrid EV lubricants, the range has Gulf Formula Hybrid 0W-20, Gulf Hybrid DCT and Gulf Hybrid ATF. Gulf Formula Hybrid 0W-20 engine oil has been developed to hold water molecules in suspension and prevent them from separating, keeping the

engine protected and running at peak performance.

Gulf Hybrid DCT and Gulf Hybrid ATF are advanced synthetic transmission fluids that are formulated to manage friction and control heat in hybrid engines and gears. Transmission fluids for hybrid cars deliver smooth consist-

ent performance with efficient cooling and enhanced wear protection.

For the full electric lubricants, the range has Gulf eLEC Advanced Brake Fluid, Gulf eLEC Advanced Coolant and Gulf eLEC Driveline Advanced Axle Fluid.

Regenerative braking in Battery Electric Vehicles (BEVs) places extreme temperature demands on key braking systems, accelerating wear. Gulf eLEC Advanced Brake Fluid, with its high performance polyglycol formulation, has been developed for superior braking performance in electric vehicles, even at high boiling point.

High running temperatures can cause car batteries to overheat, reducing battery capacity and driving range. Gulf eLEC Advanced coolant, helps keep EV batteries cool and maintain the right temperature; consequently, preserving performance under extreme conditions.

The entire product range offers Improved fuel economy, Reduced CO2 emissions and Extended battery life. ■



SOURCE | GULF OIL INTERNATIONAL

DISTRIBUTION EXPANSION

ENOC signs a lubricants distributorship agreement with ALSAYER in Kuwait

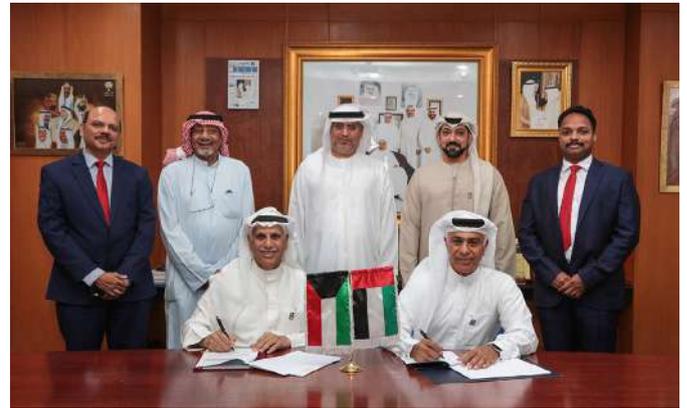
ENOC Group has signed a Memorandum of Understanding (MoU) with ALSAYER Group Parts & Logistics as the official distributor to offer Enoc industrial, marine and automotive lubricants in Kuwait.

Saif Humaid Al Falasi, Group CEO, ENOC, said: “We remain committed to meet the customer demand for high quality lubricants and continue to enhance our product accessibility for our growing customer base across the region and beyond. Our latest partnership with ALSAYER reflects to our strong competencies and quality of our products and services. We will continue to deliver superior quality to our customers, while adhering to all international standards in the years ahead to further elevate

our lubricants business across international markets.”

Commenting on the partnership, Mubarak Naser Al-Sayer, Chief Executive Officer of ALSAYER Holding Kuwait, said: “We are happy to partner with ENOC Group, having strong competencies in the lubricants business and offers a wide product range to expand our product offerings in Kuwait. Together we will offer products of the highest quality while adhering to all international safety and quality standards to guarantee customer satisfaction.”

Desmond Lew Business Director, ALSAYER Parts & Group Logistics added, “Our partnership with reputed brand ENOC will help us to meet the increasing demand of lubricant customers within the Industrial segment, more



Seated L-R Mubarak Naser Al-Sayer, Chief Executive Officer of ALSAYER Holding Kuwait and Burhan Al Hashemi Managing Director at ENOC Commercial & International Sales and other officials from ALSAYER and ENOC including Dr. Matar Al Neyadi, Ambassador of UAE to the State of Kuwait (centre standing) SOURCE | ENOC

specifically in B2B segment. At the same time ALSAYER’s expertise in meeting Customer Expectations, offering wider reach, sensitivity to the local market conditions, in addition to attractive offers will prove to be a win-win situation.”

ALSAYER Holding is the only ENOC distributor in Kuwait and it has been in the market for 68 years. ALSAYER conducts business in the automotive, construction, agriculture and transportation industry among others. ■

DISTRIBUTION EXPANSION

Brenntag to distribute lubes additives in Asia Pacific

Brenntag, a distributor of chemicals and ingredients, has announced it has been appointed as the exclusive distributor by Quality Speciality Chemicals Private Limited in Asia Pacific for industrial lubricant additives, packages and components, metalworking fluids packages, rust preventives, and corrosion inhibitors.

Quality Group is one of India’s producers of industrial lubricant additives and specialty chemicals, and the distribution agreement covers all countries in Asia Pacific.

“Over the last thirty years, Quality Speciality Chemicals has



SOURCE | BRENTTAG

grown from a start-up to become a leading manufacturer in our field. To chart our path for the next lap of growth, we are confident that Brenntag is the ideal partner to help us break into the Asia Pacific market. Brenntag understands our

needs and is easy to do business with. We are excited to tap into Brenntag’s global set-up and in-depth industry knowledge to meet and exceed increasingly complex and demanding technical and safety requirements,” said

Rushabh H. Shah, Director, Quality Speciality Chemicals Private Limited.

Pierre Colignon, Asia Pacific President of Lubricants, Brenntag Specialties added “We are thrilled with the strategic distributor partnership with Quality Speciality Chemicals. It fits well into Brenntag Specialties’ strategy to increase value-added service offering to our customers with a comprehensive and sustainable portfolio by focusing on high-growth industry segments such as the industrial and metalworking lubricants markets.” ■

BASE OILS

ICONIC to distribute base oils in Brazil for Chevron

Chevron Products Company, a division of Chevron U.S.A. Inc., announced that it has signed a base oil distribution agreement with ICONIC to be its distributor in Brazil. ICONIC is a joint venture owned by Chevron and Ipiranga. To facilitate this change ICONIC has created a new business structure fully dedicated to base oil commercialization managed independently from their lubricants business. ICONIC will distribute Group II and Group III base oil exclusively from Chevron.

“ICONIC is the ideal dis-



SOURCE | ICONIC

tributor for Chevron in Brazil,” said Alicia Logan, General Manager, Chevron Base Oils. “They know the market, and with our base oils in tank, they offer customers premium base oils backed by a strong technical support team that can help customers optimize

formulations.”

“We are very excited to be distributing Chevron’s Group II and NEXBASE Group III base oils,” said Marcelo Guimaraes, ICONIC Base Oil Executive Manager, adding, “We are ready to provide differentiated and reliable supply through

our extensive network and storage tank capability at our recently completed Base Oil Terminal.”

Chevron Base Oils is one of the producers Group II and Group III base oils. It has 5 manufacturing plants and 17 distribution hubs worldwide.

ICONIC is a lubricant marketer in Brazil and it develops, produces, markets, and distributes lubricants, greases and coolants. It has 2 manufacturing facilities and it distributes base oils through a terminal in Rio de Janeiro port. ■

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Valvoline and Aston Martin racing team sign a lubricants partnership

Valvoline Global has entered into a long-term technical and brand partnership with Aston Martin Aramco Cognizant Formula One Team (AMF1 Team) as the Official Lubricant Partner.

The AMF1 Team and Valvoline Global will work closely to develop Valvoline

products that will enhance the performance and success of the AMF1 Team. This will also benefit the Valvoline brand's global reach and development of future products to help drive the automotive world forward toward a more sustainable future.

Jamal Muashsher, CEO, Valvoline Global, said: "The

Aston Martin Aramco Cognizant Formula One® Team and Valvoline Global are both driven by the desire not just to win but to go even further towards a more feasible future. This is the start of a powerful, dynamic partnership. We are excited to be part of the team's journey, and we look forward to our shared

successes and innovation."

Mike Krack, Team Principal, AMF1 Team, said: "Everyone at the Aston Martin Aramco Cognizant Formula One® Team is delighted to welcome Valvoline Global as our Official Lubricant Partner. Starting with the British Grand Prix, Valvoline Global will provide race-proven lubricants for our AMR23 to help drive performance. This long-term partnership with Valvoline Global will also benefit our new works power unit partnership with Honda from 2026 with bespoke lubricants."

The Valvoline and AMF1 partnership was launched during the British Grand Prix that happened in July 2023, and will then continue with on-car branding for the rest of the 2023 season. ■



SOURCE | ASTON MARTIN

DISTRIBUTION EXPANSION

SKF partners with Certas Energy to distribute SKF RecondOil box in the UK

SKF has signed a distribution agreement with Certas Energy, an independent distributor of fuels and lubricants in the UK, to act as SKF's RecondOil certified partner in the UK, offering the units to industrial customers on an "oil as a service" basis.

The agreement complements Certas Lubricant Solutions existing distribution partnerships with the leading manufacturers of industrial fluids, giving their customers the opportunity to enable a circular and sustainable use of lubricants.

SKF's RecondOil Box is an enhanced depth filtration system

that incorporates RecondOil's patented Double Separation Technology (DST) to regenerate used lubricants, reducing consumption and handling of the oil, while improving machine performance in the process.

Thomas Fröst, President, Independent and Emerging Businesses, at SKF said: "This is an important step in making the RecondOil Double Separation Technology (DST) available to a wider range of customers. It also complements our existing



SOURCE | SKF

partnerships with the market's leading suppliers of lubrication fluids and oils."

Steve Mayo, Managing Director Europe Certas Lubricant Solutions, commented: "The agreement with SKF RecondOil fits perfectly with our strategy to support our customers with solutions that help them achieve their sustainability goals. Combining this technology with our technical teams' application knowledge and our laboratory facilities creates a highly differentiated offer to our industrial fluid customers." ■



ENOC's View on Market Trends on Motorcycle Engine Oil standards

The Society of Automotive Engineers of Japan (JSAE) has released the fifth revision to its JASO T903:2023 for four-stroke motorcycle oils, to ensure lubricants continue to protect the latest engines. The document was officially issued in May 2023 and oil marketers are able to commence first licensing from October 2023.



JASO T 903:2023
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Key Drivers and Purpose of the Implementation:

The JASO T903:2023 focuses on the requirements of modern applications and aftertreatment systems, reduced emission requirements and the increase in operational severity of motorcycle oils.

In recent years, engine oils for 4-wheel vehicles have tended towards lower viscosity and lower friction to achieve better fuel economy. There are concerns that such low friction and low viscosity oils, when used in motorcycle, may cause clutch slippage and transmission gear pitting wear. Gearbox pitting refers to surface fatigue failure of the gear tooth and can result in cracks on the tooth surface.

Therefore, the use of JASO T903:2023 standard will help consumers to correctly select four-cycle oils for motorcycles, and reduce field problems resulting from the choice and use of inappropriate oils.

The changes in 2023 revision have been implemented to reflect API standards revised in 2020 and in order to meet emissions standards and reduce environmental load such as air pollution. This change has also enabled increased engine power densities, resulting in more severe engine oil operating conditions which put a need for improved oxidative and thermal stability.

Ultimate target is to aid engines run cleaner, well lubricated engine during operation, maintain engine efficiency and power output which would help vehicles running for longer, preventing unplanned servicing and reducing repair costs.

What has changed in the new revision?

Significant change related to additives:

The upper limit for phosphorus has been reduced with no change to the lower limit. Balancing phosphorus is not only vital for engine durability but is also critical for protecting catalyst and aftertreatment devices beside ensuring sufficient wear protection and gear pitting performance.

Another point that phosphorus volatility is generally higher in motorcycles due to the higher operating temperatures the oil is exposed to. Thus, a substitute chemical componentry and revised formulation might be required at these restricted phosphorus levels to ensure wear protection especially at low viscosity grades oils.

Noticeable change mainly related to base oils:

NOACK volatility loss has been reduced from $\leq 20\%$ max to $\leq 15\%$ max as to ensure improved performance against oil consumption.

Parameter	Limits as defined in JASO T903:2016	Limits as defined in JASO T903:2023
Phosphorus content %	0.08-0.12	0.08-0.10
Noack Volatility Loss%	20 max	20 max

Changes in Applicable Industry Specs:

There have been changes to the API, ACEA and ILSAC target specifications with several performance categories being removed bring the opportunity for performance upgrade with the increased severity in oil operating conditions. This will

enable appropriate protection against build-up of engine sludge, oxidation, wear in addition to aftertreatment systems compatibility. It will also give an opportunity to meet the protection requirements of current and future engines.

API SN PLUS and SP added to be in line with current API standards.

API SG and SH dropped off which means the minimum crankcase performance level will be API-SJ, in line with current API standards.

ILSAC and ACEA excluded due to less submissions from oil marketers in past years.

API EC and RC not applicable as well

JASO T903 specifications		T903:2016	T903:2023
Applicable Industry Specs	API	SG, SH, SJ, SM, SN	SG, SH, SJ, SL, SM, SN, SN PLUS, SP
	ILSAC	GF-1, GF-2, GF-3	Not applicable
	ACEA	A1/B1, A3/B3/B4, A5/B5, C2, C3, C4	Not applicable
Key P&C properties	HTHS, mPa·s	≥ 2.9	≥ 2.9
	S-Ash, %m	≤ 1.2	≤ 1.2
	Phosphorus, %m	≥ 0.12 ≥ ,0.08	≥ 0.10 ≥ ,0.08
	NOACK, %m	≤ 20	≤ 15

The friction plate material used in the SAE#2 test, which measures friction performance of the clutch, is being upgraded to ensure it is representative of the latest friction material being commonly used in modern hardware. There is also a change in the reference oils used in the test due to availability and to ensure continuity of supply through the duration of this specification revision.

JASO T903:2023 Timing

- JASO T903:2023 specification was released on May 8th 2023
- Oil marketers able to commence first licensing from October 1st 2023
- For JASO T903:2016 new applications can be made until September 30th 2023
- Current valid T903:2016 on file data will be expired by April 30th 2028

Point of view of ENOC's Group CEO, Saif Humaid Al Falasi regarding changing specification landscape:

The release of JASO T903:2023 reflects the requirements of modern hardware and after treatment devices, reduced emission requirements and the increase in operational severity of today's motorcycle oils. Removing API SG and SH categories means API SJ becomes the minimum performance level to meet the revision. With the addition of the highest performance level API SN Plus and SP categories, the revision supports a real performance upgrade opportunity for markets around the world.

The trend toward use of lighter viscosity oils for increased fuel efficiency reduces oil film strength and places increased stress on the additive anti-wear system. This has the potential to give rise to wear durability issues, however formulating to counter this is made more challenging by increased restrictions in phosphorus content. The need to deliver enhanced catalyst compatibility effectively limits the use of conventional anti-wear chemistry. This requires the use of novel anti-wear components and a different formulating approach to ensure a balanced approach to deliver the performance, efficiency, durability, and catalyst compatibility required by the latest hardware.

ENOC has responded effectively to these changes and have upgraded the entire motorcycle portfolio to meet API SP/JASO MA-2: 2023 standards for combined engine/gearbox/clutch operations & to API SP/JASO MB for scooter applications that involve only engine lubrication.

For oil marketers, the first point of note is that any formulations registered under the T903:2011 version of the specification will soon expire and will need to be upgraded. Formulations registered under the T903:2016 version will be valid until 2028 meaning that there is no immediate need to upgrade existing registered formulations. Going forward, offering JASO T903:2023 approved motorcycle oils will ensure both current and future hardware oil performance requirements can be met as part of an effective and future-proofed product portfolio. We believe in staying ahead of curve to bring the most contemporary solutions to our esteemed customers.

SUSTAINABILITY

Shell Aviation rolls out a lubricants lifecycle sustainability approach

Shell Aviation has introduced a new lifecycle sustainability approach for its AeroShell aviation lubricants to avoid, reduce and then compensate for lifecycle carbon emissions. This will be achieved through optimising production and product design, embedding circularity into product packaging, improving the energy efficiency of facilities, and using renewable energy to reduce emissions across the supply chain. Shell will then purchase high-quality, independently verified carbon credits to compensate for carbon emissions which are not currently being avoided or reduced.

The new lifecycle sustainability approach will be included as standard across the full AeroShell product range, including Turbine Engine Oils (TEOs), Piston Engine Oils (PEOs), greases and fluids, for



SOURCE | SHUTTERSTOCK/SCHARFSINN

both the commercial airline and general aviation markets.

Vincent Begon, General Manager Aviation Lubricants, Shell Aviation, said: “While SAF and fuel efficiency are rightly highlighted as key levers to decarbonise aviation, for the aviation sector to reach net zero it must address emissions from all aspects of aircraft operations in order to decarbonise – so this means lubricants too, even if they do represent a small proportion

of aviation emissions when compared to jet fuel. It is a real point of pride that AeroShell will now support our customers in maintaining aircraft performance while taking action on decarbonisation.”

Across Shell’s entire global lubricants business, the measures implemented to avoid and reduce carbon emissions include:

- Increasing the use of re-refined base oils.
- Using more recycled content

in product plastic packaging.

- Taking out over 55 Kilotons CO₂ of Scope 1 & 2 GHG emissions from global lubricants operations
- Over 50% of the electricity imported to Shell Global Lube Oil Blending Plants (LOBPs) now coming directly from renewable sources through the installation of solar PV panels and green power contracts, or indirectly using Renewable Energy Credits (RECs).
- Installing solar PV panels at 11 of Shell’s lubricant blending plants, expecting to generate over 11,000 MWh of electricity annually, and can result in the avoidance of GHG emissions of over 6,000 tonnes CO₂ per year.
- Optimising delivery networks to reduce road transport by 1.3 million miles since 2021. ■

DISTRIBUTORSHIP

ADNOC Distribution signs a lubricants agreement with India’s HPCL

Abu Dhabi National Oil Company (ADNOC) Distribution has signed an agreement with Hindustan Petroleum Corporation Limited (HPCL), one of India’s lubricant marketers and fuel retailing companies. The agreement highlights the mutual intent of both companies to explore avenues for expanding their respective international lubricants and allied products businesses in the United Arab Emirates (UAE), India and other potential markets.

ADNOC Distribution aims to enter the Indian market and gain access to HPCL’s network of over 28,000 retail stations. This agreement establishes a framework for both companies: to foster mutually beneficial cross-border business synergies, leveraging their respective local market capabilities and infrastructure, as they enhance the efficiency of their overseas lubricant operations, including the supply of lubricants and access to key logistical and marketing

support services.

Eng. Bader Saeed Al Lamki, CEO of ADNOC Distribution, said: “This agreement demonstrates our strategic approach to collaborating with leading partners worldwide. With HPCL’s robust performance record spanning over a century, we aim to establish a strong presence in India, one of the world’s largest and rapidly growing markets. Today’s announcement marks another significant milestone in ADNOC Distribution’s interna-

tional expansion journey as we strive to enhance our position in key lubricant markets worldwide.”

Sanjay Kumar, Executive Director & Head of Lubes SBU, HPCL Middle East FZCO, said: “We are excited to embark on this journey with ADNOC Distribution. They are the perfect partner for us to build our alliance, as their production and marketing capabilities will be instrumental in expanding our business and footprint in the international lubricants markets.” ■

PROFESSIONAL ASSOCIATIONS

LUPAN; Committed to Nigeria Lubes market growth

By Miriam Wangari

In every industry, cooperation among industry players is key in having a healthy working environment. One way of promoting this cooperation and partnership is through forming associations and unions. Associations are created to establish strength and unity in working toward common goals in virtually every profession. These alliances are nonprofit organizations formed to promote the economic or social well-being of their members.

In the lubricants industry, Oil Marketing Companies (OMCs) in different countries have formed organizations that cater for their needs and goals. Lubricants Producers Association of Nigeria (LUPAN) is one of such organizations. Nigeria is Africa's most populous country and is a huge market for lubricants. It is estimated that Nigeria consumes about 364 million liters of lubricants every year. This consumption grows by more than five percent each year due to the addition of new vehicles and machinery.

LUPAN is made up of lubricant blenders operating in Nigeria and it was started with the vision to develop and promote the lubricant industry as it affects the national economy. Formed in 2009, LUPAN has grown to have close to 40 members. The membership of LUPAN is exclusive to corporate bodies licensed to carry on the business of lubricant blending, by the regulatory body of the Nigerian petroleum sector; the Nigerian Midstream and Downstream Petroleum Regulatory Authority (NMDPRA). These corporate bodies must be indigenous and operate a standard blending plant accredited by the Agency. Some of the members are; Conoil PLC, Oando Petroleum, MRS Oil & Gas Company Ltd, Forte Oil, Grand Petroleum, Eterna and Ammasco International.

The Nigerian lubricants market was



LUPAN is made up of lubricant blenders operating in Nigeria. Its membership is exclusive to corporate bodies licensed to blend lubricants by the Nigerian Midstream and Downstream Petroleum Regulatory Authority.

deregulated in 1991 leading to the setting up of the first indigenous blending plants in the country. Close to two decades later with more players and more blending plants set up, it was imperative to form an organization like LUPAN, to unify these companies. The aims and objectives of LUPAN are:

- To provide a forum where members can meet and exchange ideas with the aim of improving the economic fortunes of member-companies.
- To formulate policies affecting the objectives of the association.
- To analyze national policies and stakeholders' opinions on such policies as they affect the common interest of the association.
- To interact with other recognized and influential trade associations and other bodies whose objectives are consistent with the interest of the association.
- To encourage members to operate their business within the laid down rules and regulations guiding the lubrication industry.
- To effectively liaise with the govern-

ment regulatory agencies such as (Department of Petroleum Resources (DPR), Standards Organization of Nigeria (SON), Petroleum Products Pricing Regulatory Agency (PPPRA) and other interest groups.

- To encourage compliance with local and international standards and specifications.
- To undertake or execute programmes which will promote the interest of the association.
- To develop and promote the lubricant industry as it affects the national Economy.

Over the years LUPAN has taken major strides in achieving these objectives, and especially being vocal about the interests of its members. In terms of liaising with government regulatory agencies, LUPAN has been keen on constantly holding meetings with the government bureaus tasked with ensuring compliance to standards such as DPR and SON. DPR is the statutory body responsible for granting licenses to blenders and the importation of petroleum products in Nigeria, while SON, which is responsible for the enforcement of standards and products specification.

In one such meeting with SON in 2021, LUPAN had a chance to interact with its Director General (DG) Mallam Farouk Salim who acknowledged SON's existing collaborative relationship with LUPAN and appreciated the Associations' efforts in the facilitation of a conducive business environment for its industry. One outcome of this meeting was the presentation of three Ford Pickup Utility Vehicles by LUPAN to the Director General of SON, to boost SON's operational efficiency in the fight against substandard lubricants in the country.

SON certifies products through a coordinated operation that involves planning and implementation of factory/port »



The pickup vehicles presented to SON by LUPAN. SOURCE | LUPAN

» inspections, sampling and laboratory testing/analysis and reports on local and imported products. Due to SON's relationship with LUPAN, the members of the Association have been keen to apply industry's best practices to meet with international standards in a bid to boost the Nigerian lubricant market and to meet rising demands of the global market. Therefore, when SON is of a view that the standards need to be reset, it works with the Association to make it happen.

In another example that illustrates LUPAN's engagement with the government regulatory authorities, LUPAN in 2020, visited the Director/CEO DPR Engr. Sarki Auwalu at DPR Headquarters where they discussed how to deal with substandard lubricants in the country.

When it comes to speaking up against unconducive business environment and policies that hurt the operations of its members, LUPAN has not shied away from doing so. In 2020, Petroleum Products Pricing Regulatory Agency (PPPRA) which is responsible for price control of



LUPAN has formed relationships with notable organizations in the oil and gas industry both locally and internationally, and due to its positive impact in sector, it has gained recognition both regionally and globally as a reference point for information concerning the Nigerian market.

petroleum products in Nigeria raised the imported base oil charges by almost four times per Litre. LUPAN issued a statement condemning the act. It also raised a con-

cern on the unfavorable policies for base oil importers and lubricants producers that make operating in the Nigerian market extremely difficult. LUPAN expressed its disappointment to the fact that a government agency such as the PPPRA, which should be at the forefront of every effort and scheme of the government to bring about a more conducive environment for businesses to thrive was undermining the same for lubricants blenders. It also wrote to PPPRA, on behalf of its members, protesting this state of affairs.

To further support its members, LUPAN has been actively participating in conferences and seminars on the oil and gas sector hosted by both indigenous and international organizations. More so, it has facilitated the attendance and participation of its members at these events, and kept them abreast of the happenings, exploiting every means within its capacity in ensuring members get premium benefits from such occasions. The Association from time to time holds online meetings with its members and in future, it intends



to actively delve into hosting webinars and workshop for its members and also affiliates of the lubricant industry.

LUPAN has formed relationships with notable organizations in the oil and gas industry both locally and internationally, and due to its positive impact in sector, it has gained recognition both regionally and globally as a reference point for information concerning the Nigerian market. This has led to the Association being invited as an attendee and in some cases a participant to the following conferences and summits:

- The 1st Nigeria Quality Summit;
- The Nigerian Lubricant Summit, sponsored by one of the members of the Association, LUBCON Limited.
- Oil Trading and Logistics Expo, by OTL Africa Downstream, wherein the Association made a presentation on invitation in 2019.
- ICIS Base Oils and Lubricant Conferences.
- Argus Africa Base Oils and Lubricants Conference, held in South Africa in 2015, at which the Association made a presentation, alongside other members.

To deal with the problem of substandard lubricants in the Nigerian market,

LUPAN is supporting more aggressive approaches by regulatory agencies including adverts in newspapers, sponsored articles in mainstream newspapers, newspaper editorials, road shows, posters and bill boards in strategic positions; radio adverts in all languages including vernacular, in particular the local variation of English language, TV adverts and mini TV series sponsored by agencies and regulatory bodies on their own or in collaboration with the private sector.

In the next five to ten years the Association plans to be a major player in the international lubricant market through adopting strategic and dynamic ways of putting its members amongst the world leading lubricant brands, and positively contributing to the sector's best practices and policies.

While the Nigerian lubricants market has a long way to go to deal with the challenge of substandard goods and adequately supply the lubricants needs of its market, organizations like LUPAN are a necessity to facilitate close collaboration between the players in the industry. This collaboration will play a vital role in advocating for better policies and also strengthen the fight against sub-standard products in this market. ■



SON Director General Mallam Farouk Salim (Centre) receiving the pick up vehicles keys from LUPAN officials. SOURCE | LUPAN

perma; a world leader in single point lubrication

As the world market leader in the field of single-point lubrication, perma has an outstanding reputation for innovative and reliable lubrication solutions of excellent quality. To understand more about its products, services and market activities in Africa, Lubezine had an interview with Dr. Abassin Aryobsei, CEO at perma GmbH & Co. KG in Euerdorf, Germany.

What are automatic lubrication systems, how do they work and what are the different types available?

Automatic lubrication systems enable consistent and controlled lubrication without the need for manual intervention. This precise discharge of lubricants, such as oil and grease, reduces friction and wear and extends component life. perma mainly offers two different types of lubrication systems: electrochemical and electromechanical. Electrochemical lubrication systems work by means of an electrochemical reaction. A built-in gas generator creates a pressure inside the lubrication system which moves a piston forward and thus supplies the lubrication point with lubricant. Electromechanical lubrication systems operate with battery or external power. Depending on the application, they discharge lubricants in regular, adjustable cycles and quantities, e.g. to bearings, sliding guides, gears and shafts.

What are some of the lubrication systems you have?

Our focus product is the perma STAR VARIO. The system consists of an electromechanical drive, a so-called LC (lubricant cartridge), filled with 60, 120, 250 or 500 cm³ of lubricant and a battery pack. Via a set button, the discharge period can be set to 1 - 26 weeks or 1 - 24 months (depending on LC size), visible via the LCD display. LED lights indicate the current operating status of the perma STAR VARIO at any time and can be seen from a longer distance. Due to a pressure build-up of 7.5 bar, perma STAR VARIO is ideally suited for the lubrication of electric motors. Furthermore, the option of remote installation by using a hose up to 5 meters contributes to higher workplace safety. In the field of electrochemical lubrication systems, our perma NOVA deserves special mention. It is the first electrochemical lubrication system that automatically adapts to the ambient temperature due to a built-in temperature sensor, thus ensuring constant and reliable lubricant discharge. With its EX-protection approval and IP65 protection class, the perma NOVA is ideally suited for use in mining or the cement industry.

What markets do you serve in Africa?

In Africa, we are currently mainly serving the South African market. Nevertheless, we have been able to expand our market coverage in the last two years. Meanwhile, perma has authorized distributors in South Africa, the Democratic Republic of Congo, Nigeria, Egypt and others. Due to the great development opportunities on the

Lubrication System
STAR CONTROL

Schmiersystem | Lubr
perma STAR V
perma STAR V



African continent, we are continuously working with our young and dynamic team to further expand our footprint on the African market.

What benefits do clients get from using your lubrication systems?

One of the advantages of perma automatic lubrication systems is that they can be easily changed by hand. This significantly simplifies the lubrication of equipment, as no special tools are required. The



possibility of using grease lines up to 5 meters allows the lubrication outside of hazardous areas, which reduces the risk of accidents by up to 90%. Due to the fact that our products are self-contained systems and that they discharge the exact required amount of grease, perma lubrication systems also make an active contribution to the protection of our environment by avoiding unnecessarily large lubricant amounts. The continuous supply of fresh, clean lubricant to lubrication points also increases equipment availability by preventing unnecessary downtime due to improper lubrication, resulting in higher productivity.

What are the maintenance benefits of using these lubrication systems?

Automatic lubrication with perma significantly extends maintenance intervals and lubrication periods. With the help of perma lubrication systems, roller bearing failures due to improper lubrication (over- or under-lubrication) can be reduced by up to 75%. The extension of lubrication intervals allows maintenance staff to attend to other important tasks. Due to the individual setting options as well as the possibility of selecting customer-specific lubricants, our systems can be adapted to the needs of individual machines or applications. This allows us to exactly match machine manufacturers' specifications. At the same time, maintenance costs are reduced by up to 25%.

Can the lubrication systems be integrated with predictive maintenance techniques?

The perma CONNECT APP facilitates the creation of digital lubrication and maintenance plans which can then be shared with the responsible employees via the app or the desktop version. Once a lubrication system is saved in the app, the operator obtains an overview of the specific installation locations and corresponding configurations of all saved lubrication systems. Furthermore, perma CONNECT reminds the end-user in a timely manner when a lubrication system or LC unit needs to be changed. Our Bluetooth-enabled lubrication systems perma STAR VARIO Bluetooth and perma ULTRA can also be controlled and their status monitored via the app. In addition to this digital solution, our perma STAR CONTROL has the option of being connected to a PLC via cable. Using IMPULSE mode, the lubrication system can thus receive the command directly from the application.

Which complementary lubrication tools and services do you offer?

Apart from the perma CONNECT APP, which helps to create a digital lubrication plan, perma's portfolio also includes the SELECT APP. This tool enables the end-user to define the required lubrication amount and setting of perma lubrication systems under consideration of the operating conditions. Furthermore, perma offers trainings through the perma ACADEMY for service staff and customers on the correct handling of our lubrication systems and the basics of automatic lubrication. These trainings are conducted online, on-site, or at our headquarters in Euerdorf. By leveraging our experts' comprehensive knowledge across diverse industries, we are able to address the specific requirements of our customers.

Would you like to learn more about perma's products and services? Send your request directly to lubezine@perma-tec.com or visit our website www.perma-tec.com

10 QUESTIONS

FOR LUBRICANTS PROFESSIONALS

Navigating Tanzania's lubes market: Mr. Nagesh's perspective

In this 46th edition of Lubezine Magazine we have the privilege of interviewing Mr. Nagesh Rajan, Lubricants Manufacturing Specialist at Oryx Energies Tanzania. Mr. Rajan gives us in depth insights into Oryx Energies' Tanzania lubricants business and having worked in the Asian continent for close to 20 years, he sheds light into the similarities and differences of Asia's and Africa's lubricants market.

1 Would you kindly tell us about yourself and your journey in the lubricants industry?

I am a Chemical Engineer with an MBA, and I have been active in the industry since 1990.

I joined the lubricants industry with Castrol in 1994, and I worked for 14 years. Then I worked with Gulf Oil International in India for a good stint and in 2015, I joined Oryx Energies Tanzania as a Lubricants Manufacturing and Supply Chain specialist. From the start, I have seen professional growth, as well as transformation in the industry through the 90s and the new Millennium. Castrol and other leading brands like Shell, Valvoline, TotalEnergies, Gulf, Servo the lubricants brand of Indian Oil Corporation have made exploits in the very competitive Indian market. Non-conventional and performance lubricants proliferated in the large and emerging markets of automotive, industrial and power sector. Offers, value propositions, positioning strategies and refinement of practices, technology in manufacturing, outsourcing, logistics and planning systems evolved a lot.

Sectors of mining, construction, transportation and power are now active in the East Africa region. The competitive market positions global majors against local ones. With the help of transnational marketing companies, it creates a unique pattern within the business to customer (B2C) segment and I think it is great.

2 As the Lubricants Manufacturing Specialist, what does your work entail?

I help to maximize business performances by providing the best customer service, based on quality products, coming from a safe, reliable, cost effective, and efficient manufacturing and supply chain.

3 What is Oryx Energies footprint in Africa and what market segments does it serve?

Oryx Energies serves East and West African Regions and a part of the South. Tanzania being the largest African market, it covers close to 21 countries. Our business to business (B2B) segment includes the mining industry, in Tanzania and Zambia. It also includes marine, transport, power, construction, sugar mills, cement, food, beverage, and agriculture with an impeccable track record. Our B2C segment comprises our network of Company Owned Distribution Operation (CODOs). They are spread across the country to enhance the reach, distributing full range of automotive and industrial products. The Oryx Energies network of service stations across



**EXPERT
INTERVIEW**

*Mr. Nagesh Rajan, Lubricants
Manufacturing Specialist at Oryx
Energies Tanzania*

Sub Saharan Africa are also outlets for lubes. Our World class manufacturing plants in Tanzania and Togo, are well located to support this large footprint.

4 What product ranges does Oryx Energies have for the mining segment and what other services do you offer your clients?

We have several ranges: automotive and industrial lubricants, greases, coolants, and other specialties for the mining sector. Products are formulated with Group II, III and IV base oil that makes them high performance for critical applications at the mines. The service offer is end-to-end, starting from survey and prescription, product realization, Vendor managed inventory systems, managing life cycle of lubricant and dispensing to use to monitoring and timely replacement, and safe disposal of used lubes.

5 You have been involved in setting up blending plants, what makes up an efficient blending plant?

An efficient blending plant must consider adequate bulk base oil storage, with automatic tank gauging for perpetual inventory monitoring and controls. Additives, packaging and finished products require a well-planned warehouse, as well as an integrated sequence of logic controlling PLC (Programmable Logic Controller) and SCADA (Supervisory Control And Data Acquisition) based automation for the blending. To provide robust and accurate filled packs, we also need automatic or semi-automatic filling machines. Integrated ERP(Enterprise Resource Planning) and WMS (Warehouse Management System) will help transactional processes and inventory, order management and delivery system. Quality control and technical testing require good laboratory equipment for analysis. In addition to plant safety, operating and maintenance SOPs (Standard Operating Procedures) are essential to have a reliable plant. It enables high OEE (Overall Equipment Effectiveness), 100% First time pass rates of batches, high IFOT (In Full on Time service), zero processing waste and non-conforming stock generation, optimal inventory and a smooth supply chain.

6 Could you tell us about the Oryx Energies' automated lubes blending plant and how the experience is of using it compared to when it was manually operated?

An automated blending set up is a step towards modernization and substantially enhances controls and traceability. It is an intensive application of PLC for sequence automation and distributed control, combined with SCADA, to help in efficiency, traceability, and controls. This serves as a significant enhancement from a manually controlled plant. It ensures the high product quality and process standards.

7 What would make an Oil Marketing Company (OMC) choose Oryx Energies Tanzania as its lubricants toll blender?

Oryx Energies provides a world class manufacturing and supply chain service. We are offering quality, process standards, optimal sourcing of base oil and additives. We also help increase the demand by supplying reliable planning, high level service and cost-efficient conversion. This fosters sales, lasting business and distribution.

8 What is your view regarding the coolant market in Tanzania and how is Oryx Energies plant positioned to take care of the needs of this market?

Oryx Energies has a world class facility to cater all possible types and ranges of coolants, and in all packs and sizes. As a lot of substandard products have unreasonable market footing, the coolant B2C market needs proper regulation. We need regulatory governance around both manufacturing and imports. TBS (Tanzania Bureau of Standards) needs to define optimal standards to fulfill the market needs. On its side, FCC (Fair Competition Commission) needs to tackle reported defaulters. B2B market is more OEM



Oryx Energies serves East and West African Regions and a part of the South and Tanzania is its largest market. It has two lubricants manufacturing plants in Togo and Tanzania.

(Original Equipment Manufacturers) recommendation driven and better aligned to existing standards.

9 What are some of the challenges you have encountered in Tanzania's lubricants market?

Counterfeiting! It has affected most of the brands over the world, and Africa is not an exception. When high price and inflationary situations happen, cheaper products from other global envelopes, based on low index of raw materials and from free trade zones, invade markets. Substandard products make their way into the market clandestinely. EAC (East African Community) and Revenue Authorities have taken actions to exempt import duties on base oil and it is a good initiative. If additives are exempted as well as import duties on finished product enhanced, it will help local manufacturers more. The congestion at port is another challenge. It is added to demurrages on chartered vessels and additional storage costs on dry cargos when storage time limit is exceeded, due to a tight port infrastructure.

10 You have worked in Asia's and Africa's lubricants market, what are the similarities and differences in these markets?

Structures, features of B2C channels and route to market have both similarities and differences. Asian markets are bigger and have more standards and high-end products. Automotive OEMs are also extensively present. With NOCs (National Oil Companies), the competition is tougher, but there are less channel conflicts in B2C as the market is more structured and controlled. The route to market is the same, from the manufacturer to a bunch of resellers, to the final retail counter. In terms of sales volume, Bazaar or High Street sales are more important than Forecourt sales in both markets for B2C lubricants. In West Africa, a large part of market is cluttered with a wide range of imported products, but it is not the case in East Africa.

Plastic recycling in lubes is still a challenge. Asian markets prefer plastic packages over metal. In Africa, we can see monograde lubes in metal packs in the retail market. Multigrade lubes are more often packed in plastic. In East Africa there is a developing awareness on environmental issues such as plastics reduction and recycling. Below a certain gauge, films are banned from usage. Asian markets are more environmentally compliant as they have created a distinct market for re-refined used oils. It is a circular economy. Africa is still to reach there though; some re-refining units have started to operate. ■

Rymax Lubricants' route into a specialized future

In the world of lubricants, where precision, performance and reliability are key, Dutch manufacturer Rymax Lubricants has set out on a newsworthy path. Since its founding in 1986, the company stands for innovation: embracing challenges as a guide to their improvement. Over the years, Rymax Lubricants has evolved from small beginnings to a global force with representation in almost 60 countries. Rymax Lubricants show that pursuing excellence goes very well together with the strong commitment to build trust and joy to professionals and consumers working with their valued machinery daily.

Foundations of excellence

Founded in 1986, Rymax Lubricants set out to become a specialist in lubrication. From the onset, their philosophy was clear: improve by challenge. This approach, rooted in the belief that the toughest tests are the greatest teachers, drove Rymax to keep innovating, focus on quality and to become a specialist in lubrication solutions.

From offering conventional but highly demanded SAE 50 engine oil, to developing complex full synthetic blends, Rymax's commitment to improvement is evident. Every challenge is an opportunity to learn, adapt, and enhance formulations. This commitment filtered through to their partners, across the globe. It was this trust in quality and performance that allowed Rymax to be successful in a very competitive market.

Eyes on the future: navigating specialized segments

As the landscape of lubricants continues to evolve, Rymax Lubricants has its finger on the pulse. With a big focus on the valued existing business, the company also prepares for a shift towards more niche, specialized segments—a future where lubrication requirements will go beyond conventional machinery. In sectors like cement, power generation, and the food-grade industry, the demand for specialized lubrication is rapidly growing, while for example in Europe, more traditional segments like Passenger Car will drastically decline, due to the arrival of hybrid- and EV-vehicles.

"We see the future of lubricants shift towards more niche, specialized segments," Mr. Erik Vermeer, Commercial Director, and Shareholder at Rymax Lubricants, emphasizes. "Segments such as cement, power generation, and food-grade demand precision and reliability like never before. We have been lining up for this and we are ready to venture into these emerging segments. But at the same time, we continue to embrace, develop and innovate our current business."



Erik Vermeer, the Commercial Director and owner of Rymax Lubricants.

Where purity meets performance

Among the emerging segments, the journey into food-grade lubricants is particularly interesting. In an era of increased awareness about food safety, these lubricants play an essential role in ensuring the integrity of food processing machinery. It's a segment where purity, precision and performance interact.

Food-grade lubricants, as Krishna Kumar Orakkan, Product Manager at Rymax explains, "are specifically formulated to meet rigorous standards set by regulatory bodies like National Sanitation Foundation (NSF) and the demands for Halal and Kosher. These lubricants must not only ensure optimal machinery performance but also guarantee that in case of any contact, they won't compromise the quality and



Impressions of the Rymax Lubricants factory in The Netherlands.



safety of the food being processed while ensuring the best quality for the expensive equipment.”

The technical complexities of food-grade lubricants involve a delicate balance between lubrication effectiveness and the stringent requirements of food safety. Rymax Lubricants took on this challenge, ambitiously formulating solutions that met all these criteria. The result is a range of NSF-approved food-grade lubricants that industry professionals can trust without a doubt. These products also build further on

the principles of Rymax’ ECO-line which focuses on standards like biodegradability and fuel-economy. Again, Rymax Lubricants launches on the African continent, bringing new, sought-after lubricant solutions to a rapidly developing industry.

Unity in diversity

Rymax Lubricants’ journey isn’t just about products; it’s about partnerships. The company is very proud of their family of like-minded distributors who share their vision of

excellence and innovation. This network of distributors extends the company’s reach, ensuring that professionals and consumers across the globe have access to the same level of quality and reliability.

“We’re not just suppliers; we’re partners,” Mr. Erik Vermeer emphasizes. “Our distributors are an extension of our commitment to trust and joy in machinery. They understand that our lubricants aren’t just about performance; they’re about connections, building confidence, and facilitating success.”

A glimpse of tomorrow

As Rymax Lubricants looks to the future, their journey is the proof that perseverance, constant innovation and focus on quality pays-off. From their beginnings in basic lubrication to their ventures into sophisticated synthetic blends, industrial solutions, and food-grade formulations, they have consistently embodied their philosophy to “improve by challenge.”

In a world where machinery and technology propels progress, Rymax Lubricants’ commitment to excellence resonates strong as we get to know them better. Their commitment to discover new segments, the technical details of food-grade lubricants, and their valuable network of distributors all contribute to a story that goes beyond lubrication. It’s a story of trust, precision, and the ongoing pursuit of improvement—a story that continues to unfold— with each challenge met, and each partnership made.

TURBINE OIL

Assessing Oxidation Condition and Lubricant Refreshment in Turbine Oils

By **Andres B. Lantos, WearCheck Argentina***

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Abstract

Turbines are critical pieces of equipment for power plants and related industries. Varnish formation is the first root cause for downtime and loss of reliability in turbines. The lubricant’s oxidation condition can be effectively monitored through RULER (Remaining Useful Life Evaluation Routine), MPC (Membrane Patch Colorimetry) and RPVOT (Rotating Pressure Vessel Oxidation Test) tests. Besides the nominal ASTM (American Society for Testing and Materials) value for these tests, significant information can be gathered from digging into these tests and integrating their outcomes. One major application for this integration is the estimation of the lubricant refreshment for lean operation. Through lab tests, this can be accurately estimated, by planning ahead of the upcoming maintenance intervention. This method will be shown, together with case studies.

Introduction

Turbines are essential components for power generation and heavy industries, where downtime and failures can result in production loss, penalties, and operational disruption. While wear in turbines occurs primarily due to poor lubricant



To prevent oxidation, turbine lubricants contain around 1% antioxidants, which protect the base oil from thermal and oxidative stress.

condition, the primary cause of turbine failure is the accumulation of deposits, leading to issues like sticking valves, blockages, and inefficient heat exchange. Varnish, often linked to oxidation processes, is a common type of deposit that forms as a result of sacrificed antioxidants and oxidation byproducts. Varnish removal incurs high costs in terms of downtime and equipment replacement, making the monitoring of turbine oil oxidation condition crucial.

To prevent oxidation, turbine lubricants contain around 1% antioxidants, which protect the base oil from thermal and oxidative stress. While the generally accepted threshold for using turbine oils is

when the remaining active antioxidants are at 25% of the original formulation, varnish issues can emerge even when remaining antioxidants are as high as 60%. Maintaining a high dose of antioxidants and low varnish potential is essential to ensure reliable operation, and lubricant refreshment can play a pivotal role in achieving this goal.

Analytical Techniques for Lubricant Evaluation

Three key tests are used to evaluate the oxidation condition of turbine lubricants: RULER (Remaining Useful Life Evaluation Routine), MPC (Membrane Patch Colorimetry), and RPVOT (Rotating Pressure Vessel Oxidation Test). These tests provide valuable insights into the oxidation condition and the remaining antioxidant levels.

Membrane Patch Colorimetry (MPC) (ASTM D7843) is a method for determining varnish formation in mineral turbine oils. In analytical chemistry, procedures can be classified as either end point or standardised. Typical end-point procedures are titrations such as Acid Number (ASTM D974) or Karl Fischer (ASTM D6304). MPC involves heating the lubri-

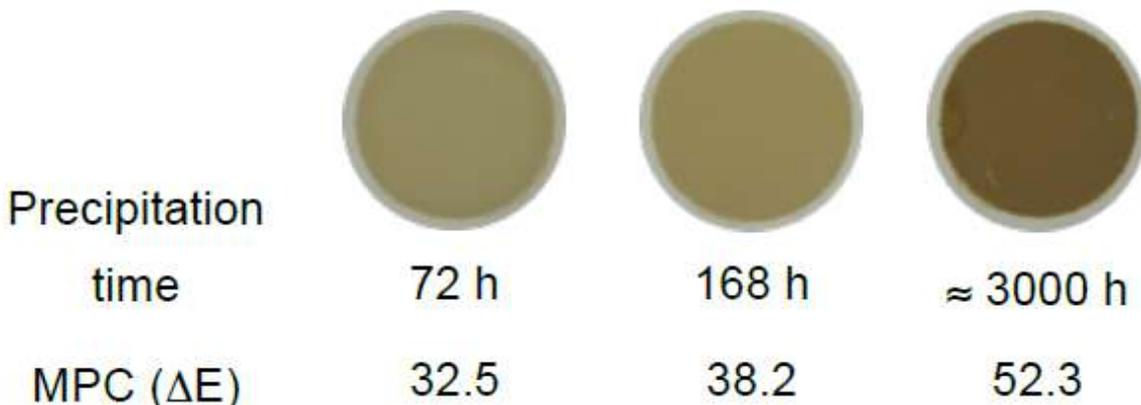


Figure 1. MPC is a standardised method in which precipitation time is critical (part I).

cant at turbine operating temperature for 24 hours to redissolve varnish, followed by 72 hours of standing for varnish re-precipitation. The colour intensity of the patch formed on a membrane filter is measured, and a higher MPC value indicates higher varnish retention. MPC values above 30 are concerning, above 20 are alarming, and below 15 are considered safe.

RPVOT (Rotating Pressure Vessel Oxidation Test) (ASTM D2272) is an oxidation simulator. This test simulates oxidation by pressurising lubricant samples in the presence of oxygen and a catalyst. The induction period, the time until the pressure drops by 25.4 psi, indicates antioxidant depletion. Different base oils and antioxidant formulations yield distinct RPVOT curves, offering valuable insights into the oxidation behaviour.

RULER (Remaining Useful Life Evaluation Routine) (ASTM D6971) is a voltammetric method for quantifying

antioxidants. By analysing the oxidised products of antioxidants, this test provides an accurate assessment of remaining active antioxidants. For highly degraded samples, extrapolation is necessary to obtain reliable results.

RULER is an excellent methodology for monitoring the remaining active antioxidants. Given that the method oxidises the antioxidant, the result is dependable of the real remaining antioxidant potential. However, when the remaining antioxidants are very low and the peaks are very shallow it is possible to make errors in the antioxidant quantification, typically in excess.

Excess quantification in degraded samples is dangerous, because should antiox-

idants completely deplete, the lubricant will fall into massive oxidation in a very short period, causing huge damage. To avoid falling into this analytical pit, it is possible to better estimate the remaining antioxidant % by extrapolation.

When preparing mixtures of new and used oil, we can define the Refreshment % such that Refreshment = 0% implies used oil; and Refreshment = 100% implies full lubricant replacement.

Consider the following case study of a Gas Turbine with a mineral ISO VG 32 lubricant supplemented with an R&O package and 43,000 operation hours. The RULER for this sample resulted in 28,3% remaining antioxidant, very close to the condemning limit. »

$$\text{Refreshment} = \frac{\text{New Oil}}{\text{New Oil} + \text{Used Oil}} \cdot 100\%$$

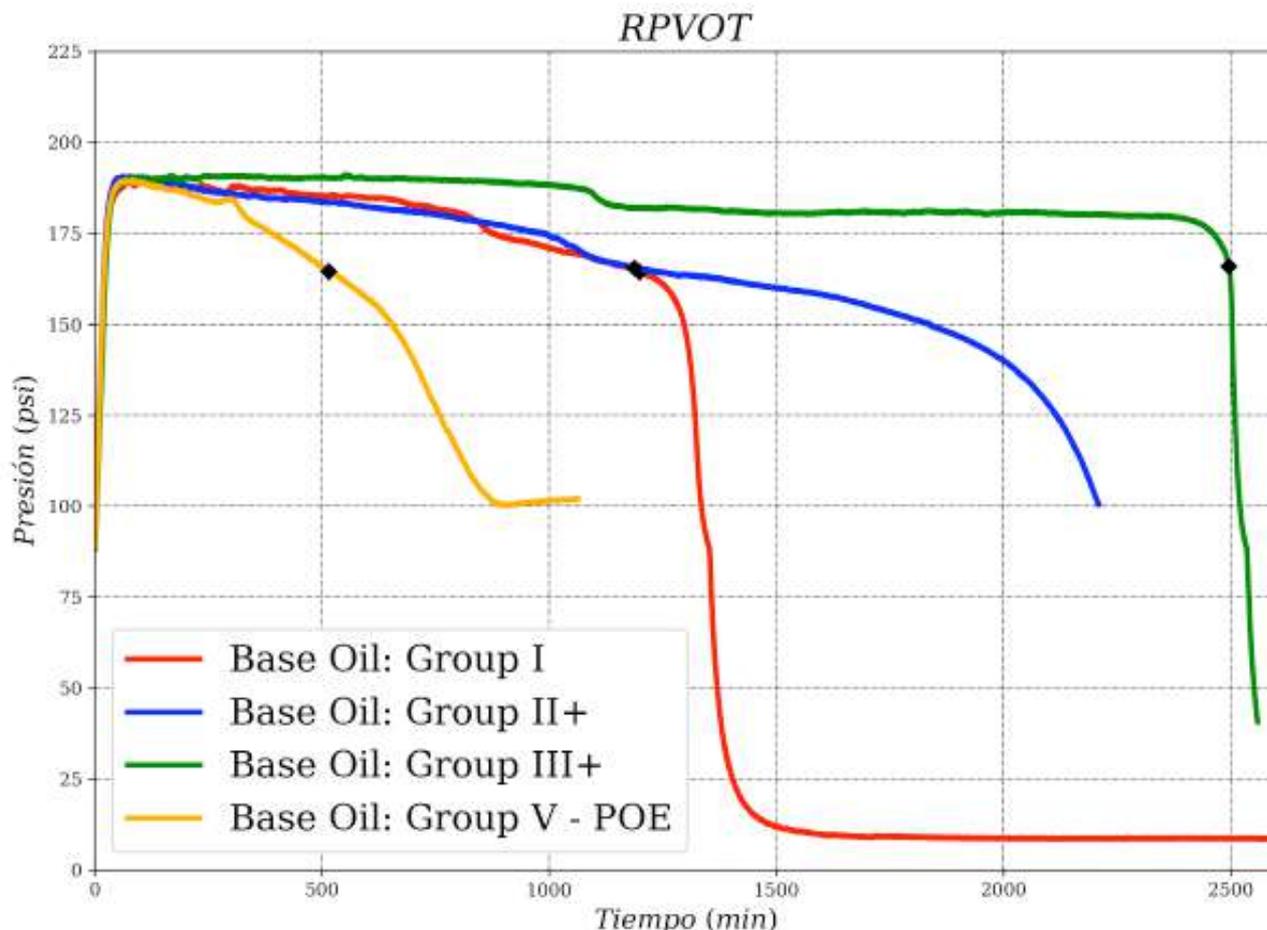


Figure 2: RPVOT curves for different base oil formulations. Figure 3: RULER can be quantified by extrapolation in degraded samples.

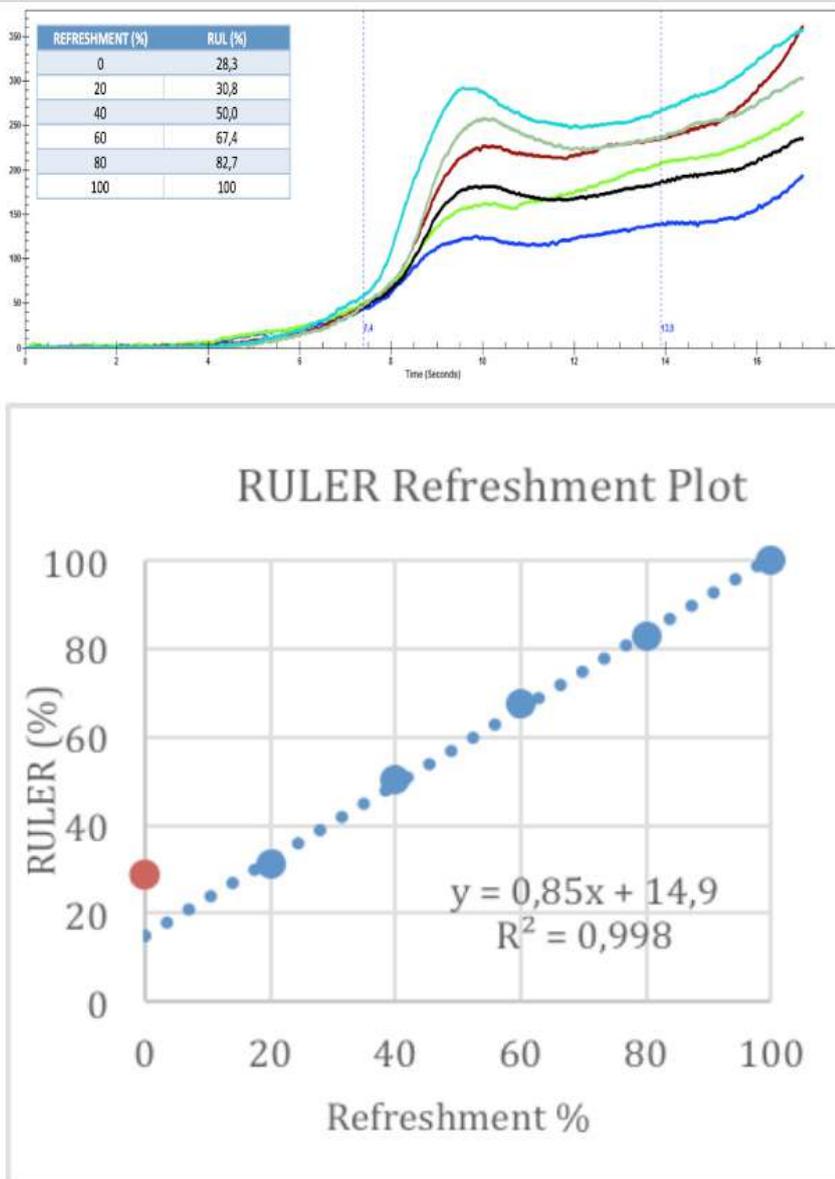


Figure 3. RULER can be quantified by extrapolation in degraded samples.

To assess the RULER value better, we proceeded to perform the extrapolation method. For this, the complementary mixtures of new and used oil to cover 0% to 100% refreshments were prepared. After thorough homogenisation, RULER was tested for all samples. Figure 3 shows the RULER outcome.

Consider a gas turbine lubricated with a Group I oil supplemented with a mixed antioxidant package. This system has run for 55,000 operating hours with a 10% refreshment after 44,000 operating hours.

Refreshment plots were performed for this lubricant.

Building an Oxidation Condition Model for Lubricant Refreshment

Creating a refreshment model involves analysing the turbine’s oxidation condi-

tion and proposing a lubricant refreshment strategy. By assessing the relationship between the actual condition of the lubricant and a hypothetical scenario with a full lubricant change, a comprehensive model can be constructed. This model guides decisions on the required refreshment percentage to achieve optimal oxidation condition for reliable turbine operation.

Refreshment Strategies Two main strategies for maintaining high antioxidant levels are “bleed and feed” and “additive replenishment.”

- **Bleed and Feed:** This conservative approach involves bleeding a portion of the in-service oil and replenishing it with fresh lubricant. While effective, this method can be costly and wasteful as the bled base oil is usual-

ly not oxidized.

- **Additive Replenishment:** This strategy involves slowly adding antioxidant concentrates to the in-service oil to maintain desired antioxidant levels. It offers economical advantages by conserving base oil, but it requires careful formulation and compatibility testing to prevent undesired reactions and deposit formation.

Conclusion

Monitoring lubricant oxidation is crucial for ensuring reliable turbine operation and preventing costly failures. Analytical techniques such as RULER, MPC, and RPVOT provide valuable insights into the oxidation condition and the remaining antioxidant levels. By integrating the outcomes of these tests and creating oxidation condition models, effective lubricant refreshment strategies can be devised. These strategies, whether through bleed and feed or additive replenishment, contribute to extending the lifespan of turbine oils and enhancing overall turbine reliability. While both approaches have their merits and challenges, they collectively underline the significance of meticulous maintenance and monitoring practices in the realm of turbine operation. ■

This article has been summarised. To read the full article, please follow this link: <https://www.wearcheck.co.za/shared/TB81.pdf>

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MARINE LUBRICANTS

Future fuels set to transform the marine lubricants industry

The shipping industry has faced two major challenges from 2019–2022: the implementation of International Maritime Organization (IMO) norms on the maximum allowed sulfur concentration to be 0.5% in marine fuel, which are also known as IMO 2020 norms, from January 1, 2020, and COVID-19, which disrupted normal operations. The next challenges that the industry is expected to face are the decarbonization 2030 and 2050 norms. This article will focus on the aftermaths of the IMO 2020 norms and COVID-19 on the marine lubricants industry and how it is likely to evolve in the future as the shipping industry tries to meet the decarbonization targets.

The implementation of IMO 2020 norms restricted the sulfur concentration in marine fuel to 0.5%. This fuel is known as very low sulfur fuel oil (VLSFO). However, a ship could continue to use 3.5% sulfur fuel if it had installed an exhaust gas scrubber (EGS). About 95% of the ships opted for VLSFO to meet IMO 2020 norms, as there was uncertainty regarding the EGS systems to meet future fuel norms from the IMO. Further, many countries banned the wash water discharge from open-loop scrubbers.

The introduction of VLSFO led to significant changes in the marine lubricants industry, including the categorization of cylinder oils into categories I and II. Demand was expected to shift from higher base number (BN) cylinder oils to lower BN cylinder oils; however, the shift was smaller than anticipated. This is because deposits in the piston rings and crowns were seen in new engines with the existing 40 BN cylinder oil at the time in ships that were using VLSFO. As a result, shipping companies were using 40 BN cylinder oil most of the time and used 100 BN cylinder oil for a short period to remove deposits. Thus, the demand decline for

higher BN cylinder oils was lower than anticipated. This triggered a need for a cylinder oil with the acid neutralization capability of a 40 BN cylinder oil and the detergency of 100 BN cylinder oil. MAN categorized such cylinder oils under category II 40 BN cylinder oils. Category II 40 BN cylinder oils were introduced by major marine lubricant suppliers in 2022.

The introduction of category II cylinder oils also led to a change in how cylinder oils were selected. Earlier, BN was the key criterion to select a cylinder oil, as it was used to judge the acid neutralization capability and detergency of the cylinder oil. However, due to VLSFO, the need for a higher BN or higher acid neutralization capability has been reduced, but the need for higher detergency remains. This has led to the decoupling of the BN and detergency for cylinder oil performance. This will have implications for cylinder oil selection in the future, as detergency becomes more important than acid neutralization capability.

The second key challenge that the shipping industry faced was COVID-19, which led to the adoption of digital technologies in the shipping industry. Onboard inspections became difficult or could not be conducted due to restrictions put in place by countries to control the spread of COVID-19. It is estimated that the number of visits by support personnel

to vessels reduced by 65% to 70% due to COVID-19-related restrictions, resulting in reduced on-board as well as onshore support to the ship. Shipping companies, OEMs, and marine lubricant suppliers had to rely on digital technologies to provide support to the vessel as in-person services could not be provided. This also helped reduce operating costs. For example, marine lubricants suppliers did not send experts to different vessels, leading to a reduction in travel costs. Such services will continue to gain importance in the future as they help provide wide coverage while also reducing costs.

Another major challenge that the shipping industry is expected to face is the decarbonization targets for 2030 and 2050. These norms aim to reduce the average carbon intensity (CO₂ per ton-mile) by a minimum of 40% by 2030 and 70% by 2050 compared to 2008. Further, greenhouse gas emissions are targeted to be reduced by 50% by 2050 compared to 2008. To meet these targets, the shipping industry will need to use alternative fuels (also known as future fuels) such as methanol, hydrogen, ammonia, and biofuels to reduce emissions. These fuels have different characteristics from the high sulfur fuel or VLSFO, requiring engine oils specific for these fuels to be developed. Further, the inclusion of the shipping industry in the European Union Emission Trading Scheme (EU ETS) means that the shipping industry will have to pay for carbon emissions starting in 2024. This is expected to further drive the usage of future fuels in the shipping industry while increasing the cost of those who don't use these fuels.

As a result, interest in future fuels for the shipping industry is rising. This can be seen from the shift in the new shipbuilding orders toward alternative or future fuels. According to data on new shipbuilding orders for 2020, 2021, and January to April 2022 published by DNV,



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the share of methanol in the new ship-building orders in terms of gross tonnage jumped from 1% in 2020 to 6% in 2022, while LNG share jumped from 21% in 2020 to 46% in 2022. However, LNG is seen as an interim fuel before the shipping industry transitions to future fuels, such as hydrogen, ammonia, methanol, and LPG. This is because, though LNG is cleaner compared with the current marine fuels, they still have a significant carbon footprint. It should be noted that vessels running on ammonia are not in operation as of now. Ammonia engines for the shipping industry are expected to be supplied toward the end of 2024, with the first ship running on ammonia being commissioned in 2025.

Biofuel demand for the shipping industry is also expected to grow, especially against the backdrop of EU ETS. It is also seen as a strategy to meet the decarbonization targets of 2030 and 2050 as the increasing usage of biofuels will reduce carbon emissions. Currently, various blends of biofuels with marine fuels, such as B10, B20, and B30, can be used in the shipping industry. However, the price of fuel increases as the share of biofuels increases in the marine fuel blend. For example, B30 can cost USD 300 per tonne more than B10. The VLSFO is priced around USD 50-100 per tonne lower than B10. As a result, shipping companies prefer B10 to ensure that the cost of fuel remains under control.

Hydrogen is also used in the shipping industry, although its usage is limited to ships such as ferries used for short-distance travel. For example, CMB Tech started a commercial ferry using hydrogen as fuel in 2021. Electric vessels are also expected to be available in the market. Cur-

rently, only a few electric vessels are in operation, but their usage is expected to grow. As electric vessels do not need engine oils, the increasing usage of electric vessels is expected to be a negative factor for marine engine oil demand growth. Initially, electric vessels are expected to become popular for tugs and ferries. Vessels operating on inland waterways may also use electric vessels; however, swappable battery solutions will be ideal for them.

For now, ships running on future fuels are mostly using Category II 40 BN cylinder oils as the number of ships running on these fuels is still small. However, future fuels have different characteristics from the fossil fuels being used today and may need specific solutions to handle any lubrication issues arising from their use. These issues are described in the following table.

As new engine oils specific for future fuels are launched, the shipping industry will transform from a single-engine-oil industry to a multiple-engine-oils (six to seven types) industry. This, in turn, is expected to make supply chain management challenging for engine oil suppliers. Marine lube suppliers are expected to rationalize their product portfolio and phase out engine oils such as Category I 40 BN cylinder oils and other engine oils that make up a small portion of their overall portfolio. Category I 40 BN cylinder oils are mainly used for older engines, however, engine OEMs are also recommending using Category II 40 BN cylinder oils to be used in these engines. This is expected to provide further incentive to phase out Category I 40 BN cylinder oils.

This situation is further exacerbated due to the spread in the average price of



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VLSFO and 3,5% sulfur fuel. As per the information available on Ship & Bunker, the average price spread for the top 20 bunkering ports hit a high of USD 420.5 per

ENGINE OIL REQUIREMENTS FOR FUTURE FUELS

FUEL	CHARACTERISTICS	ENGINE OIL REQUIREMENTS
Methanol	<ul style="list-style-type: none"> • Can cause engine wear • Can interact with engine oil, which can lead to emulsion formation 	<ul style="list-style-type: none"> • Engine oil will need to have anti-wear and demulsifiers.
Ammonia	<ul style="list-style-type: none"> • Is corrosive • Is expected to form different acids from the fossil fuels used currently 	<ul style="list-style-type: none"> • Engine oil will need to have corrosion inhibitors and may need a different acid neutralization solution than what is used currently.
Biofuels	<ul style="list-style-type: none"> • Poses the risk of oxidation and deposit formation, which could cause engine wear 	<ul style="list-style-type: none"> • Engine oil will need to have anti-wear and anti-oxidation properties.
LNG-a	<ul style="list-style-type: none"> • Is a gaseous fuel 	<ul style="list-style-type: none"> • Thermal robustness is needed. Category II 40 BN cylinder oils are expected to be a good solution.

a- LNG is not a future fuel but is included in the table as its usage in the shipping industry is expected to grow as a transition fuel.



ton in July 2022. The corresponding figure at the end of 2021 was USD 153 per ton, leading to growing interest in EGS. At the end of 2021, 30% of the global container capacity had EGS, with 150 container ships adding these systems in 2021. In 2022, this trend has grown. For example, DHT Holdings, a crude oil tanker company, is investing USD 25 million to retrofit eight tankers with scrubbers. After the implementation of IMO 2020 norms, it was expected that high-BN cylinder oils will continue to decline and eventually have a small share in the overall market or may even phase out. However, as the interest in the EGS systems grows, high-BN cylinder oils are likely to regain some of the market share they lost after the implementation of IMO 2020 norms; but as mentioned earlier growth in EGS

adoption do face regulatory challenges.

Moreover, the future fuel choices of shipping companies are not clear. The adoption of future fuels will vary from one shipping company to another. A shipping company may even operate on multiple future fuels. However, this will depend upon the ship route and the bunkering infrastructure available at the ports along the route that the ship is expected to take. It is expected that ammonia and methanol may be preferred for deep-sea shipping, while hydrogen might be preferred for domestic marine including inland waterways. However, other options such as electric vessels and biofuels are available. These choices are expected to impact the engine oil requirements of the shipping companies. This will have business implications for marine lubri-

cant and marine lubricant additive suppliers as they need to invest in developing engine oils and their additives for future fuels.

These challenges are expected to increase entry barriers for new marine engine oil suppliers as they lack the know-how and may not have the resources to make the investments needed. However, the challenges also provide opportunities. The existing marine lubricant suppliers will need to increase engagement with shipping companies, engine OEMs, and additive suppliers to succeed in this industry, given the increasing uncertainty. ■

Kline has recently published a report on the Marine Lubricants industry providing market estimates and trends in this industry including the topics highlighted in this article.

Improving Lubrication in Construction and Mining Equipment

Jeffrey A. Crow, Ph.D., Len Badal, IPAC, Inc.

It may sound surprising, but some in the lubricant industry still believe a Caterpillar® TO-4 oil in final drives is perfectly fine. It is surprising particularly when one considers these fluids service some of the biggest and heaviest off-road equipment in use, such as mining dump-trucks, and the demands placed on their final drives. In another point of view, such a belief is not completely surprising since Caterpillar recommended TO-4 for years, particularly as it related to proper frictional properties and to minimize the number of fluids required for equipment. Even before this, engine oil was used for a wide range of applications beyond engines.

As targets for efficiency, productivity, and sustainability have increased for mining and construction companies, the equipment that supports their businesses has become more complex requiring high performance lubrication from multiple fluids to ensure all components are operating efficiently. Previous approaches using a “one-for-all” lubricant for these offroad applications is no longer sufficient. Today’s large haul trucks have separate compartments and mechanical drives for wet brakes, and when the choice for lubricating this compartment is a 10W fluid, a separate fluid that can handle high loads on bearings and drive gears is more important than ever. The combination of higher temperatures and these higher loads creates an immense amount of strain on the axles, differentials, and final drives. So today, it is highly recommended to use a special fluid for these highly loaded compartments, and that fluid is one that conforms to the Caterpillar FD-1 specification. This is a specification developed by Caterpillar to better define the performance needed in these cases.

Fluids that are suitable for an FD-1 type performance will have numerous improved attributes that will lead to a longer life of these highly loaded components. In the most simplistic sense, allowing for a much higher viscosity goes a long way, and FD-1 fluids are typically SAE 60



weights. Optimization of viscosity alone accounts for significant improvement in micropitting performance. Using a properly formulated FD-1 fluid in the rear differentials on mining haul truck vehicles helps reduce micropitting in the gears and provides longer equipment life, reduced downtime, and directionally lower operating cost per ton for the site when compared to using TO-4 lubricant technology.

In addition to the fluid having the proper viscosity, utilizing a high-performance quality package like International Petroleum Products & Additives Company (IPAC) 9188, designed specifically for where FD-1 fluids are indicated, provides optimized additive technology that delivers protection for these highly loaded final drives and axles. This package ensures the fluid will protect against wear, scuffing, thermal and oxidation degradation, all the while maintaining elastomer compatibility. This package is designed for final drives that do not contain friction material. Friction is optimized specifically for final drives, to protect against micropitting and other modes of fatigue and failure.

It is noteworthy that it is not advisable to use FD-1 fluids where it is not indicated, particularly for wet brake applications, as the fluid is not designed for those applications. Some equipment and wet brake applications require an unusually high level of friction for optimal brake torque

capacity, and this may not be provided by an FD-1 fluid.

Key areas where FD-1 fluids formulated with IPAC 9188 excel over TO-4 fluids include scuffing and micropitting protection, along with bearing protection and corrosion, oxidation, and thermal stability in the finished fluid. Furthermore, roller bearing protection across a broad range of lubrication regimes is ensured when the fluid is optimized. Bearings often encounter a wide range of conditions because the ratio of oil thickness to surface roughness spans the hydrodynamic, mixed and boundary lubrication conditions. With elastohydrodynamic (EHD) conditions that fall between hydrodynamic and mixed zones being predominant as well, lubricant formulators can ensure proper lubrication is maintained with FD-1 fluids. The cleanliness imparted to gear surfaces is another key enhancement.

IPAC is dedicated to developing the next generation of additives and fluids for the construction and mining markets. These are key segments in the global economy and IPAC is focused on providing high quality, technologically advanced additives to ensure superb reliability and operating performance. The chemistry IPAC delivers to the market is designed to improve efficiency, provide longer fluid life, and reduce wear to protect equipment for longer service. Visit IPAC today at www.ipac-inc.com.



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