

MADENİ YAĞ DÜNYASI LUBRICANT WORLD

International Edition

www.lubricant-world.com

ISSUE: 15

SEPTEMBER-OCTOBER 2018



madeniyagdunyasi

lubricantworld

madeni-yağ-dünyasi-lubricant-world



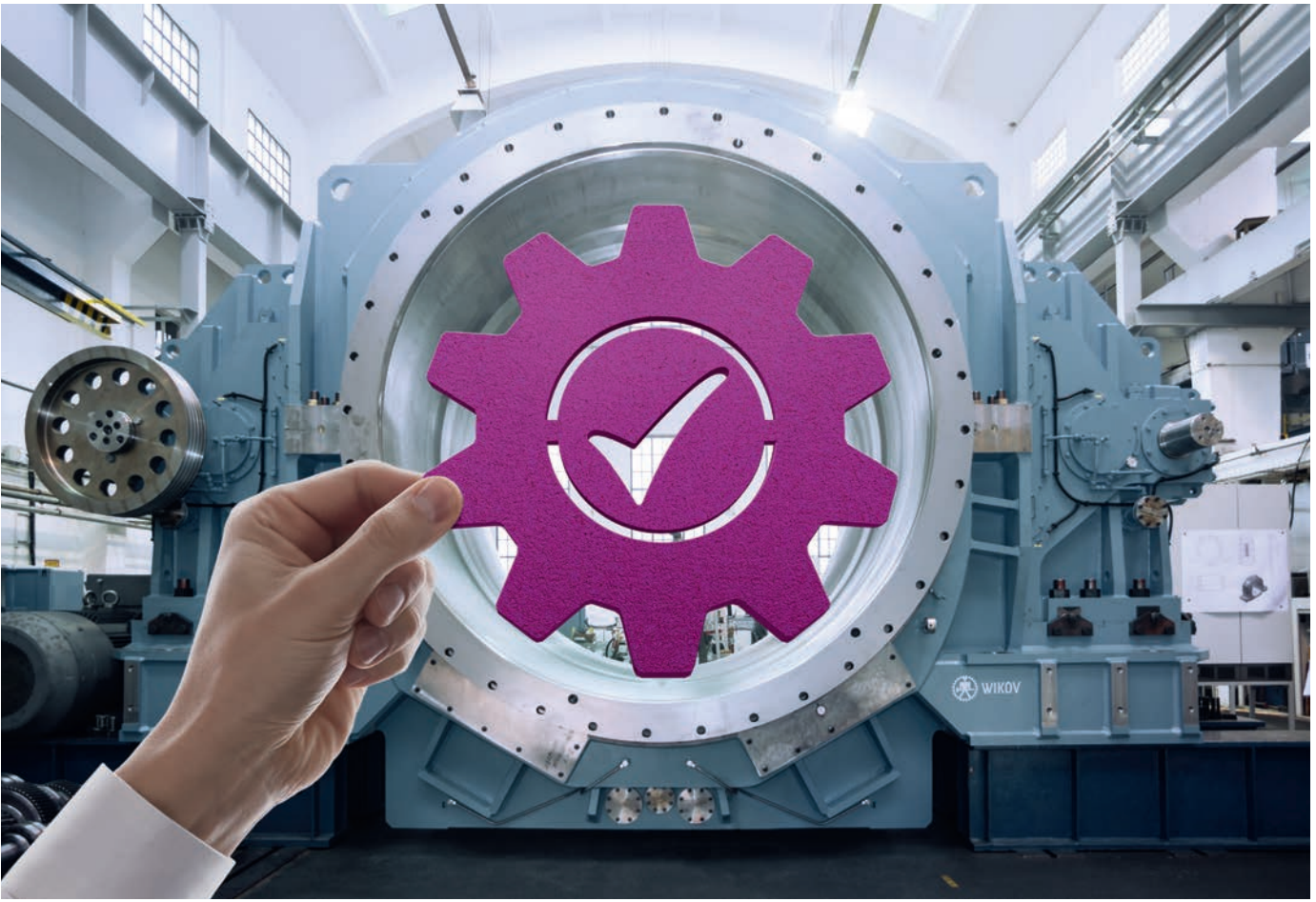
SN 2548-074X

Castrol India: A pioneer of development under Ömer Dormen's leadership

Energy efficient
hydraulic fluids with
Evonik's DYNAVIS®
technology

Recovery and growth
in Indian
lubricant market

"Accessing the right
information has proven
crucial more than ever"



Verimlilik için vites yükseltin. *Gear-up for efficiency.*

NUFLUX™

Endüstriyel dişli yağları Evonik'in NUFLUX™ teknolojisi ile bir dönüşüm geçirdi. Evonik katkı teknolojisi daha düşük formülasyon maliyetiyle daha yüksek performans için tasarlandı ve sunduğu üstün çözümlerin ardında OEM onayları, endüstri standartları, performans testlerinin desteği var. NUFLUX™ teknolojinin sağladığı viskozite dereceleri yelpazesi endüstriyel dişli uygulamalarının çok çeşitli taleplerini yerine getirebilecek genişliğe sahip.

Industrial gear oils are transformed with Evonik's NUFLUX™ technology. Geared for higher performance with lower formulation cost, Evonik additive technology provides a premium solution backed up by OEM approvals, industry standards and performance tests. With NUFLUX™ technology, you'll find a broad range of viscosity grades suitable for a variety of demanding industrial gear applications.

The Oil Additives specialists at Evonik — Let it flow.
www.evonik.com/oil-additives

adco®

Adco Petrol Katkıları San. Ve Tic. A.Ş.
Hacımimi mah. Kemeraltı cad. Balkan Han
15/4 Karaköy Beyoğlu İstanbul/Turkey
+90 212 252 08 40

Adco Petrol, Evonik Yağ Katkıları ürün ve teknolojilerinin yetkili temsilcisidir.

EVONIK
POWER TO CREATE



Editor's Letter



As we approach the end of 2018, we have decided to publish the Turkish and English version of the Lubricant World magazine as two separate editions. Our purpose is to facilitate the reading of the magazine for you and to reserve more space for the news and developments in the global lubricants industry. We are working on further expanding our network of subscribers in Turkey as Madeni Yağ Dünyası Türkiye, while consolidating our position among international publications as Lubricant World International Edition.

The year 2018 will end with major developments in Turkey. After a short while the STAR Refinery will be opened. There are a few other major facilities that will be commissioned in the near future. Despite the economic difficulties encountered, the Turkish industry and the lubricants sector continue to grow. We are proud to announce them on international platforms.

We will be a media partner at Turkchem International Fine and Specialty Chemicals, Commodity Chemicals, Petrochemicals and Chemical Intermediates Exhibition, which will be held on November 8-10 in Istanbul. You should come and visit our booth if you happen to be in Istanbul on these days.

We will also participate in the European Base Oils and Lubricants Interactive Summit, which will be held in Italy on November 28-29, as a media partner. I believe this event will be full of nice experiences as there will be a site visit to ENI's Livorno Refinery.

With our new language structure, you can reach a more accurate audience in your advertising and promotional activities. Please contact our advertising team to get the best quote for your advertising and promotional plans for 2019 before the year ends: reklam@vizyonas.com

In this issue, we interviewed Ömer Dormen, who became the youngest General Manager of Castrol in the world and who is currently the General Manager of Castrol India. You can read about Dormen's achievements in his career and the work of the team in India. You can also find general information about Indian lubricants market in our Country Report section.

Offering key services to the industry with its large database and online oil advisor tool, Olyslager is working with leading companies in Turkey. Harald Oosting, Managing Director of Olyslager, emphasizes that accessing the right information has proven crucial more than ever.

Dr. Holger Pletsch from Evonik explains with detailed data and graphics that an optimized viscosity level is the key to achieve energy efficiency in hydraulic fluids.

Enjoy reading.

Cansu Tuncer

cansu.tuncer@vizyonas.com



MANAGEMENT

Publisher

On behalf of Vizyon Dergi Yayıncılık İletişim Pazarlama A.Ş.
Selçuk AKAT

Editorial Board

Prof. Dr. Ertuğrul Durak
Prof. Dr. Filiz Karaosmanoğlu
Prof. Dr. Hakan Kaleli
Att. Betül Gürsoy Hacıoğlu
Att. Vahit Kaya
Mehmet Erkan

Editor

Cansu Tuncer

Design

Melis Gönen

Printing

Sarsılmaz Basım & Yayımlar
Tel: +90- 212 289 07 49-50

For subscription: abone@vizyonas.com

For advertising: reklam@vizyonas.com

Contact

Hacımimi Mah. Kemeraltı Cad.
Balkan Han No: 15/4 34425
Karaköy/ İstanbul/ Turkey
Tel: +90- 212 252 08 40
Fax: +90- 212 252 81 51
www.lubricant-world.com

Lubricant World Magazine is published by Vizyon Dergi ve Yayıncılık İletişim ve Pazarlama A.Ş. in accordance with the laws of the Republic of Turkey. Vizyon Yayıncılık is the sole holder of the copyright and royalty of the Lubricant World Magazine. All rights related to the articles, photos and illustrations in the magazine are reserved. Source must always be indicated when citing. Authors bear full responsibility for the content of text, and advertisers bear full responsibility for adverts.

ISSN 2548-074X



28

A manufacturer from Azerbaijan to the world: Aminol



18

“Accessing the right information has proven crucial more than ever”



22

Energy efficient hydraulic fluids with Evonik’s DYNAVIS® technology



14

Castrol India: A pioneer of development under Ömer Dormen's leadership

- 06 PANORAMA WORLDWIDE
- 10 PANORAMA
- 14 INTERVIEW
- 18 IN-DEPTH
- 22 ARTICLE
- 26 COUNTRY REPORT
- 28 FACILITY REVIEW
- 30 SUSTAINABILITY, ENVIRONMENT AND BIOLUBRICANTS
- 32 TRIBOLOGY APPLICATIONS



26

Recovery and growth in Indian lubricant market



What ExxonMobil learned after analyzing more than 1 million used oil samples

Since launching its Mobil ServSM Lubricant Analysis platform in 2016, ExxonMobil has processed more than 1 million samples, including 243,000+ diesel engine, 125,000+ gear drive, 100,000+ gas engine, 100,000+ hydraulic system, and 75,000+ compressor samples.

This experience, as well as the tens of millions samples the company analyzed using previous platforms, has given ExxonMobil vast intelligence around how to interpret UOA results properly. Here are four of the key lessons:

- **A single test does not always tell the full story:** Receiving an alert for a single test is not necessarily indicative of an equipment performance issue. Instead, it's important to look at all test results for the same sample together to determine what might be happening.
- **Consider the trend, not the absolute test limit:** A single alert doesn't necessarily mean the lubricant is underperforming. In some cases, test limits may not always indicate a cause for concern or may not account for equipment design. Operators must look at the trend over time to understand true performance.
- **Sometimes, lubricant formulation can influence test results:** When evaluating UOA results, it's important to consider the lubricant formulation as well as the metallurgy of the equipment. In some cases, components in the formulation can cause alerts for certain tests.
- **When dealing with water, perform the right test:** Water contamination is a major challenge for several industrial applications, including compressors, steam turbines and paper machines, so this potential contaminant deserves its own callout. There are two types of tests that are typically used to measure water contamination in industrial applications – Karl-Fisher and Hot Plate tests. Operators should consider the hot plate as a conditional test to decide if the more in-depth Karl Fischer analysis should be conducted to determine the actual level of contamination.

In summary, to properly evaluate UOA results, it is critical to work with a lubrication partner that has the right experience to deliver application-specific insights and guidance.





Saudi Aramco and Total to build a giant petrochemical complex

Saudi Aramco and Total signed a joint development agreement for a giant petrochemical complex in the Kingdom's Jubail Industrial City. President and CEO of Saudi Aramco, Amin H. Nasser, and the CEO of Total, Jean Pouyanné, have signed the agreement in Dhahran to build the world-class complex announced last April.

The complex will be integrated downstream of the SATORP refinery, a joint venture between Saudi Aramco (62.5 percent) and Total (37.5 percent) in Jubail, in a move designed to fully exploit operational synergies. This world-class refinery, whose capacity increased from 400,000-barrel-per-day at its start-up in 2014 to 440,000-barrel-per-day today, is recognized as being one of the most efficient in the world.

Located next to the SATORP refinery in the same industrial area, the complex will comprise a world-size mixed-feed steam cracker (50 percent ethane and refinery off-gas) with a capacity of 1.5 million tons per year of ethylene and related high-added-value petrochemical units. The project will represent an investment of around \$5 billion. The two partners are planning to start the front-end engineering and design (FEED) in the third quarter of 2018.

The cracker will feed other petrochemical and specialty chemical plants representing an overall amount of \$4 billion investment by third party investors.

In total, \$9 billion will be invested, creating 8,000 local direct and indirect jobs. The project will produce more than 2.7 million metric tons of high value chemicals.

Amin H. Nasser, President and Chief Executive Officer of Saudi Aramco, says "Our joint venture SATORP is a remarkably successful model of industry partnership and we are keen to build on this success to further underpin Saudi Aramco's strategy to expand its capacity in the chemicals sector by 2030."

"This project illustrates our strategy of maximizing the integration of our large refining and petrochemical platforms and of expanding our petrochemical operations from low-cost feedstock, to take advantage of the fast growing Asian polymer market," commented Patrick Pouyanné, Chairman and CEO of Total.



ENOC Group expands its marine lubricant footprint to Europe

Emirates National Oil Company (ENOC) Group signed an agreement with Baluco GmbH, an international marine bunkers and lubricants consulting company. Through this agreement, Baluco becomes a key distributor of ENOC's marine lubricants in Germany, The Netherlands and Belgium, boosting the Group's lubricants presence in the three fast-growing European markets.

Saif Humaid Al Falasi, Group CEO, ENOC, said: "Over the decades, we have established a strong presence across local and international markets for our lubricants business. Today, ENOC's global marine lubricants operations span across key European markets, enabling us to offer our customers a diverse portfolio of lubricants and greases across commercial, industrial and marine applications."

"Our agreement with Baluco is an added milestone to our continued growth, and we reiterate our strategy of expanding best-in-class services to customers overseas, which will contribute to the overall growth of the international maritime and shipping sector."

The Group's marine products have already established a strong presence across the African markets, covering some of the continent's key ports in Angola, Ghana, Kenya, Djibouti, Mauritania and South Africa. The new agreement sees an additional operation across 17 new ports and three new countries, all in Europe, in addition to its existing operations of supplying marine lubricants to a network of more than 120 ports across the world.

In addition to supplying lubricants, ENOC provides technical support services to the international marine industry. The Group has an extensive portfolio of application-based lubricants, each designed to address the specific challenge of achieving optimum performance for the shipping industry.



With a **million miles** ahead,
better **recommend** the **right oils**.



The reason why the world's **leading** oil
companies choose **Olyslager**.

Lubricant advisor solutions for the world's top brands.

Web tools • Mobile applications • Print publications



Tüpraş is short-listed in three categories for Sustainable Business Awards

Since 2014, the Sustainability Academy, which works for the establishment and development of sustainable business models in Turkey, has been organizing the Sustainable Business Awards for the business world to become a role model with innovative and effective approaches to promote the sustainable transformation in the business world. This year, the awards were granted on October 17.

Within the scope of the Sustainable Business Awards, Tüpraş has achieved a great success by being a finalist in three categories: Carbon and Energy Management, Waste Management, and Water Management. The "Reclamation of Municipal Waste Water for Industrial Use as Process Water" project of Tüpraş was awarded in the Water Management category.

Tüpraş tops Fortune 500 Turkey list again this year

With a net sales revenue of 53.9 billion, Tüpraş topped the Fortune 500 Turkey list that ranks 500 of the largest Turkish corporations by total revenue. Tüpraş remained on the top of the list between 2007 and 2015, and the company maintained its leader position in the last two years.

The Fortune 500 Turkey survey, covering all sectors except for financial institutions and holding companies, has been carried out for the 11th times this year. The sectoral weight of the top 10 companies in the list is oil and energy again.

Holding a total share of 60 percent in the Turkish fuel market, Tüpraş has an annual crude oil processing capacity of 28.1 million tons in its Kocaeli, İzmir, Kırıkkale and Batman refineries. Tüpraş exceeded the operational and profitability targets in 2017, and gained pre-tax profit of TL 4.5 billion with a record sales of 31.5 million tons.





“Oil demand in 2040 will be higher than it is today”

The third WEC (World Energy Council) Talks were organized jointly by the World Energy Council Turkey and BP. At the event, “BP Energy Outlook 2018” report was discussed, and the energy agenda of Turkey and the world was assessed with the participation of Alparslan Bayraktar, Deputy Minister of Energy and Natural Resources and President of World Energy Council Turkey; Abdullah Tancan, Deputy Minister of Energy and Natural Resources; Mustafa Yılmaz, EMRA (Energy Market Regulatory Authority) President; Mick Stump, President of BP Turkey; and William Zimmern, BP Group Head Economist.

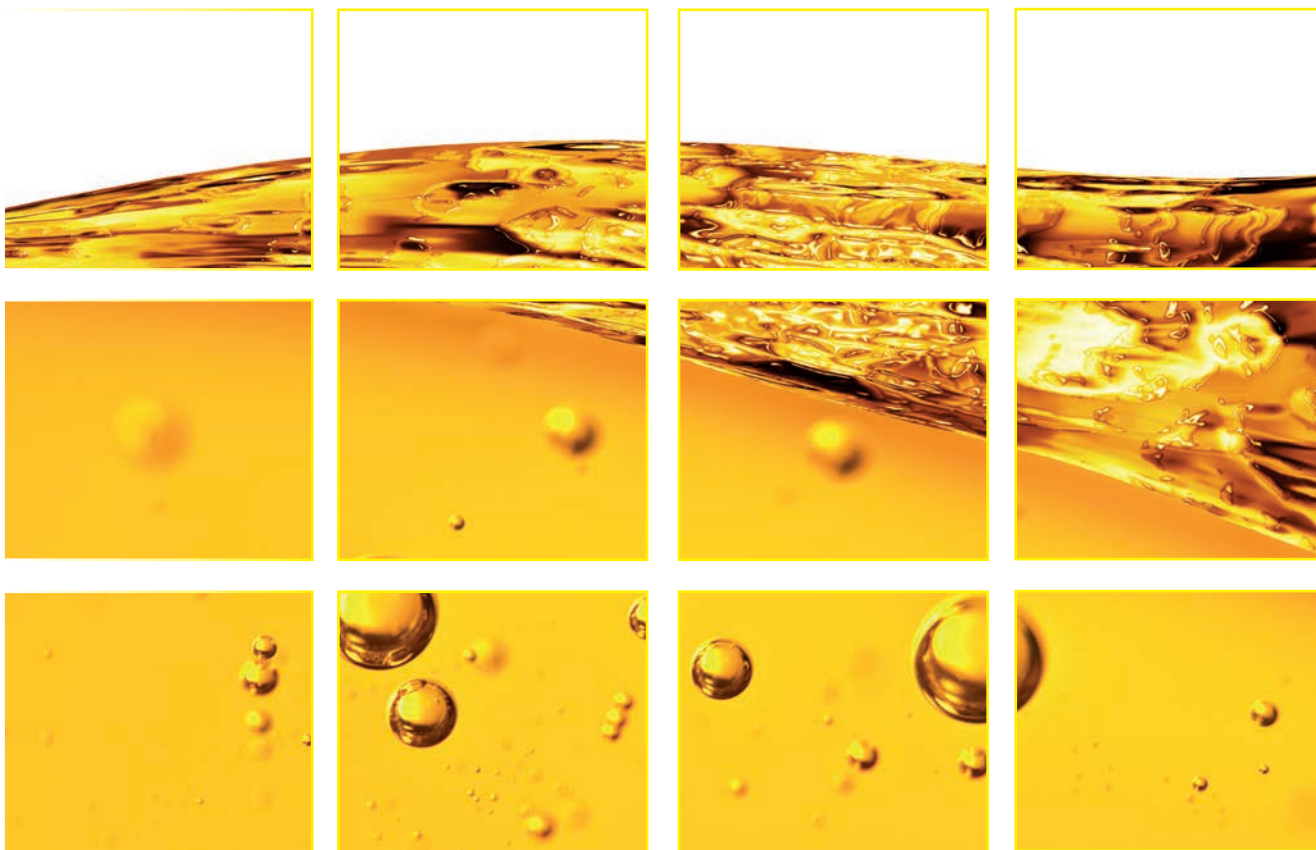
William Zimmern, BP Group Head Economist made a presentation on the BP Energy Outlook 2018 report at the WEC Talks held in Ankara. He underlined the following topics in his presentation:

Electricity constitutes 70 percent of the energy demand increase. As claimed by the Evolving Transition Scenario, EV’s share in the global automobile market will reach 15 percent by 2040. This means nearly more than 300 million automobiles in a pool of 2 billion. Renewable energy, which is expected to grow over 400 percent and to amount to more than 50 percent of the total energy production increase, is another conspicuous subject in the scenario. The idea that the fast growth of electric automobiles will cause the collapse of petrol demand is not supported by the basic numbers. Even though electricity is one of the energy types that will show a substantial increase, the experts expect that petrol and natural gas will continue to constitute more than half of the world energy. Even in a scenario where internal combustion engines are prohibited, and high levels of productivity are observed, the demand for petrol in 2040 will remain above today’s levels.

“Turkey has strategic importance with regard to the transformations in energy”

Mick Stump, President of BP Turkey, said: “We, both as BP and as the sector, prepare ourselves for the transformations in the energy industry by releasing reports every year. We are aware of Turkey’s strategic importance with regard to the transformations in energy. Turkey, as one of the fastest growing 20 economies of the world, is at the focal point of the world’s attention with its natural gas projects, one of the most important energy sources of the future. Today, Turkey remains an energy country, with its fuel, lubricant and aviation operations on a global scale and big energy projects such as TANAP (Trans Anatolian Natural Gas Pipeline) and BTC (Baku-Tbilisi-Ceyhan Pipeline). BP will continue to participate in such projects, and with new investments, we will carry forward our over-one-hundred-year-old presence in the Turkish market.”





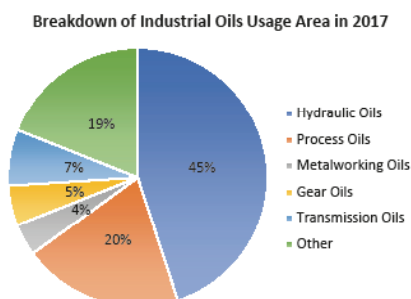
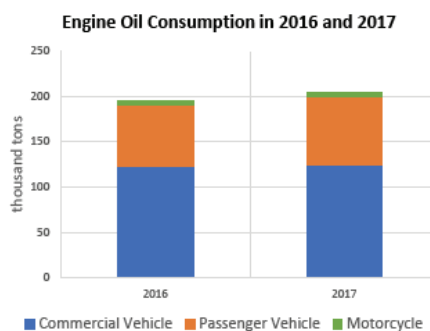
Lubricants consumption in Turkey increased by 2.8 percent in 2017

According to the data shared by Niyazi İler, Secretary General of PETDER (Turkish Oil Industry Association), lubricants consumption in Turkey increased by 2.8 percent to 477 thousand tons in 2017, compared to 464 thousand tons in 2016. Vehicle lubricants represent 51 percent of the lubricants consumed in 2017, while industrial lubricants comprise of 40 percent, greases 5 percent, and marine lubricants 4 percent.

A major part of the vehicle lubricant consumption, which was recorded as 243,000 tons in 2017, was consumed in commercial vehicle as engine oils, with a rate of 84 percent.

Engine oil consumption increased by 4.6 percent from 2016 to 2017. Consumption in the industrial oil segment increased by 1.06 percent, and a total of 190,000 tons of industrial oils was consumed in 2017.

* Lubricant consumption in Turkey is forecasted on the basis of the data provided by AKPET- LUKOIL, ATAK, BP, GULF, MOIL, OPET, POAŞ, SHELL and TOTAL upon their voluntary participation, the Foreign Trade Statistics released by the Turkish Statistical Institute (TurkStat), and the notifications submitted to the Ministry of Environment and Urbanization.





New high viscosity base oil.

NYNAS® T 600 is the latest addition to our base oil portfolio. Clear and bright, NYNAS T 600 is a highly refined naphthenic oil with a viscosity of approximately 600 cSt at 40°C, and further extends the range of solutions which Nynas offers the grease and lubricant industry. NYNAS T 600 naphthenic base oil can also be used in combination with paraffinic oils to increase viscosity, improve low temperature performance, and enhance additive solubility as a result of its excellent solvency.

For more information visit www.nynas.com or contact your local Nynas sales office.

APPLICATIONS

NYNAS T 600 is suitable for all applications where high viscosity and appearance are critical. The new base oil performs very well in lubricating greases, where it improves process economies with a reduction of Lithium soap up to 50%. The base oil is also suitable for use in several industrial lubricant formulations, such as gear oil, metal rolling and forming.

FEATURES

In addition to its high viscosity, NYNAS T 600 offers several advantages over paraffinic oils, including excellent low-temperature properties and unrivalled solvency power.

AVAILABILITY

Committed to providing consistent and high-quality naphthenic oils worldwide, Nynas is making NYNAS T 600 available on a global scale through its outstanding supply and distribution network.





Castrol India: A pioneer of development under Ömer Dormen's leadership

Ömer Dormen, Castrol's youngest General Manager in the world and now Castrol's General Manager in India for three years, gave us key information about the rapidly growing and developing Indian market, and shared his experiences and observations.

First of all, we would like to get to know you. Who is Ömer Dormen as a key representative of the lubricants sector with long years of experience?

I was born into an artist family but followed a completely different career path. After completing my high school and university education in the UK, I started my professional life at Turkpetrol. I took office at different levels in sales and marketing of fuels, lubricants and LPG products. I had the opportunity to work with the then deans of the sector in Turkey. I was appointed as Castrol's youngest General Manager in the world when I was just 34 years old, and I pioneered the establishment of Castrol in Turkey. I have been working abroad since 2004. I was

BP's Middle East Director for the first 7 years, and then I worked as the Regional Director for Turkey, Russia, Central Asia and North Europe for the next 4 years. Since October 2015, I have been taking office as Castrol's General Manager in India.

My biggest chance is my family

Soon it will be your third anniversary at this position. What is the secret of your success?

I consider myself very lucky to have found the chance to work with and to gain the management skills from visionary managers who were trained from the cradle of



this industry and who attach importance to teamwork. They taught me to ask the right questions, always aim for the better, take risks and excel in teamwork. Within the 11 years I spent under the roof of Turkpetrol, I gained a good command of trading. I learned to harmonize this attribute with a corporate structure under the roof of Castrol and BP.

I always worked with very good teams. It was a priority for me to create the necessary atmosphere to work in harmony as a team and succeed together. I tried my best to set customer-oriented goals, which every employee can understand, get excited about and identify their work with. Instead of rigid approaches, I went for leading venturesome and innovative approaches. It is always a source of joy for me to see that my team is developing, coming to work in high spirits every day. Therefore, I have always cared about the satisfaction of my teams by placing emphasis on communication skills that will create a link among the differences.

Besides, my family is my biggest chance; they have always stood by my side. I have Ayşe and my daughters Yasemin and Alya to thank for coming with me when I had to move to a new country, for accommodating themselves to the new conditions immediately, and for always supporting me.

Well, are there any differences between the management approaches in Turkey and India? Do you face any challenges in this regard?

Every country has its own characteristics... I had the chance to work with many states and the nationals of various countries from Europe to Middle East and Asia. All of them have different values, beliefs, backgrounds and world experiences. It was a great wealth for me to learn new cultures, understand the values that are important for them, and be able to manage a team consisting of these differences.

In India, there are more than 2000 ethnic groups, 9 main religions known, 22 different languages spoken, and the community of each region is quite different. There is a festival and celebration every week. The food and clothes change from region to region. I mean, India is like a large continent which consists of many different countries... And despite all, 1.3 billion people can live in harmony within the same country as much as possible.

I believe all of these have been a great source of wealth for me, and helped me develop further as a manager.

I worked as a manager in Turkey until 2004, and I thought I knew everything. After I started to work abroad and took over the management of people from different cultures, I realized that I actually knew nothing. This delightful voyage of discovery continues in India.

Based on your experiences and observations, can you please make an overall assessment of the global lubricants industry?

World lubricant market is around 38 billion liters. On



Ömer Dormen
Castrol's General Manager

one hand, the market continues to grow with developing economies such as China and India and increasing sales volume; on the other hand, consumption per vehicle declines with new technological advances. The demand for high quality lubricant products continues to increase with new engine technologies. Developing Central and South American countries, Central Asia and Africa regions with their emerging industries contribute to the growth of this market. It is expected that the global market volume will increase due to these reasons in the following years.

A new motorcycle is sold every two seconds

What is the latest situation in the Indian lubricants industry? Can you share some information about the volume of production and exports in India?

India has the second largest population in the world, following China. In the last two decades, the Indian economy has grown about 6 percent every year, and it is estimated that it will outgrow Chinese economy within the next decade.

With regard to the lubricants sector, India is the world's third largest lubricant country with a sales volume of 2.4 billion liters. Automotive lubricants account for the half of the total volume, while the other half corresponds to industrial and process lubricants. Commercial vehicle market comprises of approximately 30 percent of the total market, and there is an increase in lubricant sales as a result of infrastructure investments.

There are over 200 million vehicles in India, and motorcycles account for 70 percent of it. A new motorcycle is sold every two seconds... India has moved up to the fourth place in the world with its annual automobile sales volume. It aims to become the world's third largest automobile hub in the next decade. In parallel to the growth in the motorcycle and automobile market in the last decade, there is a sound increase in lubricant sales.

What is Castrol's position in the Indian lubricants sector?

Castrol has been in the Indian market for over 100 years, and it operates in all segments of the lubricant market. We have a very wide product range from mineral to synthetic oils, from engine and transmission oils to greases.

Castrol is the leading brand in the automotive market. Brand recognition of products such as Castrol Activ, Castrol CRB and Castrol GTX is way over the world average. In addition, Castrol is a market leader in the industrial market with its metalworking fluids and anti-corrosion fluids.

We are aiming to increase our share in the industrial segment

Can you be more specific about industrial oils? What is the market share of Castrol? Which operations do you have in this regard?

Indian industrial market covers a very broad portfolio



from energy production to automotive industry, from textile to cement. Thanks to the incentives given for developing the national industry, the manufacturing sector has advanced significantly.

As Castrol, we attach great importance to the industrial market. Currently, the industrial segment's share in our total sales is 15 percent, and we are aiming to increase this rate in the upcoming period. We have implemented this 5-year strategic plan and we intend to raise our share in the industrial market.

Another factor that boosts Castrol's competitive power can be defined as its ability to develop customer-oriented technological products. For example, this year we have released the world's first zero carbon product for use in the wind power industry. Similarly, our Hysol XBB product, a synthetic metalworking fluid that does not contain boron and biocide, both protects the health of the machine operator and is longer lasting.

With the aim of raising the production quality of our customers and contributing to the efforts to decrease costs, we are working to provide our industrial products that we developed with advanced technology with a quality service approach.

Can you briefly describe the sales channels and consumer patterns in the country?

There are almost 500 cities, around 8,000 towns and over 600 thousand villages in India. The countryside's contribution to national economy is gradually increasing; therefore it is becoming more important for us to reach every corner and make our products easily available.

Castrol India has the most developed and most far-reaching distribution network in the lubricant market. We are working with more than 350 distributors, reaching over 100 thousand sales points. Around two thousand employees in the field are providing services to our customers on behalf of Castrol. We make out 150-200 thousand invoices monthly.

Major part of sales in the automotive market is realized in retail shops that sell spare parts. However, car mechanics constitute a key group which shape consumption. Drivers follow their advice when making a decision.

Castrol India invests in the development of car mechanics to help them keep up with the developing technologies. In the last decade, the Castrol team has directly contributed to the development of 200,000 car mechanics.

As the middle class is economically developing, the increase in motorcycle and automobile sales continues. There has been a significant increase in scooter sales in parallel with the increase in the number of female drivers. Similarly, the advancing motor technology brings along a rise in synthetic lubricant consumption.

It has been settled to adopt BS6 (Euro 6) standards in 2020. Thus, vehicle manufacturers are making investments to be ready for this transition. With its experience in lubricants, Castrol is working with them to complete this transition smoothly.

There is a highly developed commercial mentality in India

When you compare India with Turkey and/or other countries, which characteristics stand out the most?

The biggest difference between India and other countries is the size... You have to multiply everything by 10 or even 100.

Competition is very harsh in India, that's why companies have to go after innovation all the time. Consumers have high brand awareness and they always want to buy the best brand for the lowest price; whereas the priorities of the Y-generation are evolving with the ever-developing technology.

The commercial mentality is highly developed. We are reading about hundreds of start-ups in the news every year, but 90 percent of them fail. India is going through an economic development and change at an unprecedented pace.

Castrol India is the third largest country in the Castrol world, and it will be one of the fastest growing countries in the next decade. But we are aware of the fact that it will not be possible to realize this growth if we do not keep up with this fast-paced change and pioneer the development. This is definitely breathtaking.





“Accessing the right information has proven crucial more than ever”

As the amount of specifications increases gradually and demands get more and more complex, accessing the right information has proven crucial more than ever, as told by Harald Oosting, President and CEO of Olyslager. He also underlines that the internet era obliges fast and easy access to this data.

For the past 7 decades, Olyslager has worked closely with the global automotive industry in answering the often-asked question: “Which oil will I use for my vehicle?” From the time of its founding in 1948 to the present, Olyslager is aware that this will be asked of oil companies, distributors, and workshops regardless of the size of their business. After all, end-users put their complete trust on the experts selling them the products.

Olyslager's headquarters is based in The Netherlands and it was founded by Mr. Piet Olyslager. Mr. Olyslager was a Dutch businessman who was well-known in the automotive sector for his designs, collections and construction. He was

an avid collector of information, brochures and magazines, which are now housed at the Olyslager Archives and at the European Centre for Mobility Documentation (ECMD).

Given his close relationships with Bugatti and Talbot, plus his contacts in the auto industry both locally & internationally, he realized the urgent need for reliable technical information on vehicles by manufacturers, garage owners, consumers and oil companies.

After the Second World War, Olyslager started to provide garages with technical information on vehicles left by the Allied Forces, writing advice on paper as well as detailed diagrams. In 1948, he decided to adapt a universal format and started the Olyslager Organisation.



Harald Oosting
President and CEO
Olyslager

The world's largest database of its kind

Today, businesses which work with Olyslager value the accuracy and the relevance of the OEM data we provide them – over 2.5 million entries covering over 2,600 manufacturers spanning all continents and across several sectors such as automotive, construction and industrial equipment. No wonder it is regarded as the world's largest database of its kind... and it continues to grow with the various updates we do each year.

Working with major global oil manufacturers but also very small and local firms, Olyslager understands that choosing the wrong lubricant can result in serious problems. Therefore, never in history has it been more vital to prevent the wrong advice from being given. In this age of sophisticated users and social media, providing incorrect data has serious consequences for both the seller (i.e. liability claims, reputational damage) and the consumer (damaged part, downtime and repair costs). As lubricants specification become gradually more complex, accessing the right information has proven crucial more than ever.

Olyslager sees different needs in different markets but not only that, the amount of specifications available has increased to such a level that oil companies prefer to have quality data, well updated and peace of mind that the right

oil recommendation is being given. For example the same vehicle in Finland might have a completely different lubricant recommendation (quality and viscosity) than in Turkey and the oil company probably doesn't want to jeopardize their reputation by giving the wrong advice.

The internet era obliges fast and easy access to the right data

Amid the internet era, Olyslager envisioned a new opportunity in the market and released a game-changer tool – the online Oil Advisor. Thanks to the Oil Advisor tool, lubricants recommendations were easily available to the public and, since its birth; it made a positive and measurable impact among oil companies.

Olyslager sees often companies looking for an oil advisor to their website because it reaches a wider market with different time zones and is naturally cost-effective – 24/7. Is great that companies invest in e-commerce and a great website probably to sell more lubricants but if there's nothing really relevant to attract visitors, their webpage will be underperforming.

At the end of the day, customers really want to see the answer to the question: "Which oil do I need for my vehicle?" It's here that Olyslager has become globally a strategic lube partner with the amount, the quality and the most updated OEM data. Taking into consideration the User Experience Journey of a website, is desirable that the online visitor finds a recommendation in just a few clicks like Make Model Type > The recommended oil for this engine is XWXX with capacity X,X liters.





THE OIL ADVISOR STREAMLINED 3 MAIN AREAS OF THE BUSINESS

- Increase efficiency – The tool reduced the amount of phone calls to Technical Support
- Boost in the sales – The substantial growth of internet usage encouraged end consumers to purchase more frequently online. The Oil Advisor provides not just the recommendation, but also triggers a call to purchase after giving out the advice.
- Enhanced brand image – By having the right data, oil companies foster a closer relationship with customers based on trust and responsiveness. Increasing customer loyalty leads to more business and sets your company apart from competitors.

There are many services that Olyslager provides besides software and online advisor with Lubricant Data, like lubricant analysis, carpark data, license plate search and booklets to mention a few. The bottom line is to simplify the journey of the customer, sales people and/or distributor to the right advice for passenger cars, light commercial vehicles, trucks, busses, classic cars, motorcycles, agriculture, leisure marine, construction, industry, etc. This means Olyslager is able to support every small and global oil manufacturer that has different needs and priorities in specific regions, including specific local gathered lubricant data like China, Russia, USA, Thailand, Mexico, Brazil and naturally Europe.

Olyslager has been proudly operating in Turkey for the past 15 years. It's a still growing market with many opportunities and it is geographically a well-positioned country. We will continue inspiring well-known and reputable companies in Turkey that we work with like Opet Fuchs, Lukoil and Petrol Ofisi to mention a few; but also Olyslager is looking forward to work with new customers and more local brands who are ready to give the next step into the digital world.

For more info www.olyslager.com or contact sales@olyslager.com for personalized advise.

BASF

We create chemistry

Fuel and Lubricant Solutions

POLYISOBUTENES
Low, Medium and High Molecular Weight Polyisobutenes (PIB)

MINERAL OIL ADDITIVES
START ENGINE
Fuel Additives
Aviation Fuel Additives
Refinery Additives

AUTOMOTIVE FLUIDS
Engine Coolants
Brake Fluids

LUBRICANT ADDITIVES
Antioxidants
Antiwear Additives
Extreme Pressure Additives
Metal Deactivators
Corrosion Inhibitors
Pour Point Depressants
Viscosity Modifiers

BASE STOCKS FOR LUBRICANTS & COMPONENTS FOR METALWORKING FLUIDS
Base Stocks
Thickeners
Emulsifiers
Solubilizers

COMPOUNDED LUBRICANTS
Transmission Fluids
Axle Lubricants
Industrial Gear Oils
Biodegradable Hydraulic Fluids
Industrial Compressor Lubricants
Refrigeration Compressor Lubricants



**Performansla
sürdürülebilirliği buluşturan
kimya yaratıyoruz.**

Öncü Çözüm Ortağınız

www.basf.com/fuel-lubricant-solutions

Energy efficient hydraulic fluids with Evonik's DYNAVIS® technology



Dr. Holger Pletsch

Evonik Oil Additives Technical Service Manager

Field tests made with hydraulic fluids formulated to Evonik's DYNAVIS® performance standard reveal significant gains in terms of energy efficiency and productivity. The technology is based upon specially designed polymeric additives designated as viscosity index improvers (VII).

Modern hydraulic systems must perform in difficult environments under high cost and time pressure. Improving the productivity – and therefore, the cost efficiency – is one of the main targets of owners of hydraulic equipment. Hydraulic fluids formulated to Evonik's DYNAVIS® performance standard improve hydraulic pump operation in several substantial and measurable ways, providing a significant productivity

increase and, in turn, cost savings.

Both fleet owners of mobile hydraulic equipment such as excavators, cranes or wheeled loaders and operators of stationary hydraulic equipment such as injection molding machines or hydraulic presses can benefit from an oil change.

Based on years of intensive R&D and meticulously designed field tests, hydraulic equipment operating with DYNAVIS®-formulated fluids have credibly demonstrated



their potential to achieve:

- Typically 5-15 percent more hydraulic power under full-load conditions
- Typically 5-15 percent lower energy (fuel or electricity) consumption to complete the same amount of work
- Faster response to operator control
- Highest hardware protection standards

In the following, the relationship between hydraulic efficiency and fluid design is discussed and a technical background of DYNAVIS® technology is provided:



- Air entrainment
- Noisy operation
- Sluggish response
- Energy loss

▪ In extreme cases, pump breakdown

On the other hand, when the fluid viscosity is too low during warm operating conditions, other problems will occur:

- High wear rates due to inadequate oil film thickness
- Excessive internal and external leakages, leading to a loss of system efficiency
- Overheating due to energy loss from internal pump leakage. This heat further increases the oil temperature leading to further viscosity reduction, increased internal pump leakage and accelerated heat generation and fluid degradation.

Viscosity as the key parameter for energy-efficient hydraulic fluids

Hydraulic efficiency is closely linked to the viscosity of the hydraulic fluid. An optimized balance between volumetric efficiency (low internal and external pump leakages) and hydromechanical efficiency (low hydrodynamic friction and churning losses) is required to maximize the overall pump efficiency (Figure 1).

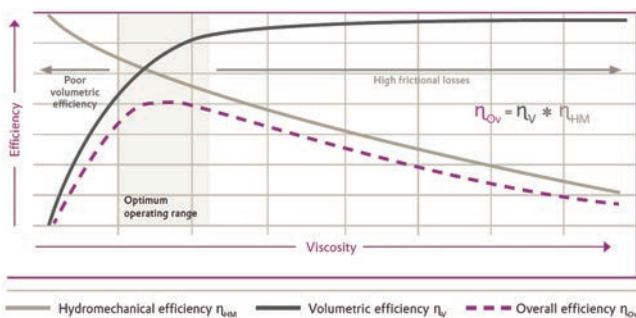


Figure 1: The overall efficiency of a hydraulic system is maximized by carefully balancing the hydromechanical efficiency and volumetric efficiency as a function of viscosity.

Standard monograde hydraulic fluids with low viscosity indexes (VI), i.e. with a strong dependency of viscosity on temperature, are not able to maintain the optimum viscosity range over the system's temperature operating window (TOW). For example, a monograde fluid will dramatically increase in viscosity during cold operating conditions and will experience flow problems during start-up, as well as the following problems during operation:

to energy loss from internal pump leakage. This heat further increases the oil temperature leading to further viscosity reduction, increased internal pump leakage and accelerated heat generation and fluid degradation.

In order to protect the hydraulic equipment and to ensure optimized pump efficiency during different stages of operation, a fluid capable of maintaining an optimal viscosity level over a wide TOW is required (Figure 2). Evonik's DYNAVIS® formulated fluids are multigrade fluids with VIs of 160 or higher, i.e. with a low dependency of viscosity on temperature.

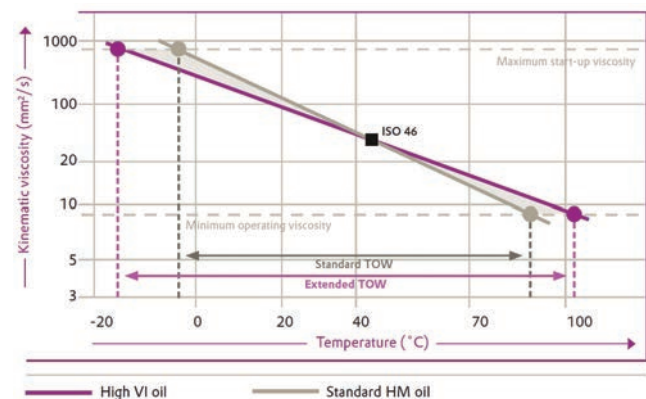


Figure 2: Viscosity-temperature relationship of monograde fluids compared to multigrade fluids within the same ISO viscosity grade 46. The multigrade fluids exhibits improved hydromechanical efficiency at temperatures below 40 °C and improved volumetric efficiency at temperatures above 40 °C. An extension of the temperature operating window (TOW) guarantees protection of the hydraulic equipment during different states of operation, such as startup or high load.

The technology behind DYNAVIS®

The technology behind DYNAVIS®-formulated fluids with high VIs is based upon specially designed polymeric

additives designated as viscosity index improvers (VII). The most efficient VIIs are composed of various types of methacrylic esters with different alcohol chain lengths and are called "polymethacrylates" or simply PMAs (Figure 3). The preferred molecular structure greatly depends on the application requirement and can be adjusted to fine-tune oil solubility and low-temperature performance. Summarized under the name VISCOPLEX®, a variety of PMA VIIs are available from Evonik to formulate fluids meeting the DYNAVIS® performance standard.

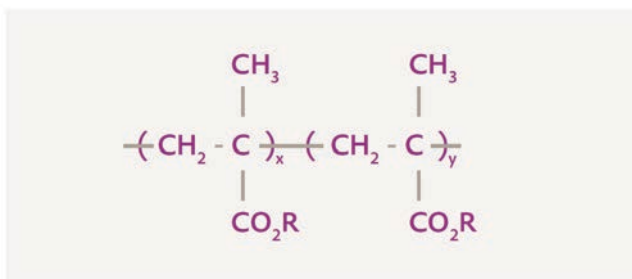


Figure 3: Molecular structure of VISCOPLEX® PMA viscosity index improvers

To understand the VII mechanism, it is important to know that polymers dissolved in a solvent, such as in hydraulic fluid, adopt nanoscale-solvated coil structures, having an ellipsoid or spherical shape, known as hydrodynamic spheres. These spheres increase the fluid resistance to moving (= viscosity) as they increase the friction forces between the internal fluid layers. The greater the expansion in the size of the coil, the stronger the sum of its intermolecular forces, and the higher the viscosity of the hydraulic fluid (Figure 4). The size of the hydrodynamic spheres depends on many parameters, such as their affinity for the oil matrix, the polymer chain length, structure and composition, the shear rate prevailing in the fluid and the fluid temperature and pressure. Whereas many of these parameters are fixed by the fluid formulation, temperature is the one dominating parameter affecting the viscosity of the fluid while the hydraulic system is in operation.

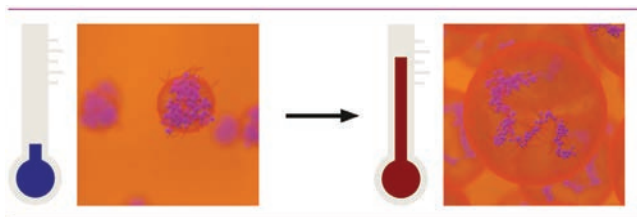


Figure 4: Working principle of VISCOPLEX® PMA viscosity index improvers. Only at high temperatures, the polymer coil size expands and therefore, triggers thickening of the fluid.

As a matter of fact, advances in hydraulic system technology have led to an increase in operating pressure

and power density. This results in a high fluid pressure gradient across the solvated polymer hydrodynamic volume that can result in "shear" distortion or breakage of the VII polymer coils. "Shear" manifests itself as a reduction in the fluid viscosity and can be either temporary or permanent.

Distortion of the VII polymer hydrodynamic volume is reversible and causes a temporary viscosity reduction. When shearing is stopped, the fluid viscosity immediately recovers. However, stronger shearing forces can cause breakage of chemical bonds, leading to a permanent viscosity reduction of the fluid. This reduction in viscosity due to shear leads to a decreased TOW, an increased likelihood of wear and to reduced efficiency (Figure 5).

Measuring the tendency of a hydraulic fluid to lose viscosity on shearing is an important indicator of the fluids fit for purpose. Polymer shear stability is indicated by the permanent shear stability index (PSSI). It represents the percentage of viscosity lost by a fresh fluid after shearing. The lower the index, the more shear stable the VII. A highly shear-stable VII such as VISCOPLEX® is essential to guarantee high overall efficiency and protection in the field over time.

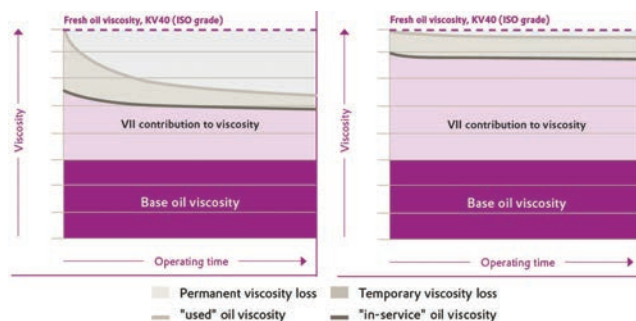


Figure 5: Hydraulic fluids with a strong permanent viscosity loss as a function of operation time (left graph) leads to reduced efficiency of the hydraulic system and may cause hardware damage. On the other hand, DYNAVIS® technology is based on highly shear stable VISCOPLEX® PMA additives that are able to keep the viscosity at a constant level throughout a long time of operation (right graph).

In conclusion, high shear stability and high VI are the key parameters for energy-efficient hydraulic fluids. DYNAVIS® formulated fluids are meeting these high performance standards. In various field trials, both with stationary and with mobile hydraulic equipment, DYNAVIS® formulations offer significant gain in per hour productivity and energy (fuel or electricity) savings for equal work.

Detailed information about DYNAVIS® field trials are available online at www.dynavis.com

Special acknowledgements to Michaël Alibert and Julien Couet for their contribution and help in the design of text and figures.



UNITI Mineralöl- technologie-Forum

UNITI Mineral Oil Technology Congress

save the date!



Energie bewegt uns

02.-03. April 2019 in Stuttgart

Information about:

- Fuels and Biofuels
- Lubricants
- Additives
- Base Oils
- + Get-together

Simultaneous
translation



Veranstalter/Organizer: UNITI-Mineralöltechnologie GmbH
Jägerstraße 6 · 10117 Berlin · T. (030) 755 414-400
F. (030) 755 414-474 · umt@uniti.de · www.umtf.de



UNITI-MINERALÖLTECHNOLOGIE GMBH



Recovery and growth in Indian lubricant market

Indian lubricant market is the third largest lubricant market in the world. The past few years, the market experienced a financial and technical restructuring, which has affected the balances in the country to a certain extent.

In November 2016, Prime Minister Narendra Modi declared a demonetization policy, which declared all 500 and 1000 rupee notes void. People were asked to exchange their demonetized currency for new notes at banks. The reason behind this decision was to fight black money, corruption and terror funding. According to the government, the demonetization was a success. The Reserve Bank of India's annual report, 0.7 percent of demonetized currency notes (around Rs 10,720 crore of banned notes) did not return to the system.

But there are counter arguments. Former Finance Minister said, "Indian economy lost 1.5 percent of GDP in terms of growth, job loss and closure of industries due to this policy."

After November 2016, primary sales of many lubricant companies in India declined by 15-20 percent. The difficulty of getting cash obliged consumers to keep the cash in hand for urgent needs, and delay other operations in the short term. Sellers and service providers worked on new ways to educate and persuade buyers until this temporary liquidity problem passed. After



adapting to the changes, the lubricant sector started to recover.

A leap towards Bharat Stage VI

There is another change in the Indian lube market. As India is a country with 10 most populated cities of the world, the worsening air quality obliged the government to take action to bring down the carbon footprint. Thus, India signed the Paris Climate Agreement in October 2016 and made a commitment to decrease the carbon footprint by 33-55 percent from the levels recorded in 2005 in the next 12 years.

In this scope, the country adopted the Bharat Stage VI norms and the deadline for implementing the norms has been set as 2020. India took a leap towards BS VI from BS IV, which means the country will have to overcome immense technical challenges. At this point, there is a great challenge for OEMs. They have to develop diverse technologies to implement the new standards related to emission. Fuel companies are also needed to develop the specified grade of fuel before the deadline.

Well, 2020 will arrive with remarkable changes for the Indian automotive industry. This leap may bring new opportunities to stand out in a competitive Indian lube market.

Current situation in the market

After the short-term impacts of demonetization

faded away, the automotive industry grew back and demand increased. New motor vehicle sales and automotive production in the country have been rising lately. The automotive production recorded over 6 percent annual growth, which brought together an increase in the demand for engine oils and other lubricants employed in the automotive industry.

According to Mordor Intelligence, engine oils have the largest share in the Indian lube market, followed by transmission and hydraulic fluids, general industrial oils and gear oils. There is a rising trend toward synthetic and semi-synthetic oils in the market, but mineral oils still have the largest share.

Castrol, Gulf Oil, Hindustan Petroleum Corporation, Indian Oil and Vedol are among the major players in the Indian lubricants market.

In terms of base oils, India is a major importer. Largest base oil importers include; Apar, Castrol, Columbia, Exxonmobil, Gandhar Oil, GP Petroleums, Gulf Oil, Panama, Raj Petro, Savita Oil, Shell Hindistan and Valvoline.

According to Machinery Lubrication India, import of the country has gone up by 10 percent in May 2018, as compared to same period last year i.e. May 2017. In the month of May 2018, India imported 231994 MT of Base Oil. In this period, largest importer of base oil to India was South Korea, followed by United Arab Emirates and Singapore.





A manufacturer from Azerbaijan to the world: Aminol

We wanted to get to know the Aminol brand, established in Sumgayit Chemical Industry Park that was opened by the decree of President Ilham Aliyev in Azerbaijan, and started exporting to many countries. Emel Kuşku, Alco LLC Production Manager, shared the company's founding story and future plans with us.

Azerbaijani-origin Aminol oils are becoming more and more prominent in the industry. Let's hear about Aminol from you.

Our facility is located in the Sumgayit Chemical Industry Park which was established by the decree of President of Azerbaijan Mr. Ilham Aliyev. Since this is a free zone, our company is exempt from income tax and many other taxes for 7 years, and customs duties during import of equipment.

There is a great need for high-quality engine and

industrial oils in a period of modernization, transportation and high technology machinery in Azerbaijan. Our facility cooperates with the world's leading additive and base oil manufacturers to meet the demand. We buy the additives we use in our lubricants from the world's largest companies such as Lubrizol, Eni, Evonik and Oleon.

Our personnel at the facility received long-term training from German and Italian experts. Thanks to our highly trained and experienced staff, the engineering and equipment production of the factory was carried out by



German Fluid Solutions GmbH. Our lubricants are packaged in automatic filling equipment from OCME, one of the best in the world in this field.

What is the production capacity of the plant? Which products are manufactured here?

The annual production capacity of the plant is 30,000 tons. The main products manufactured in our plant are automotive and industrial oils. Industrial oils include oils used in heavy and light industrial machinery, marine oils, hydraulic oils and compressor oils. Our products have international approvals and meet the standards to be used by all car brands.

Which countries do you export your products from this plant? What about your export figures?

We recently started exporting our products from this plant. We currently have an average of 500 tons of exports per month. As of December 2018, we aim to increase this figure to 1000 tons per month.

Our main export markets are European countries, Ukraine, Georgia, Russia, Uzbekistan and Africa. Currently, our main goal is to export a portion of the manufactured goods to Turkey.

Azerbaijan has a significant place in the world in terms of oil production. Does it have any advantage or disadvantage for a lubricant manufacturer in Azerbaijan? To what extent does your geographical position affect your position in the sector?

Of course, being an oil country is a great advantage for the lubricant manufacturer. We are able to manufacture high quality products at affordable prices as a result of mixing some local base oil with imported base oil. Our geographical location is very suitable for exporting to neighboring countries. Especially, recently opened Baku-Tbilisi-Kars railway provides us certain economic advantages and facilitates exports to Turkey.

What are your plans for the future?

We are planning to continue our business in 2 directions. First of all, we will continue our sales with reasonable prices, high quality and delivery of products at the customer's door. Secondly, the capacity of our facility will be increased, our production in line with the highest standards will continue, and original equipment manufacturer approvals will be obtained.



Emel Kuşku
Alco LLC
Production Manager





**Prof. Dr.
Filiz Karaosmanoğlu**

Academic Member of ITU
Chemical Engineering
Department
President of Sustainable
Production and Consumption
Association
filiz@itu.edu.tr

Electric vehicles and engine oils market

The number of electric cars on the world's roads reached 3,109,050 in 2017 with a 55 percent increase compared with 2016, according to the latest edition of the International Energy Agency's "Global Electric Vehicles Outlook" report published in May 2018. While a new record was broken in China where more than one million electric cars were sold; Norway continues to be the world's most developed market. It is followed by Iceland, and Sweden holds the third place in terms of markets.

Electric cars can be fuel cell, battery powered or hybrid. Today, chargeable battery powered vehicle which does not have an internal combustion engine is the first thing that come to mind when we say Electric Vehicle (EV). BMW i3, Nissan LEAF, Mitsubishi i-MiEV and Toyota Rav4 can be given as examples in this regard.

The EV market is changing the industry; it is rapidly growing and affecting not only automotive manufacturers but also lubricant manufacturers and all supplier sectors. There is no need for engine oils in the EV technology without an internal combustion engine. As is known, engine oil is the life blood of a vehicle with internal combustion engine. Engine oil is a key product in the sector and it is a valuable economic element in the market. Besides, the expectation that the use

of internal combustion engine vehicles will be abolished as well as the regulations and predictions will have a significant impact on the lubricant industry. However, according to the earliest predictions, this period will take a couple of decades. From another perspective, it is indicated that consumers are most likely to prefer conventional vehicles without any state support even in high-income and environmentally-conscious countries. There is also an ongoing discussion about the share of small engine hybrid electric vehicles with various designs in the EV market.

All these developments oblige original equipment manufacturers to prepare themselves for a brand new lubrication world and new technologies. New demands will arise and new solutions will be needed especially in conformity with the electromagnetic field, insulation materials, speed and engine heat for the transmission oils, greases and cooling liquids that will be in contact electric modules, sensors and circuits that the EV technology brings. Leading lubricant manufacturers indicate that they are structuring their development strategies in these areas, and working to keep up with the changes in the market. This indicates that the global electrification developments in the automotive industry will ignite innovation opportunities in the lubricants sector.

automechanika

ISTANBUL

4. – 7.4.2019

Türkiye'nin Lider Uluslararası
Otomotiv Endüstrisi Fuarı

TÜYAP Fuar ve Kongre Merkezi
İstanbul / Türkiye

www.automechanika.com.tr



messe frankfurt



Deutsche Messe



Türkiye Cumhuriyeti
TİCARET BAKANLIĞI



İŞ ORTAKLARI



DESTEKLEYENLER



/automechanika

/automechanika

Automechanika Istanbul



/automechanikaistanbul

Automechanika Istanbul

BU FUAR 5174 SAYILI KANUN GEREĞİNCE TOBB (TÜRKİYE ODALAR VE BORSALAR BİRLİĞİ) DENETİMİNDE DÜZENLENMEKTEDİR.



Prof. Dr. Ertuğrul Durak
Süleyman Demirel University
Mechanical Engineering
Department
Academic Member
ertugruldurak@sdu.edu.tr

Plant-based lubricants - I

PETDER's 2017 Sector Report reveals that 51 percent of the lubricant consumption in Turkey is composed of automotive lubricants, whereas 40 percent is industrial lubricants, 4 percent is marine lubricants, and 5 percent is greases. In this breakdown, automotive lubricants account for approximately 243,000 tons, industrial lubricants 190,000 tons, marine lubricants 22,000 tons, and greases 22,000 tons. Of the 243,000 tons of vehicle oil consumed in 2017, a large part (204,000 tons, 84 percent) is composed of engine oils, and the remaining part (39,000 tons, 16 percent) is gear and transmission oils. 61 percent of engine oils (124 tons) was used in commercial vehicles, 37 percent (76 tons) in passenger cars, and 2 percent (4 tons) in motorcycles. In terms of industrial oils consumed In 2017, hydraulic oils accounted for 45 percent, process oils 20 percent, transformer oils 7 percent, gear oils 5 percent, metal processing oils 4 percent, other oils accounted for 18 percent (petder.org.tr). In daily use, most of the lubricants and additives contain petroleum-based products which consist of environmentally harmful substances and cannot be disposed of easily.

Mineral-based lubricants have very low degradability in the nature. They also contain various additives, which are highly toxic for the environment.

Plant-based oils as a renewable source are referred as a good alternative to mineral oils, as the former is environment-friendly, non-toxic, and more easily and fast degradable in the

nature. In order to eliminate the negative impacts of mineral oils, there is an increased number of studies on synthetic oils, solid oils and plant-based oils which are renewable, less toxic or non-toxic, degradable and environment-friendly compared to petroleum-based oils. These positive impacts have recently made plant-based oils potentially a great alternative for industrial use.

There is a need for state incentives or obligatory practices to start and increase the use of environmental friendly, non-toxic, plant or animal-based, degradable lubricants. Following Germany's "Blue Angel" environmental label, respectively Scandinavia, USA, Japan and India issued the "White Swan", "Green Cross" and "Ecomark" labels. These regularly updated ecological labels comprise of the required ecological tests, limitations and the manufacturer's statements.

Lubricants that decrease wear and friction in mechanical contact play a major role in the world industry and economic development. Plant-based lubricants have certain advantages as they are degradable, environmental friendly, in compliance with additives, low cost in terms of production, being produced in a wide area, non-toxic, have high flash point, low volatility and high viscosity index values. However, they also have some disadvantages such as low thermal balance, oxidative stability, high freeze point and low corrosion resistance. The abovementioned advantages of plant-based lubricants attract interest in environmental-friendly industrial applications.



Lubricant World

Follow us online!



www.madeniyagdunyasi.com



[madeni-yağ-dünyası-lubricant-world](https://www.linkedin.com/company/madeni-yağ-dünyası-lubricant-world)



[madeniyagdunyasi](https://www.facebook.com/madeniyagdunyasi)



[lubricantworld](https://twitter.com/lubricantworld)



Stay up-to-date with latest developments in the sector by visiting our website and following our social media accounts.

Event Calendar

6 Nov/8 Nov Noria 2018 - Machinery Lubrication Conference & Exhibition
Texas, USA - Web : conference.machinerylubrication.com

12 Nov/15 Nov 2018 - Abu Dhabi International Petroleum Exhibition & Conference
Abu Dhabi, UAE - Web : www.adipec.com

14 Nov/15 Nov 2018 - ICIS & ELGI Asian Industrial Lubricants Conference
Singapore - Web : www.icisevents.com/ehome/asianlubricants/home

28 Nov/1 Dec 2018 - Automechanika Shanghai
Shanghai, China - Web : automechanika-shanghai.hk.messefrankfurt.com/

28 Nov/29 Nov 2018 - European Base Oils & Lubricants Interactive Summit
Florence, Italy - Web : www.wplgroup.com/aci/event/base-oils-lubricants-summit

28 Nov/30 Nov 2018 - ICIS Pan American Base Oils & Lubricants Conference
New Jersey, USA - Web : www.icisevents.com/panambaseoils

22 Oct/24 Oct 2019 - SAE International Powertrains, Fuels & Lubricants Meeting
Texas, USA - Web : www.sae.org/attend/ipfl

29 Oct/31 Oct 2019 - OilDoc Conference & Exhibition
Bavaria, Germany - Web : conference.oildoc.com/en/home.html

How to read an oil label?



1. BASE OIL

Lubricants have a principal ingredient called "base oil", which represents 75 to 85 percent of the oil and which may be of mineral (petroleum) or synthetic blends or of synthetic origin.

2. VISCOSITY

The information on viscosity describes the behaviour of a lubricant when the temperature changes. This property is measured with the SAE specification. The higher the number, the more viscous is the lubricant.

3. TYPE OF ENGINE

Indication of the type of engine (petrol engine or diesel engine).

4. PRODUCT PERFORMANCE CLAIMS AND OEM APPROVALS

Confirmation that the lubricant meets the technical requirements as set out by the Original Equipment Manufacturer.

5. QUALITY CLASSIFICATION

There are two specifications to be aware of and these are API (American Petroleum Institute) and ACEA (European Automobile Manufacturers Association). All good quality oils should contain both of these specifications.



23rd WORLD

Base Oils & Lubricants Conference



Innovative technologies and industry disruptors: What do they mean for the lubricants business?

For over two decades, the ICIS World Base Oils & Lubricants Conference has been the pinnacle conference within the industry's calendar.

The 23rd edition will offer a full 5 days of in-depth information, including a seminar, two workshops, a conference, a breakfast briefing, a Gala Reception and two training courses for all levels of experience.

Visit the conference website to see the full agenda and new features for 2019.

What to expect in 2019?

- ➔ Two base oils training courses
- ➔ A pre-conference seminar day including a morning session on sanctions and scenario planning and two workshops about Brexit and China
- ➔ A two-day conference around innovative technologies and industry disruptors and how they affect the base oils & lubricants market
- ➔ An off-site gala reception exclusively for conference attendees
- ➔ A breakfast briefing addressing innovations in marketing to increase lubricant sales



680
attendees, representing



390
companies, from



59
countries

ICIS events offer a variety of sponsorship and branding opportunities, for more information please visit www.icisevents.com/worldbaseoils.

Save £300 off the standard rate! Register online with promo code **WBO19ADLW** by 30 November

www.icisevents.com/worldbaseoils [+44 \(0\) 20 8652 3887](tel:+442086523887) Events.Registration@icis.com

ÜRETİMDEN SON TÜKETİME KADAR HER AŞAMADA FROM PRIMARY PRODUCTION TO FINAL CONSUMPTION

Sondaç
Kimyasalları



Drilling
Chemicals

Üretim
Kimyasalları



Production
Chemicals

Refineri
Katkıları



Refinery
Chemicals

Madeni Yağ
Katkı Maddeleri



Lubricant
Additives

Akaryakıt ve
Biyodizel Katkıları



Fuel And
Biodiesel Additives

Bitmiş Petrol
Ürünleri



Finished Petroleum
Products

adco®