

# MADENİ YAĞ DÜNYASI

## LUBRICANT WORLD

International Edition

[www.lubricant-world.com](http://www.lubricant-world.com)

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## Baku City Circuit keeps on pushing the limits

Evonik creates  
new oil additives  
business line

Petrol Ofisi Lubricants  
ceaselessly continues all its  
investments and improvements

Nynas:  
Great  
in grease



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## Editor's Letter



This year, as in every year, we dedicated our March-April issue to Formula 1 races and we decided to use the same cover story both in our international edition and Turkey edition. We asked Executive Director Arif Rahimov to tell us about Baku City Circuit, which was recently added to the list of Formula 1 hosts and which pushes teams with sharp corners and slopes in front of its fascinating historical backdrop. It is also testing the boundaries of both oil and fuel partners and tire partners of teams.

We wrote a detailed article about Petrol Ofisi, the lubricants and chemicals market leader in Turkey. The company recently met with foremen throughout Turkey and held informative meetings about their Maximus product family. Besides, Petrol Ofisi signed an agreement with KIA to use Petrol Ofisi lubricants as original equipment. You can learn the details of all these developments in our article.

One of the most important developments recently is the merging of Evonik's Application Monomers Product Line with its current oil additives business. This new Oil Additives business line is expected to increase the company's ability to offer new and customized solutions to customers.

Shell releases a universal refill oil that is suitable for all cars. The product, named Shell Helix Top Up, was put on the Turkish market simultaneously with Germany, UK, Poland and the Netherlands.

Mehdi Fathi-Najafi from Nynas points out in his article that the naphthenics make a difference in grease, and tell about its differences from paraffinic Group I base oils.

In this issue, we made a difference and focused on the needs and expectations of the lubricants sector in terms of shipping. Sunlog Logistics, which has gained a key place in the sector in a very short time, provides transportation services to the lubricants industry, where the carriage of chemicals, hazardous and flammable materials is of utmost importance. Founders of the company shared useful information with us.

With this issue, we will be at the 6th ICIS and ELGI Industrial Lubricants Conference to take place in Amsterdam, the Netherlands, and the Metalworking Fluids and Industrial Lubricants in Russia and CIS to take place in Moscow, Russia.

Enjoy reading.

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Turkey Edition



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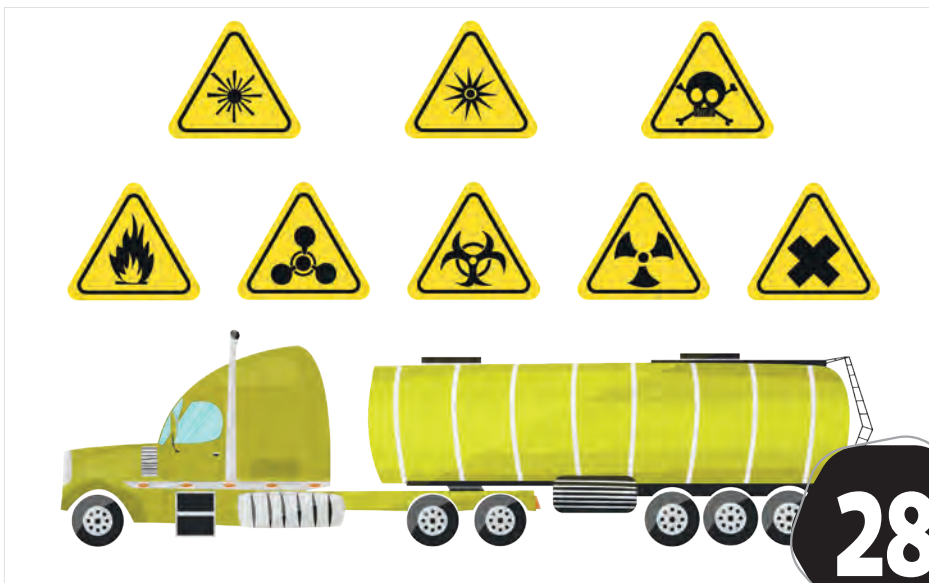
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# Baku City Circuit keeps on pushing the limits

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## Total and Aston Martin to renew partnership until 2019

A leading lubricant brand Total and British automotive giant Aston Martin announced the renewal of their partnership until June 2019, which was originally signed in May 2016. Total, Aston Martin's official energy partner in scope of this collaboration, will provide first fill lubricants to all models and will also carry out R&D works together.

Total officials notify that they are a proud official energy partner of Aston Martin and they recommend Total Quartz motor oil after the first fill in order to meet event the highest demands of every driver and to provide excellent performance within the framework of this partnership.

Moreover, Total supports Aston Martin's racing team Aston Martin Racing in the FIA World Endurance Championship as part of its "Lubricant and Technical Partnership" with Aston Martin Racing. With its 45 years of experience in motorsports and R&D investments, Total develops lubricants, greases and special additives that provide high quality technical performance. Total delivers its technical expertise through a trackside engineer and oil analysis laboratory at each World Endurance Championship race event.

Two years of working side by side in the FIA World Endurance Championship enabled Aston Martin Racing to win the GTE Pro 2016 and GTE AM 2017 drivers' title, along with a prestigious victory in the 24 Hours of Le Mans 2017 in the GTE Pro class.

### About Aston Martin

Founded in 1913, Aston Martin is an exclusive luxury sports car company with a unique British heritage. The iconic brand fuses the latest technology, exceptional hand craftsmanship and graceful styling, and sells its models in 53 countries around the world. Based in Gaydon, England, Aston Martin recently launched its Second Century plan for sustainable long-term growth. This is underpinned by the introduction of new models and the development of a new manufacturing center in Wales.



# Italmatch Chemicals Group acquires Eco Inhibitors

**I**TALMATCH CHEMICALS Group acquires Eco Inhibitors, a technology startup company who has developed chemical solutions for the creation of a new generation of ecofriendly anti-agglomerant hydrate inhibitors for oil&gas applications.

This transaction enables Italmatch Chemicals to expand its production range in the Oil&Gas industry through an important innovation focused on sustainability and circular economy.

Italmatch Chemicals, a leading global specialty chemical group focused on the production and marketing of performance additives for water & process treatment, oil & gas, industrial lubricants and plastics, announces that it has acquired Eco Inhibitors, a technology startup company based in Norway that has developed chemical solutions to produce a new generation of eco-friendly hydrate inhibitors for Oil&Gas applications.

The investment in such a highly innovative technologies allows Italmatch Chemicals to further consolidate its focus on R&D and Sustainability, thus expanding and refining the current production range, as well as reaching new high added value market targets as well. With Eco Inhibitors technologies, Italmatch Chemicals will manufacture and commercialize, through its business unit Advanced Water Solutions established global sales & marketing network for Oil&Gas applications, three classes of Low-Dosage Hydrate Inhibitors (LDHIs) that allow to optimize flow assurance strategies for Oil&Gas deep water productions.

Sergio Iorio, CEO of Italmatch Chemicals Group, stated: "In our main areas of activity, our focus on innovation is driving the development of a large and long-term pipeline thanks to internal and external contributions which lead to the discovery of new technologies for the creation of new classes of chemical products. With Eco Inhibitors knowhow, we are proud to present to the market products with high environmental compatibility, in particular a class of inhibitors derived from recovered salmon waste that represents a perfect example of circular economy. The first game-changing green Anti-Agglomerant is the cutting edge technology that we are going to industrialize."

Maurizio Turci, General Manager Corporate & CFO of Italmatch Chemicals Group said: "The transaction falls into Italmatch Chemicals Group's growth strategy and global geo-coverage. From an industrial point of view, this acquisition may have a positive impact on medium/ long-term sustainability for the results of the Advanced Water Solutions Business Unit."



## Evonik creates new oil additives business line

Evonik is merging its specialty methacrylate monomers – the Applications Monomers Product Line – with its current oil additives business to become the new Oil Additives business line within the Resource Efficiency segment.

Application Monomers were formerly part of the Methacrylate business of Evonik, which is currently in the process of being sold to US-based private equity firm Advent International.

"The integration just made sense since Oil Additives is the specialist for Polyalkylmethacrylate (PAMA) based additives for the lubricant industry. The businesses jointly have a substantially larger specialty monomer production set-up. Their innovation capabilities mesh very well with each other. Together, this will increase our ability to offer new and customized solutions to our customers," explains Martin Trocha, Head of the Application Monomers Product Line.

By retaining the specialty methacrylate monomers business within Evonik and integrating it into Oil Additives, their similar business models with a customer solution-centric approach will allow them to focus on developing and producing specialty and high-performing products and technologies.

"Combining both businesses will lead to broader production capabilities and a more comprehensive innovation landscape. Lubricant and oil & gas customers will continue to benefit from our most advanced flow efficiency solutions, developed by our Oil Additives specialists. Additionally, we stay fully committed to our customers in the coatings, and other specialty markets by providing tailor-made solutions from our specialty monomers group", adds Doris Schmidt, Head of the Oil Additives Business Line.

The integration is currently underway and being executed in parallel to the sale of Evonik's Methacrylate business.

The international headquarters and research centers of the new Oil Additives business line are located in Darmstadt, Germany, in addition to technical centers located in Shanghai, Singapore, Tsukuba (Japan) and Horsham, PA (USA). The joint business uses production facilities in Mobile, AL (USA), Houston, TX (USA), and Morrisburg, Ontario (Canada), as well as in Worms, Darmstadt, and Weiterstadt (Germany), Lauterbourg (France), Shanghai (China), and Singapore.





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## Castrol and Gehrung establish partnership

Castrol, one of the world's leading lubricants brands, and Gehrung, a globally operating machine tool company, have announced a significant strengthening of their relationship by creating a partnership which will bring together Castrol's knowledge of lubrication and metalworking fluids with Gehrung's expertise in precision machine tooling.

Gehrung is widely recognized as a technology leader for honing internal combustion engines in the automotive manufacturing sector, but they are also innovators in the manufacture of traction drives for electric vehicles.

Meeting the future challenge of continually reducing CO<sub>2</sub> emissions and increasing engine efficiency will require a step change in the precision manufacturing of engine parts. Gehrung and Castrol will be working together on co-designing honing machine tools, honing fluids and creating new digital fluid monitoring systems. These will enable greater precision in manufacturing and open up possibilities for the use of new materials in future engine designs.

Mathias Buschbeck, Global Industrial Leader at Castrol, said: "Now is an exciting time for suppliers to the auto industry. By working together to push the boundaries of our respective technologies this partnership will open up new opportunities to jointly develop offers which will help automotive manufactures to respond to the emerging trends in transportation."

Dr. Sebastian Schöning, CEO of the Gehrung Group, stated: "The Gehrung Group contribute towards the reduction of CO<sub>2</sub> emissions from modern engines with our innovative technologies and want to improve every single part of the complete production system. Therefore, the partnership will push us forward regarding fluid optimization and digital opportunities for monitoring. We are looking forward to a successful relationship."

The two companies are already exploring how to increase the efficiency of combustion and engine oil lubrication by developing new solutions to optimize cylinder-block machining and surface finishing. The surface structure of cylinder blocks has to be perfectly designed to absorb as much engine oil as possible, while maintaining the required friction properties for ideal fuel combustion. With this partnership, we will be able to ensure greater precision in manufacturing and find new possibilities for the use of new materials in future engine designs.



# 9 Years of Leadership\*

\*Source: PETDER (Petroleum Industry Association)  
total lubricants and chemicals data for 2010-2018

**maxima**  
MOTOR OILS

**MAXIMUS**  
DIESEL ENGINE OILS



**Petrol Ofisi**



## ‘Strong, Reliable, Dynamic’ Alpet Lubricants participated in Automechanika Istanbul

Automechanika Istanbul, the third biggest automotive exhibition in the world, opened its doors to visitors at Istanbul Tüyap Fair Convention and Congress Center on 4 - 7 April 2019. 1,400 participating companies and 48,737 visitors from 130 countries had the opportunity to get into contact.

Alpet Lubricants welcomed hundreds of local and foreign visitors, primarily business partners, at its booth in Automechanika Istanbul Fair. Alpet Lubricants' booth, which was designed with the theme 'Strong, Reliable, Dynamic', attracted great interest from visitors. Through the meeting they made at Automechanika Istanbul, the company, having export operations to over 30 countries, aims to increase their business volume and reach the countries that are not currently included in their export operations.

Atak Technology Center, the company's technology center, is one of the most developed laboratories of the lubricants industry in Turkey and the surrounding countries. Alpet Lubricants' latest product developed at Atak Technology Center is Cronos Hybrid 0W-20. The product was introduced for the first time at Automechanika Istanbul. Cronos Hybrid 0W-20, having the new generation oil technology specially produced for hybrid vehicles, has taken its place in Alpet Lubricants product range with its fuel-saving special formula. The new Cronos Hybrid label design and the hybrid theme, specially designed for the Cronos Hybrid series, gained great appreciation from the visitors. The exhibition was very productive for the Alpet Lubricants team, which shared information with the visitors about their new projects, products and services in 2019 and analyzed the needs of consumers.





# Shell releases new engine oil for all passenger cars

Shell Helix Top Up, developed in Shell's technology center in Hamburg, is the new innovative addition to the global lubricant market.

Full synthetic transmission oil Shell Helix Top Up attracts interest as it works both with petroleum and diesel engines. Developed as a universal refill oil, the product was put on the market in Turkey simultaneously with Germany, UK, the Netherlands and Poland.

Shell Helix Top Up, offered in 1 liter packages only at Shell & Turcas petrol stations as of April, allows drivers to refill oil easily whenever they need. Drivers can take their cars to service at 225 Shell Helix Oil Change Centers at Shell & Turcas petrol stations throughout Turkey, and can also meet their oil refill needs at the stations with Shell Helix Top Up.

Universal refill oil Shell Helix Top Up, based on gas to liquids (GTL) technology, is an environmental friendly lubricant and is expected to help Shell reach its target to decrease carbon emissions by 50 percent until 2050.

## Suitable for all engines

Seyfettin Uzunçakmak, Shell & Turcas Managing Director Lubricants, indicated that Shell has blazed a trail in the lubricants industry once again with its innovation power. "As Shell, we manufactured a new oil to refill the oil consumed in the engine, proving our innovation power once again. Shell Helix Top Up is an extremely pure oil with a pureness level of 99.5 percent. Produced with the GTL technology using base oil from natural gas, it is designed as a refill oil. This innovative product easily tops up the oil consumed in diesel, petrol and even supercharged engines. Besides, it can be used in all cars regardless of the previous engine oil used. As it can work perfectly with all engine oils, it will help the motorists who are confused about which oil to choose. As the leading company in the lubricants sector both in Turkey and the world for 12 years, we will continue to offer innovative products to our customers by investing in new technologies," Mr. Uzunçakmak said.



## Tüpraş receives grand prize for “Innovation Strategy”

Champions received their awards at the InovaLIG Awards Ceremony, organized by Turkish Exporters Assembly (TIM) in collaboration with international management consulting firm IMP3rove Academy as part of the Turkey Innovation Week held for the seventh time this year. Tüpraş, continuously investing in innovation and technology according to changing global trends, has won the grand prize in the “Innovation Strategy” category at the ceremony.

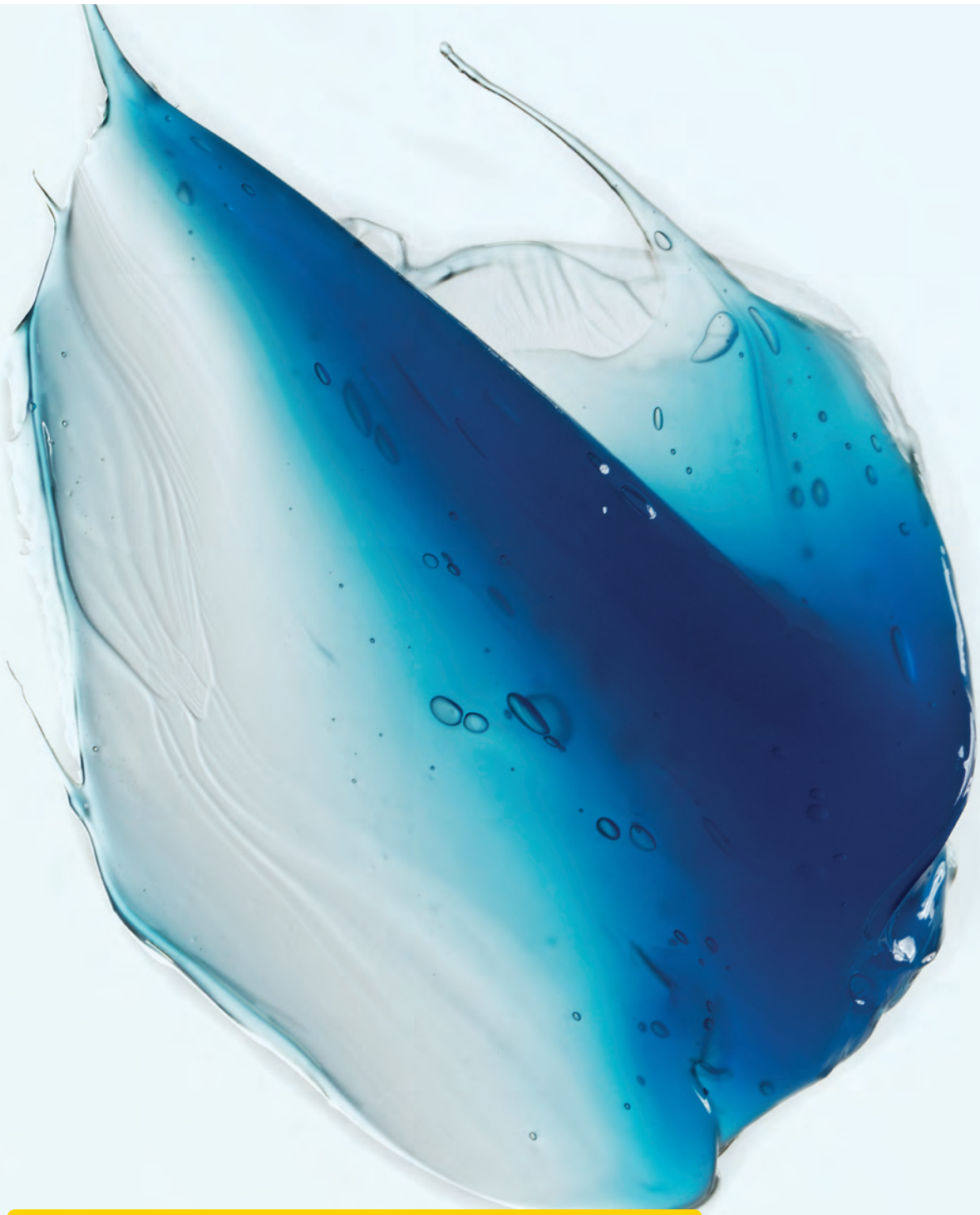
### Levent Çakıroğlu: Tüpraş makes a difference in the sector with its innovative applications and solutions

Levent Çakıroğlu, CEO of Koç Holding, said in his statement: “Business models are changing with the impact of rapidly developing digital technologies. Given the changing expectations of consumers, existing business models of companies cannot guarantee future success. As Koç Group, we implement a comprehensive Digital Transformation Program in order to maximize our competitive power and eliminate threats by utilizing the opportunities provided by emerging technologies. Similarly, innovation is one of our strategic priorities. With the Innovation Program we implement in Koç Group, we aim to enable our companies to make a difference with innovative products and services and to strengthen their competitive advantage. In our perspective, innovation is not limited to products and services. We constantly reassess all our processes from an innovation point of view in order to increase their efficiency. Our Group companies have received many awards as part of the Innovation Week. Tüpraş also works with innovative applications and solutions that make a difference in the sector. The “Innovation Strategy” grand prize that we received today crowned Tüpraş’s strategic innovation approach and business culture, which supports the innovation and entrepreneurship climate and is open to innovation. This award is a source of pride for us all.”

### İbrahim Yelmenoğlu: I am very proud to carry our leadership to the field of innovation as Turkey’s largest company

İbrahim Yelmenoğlu, General Manager of Tüpraş, said: “With the award that we received today and made us extremely happy, I am very proud to carry our leadership as Turkey’s largest company to the field of innovation. I would like to thank all my colleagues who contributed to this success.”

“As a technology and innovation-oriented company, we support in-house entrepreneurship and entrepreneurship ecosystem with our forward looking innovative vision. We create value with our internal and external stakeholders. We manage our in-house entrepreneurship, digital transformation, R&D and open innovation strategies in a holistic way, trigger product, process and business model innovations. In this way, our innovation strategy also contributes to our sustainability by serving our company’s main strategy,” added Yelmenoğlu.



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# Baku City Circuit keeps on pushing the limits

**Baku will host Formula 1 for the fourth time this year. Recently, the circuit announced a new deal signed off, extending their contract until 2023. We interviewed Mr. Arif Rahimov, Executive Director of Baku City Circuit to discuss their success and share this good news.**

**After three exciting years, you will be hosting Formula 1 for the fourth time. How do you feel about this continued success?**

We always had high hopes for our race weekend and as such, set our expectations accordingly. We have worked incredibly hard since Day 1 to deliver the most professional, exciting and entertaining Grand Prix on the Formula 1 calendar and it's been an incredible pleasure to see our race become so iconic, so popular and so historic in the space of a few short years. Obviously, we have been greatly aided by the stunning drama that has taken place on our circuit - especially in the past 2 races - but again, this is in no small part down to the challenges

posed by our track. In addition, the feedback we receive from fans, F1 teams and media as well as the powers that be in Formula 1, seems to get better every year. This is a testament to our wonderful team here at BCC who work with such dedication and passion to make sure that no stone is left unturned and every angle covered to ensure a spectacular visit for all our international guests.

Added to that is the warmth and enthusiasm of the Azerbaijani people, who have come to embrace this race weekend since its inception and always provide a wonderful welcome to all visitors, as well as adding to the energetic atmosphere at the circuit during the Grand Prix.





We can allow ourselves to look back with immense pride at our achievements so far but we don't intend to rest on our laurels and are working hard to make this year's race even bigger and better than ever.

**What has changed since the first year for Baku City Circuit?**

Well, simply put, in Year 1 we had no concrete idea of what a race weekend in Baku would actually look like, only an estimation. We planned everything down to a tee to make sure that the race weekend would come as close to our projections as possible but at the end of the day there is nothing quite like seeing Formula 1 cars race for real in your home city.

Free practice in 2016 was therefore a very special day for me when I first heard the rumble of the F1 engine roaring down the Baku streets. Since then so much has changed and evolved it is hard to know where to start.

Of course, we now have so many magical, dramatic moments we can use as reference points when discussing and promoting our race weekend. For example, we can say with certainty that Baku City Circuit is the fastest street circuit in F1 since that first race weekend and that it is also the least predictable race, as the last two years have shown.

In terms of our own staff, it has been great to see my team evolve over the past few years into one of the most professional outfits in F1, delivering an impeccable race experience for fans, media and the F1 community year after year.

Also, it has been inspiring to see how much the people of Baku have embraced this event and how in a few short years we have already managed to create a passionate motorsport community in a region that previously would not have been so familiar with this sport.

There is much more still to do but if we continue at this pace of change going forward – and we are now contracted to host F1 until 2023 – there is nothing stopping us from further growing into the best Grand Prix weekend in F1.

**Who is the designer of the Baku City Circuit? What does it offer to motorsport lovers?**

Hermann Tilke, the world-famous architect who has also designed most of the recent F1 circuits, is the designer of our circuit – one of the most challenging, beautiful and unique in all of motorsports.

We felt from the very beginning that hosting a street race was the best option for Baku. In doing so, we are not only able to deliver an exciting and exceptional race but also are able to show the world our beautiful city at the same time. For us this was a much more appealing prospect than constructing a circuit on the outskirts of the city that would fail to show off the wonders of our great city.

Attending spectators and viewers at home are able to witness an incredible event taking place against one of the most stunning backdrops in F1 as the drivers race around the picturesque streets of downtown Baku, incorporating the city's UNESCO-protected old town – Icheri Sheher – as well as its modern skyline and beautiful Caspian Sea vista.

The track itself is full of surprises and dramatic changes to challenge even the best drivers on the planet.



**Arif Rahimov**  
Executive Director  
Baku City Circuit

The street pattern has obviously determined the nature of the track quite a bit, ensuring that the drivers face a number of singular challenges, including the tight 90-degree turns and of course the famously narrow, winding uphill sequence of turns along the old town walls that always test their skills to the very limit. In addition, the circuit became the fastest of any current street circuit in F1 with Valtteri Bottas (then in a Williams seat) reaching speeds of 366km/h on the main 2.2km straight along our beautiful seaside promenade during the first race weekend in June 2016.

**In what ways has the race contributed to Baku and Azerbaijan in general?**

The impact of the F1 race weekend on the Azerbaijani economy has been overwhelmingly favorable. Indeed, last year we tasked PwC with conducting an Economic Impact Study on our behalf which found that the impact felt by Baku from hosting an F1 race for 2016-2017 years comes to US\$277.3million. This impressive figure is a combination of the direct and indirect results of operational spending linked to the arrival of F1 in Baku, considering the spend across various sectors including the professional services, hotels & general accommodation, catering, transport, social and cultural services, agriculture, post & telecommunications, wholesale trade and electricity, gas & water amongst others.



We were incredibly encouraged and satisfied by the positive results from this study and have reason to believe these figures have only become more positive, going by the demand for tickets and hotel bookings we are seeing for the 2019 race.

Ever since we brought this major sporting event to our capital city, we have been keen to stress that this wonderful spectacle is more than just a showpiece event but instead a catalyst for economic, social and cultural change that will continue to drive this city – and indeed this country – forward and provide increased opportunities and benefits for everyone living and working here.

With regards to the emotional effect it has had on our people, the impact has also been notable. Azerbaijan is still a relatively new market for F1 and we knew that one of the main challenges we faced was to create a sense of ownership and heritage amongst the domestic fanbase. As such we have developed a series of domestic workshops and educational activations to generate further enthusiasm, awareness and knowledge of F1 and motorsport in general amongst the Azerbaijani population – in particular the youth who are the future of the sport's success in this country.

We feel very confident that the Azerbaijani population is beginning to really embrace F1, with all the signs of tickets sales and television viewing figures since

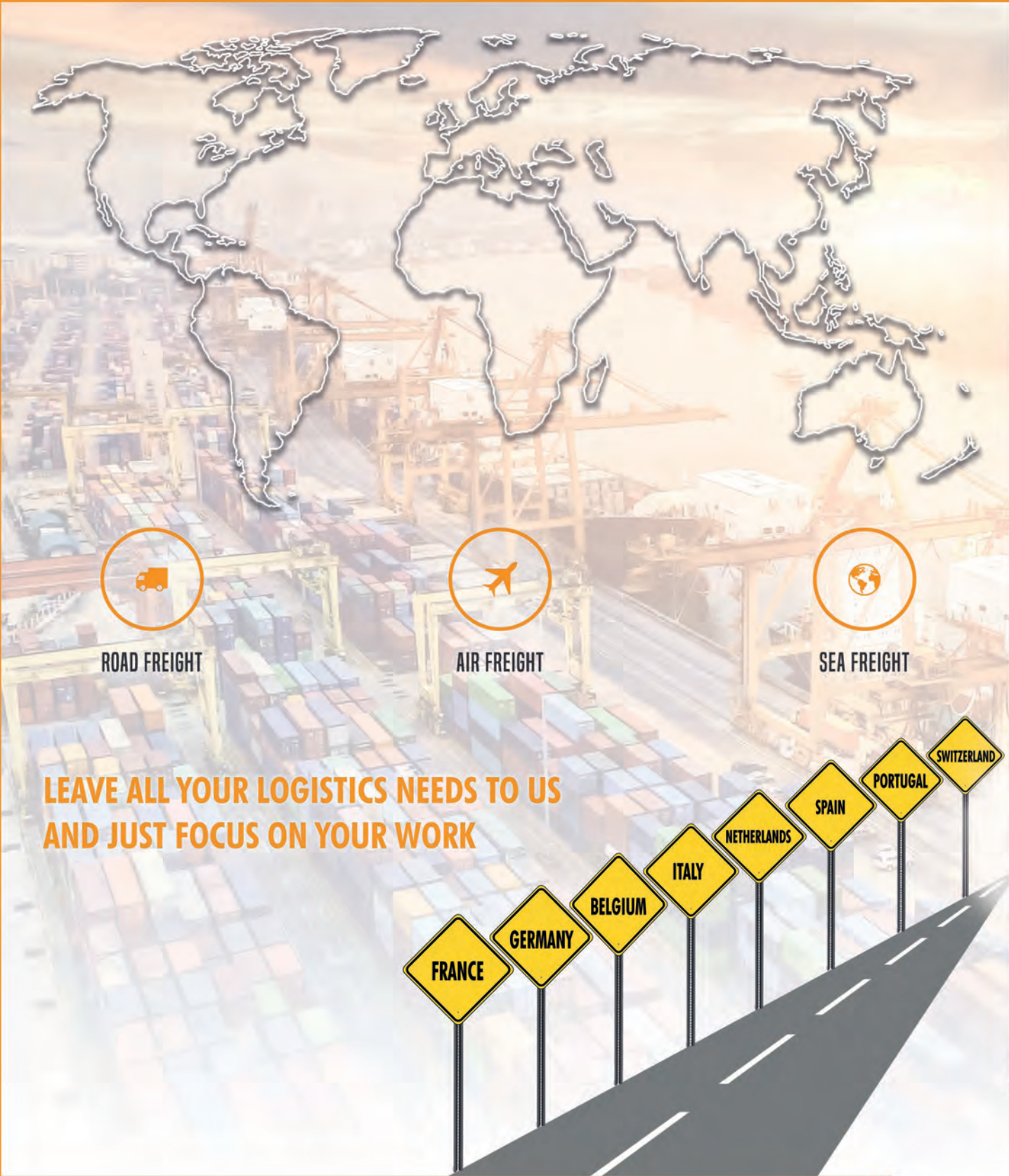
the first race pointing to a growing interest in witnessing this incredible spectacle live and in person as well as from home.

In addition to our awareness programs throughout the year, the combination of seeing the likes of Lewis Hamilton and Daniel Ricciardo on track during the day and then attending a Sam Smith concert at night for the price of one ticket is increasingly proving highly attractive to our home audience.

We feel very confident that the Azerbaijani population is beginning to really embrace F1, with all the signs of tickets sales and television viewing figures since the first race pointing to a growing interest in witnessing this incredible spectacle live and in person as well as from home.

**Do you have any specific plans for the future?**

Our main plan is always the same: to continue delivering the biggest, best and most spectacular race weekend in Formula 1. We take our role as F1 Promoters and ambassadors for this country very seriously and we will continue to work with the same incredible level of passion, dedication and joy to bring this special event to the streets of Baku. We have recently extended our contract to 2023 and all going well, we hope to see our race stay here long beyond that date.



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# Petrol Ofisi Lubricants ceaselessly continues all its investments and improvements

As the leader of the lubricants and chemicals market in Turkey for the past 9 years in a row, Petrol Ofisi ceaselessly continues its investments and improvements in every field, especially in Maxima and Maximus brands. Having introduced Maximum, which provides 50 percent less oil loss thanks to its new formula, to 7,000 foremen in Turkey this year through Foreman Meetings, Petrol Ofisi Lubricants signed a long-term collaboration agreement with KIA Turkey covering all KIA models. From now on, products specially developed by Petrol Ofisi will be used as original equipment in all KIA models in the market in Turkey.



**P**ointing out that Petrol Ofisi made significant progress in lubricants in every field, especially in the automotive industry with Maxima and Maximus brands, in the past 10 years and has been maintaining its leading position in the market for the past 9 years in a row, Petrol Ofisi Lubricants Director Sezgin Gürsu said:

"As we examine the developments in the automotive industry in the past 10 years when Petrol Ofisi achieved a considerable improvement in the market, we see that volumes are reduced by 15 percent and the strength is increased by 50 percent in engines. Permissible values of environmental emissions have decreased by 96 percent since environmental emission values are being disclosed. All of this means "less fuel consumption", "compliance with environmental exhaust emission conditions" and "providing more strength in less engine volume". These developments in the automotive industry require improvement in lubricant technologies.

In order to meet all these requirements while also protecting the engine, to save fuel and reduce the emission values, lubricant technology is also transforming and changing over to thinner oils. The industry changes over to thinner oils with lower viscosity in order to save fuel and contribute to performance. To increase the protective factor with this lower viscosity, a transition to synthetic technology is taking place. The formulation, specifications,

and advantages make a difference. The production and the R&D technology and power come into prominence.

### **Petrol Ofisi made a difference in the market with the technology coming into prominence**

In parallel with this development in automotive technologies, every brand started to disclose their special oil specifications. While 3 or 4 types of standard oils were meeting the needs of the entire market in the past, there are now tens of passenger car oils for every brand. Therefore, tailored products for every model and every brand are being launched. Likewise, the developments concerning less energy consumption and higher efficiency are taking place in every industry.

Therefore, it is not a coincidence that the strong development of Petrol Ofisi in the market, especially with Maxima and Maximus brands, is taking place in a process where technology comes into prominence in every field, especially in the automotive industry. Petrol Ofisi stands out with its production, quality, capacity, and technology. We have precious knowledge and an important R&D power and technology thanks to Petrol Ofisi Technology Center (POTEM), which is one of the most advanced centers in its field. And we are using all of these in the most ideal and effective way. For example, we cooperate with the automotive industry and continue our investments and



improvements, especially in Maxima and Maximus. With our wide product range in Maxima and Maximus, we offer ideal solutions for the widespread vehicles in Turkey and meet the needs of all the brands and models. As Petrol Ofisi Lubricants, we meet almost all the needs of all the industries, especially the automotive industry, in Turkey with our over 350 high-quality products."

### Petrol Ofisi Lubricants will be used in KIA vehicles as original equipment

Stating that as Petrol Ofisi, they have recently cooperated with KIA, which is one of the best examples of their cooperation with the automotive industry, Sezgin Aksu made the following remarks: "We signed a long-term collaboration agreement between KIA Turkey and Petrol Ofisi. Within the scope of this cooperation between two powerful brands, we developed products special to KIA models and technology in POTEM. KIA is one of the most admired automotive brands in Turkey as well as all over the world with its high technology and high quality. KIA models are produced with the aim of becoming the most important representatives of technology, comfort, performance, and sustainability in their field. With our superior qualities and R&D power, we developed special products unique to KIA specifications in two months, which is a short period of time. We produced ideal lubricant solutions meeting the needs of the advanced automotive technology of KIA with the expertise of both brands, which are the leaders of their industries.

As Petrol Ofisi Lubricants, we offer ideal solutions compatible with all KIA models with specially designed K 5W-30 and K 5W-40 lubricants. This collaboration covers the use of Petrol Ofisi Lubricants products, such as Maxigear EP 75W/85 differential oils, ATF III wheel oils, DOT 4 in brake systems, and Extended Life Coolant in cooling systems, in all models in 48 authorized services of KIA throughout Turkey. The special solutions provided by Petrol Ofisi Lubricants to KIA will be used in all KIA models, especially Picanto, Rio, Stonic, Cerato, Ceed, Sportage, Sorento, Niro, and Bongo, which are in the market in



Turkey.

### The developments in Maxima and Maximus reach all over Turkey with 'Foreman Meetings'

Stating that the investments and developments are carried out continuously in Maxima and Maximus, which are powerful brands in the automotive industry, Petrol Ofisi Lubricants Director Sezgin Gürsu continued his remarks:

"We convey all the improvements we make in Maxima and Maximus to our foremen through the 'Foreman Meetings' we widely organize in every region of Turkey. In 2018, we carried out the 'Foreman Meetings' with Maxima, which provides passenger cars and light commercial vehicles in the automotive industry with ideal solutions. We organized 'Maxima Foreman Meetings' in 42 cities and at 48 points throughout Turkey in 57 days. We gathered with our distributors, dealers, the businesses in industrial areas, and special automotive service representatives. In our meetings, we introduced the features of Maxima engine oils, the most innovative product family in the market which is renewed with its visual identity. With the intensive attention we received, we met 7,000 foremen in





Maxima Foreman Meetings by exceeding our estimates."

### **We offer 50 percent less oil loss to 'Maximus Men' with our new formula**

Declaring that as Petrol Ofisi Lubricants, they carried on 'Foreman Meetings' in 2019 with Maximus, which is the popular brand of heavy commercial vehicles, Sezgin Gürsu continued his speech:

"We meet the needs of all widespread heavy commercial vehicle models in Turkey with the wide product range and superior qualities of our Maximus engine oils, just like we meet the needs of passenger cars and light commercial vehicles with Maxima. With their advanced technology and superior qualities, our Maximus engine oils protect the engines, extend their life, prevent performance loss by providing efficient work, save fuel, and reduce business costs. Our Maximus engine oils, which meet global specifications, have a wide product range offering solutions for all the needs of all the vehicles from the oldest heavy commercial vehicles to the newest technologies.

As Petrol Ofisi, we define the drivers and foremen of heavy vehicles as 'Maximus Men'. 'Maximus Men' do a

difficult job requiring strength, trust, and performance. They work under heavy conditions. Our friendship with them goes back a long way. Therefore, we know 'Maximus Men' very well, and we keep up with them. We know and understand the difficulties that they face, and we support them. With this approach, we, as Petrol Ofisi, developed our Maximus product family to provide them with strength. We present the Maximus engine oils with their new formula providing 50 percent less loss than industry standards to customers and foremen or, in other words, to 'Maximus Men'.

### **Maximus Foreman Meetings reached 7,000 foremen**

We spread all the development we make in Maximus to all over Turkey with 'Foreman Meetings'. With 40 meetings that took place in 58 days within the scope of Petrol Ofisi Maximus Foreman Meetings, we reached 7,000 foremen in total all over Turkey. Our Maximus Foreman Meetings, which started in the European side of Istanbul on March 6th, took place in Manisa, Edirne, Aydın, Tekirdağ, Kırıkkale, Ankara, Antalya, Konya, Isparta, Aksaray, Denizli, Malatya, Elazığ, Mersin, Adana, Kayseri, Sivas, Trabzon,

Zonguldak, Karabük, Kastamonu, Erzincan, Erzurum, Afyon, Şanlıurfa, Gaziantep, Antakya, İskenderun, İzmit, Adapazarı, İnegöl, Balıkesir, Çorum, Tokat, Eskişehir and Van in March and April. The meetings ended on May 2nd in Mardin and İzmir. Now, we had already reached 3,300 foremen when we were halfway through the Maximus Foreman Meetings. Our dealers and foremen showed great interest in our meetings. In this regard, the number of participants in Maximus meetings surpassed the estimations and we reached 7,000 foremen, just like it happened in 2018 with Maxima meetings."

### **"We develop the technology and offer the most ideal and rapid solutions to the demands"**

"As well as our customers, our retailers and foremen, who ensure that our products reach end customers, are very important and valuable to us, as Petrol Ofisi Lubricants," said Sezgin Gürsu and added: "In this respect, we take care to establish direct and uninterrupted communication with our sales representatives, foremen,

and specialists and to contact them directly. Apart from our field trips and various activities, the Foreman Meetings that we organize are our most important organization which provides us with this precious opportunity. As a brand leading technology and innovation in lubricants, we attach great importance to improvement in every sense. In this regard, we give technical training to our foremen, specialists, and sales representatives and share the updates about technological developments with them in Maximus Foreman Meetings.

With our extensive network, superior quality, advanced technology, and wide product range, we take great care to be always there for foremen and drivers for years. Our most important features are our high production and storage capacity, our production capability, and our ability to meet growing needs and demands in the most ideal and rapid way thanks to our R&D power provided by POTEM. In this respect, the 'Foreman Meetings' that we organize are very important for us since it provides us with a setting where we get very good feedback from our foremen on both Maxima and Maximus."

### **We maintained our leading position in the lubricants and chemicals market for the past 9 years in a row"**

Emphasizing that Petrol Ofisi Lubricants maintained its traditional leading position in the lubricants and chemicals market in Turkey in 2018, Sezgin Gürsu made the following remarks: "Petrol Ofisi is the most important brand in Turkey in the lubricants and chemicals industry as well as the fuel oil industry with its storage capacity of 65 thousand tons, unique knowledge, advanced technology, R&D power, product range of over 350 products, and over 16 thousand points of sale. Petrol Ofisi achieved a sales volume of over 100,000 tons in lubricants and chemicals in 2018. Our exports to 35 countries in 4 continents exceeded 10,000 tons in 2018. According to the data of PETDER (Turkish Oil Industry Association), Petrol Ofisi maintained its leading position in the lubricants and chemicals market in Turkey in 2018 with a share of 24.7 percent. Therefore, Petrol Ofisi has been the leader in the lubricants and chemicals market for the past 9 years in a row since 2010."

### **"Petrol Ofisi Lubricants has one of the most important manufacturing plants in Turkey"**

Emphasizing that Petrol Ofisi Lubricants has very valuable qualities in its field in terms of production and development, Sezgin Gürsu said, "With its production capacity of 140,000 tons and its storage capacity of 65,000 tons in total, 15,000 tons for finished products and 50,000 tons for raw materials and semi-finished products, Petrol Ofisi Lubricants offers supply guarantee. We reach our customers in our 16,000 points of sale all over Turkey. As well as its unique substructure, knowledge and advanced production technology, Petrol Ofisi Lubricants also has the privilege of Petrol Ofisi Technology Center (POTEM). In POTEM, which has an investment value of 6 million dollars and an indoor space of 1,000 sqm in Petrol Ofisi Lubricants manufacturing plant, we carry out powerful R&D activities with our expert staff and cutting-edge devices. In POTEM, 155 different tests, 83 of which are accredited by TURKAK (Turkish Accreditation Agency), can be conducted with domestic and international methods. In the center, we conduct an average of 150,000 tests per year. POTEM does not only serve Petrol Ofisi with its advanced technology and accreditation ability. We provide many domestic and foreign firms including biggest companies in the world and especially public institutions, in short, the entire industry, with R&D, quality control, and analysis services. Therefore, POTEM is one of the most developed technology centers in the international arena in the field of lubricants. With these unique advantages, Petrol Ofisi meets almost all the need for lubricant in Turkey with over 1,000 formulations and over 350 products."



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## Great in grease



**Recent studies show that the NYBASE® range offers major benefits when used to replace paraffinic Group I oil in existing lube and grease formulations.**

“The global race towards the rationalization of paraffinic Group I refineries will inevitably affect most of the formulations within the industrial lube segment. In 2015, almost 25 percent of the paraffinic Group I capacity disappeared in Europe, and now the restructuring has reached the Middle East and Asia-Pacific regions,” says Nynas’ grease specialist Mehdi Fathi-Najafi.

This fundamental change within the oil refining industry has created a vacuum in the lube and grease market for a similar grade that can be used as a ‘drop in’ substitute with minimum adjustment. Nynas’ solution to the challenge was to develop a series of blends of paraffinic Group II and hydro-treated naphthenic oils – the NYBASE grade.

“In fact, NYBASE could be called ‘paraffinic Group I +’ as

the oils display better low temperature characteristics and significantly lower sulphur content than paraffinic Group I,” explains Mehdi Fathi-Najafi.

Comparative studies were conducted in order to evaluate the potential of the new range of base oils as a replacement for Group I oil in lithium grease formulations, which represent more than 55 percent of the global production.

“Our studies show that the new range enables finished products of improved performance, whilst also rationalizing the number of base oils in formulations. Hence, producers will be able to use just one oil product, from one single tank, for their production. This will simplify the logistics chain, reduce the risk of contamination, and enable producers to rationalize their operations and subsequently reduce capital employment at their sites,” he states.

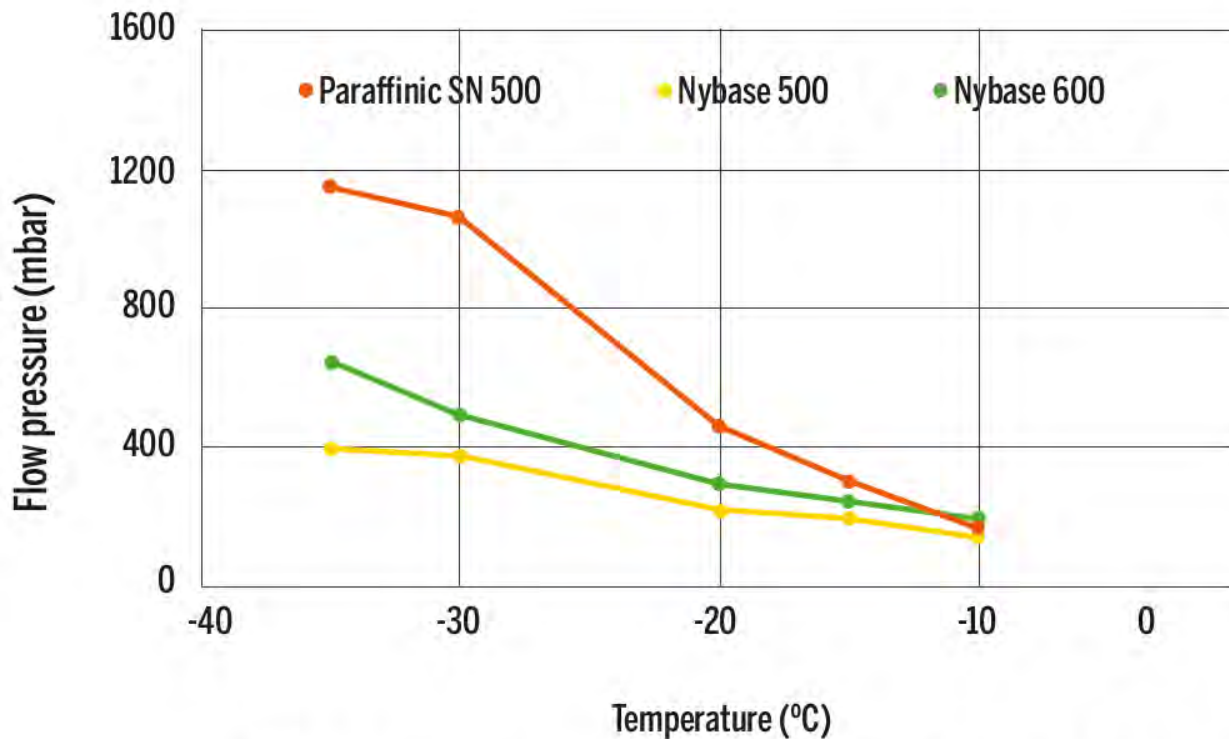


### “Drop in” with added benefit

The NYBASE® range will help producers of lubes and greases requiring the viscosity, solvency power and polarity typically displayed by Group I oil, as the base oil production continues to shift towards Groups II and III.

A comparison between grease samples made with

two of the new high viscosity base oils and a traditional oil grade showed that the new oils are well suited to replace paraffinic Group I. In fact, NYBASE oils can improve their performance. For example, a significant improvement in low temperature mobility was observed as an added benefit, as shown in this flow pressure graph, promising the opportunity to make grease products that flow smoothly at temperatures down to -35°C.



Mobility of conventional lithium grease (NLGI 2) based on different base oils.

### Mehdi Fathi-Najafi

Senior Technical Advisor and Group specialist at Technical Development and Market Support, Nynas Naphthenics, joined Nynas in 2008, and has been the driving force behind the company's experimental grease lab.





## “Transport of dangerous goods requires expertise”

**We interviewed two young entrepreneurs, Sertaç Yücelbak and Ünal Sarı, founders of Sunlog Logistics, a company that provide transportation and storage services to the lubricants and chemicals sector, and asked them about the needs and expectations of this sector.**

**First of all, we would like to get to know you.**

We, Sertaç Yücelbak and Ünal Sarı, realized our idea of Sunlog Logistics based on our experience in the sector, and chose to create the name of our company from our initials.

Let's focus on our company Sunlog, and talk about our services and idealistic thoughts.

**Well, let's start by talking about the logistic activities that you provide as Sunlog.**

Using the advantage of having a very large agency network, Sunlog has a fast, high quality and reliable partial transport line with its self-owned vehicle investments in France, Spain, Portugal, Germany, the Netherlands and Belgium. We continue to expand our agency network and

to make investments in order to provide benefits to our customers and the sector.

Although the company was established in 2015, Sunlog was able to make its name heard in the sector for transports to and from Europe and soon became one of the leaders in its field. This success, of course, did not come with the names of Sertaç and Ünal; we have an incredible team behind us, a great agency network, a perfect supply chain and a self-owned vehicle fleet.

In line with our targets, we achieved a growth of 15 percent in 2018, and with the advantage of our expertise in partial express shipment we became one of the few logistics companies that were barely affected by the sectoral shrinkage.



**Specific to the lubricant sector, the transport of dangerous goods and flammable materials is very important. What needs to be taken into consideration when transporting such materials?**

Our expertise in the shipment of raw materials, especially dangerous and hazardous materials has taken us to a leading position in the sector in a short time. We attach the primary importance to the requirements and constraints in this area and the support we provide for training. We believe quality in services can only be achieved in this way.

One of the most important things to consider in the transport of dangerous goods is to accurately prepare the international documents that are mandatory for export and import, and this requires expertise. Which vehicle to transport the goods, with which other hazardous material classes, and which routes to use are the ABC of transporting dangerous goods. For all types of transport, such as sea, air, road and train, all hazardous materials must be handled in accordance with the current sanctions. The European Agreement concerning the International Carriage of Dangerous Goods by Road (ADR), signed in 1957 under the auspices of the United Nations Economic Commission for Europe (UNECE) and entered into force in 1968, is one of the most important agreements for

road transport. In the scope of ADR; there are hazard classes including Explosives, Gases, Flammable Liquids, Flammable Solids, Substances Liable to Spontaneous Combustion, Substances which Emit Flammable Gases in Contact with Water, Oxidizing Substances, Organic Peroxides, Toxic Substances, Infectious Substances, Radioactive Materials, Corrosive Substances and Miscellaneous Dangerous Goods, and each class has subclasses. As such, there are agreements to follow for the transport of dangerous goods by other types of transport.

In addition to this, drivers and supply channels must have a command of the required foreign language. We attach great importance to the language education of our human resource, and in this way we can minimize all human-driven risks.

**Which services do you offer in this area?**

While the sea route is mostly preferred for cargoes in the lubricants sector, the advantages we offer in road transport eliminate the attraction of sea transport. Timely delivery and speed bring stock costs to the lowest level. Especially in 2016, the depression in imports came to a standstill in 2018 and the land route gained a new place. The boutique service, in which delivery time varies from 5 to 9 days, and goods up to 1300 kg, including the minimum



**Sertaç Yücelbak**

**Ünal Sarı**



load class, is delivered to the receiver within 48 hours.

If the freight contains flammable and hazardous materials, you should work very rigorously from order to delivery. Being aware of this meticulous work, we have a flammable and hazardous material specialist to maintain controls and standards. Our drivers periodically attend training on current issues and foreign language.

As the boutique logistics services concept requires, we offer our services in accordance with the demands of our customers. Upon comparison of our costs, quality and delivery time, we are currently providing door to door services to many key lubricant manufacturers.

**Do you have solutions to help relieve the burden of shipping on manufacturers?**

Sunlog evaluates raw material supply of manufacturers as a project, and offers a package organization on a yearly basis by evaluating its services in the most convenient way and at the lowest cost possible. Within our package,

cost, mode of transport and performance evaluation is submitted to the supply network in daily, weekly and quarterly reports. With this service, the manufacturer acts as a team with the supply chain and can report all processes from start to finish.

Being aware of the product we carry, manufacturers can receive instant response to their queries with our one-to-one customer service, and can follow the process in every phase from the supplier to the manufacturer with the GPS system.



# ACI's 2<sup>nd</sup> US Base Oils & Lubricants Summit

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The 2nd edition of ACI's US Base Oils & Lubricants Summit will bring together professionals from across the lubricant supply chain to address current industry issues, explore new opportunities and network with peers. As regulations on the quality of both heavy-duty and passenger car motors oils become more strict, professionals across the entire lubricant spectrum can feel the impact. Join us and learn how leaders from base oil producers, lubricant blenders, additive manufacturers and original equipment manufacturers are confronting these challenges and pushing the boundaries of what modern lubricants are capable of.

## Agenda Committee Members

**Liqing Wang**, Business Development Manager, Americas, **Chevron**

**Bill Anderson**, R&D Engineering Specialist, **Afton Chemical**

**Shana McCable**, Global Business Manager of Lubricants, **Ingevity**

**Kevin Ferrick**, Senior Manager EOLCS/DEF/MOM, **API**

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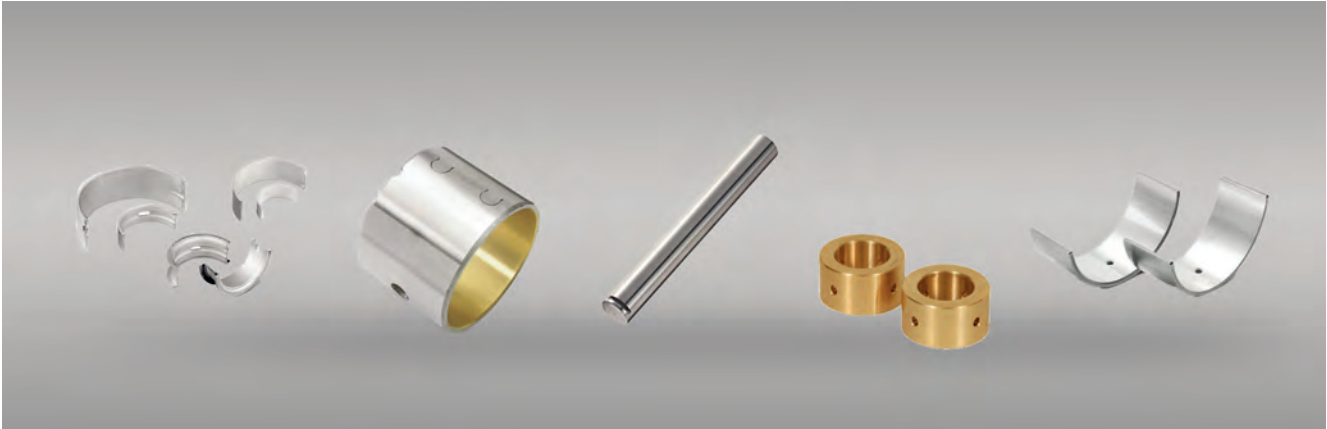
# Journal bearing design criteria - I

In general, **design** is a production process that aims to find a solution for a specific function. Several alternative solutions can be offered to solve the problem in design because design requirements can be interpreted in many different ways. Main principles to follow when designing a machine can be listed as follows:

- Conformance to function, simplicity, specificity,
- Conformance to standards, norms and regulations,
- Conformance to the type of loading,
- The lightest in terms of weight,
- Principle of self-help,
- Conformance to material and corrosion,
- Conformance to expansion,
- Conformance to production methods,
- The lowest cost design,
- Ease of assembly and disassembly,
- Conformance to transport,
- The safest design,
- Conformance to recycling, environment-friendly,
- Conformance to aesthetics and ergonomics,
- Conformance to maintenance,
- Ease of obtaining the materials to be used in production.

Among the standard machine elements that form the machine, some are stationary while most of them are in motion. Bearings are used for supporting the moving elements in machines. Bearings are the elements that are in relative motion with each other, do not move in the direction of the force applied, and transfer the force with





minimum friction loss with the oil film created between these surfaces in operation. **Journal bearings** support the rotating parts that transfer motion, and slides support the parts that transfer motion linearly.

Variables in the design of journal bearings can be defined in two main groups:

**First group variables:** Values of the variables in this group are either specified by the project owner or agreed after the designer's inspection. These are called "**physical parameters**" or "**operation parameters**". These are:

- Oil viscosity ( $\eta$ )
- Average surface pressure between the shaft acting on the bearing projection area and the bearing (**P**)
- Rotating speed of shaft (**n**)
- Bearing sizes (bearing diameter) (**D**), radial clearance ( $\Delta r$  or **c**), bearing width (length) (**B** or **l**), angular length if it is not a full bearing (if it is a partial bearing) ( $\beta$ ).

Among these four variables, usually the designer cannot determine the speed because it is initially determined in the general design of the system of the machine. Sometimes viscosity is specified in prior. For example, viscosity is often determined at a later stage when the oil will be stored in a tank to be used for lubricating and cooling purposes in various bearings. Other variables and sometimes viscosity can be controlled by the designer and he or she can decide

upon their selection. In other words, design process is completed when these four variables are defined.

**Second group variables:** These variables are "**dependent variables**". This group is the outcome of the variables in the first group. The designer cannot have direct control on them, but can indirectly change these variables by changing one or more of the variables in the first group. These are:

- Friction coefficient ( $\mu$ )
- Difference in the temperature of the lubricating oil entering the bearing and exiting the bearing ( $\Delta T$ )
- Flow rate of lubricating oil (**Q**)
- Minimum oil film thickness ( $h_o$ ) and location,
- Eccentricity amount (**e**) and eccentricity rate ( $\epsilon$ )
- Maximum oil film location,
- Terminating position of the oil film.

Variables in this group indicate how good the performance of the bearing is and therefore they can be considered as bearing performance factors. In this respect, they can be called "**performance parameters**". Thus, main problem in bearing design is to set the satisfactory limits for the second group variables and then to determine the first group variables without exceeding these limits. **(to be continued)**

(References: Şekercioğlu, T., "Makine Tasarımı Temel İlkeleri" Birsen Publishing; <https://websitem.gazi.edu.tr/site/nihatgem/files>; Tevrüz, T., "Makine Elemanları ve Konstrüksiyon Örnekleri", Vol. 2, Çağlayan Bookstore; Shigley, J.E., "Mechanical Engineering Design", McGraw-Hill Book Company; Durak, E., Industrial Lubrication Techniques Lecture Notes)



# Engine oil user guide



**VISCOSITY GRADE:** is the main feature of an engine oil and is important for product selection

## Signification of grades



**xx** refers to viscosity when cold (measured at different temperatures)

The lower the viscosity when cold, the more fluid the oil is at low temperatures and the more easily it can be pumped.

For example, a 0W-20 or 5W-30 oil will make start-ups easier and will protect engines during trips to cold regions. These high technology “fluid” oils will meet the requirements of recent engines.

**yy** refers to viscosity when hot (measured at 100 °C)

The higher the viscosity when hot, the more viscous the oil is.

For example, a 15W-40 or 20W-50 oil has been developed for use in hot countries, and their “viscous” nature makes them suitable for older engines.



### POINTS TO REMEMBER

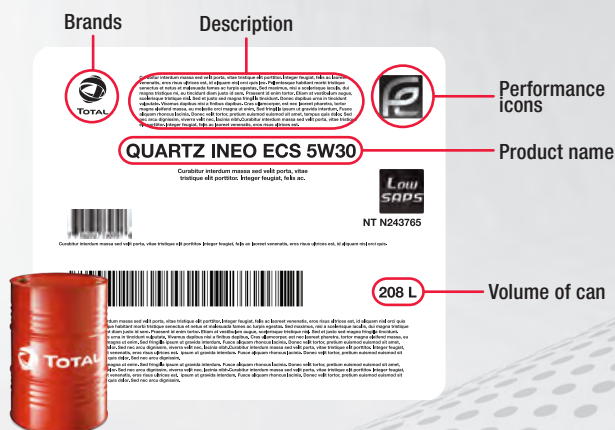
New-generation engine oils and those currently being developed by TOTAL are of increasingly fluid grades: 0W-20, 5W-20, 0W-30 and 0W-16.

## How to read a product label for product selection?

Small packaging:



Large packaging:





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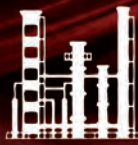
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Chemicals

Üretim  
Kimyasalları



Production  
Chemicals

Rafineri  
Katkıları



Refinery  
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Madeni Yağ  
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