

Your  
business  
depends  
on what's  
inside...

**PETRONAS**  
Fluid Technology  
Solutions™



**PETRONAS**



Industrial Product Range

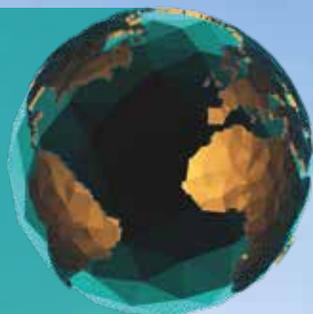
[global.pli-petronas.com](http://global.pli-petronas.com)



# Taking you to the next level in operational performance.



We are PETRONAS Lubricants International (PLI), the global lubricant division of PETRONAS, one of the most successful petrochemical companies in the world. Our mission is to deliver you proven product technology and business-enhancing services. We do this by utilising our 100 years of experience creating innovative products that maximise your productivity. With a presence in 128 countries, PLI continues to push the boundaries of research and technology, to help you stay out in front.



Global Research and Technology Centre, Turin, Italy



**PETRONAS**  
Fluid Technology  
Solutions™



## It's about everything working together.

The way a specific fluid or grease works with a particular piece of equipment is crucial. The way a lubricant company works with its partners and customers is just as important. That's why at PETRONAS, we work in partnership with you, using the expertise gained from years of experience working in your field, understanding the needs of your equipment and recognising your challenges.

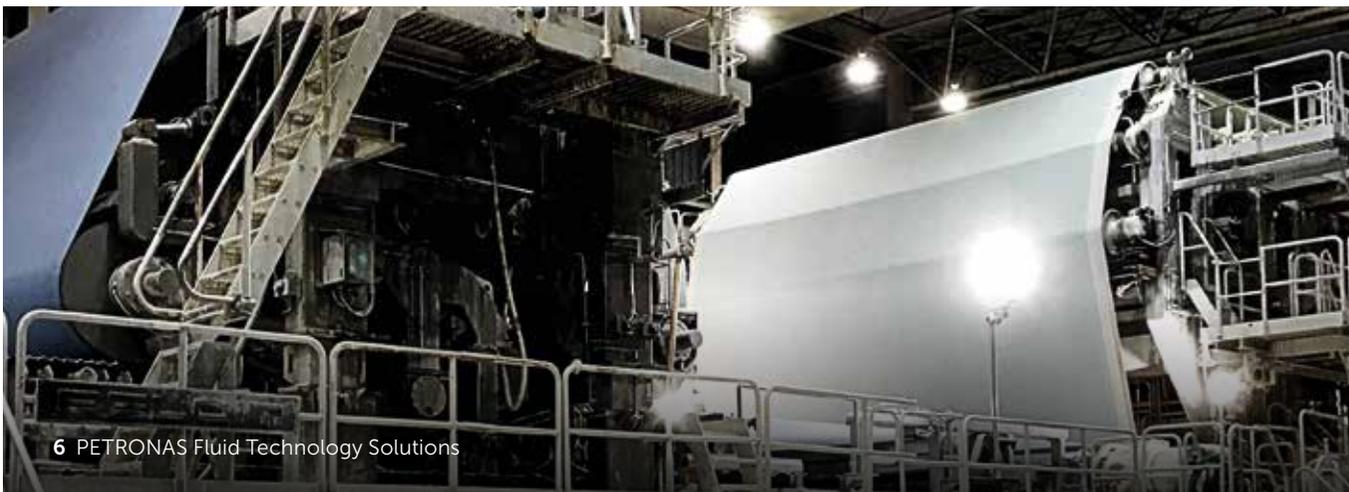
We also know that your future success depends on you keeping ahead of the constant changes in your industry. To help you, we have put the development of new products at the heart of what we do. By investing in a brand new, state-of-the-art Research & Technology centre in Europe and via our other R&T centres across the globe, we continue to work together with you, taking lubrication technology further.

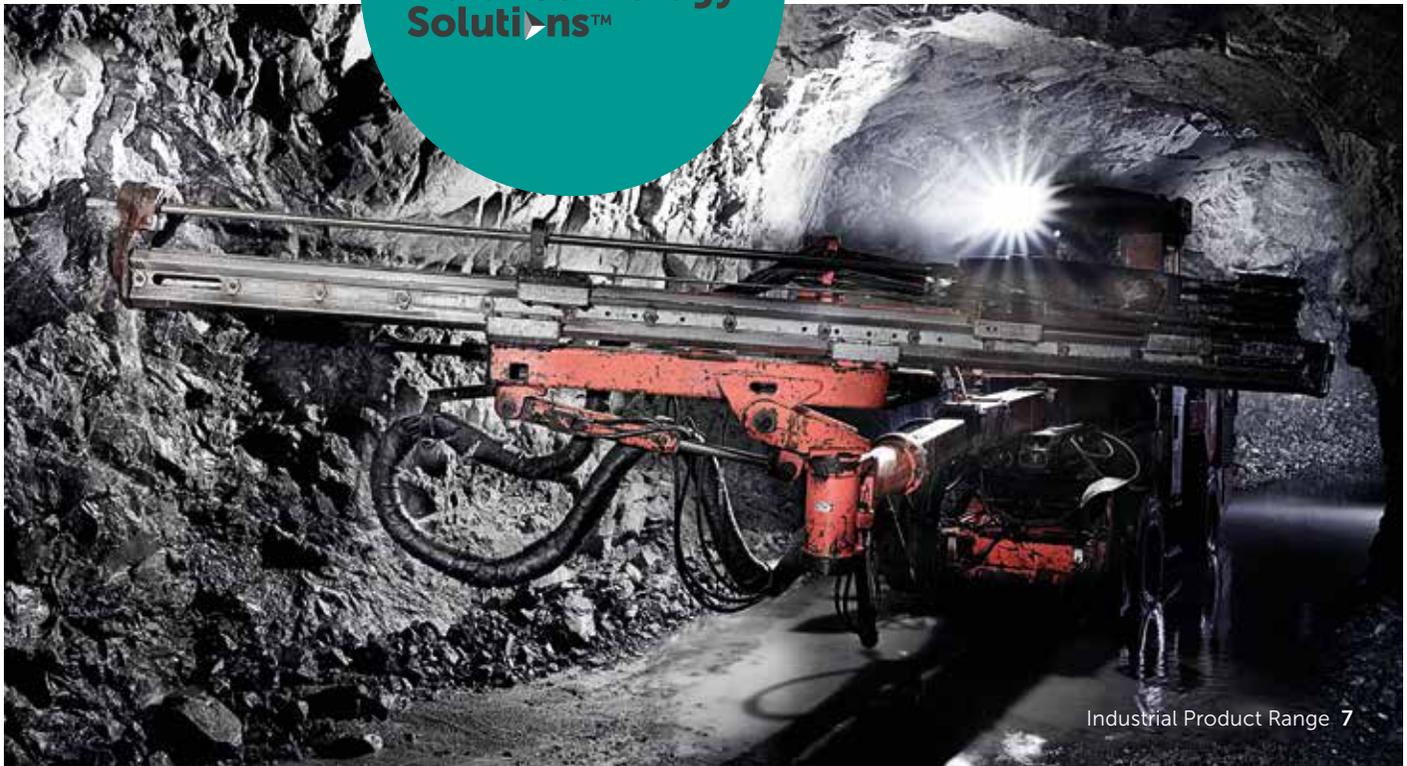
Industries

## Specialists in your field.

We leverage our expertise and experience across many industries, but our focus is always the same – providing you with solutions that lead to improved operational outcomes, increased effectiveness and the reliability of your systems and processes.

Our lubricants are specifically developed to work where you work – in some of the toughest industries on Earth. From opencast to underground mining. Coal to nuclear power. Whether you're in the Cement, Pulp & Paper or Rail Industry, or in the business of rolling steel or refining sugar, our experts understand the way you work and the pressures you face.





# Always testing. Always refining. Always improving.

We never cease in our efforts to continuously improve our products and ensure you have the best lubricant or grease available. We're proud that the result of this is an extensive list of Original Equipment Manufacturers (OEM) approvals. These approvals mean that our solution is tested and approved by both global and regional OEM's, so you're always assured of optimal compatibility between system and product.

A typical testament to this has been PLI's achievement as one of the first lubricant companies to obtain approval on the latest Bosch Rexroth RDE 90235 specification.



## Primary Approvals

### Hydraulics



### Gears



### Turbines



### Gas Engines



### Circulating Oils



# Our Products

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## If your equipment demands it, we've developed it.

Using everything we've learned from working with you, we've developed an extensive portfolio of lubricants and greases. This ensures we always have a product specifically developed for your needs.

Whether that's protecting engine components in a Siberian mining truck cold-starting in  $-40^{\circ}\text{C}$ , or keeping a cement kiln running smoothly at  $+1400^{\circ}\text{C}$ .





Products specifically developed for your business.

## Hydraulic Oils

Hydraulic equipment is now faster and stronger than ever before, making greater demands on Hydraulic fluids. Today's manufacturers are producing incredibly compact equipment with higher pressure and tighter component tolerances so as to improve system efficiency. In an increasingly competitive market, this is forcing equipment owners to pursue longer lasting solutions just to maintain profitability.

At PETRONAS, we love the challenge of meeting all these demands. That's why all our fluids are designed not just to meet, but exceed today's key industrial specifications and OEM requirements.

PETRONAS expertise has developed hydraulic oils to work in all kinds of industrial extremes. From situations where presence of water can cause filter blockage, to applications where fluids need fire resistant properties – like those in major fire hazard environments such as hydraulic forging presses or robot welding machines.



Increasing performance and protection  
Improving uptime and lowering maintenance costs

Supreme

Modern, anti-wear hydraulic fluids for multi-purpose applications

**PETRONAS Hydraulic ESF**

- ⬇ Energy/Fuel-saving up to 10%/6%\*\*
- ⬇ Excellent anti-wear protection
- ⬇ Over 5x longer oil life\*
- ⬇ Excellent and highly stable performance over wide temperature range
- ⬇ Mobile and industrial applications

Zinc-free, anti-wear hydraulic fluids for multi-purpose applications

**PETRONAS Hydraulic SYN BIO**

- ⬇ Biodegradability
- ⬇ High Viscosity Index
- ⬇ Excellent thermal and oxidation stability

Detergent-enhanced hydraulic fluids for high water contamination control

Fire-resistant hydraulic fluids for fire hazard applications

Premium

**PETRONAS Hydraulic PLUS**

- ⬇ Excellent anti-wear protection
- ⬇ Over 5x longer oil life\*
- ⬇ Excellent performance
- ⬇ Mobile and industrial applications

**PETRONAS Hydraulic HVZF**

- ⬇ Excellent anti-wear protection
- ⬇ Up to 10x longer oil life\*
- ⬇ High and stable performance over wide temperature range
- ⬇ Mobile and industrial applications

**PETRONAS Hydraulic HV**

- ⬇ Excellent anti-wear protection
- ⬇ Over 3x longer oil life\*
- ⬇ High and stable performance over wide temperature range
- ⬇ Mobile and industrial applications

**PETRONAS Hydraulic ZF**

- ⬇ Excellent anti-wear protection
- ⬇ Up to 5x longer oil life\*
- ⬇ High performance
- ⬇ Mobile and industrial applications

**PETRONAS Hydraulic HLPD**

- ⬇ High water tolerance (up to 3%)
- ⬇ Excellent anti-wear protection
- ⬇ Up to 3x longer oil life\*
- ⬇ Excellent performance
- ⬇ Mobile and industrial applications

**PETRONAS Hydraulic FR**

- ⬇ Excellent fire resistance
- ⬇ High anti-wear protection
- ⬇ High and stable performance over wide temperature range
- ⬇ Environmentally friendly
- ⬇ Mobile and industrial applications

Standard

**PETRONAS Hydraulic**

- ⬇ Excellent anti-wear protection
- ⬇ Over 3x longer oil life\*
- ⬇ High performance
- ⬇ Mobile and industrial applications

**PETRONAS Hydraulic HFC**

- ⬇ Excellent fire resistance
- ⬇ Very good anti-wear protection
- ⬇ Very good performance
- ⬇ Industrial applications

Basic

First price hydraulic fluids

\*vs. minimum requirements of ISO 11158 HM for anti-wear hydraulic fluids based on TOST (ASTM D943).

\*\*vs. conventional, standard viscosity hydraulic fluids. Actual results may vary depending on different application conditions, type & condition of equipment, current oil used.

# Gear Oils

Today is the age of smaller and faster. OEMs are offering higher output geared drives in increasingly compact forms. Not only are they expected to perform at faster speeds under greater loads, they're being constructed from new materials. The challenge for equipment owners is finding more reliable and durable solutions – and that's where PETRONAS' specialist knowledge comes into its own.

Issues such as smaller oil reservoir capacities and higher power output demands have led our experts to develop high quality lubricants that won't compromise system performance. Our fluids work efficiently in everything from worm gear drives to wind turbines, and from standard fully enclosed gearboxes to large heavily-loaded open gears like those used in mining, sugar refineries, power and steel processing plants.

PETRONAS Gear oils provide properties such as micro-pitting and extreme pressure protection – across a wide range of temperatures – while factoring-in requirements like energy saving capabilities. Always developed for long-lasting performance, some PETRONAS Gear Oils have even been designed for “filled for life” types of application.



## Industrial enclosed spur/helical/bevel/planetary gears/ worm gears

## Industrial open gears

### Supreme

#### **PETRONAS Gear SYN PAG**

- Excellent micropitting, extreme pressure and anti-wear protection
- Up to 5x longer oil life\*\*
- High Viscosity Index
- Excellent performance including energy saving

#### **PETRONAS Gear SYN OG**

- Lubricant's light colour prevents the need for gear cleaning prior to inspections, helping to reduce maintenance time and costs
- Excellent extreme pressure performance
- Excellent anti-wear protection
- Excellent oxidation stability

#### **PETRONAS Gear Syn PAO**

- Excellent extreme pressure and anti-wear protection
- Up to 3x longer oil life\*\*
- High Viscosity Index
- Excellent performance including energy saving

#### **PETRONAS Gear SYN**

- Excellent micropitting resistance
- Excellent extreme pressure protection
- Up to 2x longer oil life\*
- High VI
- Excellent resistance to sludging

### Premium

#### **PETRONAS Gear FL**

- Excellent micropitting, extreme pressure and anti-wear protection
- Up to 1.6x longer oil life\*
- Excellent performance

#### **PETRONAS Gear MEP**

- Excellent extreme pressure and anti-wear protection
- Up to 1.5x longer oil life\*
- High performance

### Basic

#### First price gear oils

Increasing performance and protection  
Improving uptime and lowering maintenance costs

\* vs. minimum requirements of industrial gear oils to pass the viscosity increase test (ISO 4263-4 @95°C).

\*\* vs. conventional mineral gear oils.

# Turbine Oils

The global demand for power has not only become a challenge for energy providers, but for the turbine manufacturers whose equipment helps keep the world turning. Lengthy periods of time in service, extreme operating conditions (high temperatures, elevated operating pressures, potential water contamination) all take their toll on modern steam and gas turbines – and the turbine oil inside them. And when peak load requirements mean frequent powering up and shutting down, the potential for costly breakdowns is high.

That's why our experts have developed oils for steam, light or heavy-duty gas turbines that meet or exceed key industrial specifications and OEM requirements. Each one is formulated with high quality selected base oil enhanced with anti-wear, anti-oxidant, anti-rust and anti-foam additives. From Standard, through Premium to Supreme levels of protection, PETRONAS' Jenteram Series can deliver class-leading performance.



Increasing performance and protection  
Improving uptime and lowering maintenance costs

Steam, gas, combined cycle turbines  
with/without associated gear drives

Steam, gas, combined cycle turbines  
without associated gear drives

### Supreme

#### PETRONAS Jenteram SYN

- Very good varnish control
- High anti-wear protection
- Up to 4x longer oil life\*
- Excellent performance

### Premium

#### PETRONAS Jenteram G

- Very good varnish control
- High anti-wear protection
- Up to 3x longer oil life\*
- High performance

#### PETRONAS Jenteram U

- Excellent varnish control
- Very good anti-wear protection
- Up to 3x longer oil life\*
- High performance

### Standard

#### PETRONAS Jenteram

- Very good anti-wear protection
- Up to 1.5x longer oil life\*
- Very good performance

### Basic

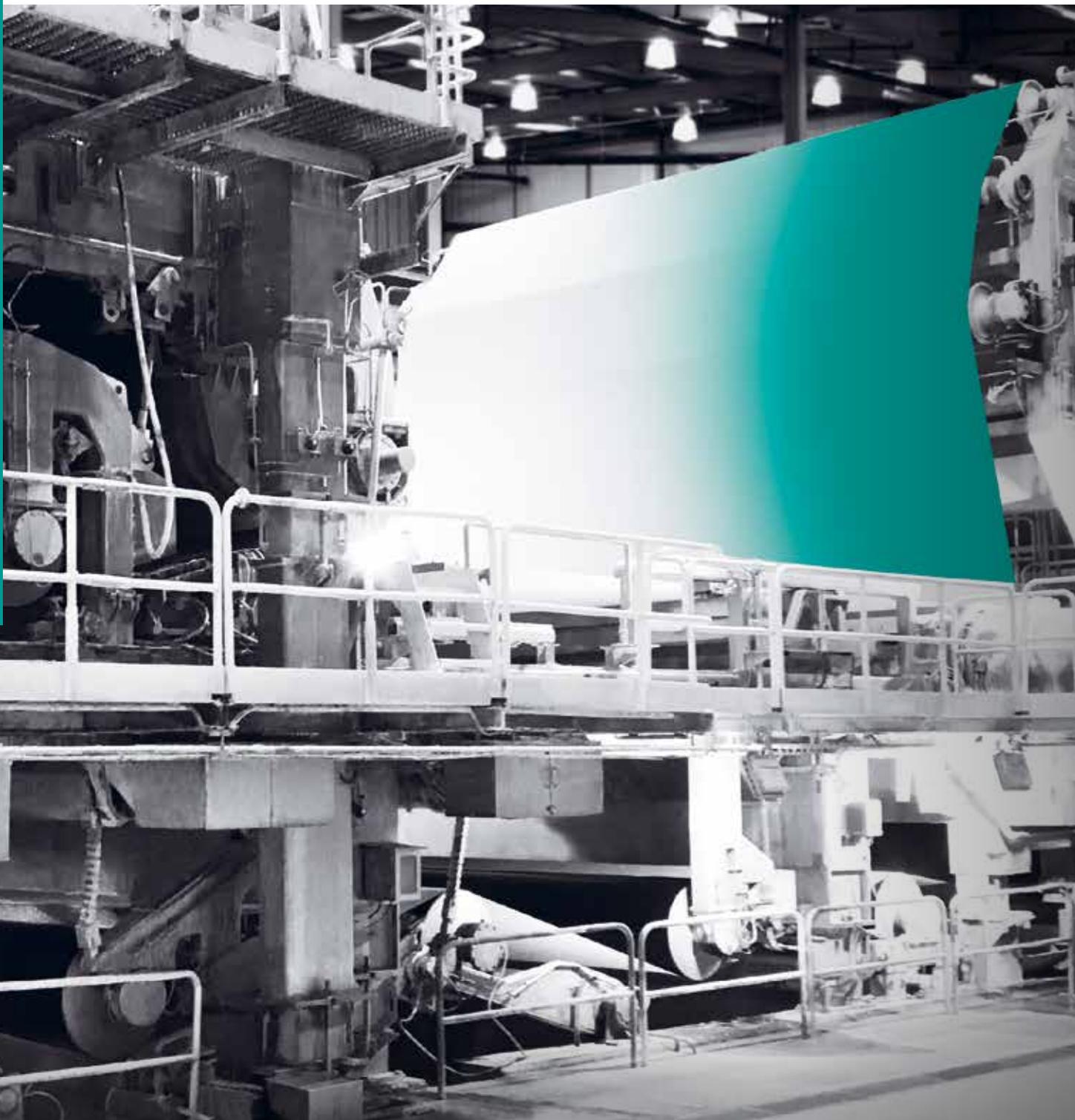
First price turbine oils

\*vs. minimum requirements of DIN 51515 Part II for industrial turbine oils based on TOST results (ASTM D943).

# Circulating Oils

Circulating oil systems have to provide a smooth, continuous flow of lubricant to bearings and gears. Our approach is to ensure PETRONAS Circulating Oils help optimise efficiency in a way that ultimately reduces maintenance costs – even when equipment is being pushed to the limit. High thermal stability, excellent water separability, resistance to sludge formation are just some of the properties you demand from our lubricants.

The PETRONAS Circula range is recommended for use in various heavy duty circulating systems, including plain or rolling element bearings and hydraulics. And for steel mill equipment where MORGOIL® lubricant is recommended, PETRONAS Circula Mill Oils provide high rust and corrosion protection and long lasting performance.



Increasing performance and protection  
Improving uptime and lowering maintenance costs

## Circulating Oils

## Steel Mill Circulating Oils

### Supreme

#### PETRONAS Circula SYN

- Excellent water separability
- Over 4x longer oil life\*
- Excellent anti-wear protection
- Excellent resistance to sludge formation

### Premium

#### PETRONAS Circula PM (Paper Machine)

- Excellent water separability
- Over 3x longer oil life\*
- Excellent anti-wear protection
- Excellent resistance to sludge formation

#### PETRONAS Circula Mill NT

- High water separability
- Long oil life
- Excellent anti-wear & EP protection

### Standard

#### PETRONAS Circula

- Very good water separability
- Very good anti-wear protection
- Over 2x longer oil life\*

#### PETRONAS Circula Mill

- Excellent water separability
- Long oil life
- High anti-wear protection

### Basic

First price circulating oils

\* vs minimum requirements of ISO 11158 HM fluids based on TOST (ASTM D943).

# Compressor Oils

Operating at ultra-high temperatures for long periods of time, today's compressors are (literally) under pressure to perform better. New, more demanding equipment specifications and potential contaminants intermingling with oil mean our experts face challenges too, in protecting the equipment. That's why we've developed a range of performance options, with some oils that deliver up to 12,000 hours life in service – even when operating at maximum discharge temperatures up to 120°C.

Whether in Standard form, or Supreme high performance, all our compressor oils are enhanced with advanced anti-oxidant, anti-wear (zinc-free), anti-rust and anti-foam additives. From air compressor oils to those formulated specifically for refrigeration and air conditioning, PETRONAS Compressor Oils protect against varnish and deposit formation.



Increasing performance and protection  
Improving uptime and lowering maintenance costs

## Supreme

### Air compressors (all types)

#### PETRONAS Compressor A SYN POE

- Up to 12,000 hours oil life in service\*
- Excellent system protection against varnish and deposit formation
- Excellent performance

#### PETRONAS Compressor A SYN PAG

- Up to 8,000 hours oil life in service\*
- Excellent system protection against varnish and deposit formation
- Excellent performance

### Refrigeration and air conditioning compressors (all types)

#### PETRONAS Compressor R SYN POE

- Up to 5x longer oil life\*\*
- Excellent system protection against varnish and deposit formation
- Excellent performance
- HFC refrigerants

#### PETRONAS Compressor R SYN FG

- Food industry approved
- Up to 3x longer oil life\*\*
- Excellent system protection against varnish and deposit formation
- Excellent performance
- Ammonia and process gases

#### PETRONAS Compressor A SYN PAO

- Up to 8,000 hours oil life in service\*
- Excellent system protection against varnish and deposit formation
- Excellent performance

#### PETRONAS Compressor R SYN PAO

- Up to 3x longer oil life\*\*
- Excellent system protection against varnish and deposit formation
- Excellent performance
- Ammonia and process gases

## Premium

#### PETRONAS Compressor A M6

- Up to 6,000 hours oil life in service\*
- High thermal and oxidation stability
- High air release and foam stability

#### PETRONAS Compressor A M4

- Up to 4,000 hours oil life in service\*
- High system protection against varnish and deposit formation
- High performance

## Standard

#### PETRONAS Compressor A M2

- Up to 2,000 hours oil life in service\*
- Very good system protection against varnish and deposit formation
- Very good performance

## Basic

First price compressor oils

\* Maximum values for each product. Individual oil condition strongly depends on the type of compressor and operating conditions. Oil condition monitoring should be carried out during the service to secure optimum oil performance.

\*\* vs. conventional mineral refrigeration compressor oils.

## Gas Engine Oils

As the global demand for energy grows, so does the need for effective solutions to ensure reliable power. Technology – like natural gas engines and landfill gas engines – is delivering output to customers around the world. But these solutions make very different demands on the oil inside them.

That's why we've developed two different specialised products. PETRONAS Geo BLG oils provide more than just excellent anti-wear properties, they're formulated to deliver extra protection against landfill gases that contain engine-damaging impurities like halogen, siloxane and sulphur.

Meanwhile, PETRONAS Geo NG oils provide the excellent piston deposit, sludge and ash control qualities desirable in lubricants used in natural gas engines.



Increasing performance and protection  
Improving uptime and lowering  
maintenance costs

Premium

### Gas engine (Natural Gas)

#### **PETRONAS GEO NG**

- Excellent TBN retention
- Excellent engine cleanliness
- Excellent oxidation and nitration stability
- High anti-wear and rust protection
- Specially developed for the lubrication of a wide range of spark-ignited gas-fuelled engines in order to improve fuel efficiency and reduce emissions

### Gas engine (Bio and Landfill Gas)

#### **PETRONAS GEO BLG**

- Excellent TBN retention
- Excellent engine cleanliness
- Premium performance bio and landfill gas engine oil specially developed for bio and landfill applications
- Excellent anti-wear and anti-scuff protection
- High oxidation and nitration stability
- High rust and corrosion protection

Basic

First price gas engine oils

# PETRONAS *Mecafluid*

## Formulated for improved productivity, flexibility and safety

MECAFLUID is a range of chlorine, phenol and nitrite-free water-soluble and neat metalworking fluids, designed for machining a wide range of metals.

Our range uses the latest boron and biocide-free (formaldehyde-free) formulation technology, making it safer and more pleasant to use.

The fluids have proven bacterial and fungal resistance and, thanks to the stable emulsion of the water-soluble fluids, you can use them in a variety of water qualities.



Increasing performance and protection  
Improving uptime and lowering maintenance costs

## Supreme

### **PETRONAS Mecafluid SS 1001 ECO**

- ⚡ Boron and biocide free
- ⚡ Low oil general purpose
- ⚡ Multi metal
- ⚡ Semi synthetic cutting fluid

### **PETRONAS Mecafluid SS 3001 ECO**

- ⚡ Boron and biocide free
- ⚡ General purpose
- ⚡ Multi-application
- ⚡ Multi-metal semi synthetic cutting fluid with EP additive

## Synthetic

### **PETRONAS Mecafluid SYN 1002 ECO**

- ⚡ Boron and biocide free synthetic grinding fluid

## Neat

### **PETRONAS Mecafluid NE 8 SYN**

- ⚡ Synthetic neat cutting oil suitable for grinding and cutting in sliding heads applications

### **PETRONAS Mecafluid SS 4001 ECO**

- ⚡ Boron and biocide free hard metal alloys
- ⚡ Multi-application
- ⚡ Semi-synthetic cutting fluid with EP additive

### **PETRONAS Mecafluid SM 4001 ECO**

- ⚡ Boron and biocide free yellow metal cutting fluid complete with yellow metal inhibitors to stop staining
- ⚡ High oil content emulsion

### **PETRONAS Mecafluid SM 5001 ECO**

- ⚡ Boron and biocide free aluminium multi-application
- ⚡ Semi-synthetic cutting fluid with EP additive

## Premium

### **PETRONAS Mecafluid SS 3001 FF**

- ⚡ Formaldehyde free general purpose
- ⚡ Multi-application
- ⚡ Multi-metal semi-synthetic cutting fluid

## Standard

### **PETRONAS Mecafluid NO 23 EP**

- ⚡ Neat cutting fluid with EP additives suitable for cutting and boring of multi-metals

## Basic

First price metalworking oils

# Marine Diesel Engine Oils

Today's marine engines are required to power bigger vessels, at faster speeds, for longer periods – whilst regulations require you to reduce sulphur and NOx emissions. In an increasingly competitive market, more demands are being placed on shipping, generating higher oil stress that can cause low-quality lubricants to fail, compromising overall fleet performance.

At PETRONAS, we understand that increasing the reliability of your marine engines, whilst also lowering the consumption of fuel and oil, are key challenges. That's why we've developed a comprehensive portfolio of marine oils that serves different types of engines, from low-speed crosshead engines to medium-speed diesel engines. Choose the right product for your application need and take the performance of your vessel to the next level.



Increasing performance and protection  
Improving uptime and lowering maintenance costs

Premium

Standard

Basic

2-Stroke Cylinder Oils

2-Stroke System Oils

4-Stroke High-Speed  
Engine Oils

4-Stroke Trunk Piston  
Engine Oils

**PETRONAS SILUB  
70 LS50**

- High TBN retention
- High deposit control
- High thermal and oxidation stability
- High wear protection

**PETRONAS SILUB  
100 LS50**

- High TBN retention
- High deposit control
- High thermal and oxidation stability
- High wear protection

**PETRONAS DISROL  
5 LS30**

- High detergency/dispersancy
- Very good water separability
- High thermal and oxidation stability

**PETRONAS DISROL  
5 LS40**

- High detergency/dispersancy
- Very good water separability
- High thermal and oxidation stability

**PETRONAS DISROL  
10 HS15W-40**

- Low temperature protection
- High Viscosity Index
- Excellent thermal and oxidation stability

**PETRONAS DISROL  
12 HS30**

- Excellent deposit control
- Excellent thermal and oxidation stability
- High detergency/dispersancy

**PETRONAS DISROL  
12 HS40**

- Excellent deposit control
- Excellent thermal and oxidation stability
- High detergency/dispersancy

**PETRONAS DISROL  
P50 MS40**

- Excellent anti-wear protection
- Excellent detergency/dispersancy
- Excellent thermal and oxidation stability

**PETRONAS DISROL  
15 MS40**

- Excellent thermal and oxidation stability
- High detergency/dispersancy
- High anti-wear protection

**PETRONAS DISROL  
30 MS40**

- Excellent thermal and oxidation stability
- High detergency/dispersancy
- High anti-wear protection

**PETRONAS DISROL  
40 MS40**

- Excellent thermal and oxidation stability
- Excellent detergency/dispersancy
- High anti-wear protection

**PETRONAS DISROL  
50 MS40**

- Excellent thermal and oxidation stability
- Excellent detergency/dispersancy
- High anti-wear protection

**PETRONAS DISROL  
30 MS30**

- Excellent thermal and oxidation stability
- High detergency/dispersancy
- High anti-wear protection

**PETRONAS DISROL  
40 MS30**

- Excellent thermal and oxidation stability
- Excellent detergency/dispersancy
- High anti-wear protection

**PETRONAS DISROL  
50 MS30**

- Excellent thermal and oxidation stability
- Excellent detergency/dispersancy
- High anti-wear protection

**PETRONAS DISROL  
55 MS40**

- Excellent thermal and oxidation stability
- Excellent detergency/dispersancy
- High anti-wear protection

First price marine diesel engine oils

# Complementary Oils

At PETRONAS, we understand the importance of having a partner who can supply a broad range of high performance products. This not only simplifies procurement but ensures that you always get the same quality products wherever you need them. Our range of complementary oils has been developed to support your business in driving your operational excellence to the next level.

Increasing performance and protection  
Improving uptime and lowering maintenance costs

Airtool Oil

Chainsaw Oil

Heat Transfer Oil

Supreme

Premium

Standard

Basic

## PETRONAS ATO

High performance air tool oils specially developed for a range of pneumatically operated rock drills in underground and surface mining.

- ◆ Prevents detonation and carbon deposits
- ◆ Excellent anti-wear protection
- ◆ Low temperature protection

## PETRONAS CHAINSAW

High quality chainsaw oil specially developed for the lubrication of cutting chains and cutter bars of modern chainsaws.

- ◆ High adherence to metal surfaces
- ◆ High anti-wear protection
- ◆ Low temperature protection

## PETRONAS HTO

High performance heat transfer fluids specially developed for open and enclosed heat transfer systems operating at high bulk oil temperatures.

- ◆ Excellent heat transfer rates
- ◆ High thermal and oxidation stability
- ◆ High compatibility with most seals and elastomers

First price complementary oils

## Railroad Oils

### PETRONAS GENRAIL 6

Premium performance railroad diesel engine oils specially developed for use in EMD and GE Engines Generation 6, fitted with silver bearings, requiring a zinc-free lubricant.

- 🔹 Zinc-free based formula
- 🔹 Excellent detergent and dispersant performance
- 🔹 Excellent thermal and oxidation stability

### PETRONAS GENRAIL 5

High performance railroad diesel engine oils specially developed for high output railroad engines, Generation 5, fitted with silver bearings, requiring a zinc-free lubricant.

- 🔹 Zinc-free based formula
- 🔹 High detergent and dispersant performance
- 🔹 High thermal and oxidation stability

### PETRONAS GENRAIL 6 SYN

Formulated with selected semisynthetic base oils, one of a series of premium performance railroad diesel engine oils specially developed for use in EMD and GE Engines Generation 6, fitted with silver bearings, requiring a zinc-free lubricant.

- 🔹 Zinc-free based formula
- 🔹 Excellent detergent and dispersant performance
- 🔹 High anti-wear protection

## Slideway Oils

### PETRONAS SLIDEWAY HG

Premium performance slideway oils specially developed for machines where high precision and low speeds are used including combined slideway, industrial gear and hydraulic systems.

- 🔹 Excellent water-miscible cutting fluids separation
- 🔹 Excellent friction properties
- 🔹 High extreme pressure protection

### PETRONAS SLIDEWAY

High performance lubricants specially developed for machine-tool ways and slides where precision or slow speeds make it necessary that "stick-slip" of tables and slides are eliminated.

- 🔹 Excellent separation with miscible cutting fluids
- 🔹 High extreme pressure protection
- 🔹 Good adhesiveness

## Transformer Oils

### PETRONAS ELEKTRON BIO

Supreme performance renewable, bio-based natural ester dielectric coolant for use in distribution and power class transformers where its unique fire safety, environmental, electrical, and chemical properties are advantageous.

- 🔹 Biodegradable
- 🔹 Excellent dielectric strength
- 🔹 Excellent oxidation stability

### PETRONAS ELEKTRON

Premium performance trace inhibited, which contains maximum 0,08% inhibitor or antioxidant additives, electrical insulating oil specially developed to meet the requirements of IEC 60296 and ASTM D3487 type I as well as resistivity, dielectric loss angle and dielectric strength specifications of all major transformers.

- 🔹 Ultra-low Sulphur
- 🔹 High dielectric strength
- 🔹 Excellent breakdown voltage

### PETRONAS ELEKTRON M

High performance inhibited, which contains maximum 0,30% inhibitor or antioxidant additives, electrical insulating oil specially developed to meet the requirements of IEC 60296 and ASTM D3487 type II for use in oil-filled electrical equipment, including power and distribution transformers, circuit breakers and switchgear.

- 🔹 Ultra-low Sulphur
- 🔹 High oxidation stability
- 🔹 High breakdown voltage

### PETRONAS ELEKTRON X

Premium performance inhibited, which contains maximum 0,30% inhibitor or antioxidant additives, electrical insulating oil specially developed to meet the requirements of IEC 60296 and ASTM D3487 type II as well as resisting, the loss of dielectric strength specifications.

- 🔹 Ultra-low Sulphur
- 🔹 Excellent oxidation stability
- 🔹 Excellent breakdown voltage

# Greases

We know that efficient lubrication is only as good as the people, equipment and products who do the work. This certainly holds true for Industrial Greases. Understanding the root causes of problems, deciding on solutions, then recommending the optimal products that deliver cost-effective outcomes is critical when it comes to grease applications.

That's why PETRONAS has developed a strong but concise range of grease products. To help you deliver effective lubrication whatever the working conditions, while removing complexity from your daily operations by giving you fewer but better options.

Our range is created by experts that have walked in your shoes, who understand the challenges you face. With increasing numbers of experienced professionals retiring – and taking with them decades of know-how – you can rely on our experts to deliver the right solution with the right product.

Greases	Description	NLGI Grade
<p><b>Aluminium Complex</b></p> <p>PETRONAS Grease FG</p>	<p>PETRONAS Grease FG is an Aluminium complex grease specially developed for lubrication of machinery used in food processing and packaging industries.</p>	2
<p><b>Calcium</b></p> <p>PETRONAS Grease Ca 00</p>	<p>PETRONAS Grease Ca 00 is a calcium grease specially developed for machine tools used in mining operations.</p>	00
<p><b>Calcium Sulfonate</b></p> <p>PETRONAS Grease CaSX</p>	<p>PETRONAS Grease CaSX is a Calcium Sulphonate complex grease specially developed for industrial, marine and off-road applications.</p>	2
<p><b>Clay</b></p> <p>PETRONAS Grease Clay MEP</p>	<p>PETRONAS Grease CLAY MEP is a high temperature Organophilic Bentonite grease with solid lubricant specially developed for industrial equipment where the capability of conventional greases may be exceeded by either continuous high temperature or cyclic conditions ranging from normal to extremely high temperatures.</p>	2
<p>PETRONAS Grease Clay MG</p>	<p>PETRONAS Grease CLAY MG is a high temperature Organophilic Bentonite grease with solid lubricant specially developed for heavy duty industrial equipment with slow speed plain bearings where the capability of conventional greases may be exceeded by either continuous high temperature or cyclic conditions from normal to extremely high temperatures.</p>	1
<p><b>Lithium</b></p> <p>PETRONAS Grease Li 2</p>	<p>PETRONAS Grease Li 2 is a non-EP Lithium grease specially developed for industrial general purpose applications.</p>	2
<p>PETRONAS Grease Li AS</p>	<p>PETRONAS Grease Li AS is an extreme pressure Lithium grease with anti-seize compound specially developed for general maintenance and installation procedures used in industrial, mining and marine applications.</p>	1.5

Greases	Description	NLGI Grade
<b>Lithium</b>		
PETRONAS Grease Li EP 2	PETRONAS Grease Li EP 2 is an extreme pressure Lithium grease specially developed for multipurpose applications, lubrication of both plain and anti-friction bearings even where severe or shock loads are experienced.	2
PETRONAS Grease Li PT	PETRONAS Grease Li PT is a Lithium grease specially developed as a post tensioning grease within the construction industry.	1.5
PETRONAS Grease Tutela SP	PETRONAS TUTELA SP Grease is an extreme pressure Lithium grease specially developed for automotive applications.	2
<b>Lithium Calcium</b>		
PETRONAS Grease LiCa GEP 0	PETRONAS Grease LiCa GEP 0 is an extreme pressure Lithium Calcium grease with solid additives specially developed for lubrication of open gears, racks, chains, wire ropes, support rollers, slides and sprockets.	0
PETRONAS Grease LiCa GEP 2.5	PETRONAS Grease LiCa GEP 2.5 is an extreme pressure Lithium Calcium grease with solid additives specially developed for lubrication of open gears, racks, chains, wire ropes, support rollers, slides and sprockets.	2.5
PETRONAS Grease LiCa MG HL	PETRONAS Grease LiCa MG HL is an extreme pressure Lithium Calcium grease with dual solid additives and film thickening polymers to improve boundary lubrication.	2
PETRONAS Grease LiCa MG XHL	PETRONAS Grease LiCa MG XHL is an extreme pressure Lithium Calcium grease with dual solid friction-reducing additives specially developed for applications requiring heavy duty grease for long-term use.	2
PETRONAS Grease LiCa TMG	PETRONAS Grease LiCa TMG is a Lithium Calcium grease specially developed for lubricating the traction motor gear cases of all locomotives including the latest high horsepower units.	0.5
<b>Lithium Complex</b>		
PETRONAS Grease LiX EP 2 / 170	PETRONAS Grease LiX EP 2/170 is an extreme pressure Lithium complex grease specifically developed for commercial vehicle applications and a wide variety of industry applications.	2

Greases	Description	NLGI Grade
<b>Lithium Complex</b>		
PETRONAS Grease LiX EP 2/380	PETRONAS Grease LiX EP 2/380 is an extreme pressure Lithium complex grease specifically developed for high temperature general purpose industrial applications.	2
PETRONAS Grease LiX MEP	PETRONAS Grease LiX MEP is an extreme pressure Lithium complex grease with solid additives specially developed for lubrication of heavy duty applications where good adhesive properties are required.	2
PETRONAS Grease LiX SYN 1/1500	PETRONAS Grease LiX SYN 1/1500 is a synthetic Lithium complex grease specially developed for heavily loaded bearings in low speed applications, at elevated temperatures, in wet and corrosive environments.	1
PETRONAS Grease LiX SYN 2/100	PETRONAS Grease LiX SYN 2/100 is a synthetic Lithium complex grease specially developed for heavily loaded bearings at elevated temperatures, in wet and corrosive environments.	2
PETRONAS Grease LiX SYN 2/220	PETRONAS Grease LiX SYN 2/220 is a synthetic Lithium complex grease specially developed for heavily loaded bearings at elevated temperatures, in wet and corrosive environments.	2
PETRONAS Grease LiX SYN 2/460	PETRONAS Grease LiX SYN 2/460 is a synthetic Lithium complex grease specially developed for heavily loaded bearings at elevated temperatures, in wet and corrosive environments.	2
PETRONAS Grease Tutela WB	PETRONAS TUTELA WB Grease is an extreme pressure Lithium complex grease specially developed for the transport industry and its wheel bearing applications.	2.5
<b>Polyethelene</b>		
PETRONAS Grease PE HS	PETRONAS Grease PE HS is a Polyethylene grease specially developed to withstand the high centrifugal forces created by rotating couplings.	1
<b>Polyurea</b>		
PETRONAS Grease PU	PETRONAS Grease PU is a Polyurea grease specially developed for lubrication of electric motor bearings, and high-speed pumps.	2

**arexons**

# SVITOL Multipurpose and specialist lubricants, releasers and protectors

SVITOL is regarded by many as the best performing multipurpose lubricant on the market for industrial maintenance use. It's designed for a whole range of Industrial maintenance applications that include anti-seizing, releasing, cleaning surfaces, long lasting lubrication, moisture removal from plastic parts, corrosion protection and reactivation of electrical components.



## SVITOL Multipurpose Lubricant



Designed to solve all unlocking and lubrication problems whilst protecting metal surfaces.

Synthetic oils, anti-wear additives and friction modifiers reduce friction coefficient and give SVITOL excellent anti-fatigue and anti-wear properties.\* A strong wetting ability enables it to penetrate, soften and disintegrate rust. Also stops rust forming and protects against long-term corrosion by forming a thin, highly protective film. SVITOL removes moisture and dissolves grime and grease. It eliminates humidity that could lead to current dispersion and is silicone-free.

### Applications:

Acts as lubricant, unsticking agent, protective agent, moisture remover and detergent, for many industrial maintenance applications. SVITOL extends the life-span of treated items and reduces maintenance frequency.

Non-conductivity allows electromechanical instruments to function perfectly.



## SVITOL Professional SILIKON

A lubricant for plastic and rubber parts and waterproof treatment, SVITOL Professional Silikon immediately creates an oily protective film with no drips, thanks to the use of high volatility solvents.

Prevents ageing of seals, rubber and plastic parts. Protects locks and other mechanisms from frost and protects electric systems from damp and corrosion. Also waterproofs materials it comes into contact with and works in a wide temperature range (-40°C to +260°C).

### Applications:

Lubrication of rubber and plastics such as gaskets, belts, conveyor belts, valves, guides and cables.

Waterproofing and frost protection treatment of mechanisms during winter.



## SVITOL Professional LITHIUM

A multi-purpose grease based on a soap compound of lithium and highly refined mineral oil. Indispensable for protecting against wear, corrosion and rust and leaves a thin lubricating protective film.

High resistance to centrifugation, very resistant to run-off, steam and cold. Contains anticorrosion, tackifier and anti-oxidizing agents. Adheres to all materials and offers a thorough lubrication. Resistant to weak acids and diluted hydroxides, does not contain acids and works in a temperature range of -25°C to +160°C.

### Applications:

Excellent for lubrication of gears, pulleys, guide rails, up-and-over doors, winches, hinges, fans, blades, pneumatic and electrical tools, and wheel hubs.

Ideal for a wide range of lubrication problems in industrial and marine sectors; hinges, locks and mechanisms of various types – especially vehicle moving parts.



## SVITOL Professional ELECTRIC

An oil-based fluid that reactivates electrical conductivity, repels moisture and protects.

It restores electrical conductivity by eliminating short circuits and current leaks. Does not insulate contacts or generate arcs and dissolves oxides, oils, grease, sludge, tar and combustion residues. Repels moisture via its marked non-conductivity and high adherence to metal. Highly protects by forming a thin film on metals to prevent rust formation and long-term corrosion. Does not contain silicone.

### Applications:

For the maintenance of electrical and mechanical equipment. Compatible with a wide range of materials, such as rubber, plastic, paint and metals in general.

**WARNING:** Do not use on live equipment. Turn on power only after complete evaporation of solvent. Do not apply to overheated materials.

Our Services

# PETRONAS EVERLUB<sup>®</sup> OIL ANALYSIS

## Take control of downtime.

Everlub is a used-oil analysis service which reveals what's going on inside your equipment, to help you improve performance and avoid unnecessary downtime.

See more [everlub.pli-petronas.com](http://everlub.pli-petronas.com)





## 4 reasons to choose Everlub



### See inside your machines

Regular testing can uncover issues you weren't aware of, and give you peace of mind when everything's working as it should.



### Fix problems before they happen

Spot machine wear, contamination and unexpected oil properties as soon as they appear – and fix them before they develop.



### Keep everything running smoothly

Make better-informed decisions to extend the life of your equipment and keep it running as efficiently as possible.



### Reduce total cost of ownership

Find the most cost-effective way to maintain your equipment and help your machines last longer.

## What you'll get



### Personalised reports

Detailed reports with tailored recommendations to help you increase uptime and improve your bottom line.



### Online dashboard and mobile app

Track your data and view graphs of trends to understand your machine health at a glance.



### In-depth analysis tools

Innovative fluid analysis tools to help you perfect your predictive maintenance.



### Expert support

Our technical experts are on hand to help you interpret your results and enhance your maintenance routine.



**PETRONAS**  
Fluid Technology  
Solutions™





Some of our most successful partnerships you may already have heard about.



**AMG**  
**PETRONAS**  
FORMULA ONE™ TEAM

Challenging environment. High performance requirements. Tough competition. Sound familiar? The fact is, the issues you face every day are similar to the ones we help solve with the MERCEDES AMG PETRONAS Formula One Team. Because PETRONAS isn't just a sponsor's name on the car's bodywork. Ours is a technical partnership – a long-term relationship that has to overcome challenges and problems to consistently deliver a winning performance.

For us, the reward in striving to be the best, is being able to translate the solutions we create for race days into solutions that can help your business every day.





For more information, please contact:



**PETRONAS**



**Taking operational excellence to the next level – together.**

[global.pli-petronas.com](http://global.pli-petronas.com)