

## STAY IN MOTION!

### Innovations in the motor oil segment

#### Introduction

Motor oil, with its multitude of applications ranging from automobiles to industrial machinery, is a core product of the industry. Whether it is 5w30, Longlife, or another viscosity class: Given the increasing pressure to improve fuel efficiency, reduce emissions, and extend engine life, the development of innovative motor oil technologies is crucial. In this paper, we will take a look at the latest innovations in the motor oil segment.

#### The same challenges as always

There is a great continuity in terms of the requirements for very good motor oil. At EMKA, this triad is also our guideline for how we think about innovation today:

##### Efficiency Improvement and Fuel Savings

Contemporary requirements for fuel efficiency demand motor oils that minimize friction and reduce wear on engine components to lower fuel consumption.

##### Environmental Compatibility

With increasingly stringent environmental standards, the development of environmentally friendly motor oils is crucial. This includes reducing pollutant emissions during operation and ensuring the compatibility of the motor oil after its useful life.

##### Performance Optimization

Modern engines are becoming more powerful and demanding. Therefore, motor oils must be formulated to withstand high stresses while ensuring an optimal performance without compromising the engine life.

#### Innovative Technologies in Motor Oil

- ▶ The development of low-viscosity motor oils enables friction reduction, thereby improving fuel efficiency. The use of thinner oils also reduces internal losses in the engine, leading to overall performance enhancement.
- ▶ Synthetic base oils offer higher purity and a more uniform molecular structure compared to conventional mineral oils. This allows for precise control of lubrication performance and improves the stability of the motor oil under extreme operating conditions such as high temperatures and high loads.
- ▶ Nanoparticle additives can be selectively integrated into motor oils to reduce friction and minimize wear on engine components. These additives work on a microscopic level by creating a smoother surface, thereby reducing contact between moving parts.

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## Application examples

An outstanding example of innovative motor oil technology is the Premium HC-Synthetic Engine Oil. This special oil offers a variety of benefits that improve both engine performance and longevity. Among its outstanding features are its excellent cold-start properties. The HC-synthetic engine oil ensures reliable engine starts at low temperatures, resulting in improved vehicle performance and comfort.

Another outstanding feature is the oil's excellent shear stability. Thanks to this property, the oil provides reliable protection against wear and corrosion, even under extreme operating conditions, contributing to fuel savings. By reducing friction and internal losses, improved fuel efficiency is achieved both in partial and full load operation. A related and important aspect is also the extension of the lifespan of exhaust aftertreatment systems. The oil effectively protects these components from contamination and deposits, resulting in a longer lifespan and reduced environmental impact.

Overall, the use of this high-quality motor oil provides a comparatively cost-effective way to improve engine performance and reliability, while simultaneously achieving a long-term extension of the lifespan of the drive system.

## What about the future?

Companies in the oil and automotive industries will continue to invest in research and advancements to develop progressive motor oils that meet the increasing demands of the changing engine technology. At EMKA, it is important for us to emphasize that the continuous optimization of motor oils enables sustainable and efficient use of internal combustion engines, making a significant contribution to reducing environmental impact.

## Contact us



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