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THE FUTURE OF MOTOR LUBRICANTS

Can electric vehicles do without oil?

Introduction

The automotive industry has undergone dramatic changes in recent years, with electric vehicles playing an increasingly important role. According to WELT, there are projected to be 280 million electric vehicles worldwide by 2040. With the rising adoption of electric cars, the question of lubricants and their significance for these vehicles has emerged. A common misconception is that electric cars do not require oil. While it is true that they do not need motor oil like the ones used in combustion engines, lubricants still play a crucial role in various parts of the vehicle. In this EMKA Paper, we explore current and future trends in lubricants for electric vehicles and their importance for performance, efficiency, and longevity.

Are electric vehicles running smoothly?

Conventional internal combustion engines require lubricants for operation. The use in electric cars differs significantly, but this only shifts their importance. However, this has resulted in significant changes affecting the entire industry:

What about the transmission?

Electric vehicles have transmissions to optimize the performance of the electric motor. Here, lubricants come into play for smooth and efficient performance, especially concerning the differential gear. This mechanical component, found in most vehicles including electric cars, allows the wheels to turn independently while remaining connected. They move synchronously while doing so. This is particularly crucial when the vehicle is navigating corners, as the outer and inner wheels need to rotate at different speeds to negotiate the curve. Without a differential, the wheels would lock up or spin out. Therefore, it is a crucial component of a vehicle's drivetrain – unthinkable without lubricants, as they facilitate wheel movement and reduce wear.

What are other focus areas for lubricant use?

Bearings and seals still require lubrication for smooth rotation. Only then is seamless rotation possible, and all areas of the vehicle requiring sealing will rely on innovative lubricants. A growing area of focus and innovation is thermal management. Here, lubricants can be used to improve the cooling of components such as electric motors or batteries.

Current Trends in our EMKA Lubricants

The rapid development of electric vehicles has also led to advances in the lubricants used in these vehicles. Here are some current trends:

EMKA PAPER 3/2024

Increased Efficiency

Since efficiency is a key factor for electric vehicles, lubricants are being developed to help reduce energy consumption and increase range. This can be achieved by using lubricants with lower friction coefficients.

Improved Lifespan

We are working to extend the lifespan of components such as transmissions and bearings, reducing maintenance costs and increasing vehicle reliability.

Environmentally Friendly

There is a growing trend towards environmentally friendly lubricants that are biodegradable and have less harmful effects on the environment.

Specialized Formulations

Given the different requirements of various parts of electric vehicles, lubricants are becoming increasingly specialized and tailored to meet the demands of electric motors, transmissions, and other components.

What are future developments and challenges?

The future of lubricants for electric vehicles will be driven first by regulatory requirements and environmental standards. However, beyond the external impetus to the industry, there is potential for innovation and significant opportunities for those working on lubricants. Two of these include: Integration of sensors and diagnostic systems—this will enable electric vehicles to monitor the condition of lubricants and their application areas in real-time, leading to optimized maintenance and operation. The development of new battery technologies and configurations can lead to changes in the design of electric vehicles, which in turn will impact the requirements for lubricants.

Some Sort of a Conclusion

Lubricants play a vital role in the performance, efficiency, and longevity of electric vehicles. Although they lack a conventional internal combustion engine, electric vehicles still require lubricants for various parts of the vehicle, including transmissions, bearings, and seals. The development of lubricants for electric vehicles will continue to depend on technological advancements. Nothing will change in that regard, even though everything will be different! For us, it is clear: manufacturers are improving the performance and reliability of electric vehicles, thus contributing to the future of mobility.

Contact us



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