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Media Information

BMW Motorrad Motorsport / NORDOEL

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Alternative fuels: BMW Motorrad Motorsport part of an innovative and government-supported research project.

- **As of the 2024 season, fuels with 40 percent fossil-free components will be used in the FIM World Superbike Championship.**
- **As a partner of NORDOEL and within the joint project DeCarTrans, BMW Motorrad Motorsport is involved in developing the kind of alternative fuels that will also be used in WorldSBK in the future.**
- **Goal: To develop synthetic fuels that can be used in WorldSBK and in production motorcycles.**

Munich. International motorcycle racing is setting course for greater sustainability. In doing so, one area to address is that of fuel. With this in mind, the Superbike commission of the FIM World Superbike Championship (WorldSBK) has decided that, as in MotoGP, the fuels used must be made from at least 40 percent fossil-free components as of the 2024 season. BMW Motorrad Motorsport is preparing intensively for this and is heavily involved in the development of such alternative fuels, as a partner of the company NORDOEL within the government-supported joint project DeCarTrans.

DeCarTrans stands for 'Demonstrating a Circular Carbon Economy in Transport Along the Value Chain'. Along with other companies and research centres, one of the associated partners is the Lotter Group, to which NORDOEL belongs. The project partners want to demonstrate how renewable fuels can be produced on an industrial scale, with the goal being to significantly reduce CO₂ emissions in the existing fleet. The joint project DeCarTrans is being promoted by the Federal Ministry for Digital and Transport. Within the framework of DeCarTrans, NORDOEL decided to work with BMW Motorrad Motorsport on the research and development of alternative fuels.

"We are pleased to be technology partner for a climate-neutral future as part of DeCarTrans," said Dirk Wullenweber, Area Manager for Marketing & Commercial Fuels at NORDOEL. "Previous studies have already shown that synthetically produced fuels can partially or completely replace conventional petrol in the existing fleet. This is a very good basis for the further development of our alternative fuels, in which we have consciously



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selected BMW Motorrad Motorsport as our partner. In motor racing, totally different demands are placed on a fuel compared to those faced in everyday use. BMW Motorrad Motorsport has the know-how, experts and measuring facilities to test and analyse all aspects of our fuels at the limit. This allows us to develop a top-quality, alternative high-performance fuel for motor racing and everyday use. We, and the entire DeCarTrans project, benefit from the insights gained in Munich in our efforts to minimise the emission of pollutants."

The joint project DeCarTrans, which got underway in January 2023, was recently presented in greater detail in Hamburg, as part of the launch of the 'Hamburg Blue Hub' project – a trading point, open to all suppliers and customers, for eMethanol and other synthetic fuels from all over the world. Also on display at the launch were vehicles, in which the alternative fuels may be used in the future, including the BMW M 1000 RR from the FIM Superbike World Championship.

Test procedures at the limit.

Examples of partially alternative fuels that will be used in WorldSBK from 2024 include biologically based fuels like eFuels, which are produced from water and CO₂ extracted from the air in chemical processes with renewable electricity. BMW Motorrad Motorsport puts these fuels through intensive test procedures, in which they are pushed to their limit, for NORDOEL. In doing so, they are also preparing for the future of WorldSBK. The advantage of the alternative fuels is that they can be used in conventional combustion engines – including in high-performance racers like the BMW M 1000 RR.

"NORDOEL supplies us with alternative fuels, which we test under different conditions on our engine test bench," said Thomas von Westberg, who is responsible for the project at BMW Motorrad Motorsport. "The focus is currently on our WorldSBK engine, in which we will be using these alternative fuels as soon as 2024. We perform analyses, fuel experts evaluate the fuel from a chemical perspective, and the focus is obviously on the work carried out on the test bench to see how it performs when the engine is fired up, with corresponding analyses of the combustion process, carburetion, performance and consumption. Then there are other issues that come with alternative fuels. We also perform basic tests with other engines, such as our EWC engine. We play the results back to NORDOEL, and colleagues there can then make appropriate adjustments. The result is transparent and close communication. The goal of the development is a fuel that meets FIA regulations and can, at the same time, achieve the best possible performance and consumption figures in combination with our WorldSBK engine."

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Special demands of motor racing.

The measuring technology of the motorsport test bench allows the BMW Motorrad Motorsport engineers to handle every detail. "We see what happens in the engine," explained von Westberg. "Through corresponding applications, we can correct the parameters that are influenced by the fuel itself, such as the octane rating. This makes the engine more or less sensitive to knocking. We can then vary things like the ignition timing accordingly. The necessary automations and analysis systems are available to us for the many different topics that we analyse."

The demands placed on an alternative fuel used in motor racing are even more specific than those placed on a fuel for production motorcycles. "One issue is combustion and sensitivity to knocking, as our engines are far more condensed than production motorcycles," said von Westberg. "On the other hand, a fuel must obviously always provide a performance advantage. Then it is important to guarantee a consistent performance throughout the entire lifecycle of the engine." The first tests with the alternative fuels from NORDOEL have already provided many positive findings.

From the racetrack to the streets.

As a research and development department, BMW Motorrad Motorsport is also working very closely with its production colleagues on the subject of alternative fuels. The departments share all the results of their respective analyses and are regularly in close communication. "Our technical objective is for the partially alternative racing fuel, which we use in WorldSBK, to also be usable in a production bike," explained von Westberg. "That is also the thinking within the DeCarTrans project and the NORDOEL goal of developing a racing fuel that is also suitable for production vehicles."

There was already a close relationship with production, as the basis engine for WorldSBK is the production engine for the BMW M 1000 RR. Von Westberg: "The WorldSBK racing engine has many production parts, such as the injection system and fuel pump among others. However, with our racing engine we are obviously always working to the very limit. That means that if something works for us on the racing scene, then it will most probably also work in a production bike in comparable load conditions."

Initial tests with the new alternative fuels at the racetrack are planned for this year, in order to prepare as well as possible for the use of partially alternative fuels in the 2024 WorldSBK season.

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Contacts.

Benedikt Torka

Spokesperson BMW Motorrad Motorsport

Phone: +49 (0)151 – 601 32455

E-mail: benedikt.torka@bmwgroup.com

Gerhard Lindner

Technology Communications BMW Motorrad

Phone: +49 (0)151 – 601 53472

E-mail: gerhard.la.lindner@bmw.de

Dirk Wullenweber

Area Manager for Marketing and Commercial

Hermann Lothar & Co. Mineralölhandelsgesellschaft mbH

Phone: +49 (0)160 – 366 0207

E-mail: D.Wullenweber@lother.de

Media Website.

www.press.bmwgroup.com/global

BMW Motorrad Motorsport on the Web.

Website: www.motorsport.bmw-motorrad.com

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