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Michelin and Formula E: eight years of innovation and progress for the benefit of motor racing and the motoring public

- Michelin to leave Formula E after an especially fruitful eight-year association
- Technological innovations that have made a real impact on both motor racing and road tyres like the MICHELIN ePrimacy and MICHELIN Pilot Sport EV
- Motorsport: an accelerator for sustainable innovation

A founding partner of the world's first all-electric single-seater racing series and an investor in the ambitious project from the outset in 2013, Michelin is poised to withdraw from the ABB FIA Formula E World Championship at the end of the 2021/2022 campaign.

The Group's work over the years in close collaboration with the championship's organisers, teams and constructors, and the FIA (Fédération International de l'Automobile) has made a concrete contribution to the success enjoyed by Formula E today.

Michelin has used its research capacity and experience of motorsport to innovate and sign-off technological advances across the exceptionally wide spectrum of conditions that have been encountered in the course of the competition's eight seasons to date. Given that races are held at street circuits that are open to normal traffic the rest of the time, these conditions can effectively be compared directly with those ordinary motorists face every day.

The progress Michelin has made through its involvement Formula E covers three main phases.

• 2014: Michelin invents the first tyre for world-class electric single-seater racing

From the outset, the original MICHELIN Pilot Sport EV racing tyre, like road tyres, featured a patterned tread when it was revealed along with Formula E's first all-electric single-seater. The decision to propose a solution for street circuits that resembled an everyday tyre – in contrast to pattern-less "slicks" – was based on a clear technological vision.



Indeed, Michelin wanted to push the envelope in terms of versatility and longevity and, thereby reduce the number of covers that needed to be made for each e-prix (one set per car per race).

While delivering the performance-related qualities expected of a tyre engineered to equip a racing car capable of accelerating from standstill to 100kph in less than three seconds (similar to a Formula 1 car), this similarity to a road tyre also enabled Michelin to sign-off innovations in racing and carry them over to road-going ranges in record time.

Indeed, in 2015, just a year after the introduction of its first-generation solution for Formula E, the French brand launched the MICHELIN Pilot Sport 4 which featured a tread pattern identical to that of its racing counterpart. This extremely short lead-time from concept to production represented a first in the field of technology transfer.

2016: An additional race lap thanks to enhanced energy efficiency

Eager to build on the MICHELIN Pilot Sport EV's initial success, Michelin turned its attention to reducing its rolling resistance, a factor that has a significant influence on the range of any vehicle, and an area of particular importance in the case of electric cars.

The fruit of two years of research and development work, the MICHELIN Pilot Sport EV2 was launched ahead of the 2016/2017 FIA Formula E Championship and delivered a 16-percent gain in rolling resistance compared with its predecessor. This improvement was achieved with no detriment to the latter's acclaimed performance.

Thanks to the MICHELIN Pilot Sport EV2, the cars had the potential to complete an additional lap at races, a breakthrough that was hailed by Formula E's teams, drivers and organisers alike!

2018: Four tyres weighing the same as three formergeneration tyres

The 2018/2019 Formula E season saw the introduction of the championship's new, so-called Gen2 single-seaters. To equip these entirely-revisited, more powerful, faster cars which boasted even longer range, Michelin's engineers continued to push the boundaries, with a particular focus on the third-generation MICHELIN Pilot Sport EV's mass.



With each tyre tipping the scales as much as 2.5kg lighter than the former version, the total weight saving amounted to practically 10kg per set of four, the equivalent of a single front tyre!

This appreciable improvement was not only significant because it meant less weight needed to be transported to and from races, but it also resulted in fewer raw materials having to be recycled.

At the 2019 Marrakech E-Prix, second round of the 2018/2019 FIA Formula E Championship, the new cars were a whole three seconds a lap faster than they had been in comparable conditions at the previous season's visit to Morocco.

Technological progress of benefit to road tyres

Thanks to the technologies it has developed in Formula E, Michelin as emerged a step ahead in the electric vehicle tyre market.

As leader of this new segment of its own creation, Michelin is currently the only manufacturer to offer the motoring public a choice of two tyre ranges aimed specifically at new-generation electric vehicles. The MICHELIN ePrimacy is effectively conceived for mid-sized to large cars, while the MICHELIN Pilot Sport EV was designed for high-performance electric sports cars.

Lighter, more energy-efficient and safe, these new-generation Michelin road tyres both owe their differentiating qualities and technology to Formula E.

Motorsport: an accelerator for sustainable innovation

Michelin sees motorsport as an indispensable part of the process of speeding up the development of new sustainable solutions.

Matthieu Bonardel (Director, Michelin Motorsport):

"Motorsport enables the Group to innovate, test new ideas, learn and transmit the expertise it gains, while at the same time evaluating new technologies in extreme conditions in record time.



"Michelin Motorsport plays an essential part in the Group's interaction with its partners and carmakers who are looking for ambitious, concrete solutions geared to sustainable, low-carbon mobility.

"Michelin's involvement in motorsport enables it to acquire specific skills and expertise that only high-level sport can provide, in association with exacting manufacturers and partners who face identical challenges.

"The MICHELIN Pilot Sport EV road tyre is the perfect illustration of how motorsport can foster the transfer of knowledge and accelerate the development of tyre ranges for road vehicles. It is by favouring this sort of progress that Michelin Motorsport is able to make such decisive contributions to achieving the goals laid out in the Group's Everything Sustainable plan, while forging a valuable edge over other tyre brands."

Michelin may be about to withdraw from Formula E, but it continues to see motorsport as an exceptional laboratory.

Over the last two seasons, for example, it has increased the average proportion of sustainable materials that go into the production of its tyres for motorcycle racing's FIM MotoE World Cup to 40 percent.

Meanwhile, Michelin is working on the MissionH24 project which is paving the way for hydrogen fuel-cell electric prototypes to compete in the Le Mans 24 from 2025. A new tyre for the programme containing 53 percent biosourced/recycled raw materials was recently revealed.

In association with Zuffenhausen, Michelin similarly equips the new, 1,000-plus horsepower Porsche 718 Cayman GT4 ePerformance with a tyre that comprises 53 percent sustainable materials. Porsche is already running this tyre for the model's demo tour which included the recent Goodwood Festival of Speed in the United Kingdom.

By 2050, Michelin's aim is to manufacture all the tyres it makes using sustainable materials alone, with an interim target of 40 percent by 2030.

Michelin's ambition is to improve the mobility of its customers over the long-term. As a leader in the mobility domain, Michelin designs, manufactures and distributes tyres best-suited to customers' needs and uses, as well as services and solutions to enhance vehicle efficiency. Michelin also offers its customers ways to enjoy unique experiences during their journeys and when travelling. In addition, Michelin develops high-tech materials for many sectors of activity. Based in Clermont-Ferrand, Michelin has offices in 177 countries, employs 124,760 people and operates 68 tyre factories which together produced around 173 million tyres in 2021 (www.michelin.com).



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