**Original Equipment Tires: what are they?**

**Buying a new vehicle is a special moment. Being excited about your new car leaves little time to stop and wonder where its tires came from. We often take these pre-fitted original equipment (OE) tires, as they’re called, for granted, without knowing the ins-and-outs behind the whole process. Did you know that most new vehicles have a unique set of tires, specifically designed to fit its brand, model and type? Goodyear wants to demystify the design process of original equipment tires.**

**Importance of the right tires**

Goodyear invests a huge amount of time and effort in developing the optimal OE tires for new vehicles, which are designed specifically for brand, model and type. The attention dedicated to OE development yields the right fit for every car, based on its specific requirements, optimizing driving experience, safety and performance. Needless to say, when tires have run their course, replacing them with original equipment will maintain the car’s optimal performance.

**The process**

Innovation is the engine that drives OE equipment. Every vehicle is different, and the market continuously evolves, so every new OE tire requires Goodyear to rethink its blueprints and optimize its results. OE tire development can take between 2 and 3 years, from the first drawing to the final production. Every new vehicle needs OE tires and car manufacturers send their requirements - such as sharp handling, low noise or high-speed stability - to several tire companies. A team of engineers then create a first proposal. When the car maker has selected the OE tire that it feels will be the best fit for its vehicle, the development process takes off.

* **Analysis & simulation**

Every OE process starts with a thorough research and development phase. Designers and automotive engineers dedicate up to six months to create the optimal synergy between vehicle and tire, continuously working in close collaboration with car manufacturers. This analysis phase is crucial to understand how an OE tire can complement the vehicle’s specific requirements.

* **Design & development**

Once the tire design team and the automotive engineers have a detailed view of what the vehicle manufacturer wants and needs, Goodyear starts analyzing data and designing the OE tire. It takes somewhere between 18 and 24 months to combine specific requirements and tailor-made innovation into the optimal tire. During this phase, the team must select from more than 200 performance criteria that make the optimal OE tire. Of course, choices have to be made: every tire is a balancing act between performance characteristics that often contradict, such as:

* Handling
  + Addresses the way a tire reacts to steering, cornering and/or accelerating, contributing to high-performance driving, driver safety and the driving experience.
* Braking
  + Braking in both dry and wet conditions are crucial factors in a tire’s performance as it relates to driver safety.
* Rolling resistance
  + The force resisting the motion when a tire rolls on a surface. This is a crucial element for consumers as less friction means higher fuel efficiency.
* Comfort
  + The capability to cope with impacts, harshness and potential flat spots contributes to a comfortable and worry-free drive.
* Noise
  + Tires are one of the contributing factors to both a vehicle’s cabin noise (i.e. what the driver hears) as well as its pass-by noise (i.e. the external sound of a moving vehicle).
* Tread wear
  + The rate at which tires wear down influence their durability, and the tire should wear evenly along its entire surface.
* **Testing**

Before OE tires can be manufactured, they have to go through a rigorous testing phase. Engineers and test drivers put the prototypes to extensive tests. Each new tire is benchmarked against more than 50 performance criteria at Goodyear’s testing facilities.

The end product will be the result of up to 200 test drives on a variety of terrains, environments and test tracks, along with up to 400 tests in laboratories, adding up to a whopping 300,000 test kilometers in the most diverse weather conditions.

* **Manufacturing**

Once the tire has passed all the tests and has been approved by the vehicle manufacturer, the industrialization phase can finally start. Due to the tire being tailor-made for each vehicle model, this last stage still takes 2 to 6 months. What rolls off the production line is the painstaking result of years of meticulous design, thorough testing and made-to-order production – all with the ultimate goal of delivering an optimal driving experience, contributing to safety and performance.

* **Launch**

In a final phase, the market-ready tires are fitted onto the vehicles they were designed for, and introduced to customers. When it is time for replacement, drivers can ask dealers to re-fit their precious vehicles with the OE tires that were specifically designed for them. Generally, OE tires can come in summer, winter and all-season editions. Some OE tires are marked by the car manufacturer in order to be easily recognized by consumers, providing the right choice each time.

Goodyear always strives to combine its rich heritage with a position firmly at the forefront of technological advancement. In the future, the company will focus on:

* Improving sustainability by achieving Ultra Low Rolling Resistance (ULRR) and going towards the use of sustainable manufacturing processes and materials;
* Enhancing handling for Ultra (Ultra) High Performance vehicles (UHP and UUHP);
* Improving comfort by lowering vibrations, harshness and interior/exterior noise.