

30 May 2018

**Michelin's 2048 ambitions:**

**Michelin tires will be made using 80 percent sustainable materials**

**100 percent of tires will be recycled**

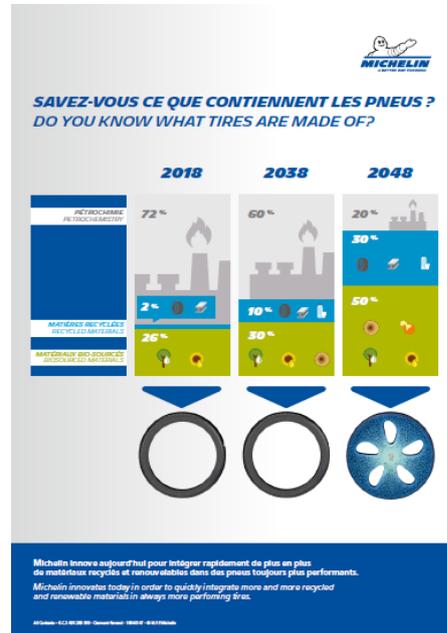
**MICHELIN VISION Concept: From Ambition to Action**



At Movin'On 2018, Michelin is announcing its ambitious plan to ensure that by 2048, all of its tires will be manufactured using 80 percent sustainable materials and 100 percent of all tires will be recycled.

Today, the world-wide recovery rate for tires is 70 percent and the recycling rate is 50 percent. Michelin tires are currently made using 28 percent sustainable materials (26 percent bio-sourced materials like natural rubber, sunflower oil, limonene etc., and 2 percent recycled materials such as steel or recycled powdered tires). For a sustainable future, Michelin is investing in high technology recycling technologies to be able to increase this content to 80 percent sustainable materials.

## Sustainable Materials



The route to this ambitious sustainable material target will be achieved by research programs into bio-sourced materials like Biobutterfly and working with Michelin's high-level partners, and the advanced technologies and materials that are being developed in these partnerships. The Biobutterfly program was launched in 2012 with Axens and IFP Energies Nouvelles to create synthetic elastomers from biomass such as wood, straw or beet.

Michelin is developing innovative solutions today in order to integrate more and more recycled and renewable materials in its tires, while continuing to improve performance, including 30% of recycled materials by 2048. This is demonstrated by the recent acquisition of Lehigh, a specialist in high technology micro powders which are derived from recycled tires.

Lehigh Technologies is a specialty chemical company that is part of the High Technology Materials Business Unit of Michelin. Lehigh is the leader in the market place for Micronized Rubber Powders (MRP), a sustainable raw material that reduces feedstock costs by up to 50 percent and delivers performance without compromise across a wide range of markets. Lehigh makes sustainability an unbeatable proposition – we call it 'Green for free'.

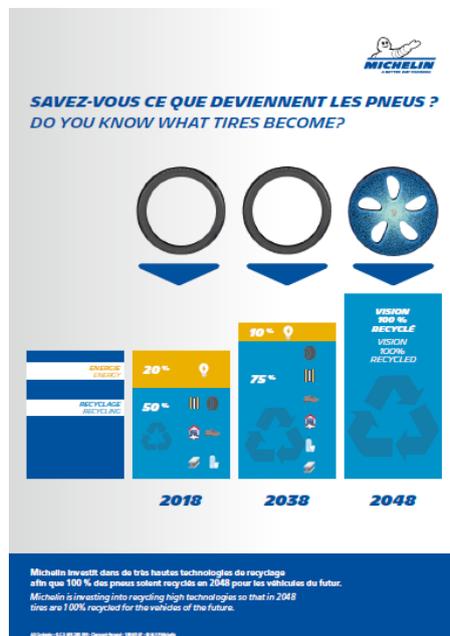
MRP replaces oil- and rubber-based feedstocks in a wide range of industrial and consumer applications, including high performance tires, plastics, consumer goods, coatings, sealants, construction materials and asphalt. Lehigh technical experts collaborate with customers to optimize products for each application.

Lehigh operates the world's largest MRP manufacturing plant in Tucker, Georgia, with an annual production capacity of 54,000 tonnes. Lehigh's state-of-the-art Application & Development Center is also located in Tucker and serves as an innovation hub where Michelin conducts research and formulates MRPs in collaboration with its customers. Michelin has five product ranges so far,

PolyDyne™, MicroDyne™, EkoDyne™, Rheopave™ and Zenoflex™, and continues to expand the range of solutions in core markets. Lehigh Spain, a joint venture with Hera Holding is based in Barcelona. The first Lehigh plant outside of the US – located in Murrillo del Fruto, is under construction and will begin operations in summer 2018.

Commenting on this venture, Christophe Rahier, Director of the High Technology Materials Business Line at Michelin said: 'This acquisition demonstrates Michelin's strategic determination to capitalize on its expertise in high-tech materials, in areas that extend beyond the field of tires. In particular, by promoting the use of innovative recycled materials from tires in a variety of non-pneumatic industrial sectors'.

## Recycling



In 2018, according to the World Business Council for Sustainable Development it is estimated that 1 billion of end of life tires are generated worldwide, representing around 25 million tonnes. Within this total, 70 percent of tires are recovered and 50 percent are recycled every year on average. This 50 percent is the amount of recycled material, into products such as rubber used in sports surfaces, and the additional 20 percent is transformed into energy.

By comparison, 14 percent of plastic containers or packages are recovered each year (source <https://newplasticseconomy.org>), and the car industry has a target of 3.5 percent recycling rate.

Michelin is investing in high technology recycling so that by 2048 tires are 100% recycled for the vehicles of the future.

To achieve these ambitions, Michelin proposes to develop partnerships and identify new ways to recycle tires, or new outlets for recycled tires.

As a result, a Hackathon was held in 2017, in partnership with Alliapur, to brainstorm solutions in which tire granulates could be used. The winner of this Hackathon was “Black Pillow”, which suggested creating safe urban furniture made of tire granulates.

### **Potential Gains**

When all of these ambitions are achieved – 80 percent sustainable materials and 100 percent of tires recycled – the savings will be equivalent to:

- 33 Million barrels of oil saved per year (16.5 supertankers), or 54,000 GWh.
- One month’s total energy consumption of France.
- 65 billion kilometers driven by an average sedan (8 L/100 km) per year.
- All cars in Europe driving 225 kms (291 million kms), or 54 kms for all cars worldwide (1.2 billion cars estimated).

### **VISION Concept**

Last year at Movin’On, Michelin revealed its innovative VISION concept. Advanced materials and 3D printing technologies will be used to manufacture and renew the tread of this mobility solution and will mean that it is 100 percent recyclable. The features of this concept which enhance its sustainability credentials:

- An airless tire made of bio-sourced and recycled products
- A connected eco-system within the tire, providing services and advice to the driver
- A bio-degradable tread that can be renewed with a 3D printer
- A mobility solution that reduces the environmental footprint of car journeys

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Ends...

Michelin, the leading tire company, is dedicated to enhancing its clients’ mobility, sustainably; designing and distributing the most suitable tires, services and solutions for its clients’ needs; providing digital services, maps and guides to help enrich trips and travels and make them unique experiences; and developing high-technology materials that serve the mobility industry. Headquartered in Clermont-Ferrand, France, Michelin is present in 171 countries, has more than 114,000 employees and operates 70 production facilities in 17 countries which together produced around 190 million tires in 2017. ([www.michelin.com](http://www.michelin.com))