

MICHELIN

POWER PURE

The Lightest Two-Compound
Sport Premium Tire Ever*



Press Kit
February 2010

* Weight of MICHELIN® Power Pure™ tires in sizes 120/70ZR17 and 190/50ZR17, compared with Bridgestone BT-016, Dunlop Sportmax Qualifier II, Metzeler Sportec M3 and Pirelli Diablo Rosso.



Contents

Summary MICHELIN® Power Pure™: The Lightest Sport Premium Tire Ever	page 3
MICHELIN® Power Pure™: Performance in Line with Historical Trends	page 4
MICHELIN® Power Pure™: Unique Technologies and Innovative Design	page 6
The MICHELIN® Power Research Team: Transferring Expertise Acquired on the Racetrack to Street Tire Lines	page 9
MICHELIN® Radial Tires: The Most Complete, Advanced Lineup in the Market	page 10
Appendix Michelin Facts and Figures	page 11

MICHELIN® Power Pure™: The Lightest Sport Premium Tire Ever

In 2010, Michelin is unveiling – in a world premiere – the lightest sport motorcycle tire in its category*, the all-new MICHELIN® Power Pure™ tire.

Five years before, Michelin first introduced a tire that used different rubber compounds for the crown and the shoulders. This marked the beginning of two-compound technology, which was to become the market standard for both Hypersport and Sport Touring tires.

Twenty-one years before this revolutionary two-compound technology was launched, Michelin created a surprise with its first radial motorcycle tire. The technology was first used in 1984 for racing – in the GP-500 class – then extended to Michelin's street tire lineup in 1987.

Direct descendants of these history-making tires, new MICHELIN Power Pure tires chart a new direction in motorcycle tire design. What's more, it opens new paths in the area of motorcycle handling. How is that possible? Because it weighs less, MICHELIN Power Pure tires provide unmatched handling for greater responsiveness and superior riding pleasure.

The tires also deliver key benefits in terms of safety and long tread life. Safety characteristics come from second-generation MICHELIN Two-Compound Technology (2CT), developed specifically for MICHELIN Power Pure tires. The soft layer of rubber on the tire's shoulders has been extended to provide excellent traction when the bike begins to lean. Long tread life is the hallmark of all Michelin tires. MICHELIN Power Pure tires owe their longevity to the thickness of their treads.

Less weight for the same amount of rubber is the result of MICHELIN Light Tire Technology (LTT). Michelin's latest sport motorcycle tire is a good illustration of Michelin's strategy, which is never to sacrifice one performance feature for another. This means improving performance in several different areas simultaneously.

Available worldwide beginning in January 2010, MICHELIN Power Pure tires weigh 2 pounds less per pair than competing tires in the same category* and is the lightest two-compound tire ever approved for road use. The front and rear tires come in two and four different sizes, respectively, to fit a broad range of sportbikes.

**Average weight of a set of MICHELIN Power Pure front 120/70 ZR 17 and rear 190/50 ZR 17 tires, compared with the average weight of with Bridgestone BT-016, Dunlop Sportmax Qualifier II, Metzeler Sportec M3 and Pirelli Diablo Rosso.*

MICHELIN Power Pure: Performance in Line with Historical Trends

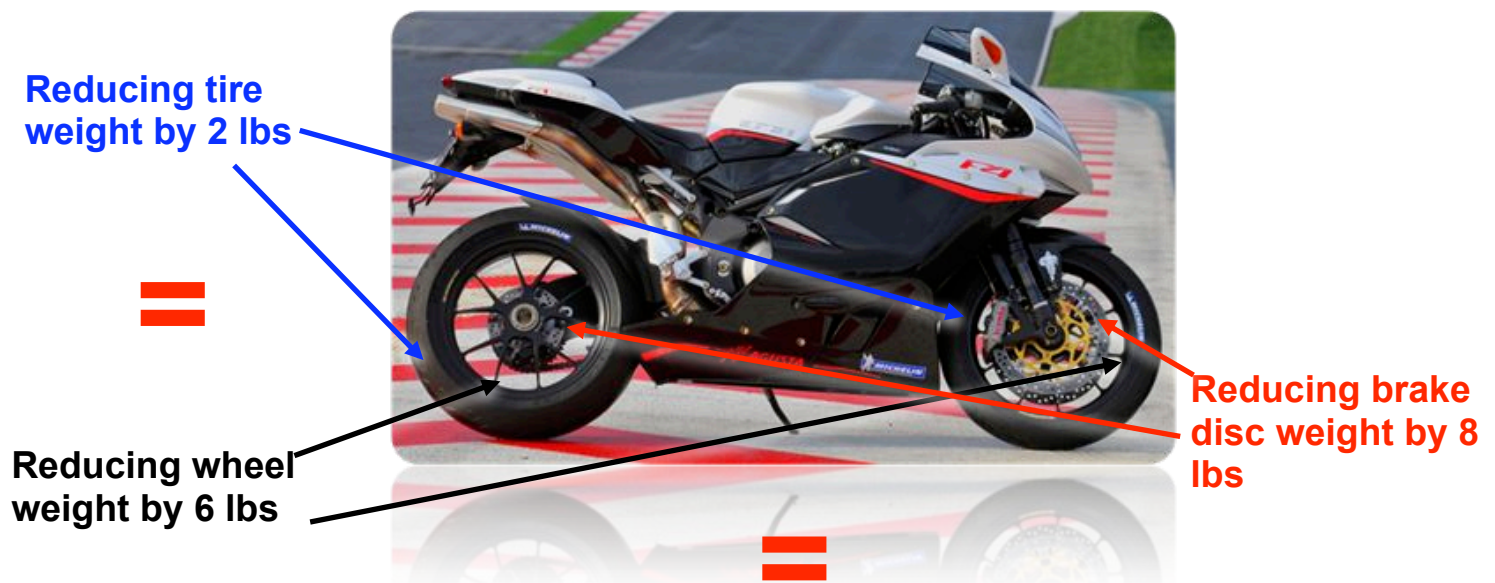
In a surprising historical coincidence, Michelin designed its first radial motorcycle tire for road use the very same year that the modern era in motorcycle racing began. In 1984, when a Michelin radial tire was used for the first time on a GP-500 racetrack, the first commercial sport motorcycle with an aluminum frame was also introduced. Today's motorcycles are all in some way descendants of that first aluminum bike.

This development first highlighted a key performance area for motorcycles – the weight/power ratio – which determines a bike's responsiveness and efficiency. A new era truly dawned in 1984 with the debut of a sportbike weighing less than 400 pounds (20% less than its competitors at the time) and capable of delivering 100 horsepower. From that moment on, manufacturers of sport motorcycles around the world were fully focused on reducing weight and increasing power.

Because making additional weight/power improvements with each new generation of motorcycle has become increasingly difficult, it's easy to understand the importance of new MICHELIN Power Pure tires. Since they weigh less yet also maintain or improve performance in other areas, the tires are fully in line with historical trends. What's more, they improve the handling of bikes that are already highly responsive.

Surprisingly, some pounds on a motorcycle are more important than others. Reducing the weight of a pair of tires by 2 pounds has the same impact on performance as reducing the weight of the wheels by 6 pounds (for example, by purchasing wheels with costly forged aluminum or magnesium rims) or the brake discs by 8 pounds*.

*The inertia of a mounted tire/wheel assembly equals mass times radius squared.



Because they lower overall vehicle weight, MICHELIN® Power Pure™ tires are more fun to ride and above all more efficient: a motorcycle equipped with the new tires is more agile and more responsive to rider inputs.

This is possible since even a **two-pound weight reduction is considerable** for a motorcycle tire, especially for a sportbike since weight is a key feature in that category.

Since they weigh two pounds less, MICHELIN Power Pure tires reduce tire-related inertia by around 10%¹ and less inertia means improved handling. Finding the right trajectory is easier and changing angles is more natural and requires less effort.

What's more, the pounds are eliminated from a part of the motorcycle that is not supported by the suspension system, the bike's so-called unsprung weight. **And the lower a bike's unsprung weight, the more efficient its suspension system, thus allowing riders to derive full benefit from the tire's grip.**

This in itself is a key performance feature, but Michelin didn't stop there. MICHELIN Power Pure tires are not only lighter; they're also safe and long-lasting. First, it's safe because of second-generation MICHELIN Two Compound Technology (2CT) (see *technical explanations below*). The soft layer of rubber on the tire's shoulders has been increased to provide excellent traction when the bike begins to lean. And second, MICHELIN Power Pure tires owe their longevity to the thickness of their tread.

¹ Average inertia of a set of Michelin Power Pure front 120/70 ZR 17 and rear 190/50 ZR 17 tires, compared with same-size competing tires.

MICHELIN® Power Pure™: Unique Technologies and Innovative Design

The new MICHELIN® Power Pure™ tire has been completely re-thought, from its components, structure, shape and rubber compounds to its manufacturing processes and, most importantly, design methodology.

The challenge facing Michelin's Research and Development Department was easy to formulate: lighten the new sport tire as much as possible while maintaining or improving its performance in two other key areas – safety and total mileage.

To deliver performance in all three areas, Michelin engineers developed MICHELIN Light Tire Technology and designed a second-generation MICHELIN 2CT compound.

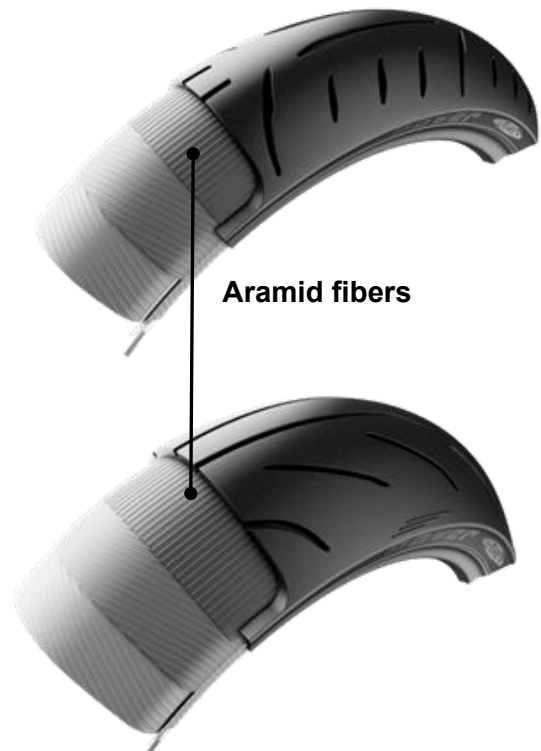
MICHELIN Light Tire Technology focuses on three priorities:



1) Beginning in the design stage, the goal of reducing weight while maintaining or improving performance in other areas was clearly defined. Instead of merely combining different technologies, Michelin engineers decided to re-think their tire design methodology. The tire's structure, profile (i.e. shape) and constituent elements were designed simultaneously rather than in stages.

2) MICHELIN Power Pure tires incorporate advanced materials like aramid fibers, which are used, for example, in the aerospace industry.

3) Although the tire is lighter, its tread is just as thick as that of the previous-generation tire.



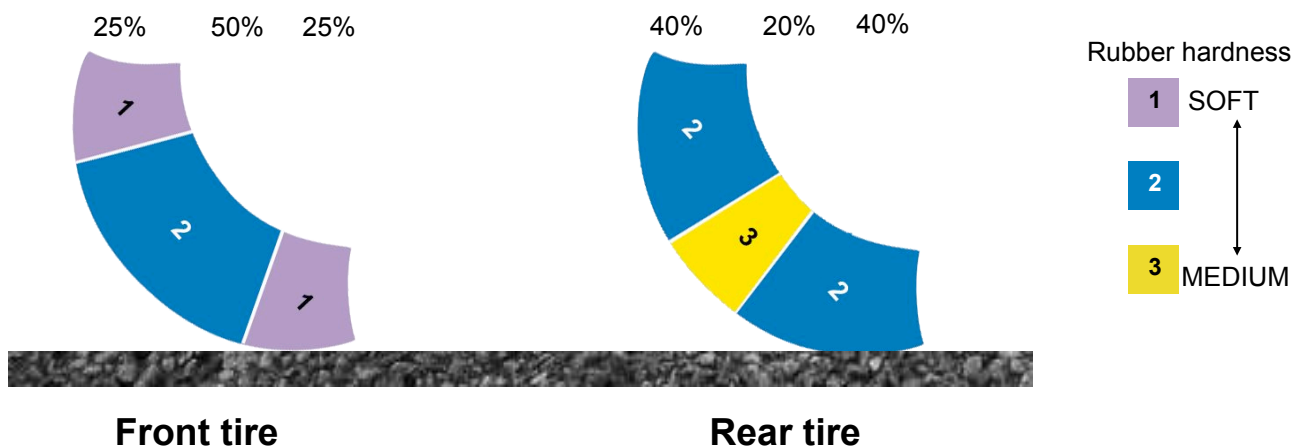
Superior grip thanks to latest-generation MICHELIN® Two Compound Technology (2CT)

MICHELIN® Power Pure™ tires enable riders to lean their motorcycle from left to right more easily because Michelin also wanted to be sure that the new sport tire provided superior grip.

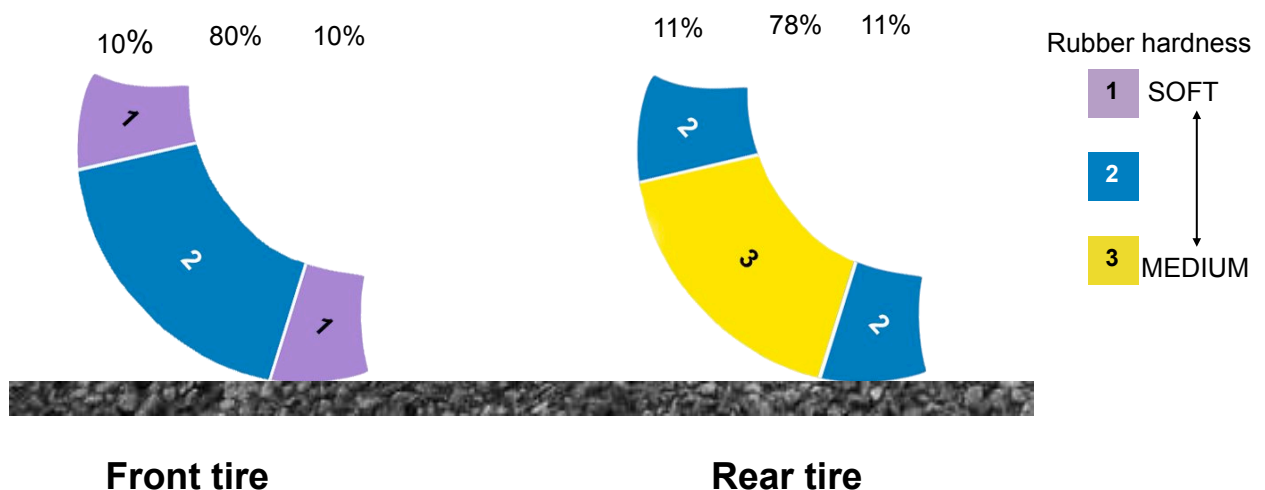
That's why Michelin engineers developed a new version of their Two-Compound Technology. With MICHELIN Power Pure tires, the proportion of soft and harder rubber compounds on the tire surface has been changed. Compared with MICHELIN® Pilot® Power 2CT tires, MICHELIN Power Pure tires have more soft rubber on both the front and rear tires (see diagram below).

More soft rubber for better grip

MICHELIN Power Pure



MICHELIN Pilot Power 2CT



As shown in the table below, the percentage of soft rubber in the contact patch increases rapidly as soon as the motorcycle starts to lean, providing the rider with superior grip and therefore enhanced safety. With the rear tire putting nothing but soft rubber on the road, maximum grip is maintained regardless of the track configuration.

Percentage of soft rubber in the contact patch

Lean angle	MICHELIN® Pilot® Power 2CT		MICHELIN® Power Pure™	
	Front tire	Rear tire	Front tire	Rear tire
0°	0%	0%	0%	9%
24°	0%	0%	3%	100%
32°	0%	0%	17%	100%
36°	0%	8%	28%	100%
40°	0%	36%	40%	100%
44°	3%	52%	55%	100%
50°	10%	72%	77%	100%

The MICHELIN® Power Research Team: Transferring Expertise Acquired on the Racetrack to Street Tire Lines

Because racing helps to improve the performance of off-the-shelf tires, Michelin's goal is to transfer knowledge from the racetrack to the road. Track racing is highly competitive, requiring tire makers to search for new solutions that can ultimately benefit all riders. In this respect, Michelin's commitment to the Endurance World Championship, especially with the MICHELIN® Power Research Team (MPRT), has led to new improvements.

In 2009, Michelin took part in the Endurance World Championship with the MPRT. As always, the goal was to help transfer innovations developed for the racetrack to street tires as quickly as possible. The MPRT thus served as an invaluable resource in the development of MICHELIN Power Pure tires, for two reasons:

- The motorcycles used in the Championship are very similar to the latest-generation bikes sold on the market – around 400 pounds and 180 horsepower, compared with 330 pounds and 200-220 horsepower for MotoGP prototypes.
- Endurance racing presents conditions that are similar to those found on the road, with wide swings in temperature and surfaces that can vary from dry to damp or rain-soaked. These conditions showcase a tire's versatility and longevity as much as its driving performance.

MICHELIN Power Pure tires integrate certain technological features developed during the Endurance World Championship:

- The MICHELIN Power Pure tread design was derived directly from the "fountain" tread developed for racing rain tires.
- The slick area on the shoulder of MICHELIN Power Pure tires facilitates maximum lean angles while the MICHELIN Power Pure tread combines elements of a slick tire and a rain tire.
- MICHELIN Power Pure tread compounds use the same type of silica as endurance racing intermediate tires, which provide a very good dry track/wet track compromise.

Michelin's powerful commitment to Endurance racing in 2010

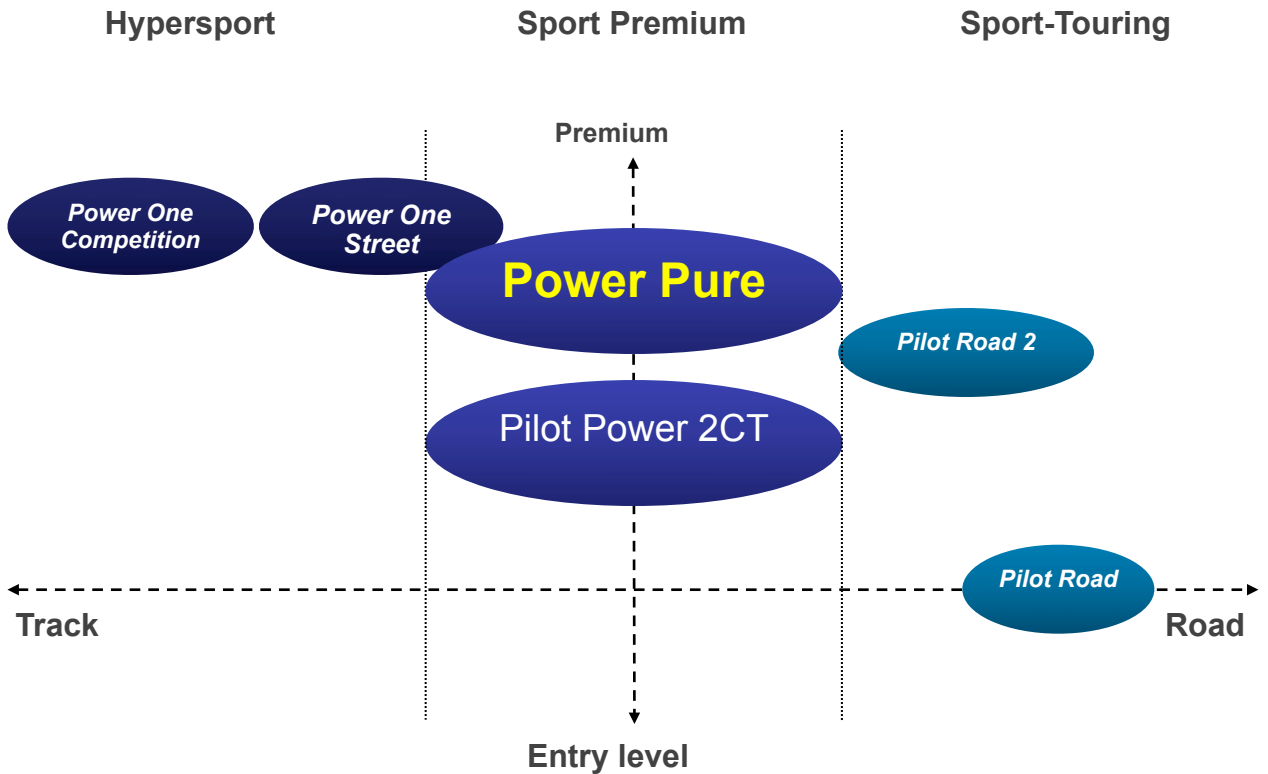
Michelin has renewed its participation in Endurance World Championship Motorcycle Racing for 2010, partnering Yamaha Austria Racing Team, the 2009 World Champion, and Team BMW throughout what promises to be a highly competitive season.

Michelin has also strengthened its presence in the Italian and Spanish National Motorcycle Championships, especially in the Moto2 series in Spain, and with the MICHELIN Power Research Team, the world's fastest laboratory on wheels.

The MICHELIN Power Research Team's Honda has an even busier race schedule in 2010, including the 24 Hours of Le Mans, the Bol d'Or, and two events in the Italian National Motorcycle Championship (Mugello and Imola).

MICHELIN® Radial Tires: The Most Complete, Advanced Lineup in the Market

Extending its sport lineup with MICHELIN® Power Pure™ tires, Michelin offers the market's most complete, advanced range of radial motorcycle tires.



MICHELIN® Power Pure™ size chart

Front tire

120/60 ZR 17

120/70 ZR 17

Rear tire

160/60 ZR 17

180/55 ZR 17

190/50 ZR 17

190/55 ZR 17

Michelin Facts and Figures

For more than a century, Michelin has dedicated its expertise and capacity for innovation to enhancing the mobility of people and goods around the world.

- 1889:** Founding of Michelin et Cie.
- 1891:** Michelin files its first patents for removable and repairable tires.
- 1895:** Michelin introduces Éclair, the first car to be fitted with pneumatic tires.
- 1898:** “Birth” of **Bibendum**, the **Michelin Man**.
- 1900:** First MICHELIN guide published.
- 1905:** Introduction of the Michelin Sole tread with hobnails to improve tire grip and durability.
- 1910:** First 1/200,000 scale Michelin road map published.
- 1913:** Michelin invents the removable steel wheel.
- 1923:** First low pressure car tire (2.5 bar).
- 1926:** Michelin creates its first Green Guide for tourists.
- 1930:** Michelin files a patent for the **integrated tube tire**.
- 1938:** Michelin launches Metallic, the first truck tire with a steel casing.
- 1946:** Michelin invents the **radial tire**.
- 1959:** Michelin introduces the first radial tire for earthmovers.
- 1977:** The slick tire is first used in the GP 500 World Championship.
- 1979:** The Michelin radial tire wins the Formula 1 championship.
- 1981:** The MICHELIN X Air is the first radial aircraft tire.
- 1984:** **Michelin invents a radial tire for motorcycles**, used in World Championship GP racing.
- 1993:** Michelin invents the new C3M tire manufacturing process.
- 1992:** Michelin is the first manufacturer to incorporate silica in its motorcycle rain tires (GP 500).
- 1992:** Launch of the fuel-efficient MICHELIN Energy™ tire.
- 1994:** **Michelin invents the first Two-Compound Technology motorcycle tire for GP 500 racing.**
- 1995:** The US space shuttle lands on Michelin tires.
- 1996:** Michelin invents the vertically anchored PAX System tire.
- 1998:** The first Challenge Bibendum, the world’s leading clean vehicle event.
- 1998:** The Michelin Man’s **100th birthday**.
- 2000:** The Michelin Man is voted best logo of all time by an international jury.
- 2001:** Michelin brings to market the world’s largest earthmover tire.
- 2003:** Launch of Michelin brand automotive accessories.
- 2004:** New corporate signature introduced: “**Michelin, a better way forward.**”
- 2004:** Launch of the MICHELIN XeoBib, the first agricultural tire that operates at a constant low pressure.
- 2005:** Michelin provides tires for the new Airbus A-380 aircraft. Launch of the **MICHELIN Power Race**, the first two-compound racing tire approved for road use.
- 2006:** Michelin revolutionizes truck tires with MICHELIN Durable Technologies.
- 2007:** Launch of the new MICHELIN Energy™ Saver tire, which reduces fuel consumption by nearly 0.2 liters per 100 kilometers, thereby lowering CO₂ emissions by 4 grams per kilometer.
- 2007:** **Introduction of MICHELIN Pilot Power 2CT tires, the first motorcycle street tire made with MICHELIN Two-Compound Technology (2CT).**
- 2009:** 100th edition of the MICHELIN guide France.
- 2010:** Market launch of **MICHELIN Power Pure tires**.

Michelin Key Figures

Date created:	1889
Production facilities:	68 plants in 19 countries
Number of employees:	109,000 worldwide
Technology Center:	More than 6,000 researchers on three continents: North America, Europe and Asia
Annual R&D budget:	More than €500 million
Annual output:	Around 190 million tires produced and over 15 million maps and guides sold in more than 170 countries
2009 net sales:	€14.8 billion

An extensive portfolio of brands covering all market segments: Michelin, BFGoodrich, Kleber, Uniroyal, Riken, Taurus, Kormoran, Warrior, Pneu Laurent, Recamic, Michelin Remix, Euromaster, TCI Tire Centers and TyrePlus

Discover the history of the Michelin Group with a visit to L'Aventure Michelin.
The latest news and useful information can be found at www.laventuremichelin.com

