# MICHELIN PRIMACY 3
# Safety to the Power of 3

**October 2011**

## Press Kit


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MICHELIN
A better way forward

# Contents

# The Michelin Primacy 3: Safety to the Power of 3

Michelin is premiering its new MICHELIN Primacy 3, which will be available in European replacement markets beginning in February 2012. The tire will open a whole new era in road safety.

Compared with its four market-leading competitors, the MICHELIN Primacy 3 tire delivers the best grip when braking on dry or wet surfaces and when cornering on wet roads(1). This fact was proven in tests conducted in 2011 by TÜV SÜD Automotive and IDIADA, two independent organizations(1). One example of the tire's superiority is that at 100 km/h, the MICHELIN Primacy 3 stopped 2.2 meters shorter in average than its competitors on a dry surface (*See the full test results on pages 6 and 7*).

The new tire's name reflects its qualities: the MICHELIN Primacy 3 enhances safety in three different areas of performance. And like all MICHELIN tires, it also offers high total mileage while reducing fuel consumption – in this case up to 70 liters over the full life of the tire(2).

To deliver this performance balance, Michelin has deployed an innovative design process that integrates the in-depth understanding of road accidents acquired by its R&D teams.

Why safety? Because according to a 2010 survey conducted by GFK in five countries (France, Germany, Italy, Spain and the United Kingdom), safety is what consumers expect most from a tire.

The fact that safety is a top priority comes as no surprise. However, behavioral analyses have provided additional information.

Road hazards are often present where they are least expected.
- How many people know that 70% of road accidents occur on dry surfaces?
- Who is aware of the fact 60% of accidents occur in cities and at low speeds?

These two statistics, which run counter to preconceptions that are firmly anchored in people's minds, show the need for taking a fresh look at accidentology – the study of accidents. By disproving these preconceived ideas, Michelin can provide meaningful solutions and reaffirm its commitment to improving safety for all road users.

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(1) *Tests carried out by TÜV Süd and IDIADA in 2011 on sizes 205/55 R 16 V, 225/45 R 17 W with tyres bought and available on the European market in February 2011.*

(2) *Estimate of average fuel savings for petrol vehicles, compared to the 4 leading competitors in the European market. Rolling resistance tests carried out by TÜV Süd in 2011 on sizes 205/55 R 16 V, 225/45 R 17 W (with tyres available and bought on the European market in February 2011) and calculated over the average life span for MICHELIN tyres i.e. 45,000 km (internal source).*

By addressing the problem of road accidents from three angles, Michelin intends to reduce their frequency:

1) Michelin is working to improve understanding of road accidents.
2) With every tire that Michelin designs, the top priority is to provide safety. That's its core business. The Group is not only capable of gathering information about road hazards. More importantly, its research and development teams are able to assimilate the data. That's why Michelin is capable of developing tires that respond perfectly in critical driving situations and thus meet the primary concerns of motorists around the world. The new MICHELIN Primacy 3 tire was designed in line with this strategy.
3) Michelin helps to change the behavior of road users. The Group conducts programs to raise user awareness of the importance of maintaining the right tire pressure. That's why it has installed systems to ensure that tires can be correctly and easily filled, providing Michelin Man pumps to highway authorities and local communities so that drivers can adjust their tire pressure free of charge. Michelin also take part in programs aimed at national governments, working alongside public and private organizations.

# MICHELIN Primacy 3: The new tire that integrates an in-depth understanding of accidents

Safety involves more than delivering superior performance in one area. Moreover, braking ability is not the only requirement to ensure safety and speed is not the only factor responsible for accidents.

There are many preconceived ideas about road hazards. To free itself from these prejudices, Michelin can draw on an in-depth understanding of accidents, such as the knowledge developed through the Accidentology Chair created at the University of Dresden.

At the University, a detailed analysis was carried out of 20,000 road accidents in Europe that occurred over a ten-year period. This information was “mapped” to determine accident types and produced some impressive statistical data.

The study revealed three major accident families:

- Accidents involving a single vehicle but no pedestrians, with or without an obstacle.
- Accidents involving at least two vehicles. These can be broken down into sideswipe, head-on, broadside and rear-end collisions.
- Accidents involving a vehicle and a pedestrian.

Road conditions are also important and the analysis takes into account the type of road on which the accident occurred (city or rural) as well as weather conditions (dry or wet).

In addition, the study reveals that:

- 70% of accidents occur on dry roads.
- 60% of accidents happen in cities and at low speeds.
- 75% of accidents occur on straight roads (of which 20% are wet).
- 25% of accidents take place when cornering (of which 50% on wet roads). These are the most serious type of accident.
- 99% of accidents on wet roads take place in very shallow water.

Moving from theory to practice, Michelin used this knowledge when defining the properties of the new MICHELIN Primacy 3. A team of 60 engineers spent three years designing the tire. Nearly 25,000 prototype tires were produced at the Technology Center and in a number of Group plants to validate the tire's technical performance and manufacturing processes. More than 20 million km of tests were then conducted across Europe – from northern Germany to southern Spain – in different conditions of use.

# MICHELIN Primacy 3: Enhanced safety performance

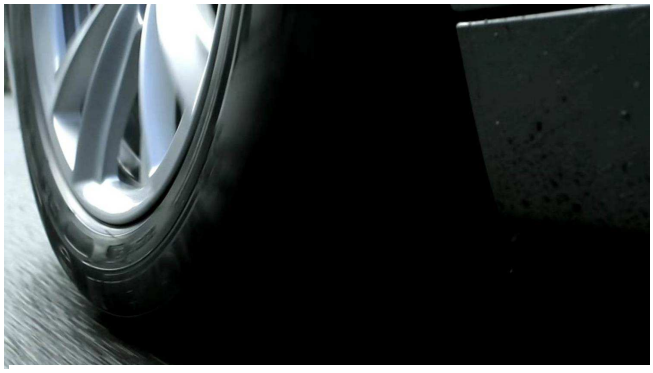
The strategic priority assigned to Michelin engineering teams, regardless of their product line, is to develop tires capable of delivering superior performance simultaneously in different areas. The challenge is to improve quality in one area without sacrificing it in another.

This rationale guided the entire MICHELIN Primacy 3 development process. The tire had to provide outstanding safety and thus the best grip in all circumstances, whether the road is dry and straight or wet and curving, while keeping the total cost of ownership as low as possible.

Practically speaking, the MICHELIN Primacy 3 tire helps reduce fuel consumption (up to 70 liters over the full life of the tire[1]) while also offering high total mileage. Thus, the new tire delivers the performance balance common to all Michelin tires: safety “enhanced” with energy efficiency and superior longevity.

To demonstrate the performance of the MICHELIN Primacy 3, the independent tests centers TÜV SÜD Automotive and IDIADA were commissioned to compare the tire against four market-leading competitors.
The tests revealed that:

1) The MICHELIN Primacy 3 delivers the best braking performance **on dry roads**[2]**.. When decelerating from 100 km/h to a full stop, the braking distance of the MICHELIN Primacy 3 was 2.2 meters shorter than that of its four market-leading competitors**[2]**.** Note: 70% of road accidents occur on dry roads.



2) The MICHELIN Primacy 3 delivers the best braking performance on **wet roads**[2]**.. When decelerating from 80 km/h to a full stop, the braking distance of the MICHELIN Primacy 3 was 1.5 meters shorter than that of its four market-leading competitors**[2]**.** Note: 99% of accidents on wet roads take place in very shallow water.

[1] *Estimate of average fuel savings for petrol vehicles, compared to the 4 leading competitors in the European market. Rolling resistance tests carried out by TÜV Süd in 2011 on sizes 205/55 R 16 V, 225/45 R 17 W (with tyres available and bought on the European market in February 2011) and calculated over the average life span for MICHELIN tyres i.e. 45,000 km (internal source).*
[2] *Tests conducted in 2011 by TÜV Süd Automotive and IDIADA on store-bought 205/55 R 16V and 225/45 R 17W tires, purchased on European market in February 2011.*

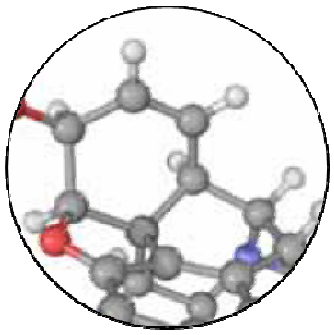
3) The MICHELIN Primacy 3 delivers the best grip **when cornering on wet roads**[3]. **At 90 km/h, the MICHELIN Primacy 3 delivers additional grip that amounts to 3 km/h**[3]. Note: 25% of accidents take place when cornering (of which 50% on wet roads) and these are the most serious type of accident.

[3] *Compared to the 4 leading-market competitors. Tests conducted in 2011 by TÜV Süd Automotive and IDIADA on store-bought 205/55 R 16V and 225/45 R 17W tires, purchased on European market in February 2011.*

## ➢ The MICHELIN Primacy 3: technological solutions to improve safety

At least two new technological innovations should be mentioned since they play an important part in the MICHELIN Primacy 3's safety performance. Grip is the most important aspect. That's because a tire can only deliver maximal safety if it maintains constant contact with the road, whether wet or dry.

**The rubber compound with its unique combination of ingredients**

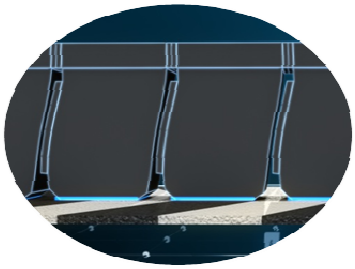


The MICHELIN Primacy 3's patented new rubber compound optimizes grip in all conditions of use without sacrificing performance in other areas, namely fuel efficiency and longevity.

The new compound is a unique, complex combination of different elastomers, a silica-based reinforcing agent and a resin-based softener. What makes the compound innovative is not only the ingredients themselves but even more importantly the optimal dosage of each ingredient and the mixing method.

This unique combination binds the components very tightly, thereby providing high total mileage.

**The tread design with its innovative sipes**



Because of the demands placed on tires when braking sharply or cornering on both wet and dry roads, it's important to have a maximum of rubber in contact with the ground.

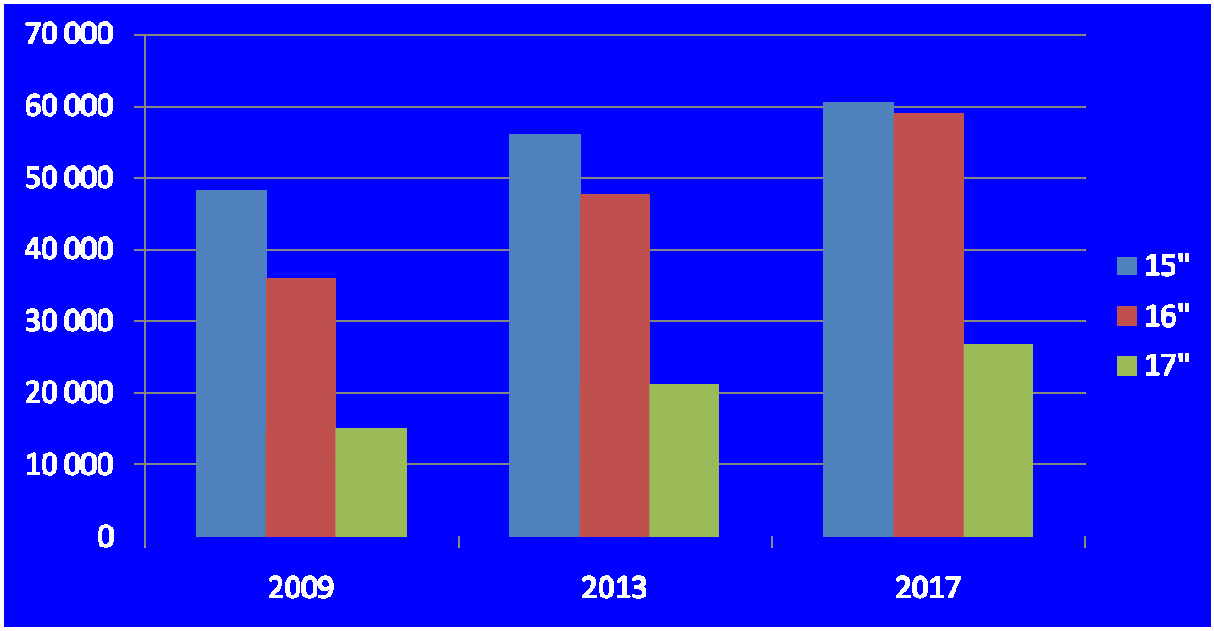
The MICHELIN Primacy 3 features a new patented tread with self-blocking sipes. They lock into each other to make the blocks more rigid and less likely to lose their shape, thereby improving the contact between the tire and the road.

In addition to their original design, the new sipes are manufactured with a groundbreaking technology that can reduce their thickness to as little as two-tenths of a millimeter. This means that they are two or three times thinner than the sipes found on winter tires.

# MICHELIN Primacy 3: A key performance driver in a changing market

As a global tire manufacturer, Michelin maintains close ties with all carmakers.

According to Michelin's own studies, wheel diameters on new vehicles should change considerably, with demand for 16- and 17-inch tires expected to increase sharply, by nearly 25%.




*In thousands of tires*

Demand for tires that are increasingly safe and fuel efficient – in line with car model specifications – should continue indefinitely. The new MICHELIN Primacy 3 already addresses these issues. Although the tire has not yet been introduced in replacement markets, leading carmakers are already conducting 30 technical tests to certify the tire for use on 20 important new vehicles scheduled for launch in 2011 and 2012.

# MICHELIN Primacy 3: Characteristics and available sizes

Since its launch, the MICHELIN Primacy 3 tire has been available in 38 different sizes.

**Speed rating:** H, V, W, Y

**Aspect ratio:** 65 to 45

**Rim diameter:** 15 to 18 inches

| SIZES | | | |
|---|---|---|---|
| 185/60/15 | 84 | H | NL |
| 185/65/15 | 88 | H | NL |
| 195/65/15 | 91 | H | NL |
| 195/65/15 | 91 | V | NL |
| 205/55/16 | 91 | V | NL |
| 205/55/16 | 91 | W | NL |
| 205/60/16 | 96 | W | XL |
| 215/55/16 | 93 | V | NL |
| 215/55/16 | 93 | W | NL |
| 215/55/16 | 97 | H | XL |
| 215/55/16 | 97 | V | XL |
| 215/55/16 | 97 | W | XL |
| 225/55/16 | 95 | V | NL |
| 225/55/16 | 95 | W | NL |
| 225/55/16 | 99 | W | XL |
| 205/50/17 | 89 | V | NL |
| 205/50/17 | 89 | W | NL |
| 215/50/17 | 95 | W | NL |
| 215/50/17 | 91 | W | XL |
| 215/55/17 | 94 | W | NL |
| 225/45/17 | 91 | W | NL |
| 225/45/17 | 94 | V | XL |
| 225/45/17 | 94 | W | XL |
| 225/50/17 | 94 | V | NL |
| 225/50/17 | 98 | V | XL |
| 225/50/17 | 98 | W | XL |
| 225/50/17 | 98 | Y | XL |
| 225/55/17 | 101 | W | XL |
| 225/55/17 | 97 | W | NL |
| 235/45/17 | 94 | W | NL |
| 235/45/17 | 94 | Y | NL |
| 235/45/17 | 97 | W | XL |
| 235/55/17 | 103 | Y | XL |
| 235/55/17 | 99 | V | NL |
| 245/45/17 | 99 | W | XL |
| 245/45/17 | 99 | Y | XL |
| 235/45/18 | 98 | W | XL |
| 245/45/18 | 100 | W | XL |

# MICHELIN Primacy 3: Supporting Michelin's road safety commitment

Statistics point to a worrisome situation: every year, 1.3 million people are killed in road accidents worldwide, with young people accounting for a significant portion of the total. Road accidents are today the leading cause of death among people in the 16-24 age bracket.

Just as alarming are the results of the first major international study, conducted in 2009 by the World Health Organization in 178 countries accounting for 98% of the world's population: by 2030, the number of deaths could nearly double to 2.4 million. That would make road accidents the world's fifth-leading cause of mortality.

While accident victims are numerous, not all road users run the same risk. Overall, 90% of deaths occur in low- and middle-income countries in which less than half of all vehicles – 48% in fact – are registered. This trend is unfortunately expected to amplify because of the ever-greater use of motor vehicles combined with demographic growth and an increasingly urban population, Conversely, the number of accidents in high-income countries is expected to decline, with a corresponding drop in the number of fatalities and injuries.

Michelin deploys an integrated approach designed to put a halt to this affliction, working to improve tire performance while maintaining a constant focus on making roads safer everywhere.

Its initiatives fall into three categories:

**1)** First is the tire itself. Michelin designs, manufactures and markets tires that provide maximum grip regardless of road conditions. The new MICHELIN Primacy 3 is the most striking illustration of this fact. This quality is systematically combined with two others – energy efficiency and longevity – for a performance balance that is the hallmark of all MICHELIN tires.

**2)** Michelin helps to improve road safety through local initiatives carried out in all its host regions. In addition to educating employees, these initiatives raise awareness among users of the importance of maintaining correct tire pressure and teach young people – one of the most vulnerable demographic groups – about road-related dangers.

**3)** Michelin also takes part in programs aimed at national governments, working alongside local and international organizations, both public and private.

## ➢ Raising driver awareness of the importance of correct tire pressure and road safety

In addition to producing superior tires and other innovations, Michelin is actively involved in local safety initiatives in all its host countries.

Programs deployed by Michelin fall into two categories: raising awareness among car, truck and motorcycle users of the importance of maintaining correct tire pressure and educating young people, who are among the most vulnerable road users but also those most likely to modify their behavior.

**Maintaining correct tire pressure**

Since 2003, thanks to its “Fill up with Air” campaigns in Europe, Michelin has observed that 61% of motorists tested in 27 European Union countries drive with under-inflated tires all the time. This represents a danger for themselves and for other road users. Similar campaigns conducted by the Group in Russia, the Middle East, North and South America, and Asia have come to the same conclusions. It’s estimated that 6% of fatal road accidents in Europe are due to damaged or under-inflated tires.

This is a disturbing phenomenon, especially since the problem of under-inflated tires appears to be common to all countries. While Michelin has provided original data through its “Fill up with Air” campaigns, other organizations have also confirmed the fact that it is time to take action.

In early 2001, the US Transportation Department published a survey carried out by the National Highway Traffic Safety Administration. The survey showed that 27% of cars and 33% of vans (including SUVs) on American roads had at least one tire that was dangerously under-inflated. In Germany, Dekra, an independent organization, estimates that 41% of road accidents involving corporal injury are due to lost vehicle control resulting from under-inflated or worn tires.

Solving this problem requires technological solutions (i.e. safer, more air-tight tires such as those manufactured by Michelin) as well as services for road users. In response, the Group has developed and deployed Michelin Man air pumps – mainly for highway authorities and local communities – that enable drivers to check and adjust their tire pressure free of charge. Since 2006, dozens of these pumps have been installed on highway rest areas, in car parks and near Michelin sites throughout France. They will soon be introduced in other European Union countries and around the world.

Through its Michelin Lifestyle Limited unit, the Group has also developed a full range of easy-to-carry, easy-to-use devices for controlling and adjusting tire pressure.

To further raise awareness among motorists of the danger of under-inflated tires, Michelin has designed a unique driving simulator. Developed from a real car to create a familiar environment for

users, the simulator uses giant screens that show a vehicle's road trajectory when tires are under-inflated. Given the dramatic situations in which they find themselves, "virtual" drivers quickly learn how following just a few simple steps will help to protect themselves and others. This simulator was designed to travel – in particular to international motor shows – so that it can be used by as many people as possible.

**Raising young people's awareness of road hazards**

In most of its host regions, the Group has set up road-danger information and education programs for young people. One example is the "Safest Way" program for schoolchildren, which has been deployed in Brazil in partnership with municipal authorities.

Michelin Junior Bike operations to encourage very young cyclists to wear helmets have also been organized in France, Italy, Hungary and Poland. In Italy alone, more than 184,000 children have taken part in these training days since 1998.

With tire-pressure monitoring campaigns, Michelin Man pumps, awareness-building programs, educational tools and driving simulators, Michelin deploys a comprehensive array of solutions that share the same priority of making road travel safer. In 2008, some 118 initiatives involving 140,000 people were carried out in 27 countries.

## ➢ Road safety at the international level

Michelin also partners with other companies as well as with public and private organizations at both the national and international level.

In Europe, Michelin initiated a unique road-safety awareness program for young people. Launched in partnership with the European Commission, the ROSYPE (ROad Safety for Young People in Europe) program was designed to educate more than 730,000 young people over a three-year period.

In developing countries and emerging markets, where the lack of road safety is an especially critical problem, Michelin is involved in a number of collective initiatives. One is the Global Road Safety Partnership (GRSP), which Michelin joined in 2003 and has chaired since 2007.An association of international and non-governmental organizations and private businesses *(see below)*, the GRSP conducts educational and preventive programs in countries with significant road safety problems, such as India, Indonesia, Thailand, Malaysia, China, South Africa, Poland, Romania, Russia, Hungary, Kuwait, Vietnam, Brazil and Costa Rica. It provides governments with technical assistance and advice with regard to preventive measures.

Within the framework of GRSP, seven of the largest international companies in the automobile and oil industries (Ford, GM, Honda, Michelin, Renault, Shell and Toyota) decided to deepen their involvement by jointly organizing and managing global initiatives to reduce road accidents. To this end, they founded the Global Road Safety initiative (GRSI), a unique organization created in December 2004, and allocated $10 million for the period 2005-2009 to finance their program. To date, this is the largest private-sector investment in road safety. The GRSI has launched three major projects:

- First, by best-practice guides in cooperation with the United Nations Road Safety Collaboration.
- Second, by setting up regional road safety expertise centers.
- Third, by deploying road safety pilot programs in three regions: China, the ASEAN countries and Brazil.

# Michelin Group: Milestones

For more than a century, Michelin has dedicated its expertise and 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 **Metalic, the first truck tire with a steel casing**.
**1946**: Michelin invents the **radial tire**.
**1959:** Michelin introduces the first radial tire for earthmovers.
**1979**: The Michelin radial tire wins the Formula 1 championship.
**1981**: The **MICHELIN X Air** is the first radial aircraft tire.
**1989**: Michelin launches the first online travel itinerary service, on France's Minitel teletext network.
**1992**: Launch of the fuel-efficient **MICHELIN ENERGY™ tire**.
**1993**: Michelin invents the new C3M tire manufacturing process.
**1995**: The US space shuttle lands on Michelin tires.
**1996**: Michelin invents the vertically anchored PAX System tire.
**1998**: The first **Michelin Challenge Bibendum**, the world's leading clean vehicle event
**1998**: The Michelin Man's **100th birthday**.
**2000**: Michelin Man 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 dual-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 carbon emissions by 4 grams per kilometer.
**2008:** Introduction of the new MICHELIN X ENERGY™ SAVERGREEN truck tire.
**2009:** 100th edition of the MICHELIN guide France.
**2010**: Market launch of the MICHELIN Pilot Sport 3 and MICHELIN Pilot Super Sport tires.
**2012**: The **MICHELIN Primacy 3** is launched in the European replacement market.

# Michelin Group: Key Figures

| | |
|---|---|
| **Company founded:** | 1889 |
| **Production facilities:** | 70 plants in 18 countries |
| **Number of employees:** | 111,000 worldwide |
| **Technology Center:** | More than 6,000 researchers on three continents: North America, Europe and Asia |
| **Annual R&D budget:** | **Over €500 million** |
| **Annual output:** | More than 175 million tires produced, over 10 million maps and guides sold in more than 170 countries, and 875 million itineraries calculated by ViaMichelin. |
| **2010 net sales:** | €17.9 billion |

**An extensive portfolio of brands covering all market segments:** Michelin, BFGoodrich, Kleber, Uniroyal, Riken, Taurus, Kormoran, Warrior, Pneu Laurent, Recamic and Michelin Remix.

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