MICHELIN e·PRIMACY

205/55 R16 91V

EPD®

THE INTERNATIONAL EPD® SYSTEM

Environmental Product Declaration

In accordance with ISO 14025:2010

EPD® REGISTRATION NUMBER: S-P-02283

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Michelin is proud to communicate its second Environmental Product Declaration (EPD) in accordance with the International EPD® System (ISO standard 14025), for the new **MICHELIN e·PRIMACY** tire (205/55 R16 91V), which will be launched in 2021.

The EPD is based on verified life cycle analysis (LCA) data. It summarizes and communicates transparent and comparable information about the environmental impact of the product at each phase of its life cycle, to inform our customers and other interested parties.

This document demonstrates the Michelin group's strong commitment to put the reduction of environmental impacts at the heart of its sustainable growth strategy.

OUR PURPOSE

OFFERING EVERYONE A BETTER WAY FORWARD

Because we believe that mobility is essential for human development, we are innovating passionately to make it safer, more efficient and more environmentally friendly.

Our priority and firm commitment is to offer our customers uncompromising quality.

Because we believe that all of us deserve personal fulfillment, we want to enable everyone to do his or her best, and to make our differences a valuable asset.

Proud of our values of respect for customers, people, shareholders, the environment and facts, we are sharing the adventure of better mobility for everyone.

In the Michelin of tomorrow, everything will be sustainable.
Florent Menegaux, Chief Executive Officer

MICHELIN AT A GLANCE

Sustainable mobility enabler

For more than a century, Michelin has constantly innovated to improve the mobility of people and goods. Today, the Group is the leader in tire technology for every form of mobility, delivering services that improve their efficiency and solutions that make travel easier and more fulfilling. Michelin enjoys unrivaled expertise in flexible composites and their applications, which it markets, in addition to tires, to a broad range of customers and industries.

+127,000
people
(6,000 in R&D)

126
research and production facilities in 28 countries

200M
tires produced per year

+7,600
dealerships and distribution hubs

170
countries

Our growth and value creation model

The Group has built its strategy around the "all sustainable" vision, with a commitment to driving fair, balanced growth around the world that is profitable for the company, beneficial for its customers and employees, and respectful of the planet and its inhabitants. It means constantly managing the best equilibrium between these 3 dimensions.
It will always be the customer who decides if it's acceptable. The onus is on the company to explain the importance of choices made.

Leadership, capacity for innovation, engaged employees and strong sustainability governance are driving continuous improvement in mobility. In the end, it will be our customers who will determine the company's success.

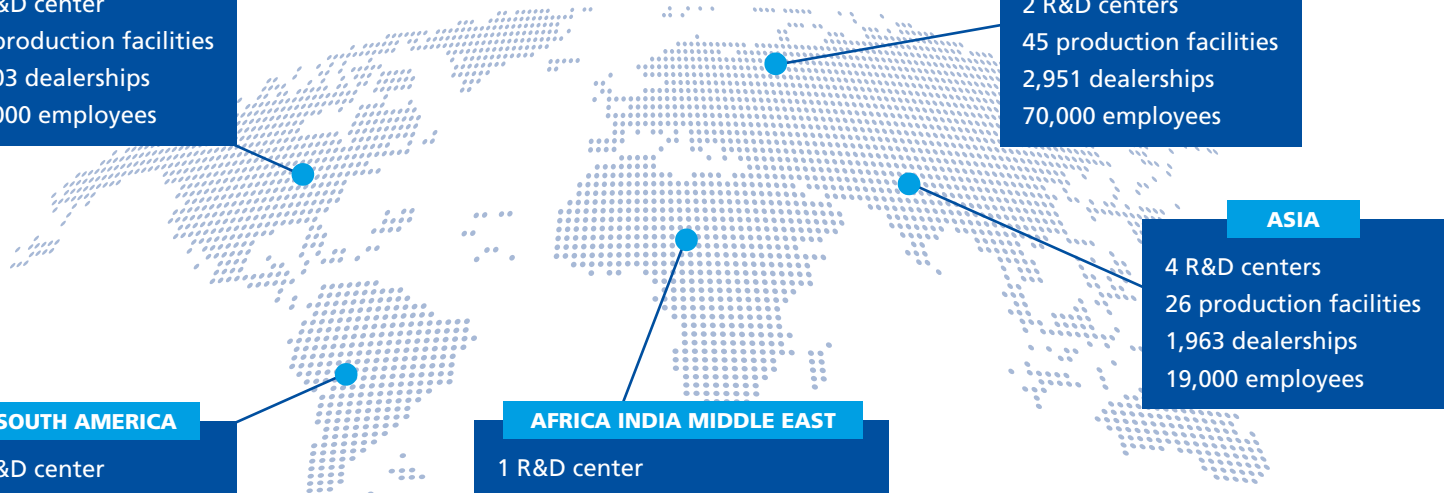
Tires
The technological leader in tires, tracks and conveyor belts, Michelin works closely with manufacturers to bring innovations to every market. Both directly and through its dealership networks, it offers tires and solutions seamlessly aligned with end-user expectations and conditions of use and all delivering the same long-lasting performance.

Mobility Experiences
Michelin markets maps, guides, digital services and exclusive solutions that make mobility easier and enable customers to enjoy unforgettable experiences when traveling, which in turn help to embed the MICHELIN brand in their daily lives.

Services and solutions
As the market leader in connected tires and a major partner in digital fleet management, Michelin offers its business customers services and solutions that improve their performance, simplify their maintenance, increase asset uptime, enhance their safety performance, reduce their operating costs and attenuate their environmental impact.

High-tech materials
Michelin has built up extraordinary expertise in the design and production of high-tech materials. Already a core factor in the performance of the Group's tires, this expertise is being actively marketed to other industries and enhanced with targeted acquisitions.

A GLOBAL FOOTPRINT



NORTH AMERICA
1 R&D center
37 production facilities
2,403 dealerships
23,000 employees

EUROPE
2 R&D centers
45 production facilities
2,951 dealerships
70,000 employees

ASIA
4 R&D centers
26 production facilities
1,963 dealerships
19,000 employees

SOUTH AMERICA
1 R&D center
5 production facilities
84 dealerships
8,000 employees

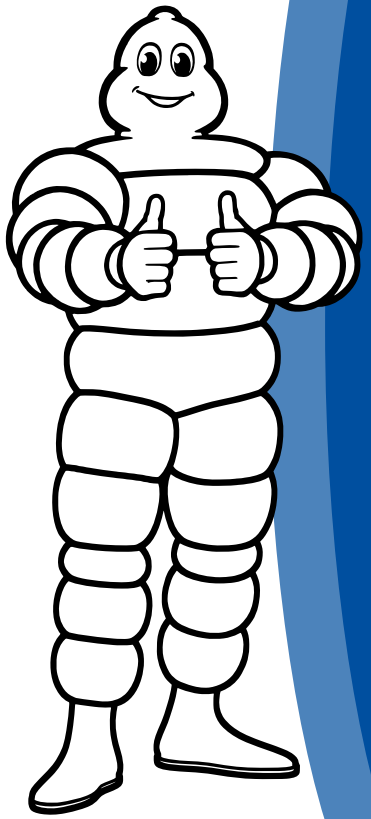
AFRICA INDIA MIDDLE EAST
1 R&D center
4 production facilities
219 dealerships
7,000 employees

MICHELIN BRAND

Ranked 8th
among the world's 100 most reputable companies
Forbes | 2019 - World's Most reputable companies | Reputation Insitute, RepTrak.

No.1 in the Tire industry
Forbes | 2019 - World's Most reputable companies | Reputation Insitute, RepTrak.

The Michelin Man "Icon of the Millenium"
Advertising Week | October 2018 | The U.S.-based global conference series for marketing, branding and advertising leaders.



SUSTAINABILITY IS PART OF MICHELIN'S HISTORY OF INNOVATION

1946 — 1987 **The radial tire:** safer, longer lasting -- offering up to four times higher mileage than a conventional tire -- and more economical. Michelin's extensive research resulted in this major technological breakthrough. The first radial car tire MICHELIN X was released in 1949, followed by truck (1952), earthmover (1959), aircraft (1981) and motorcycle (1987) tires with radial technology.

1992 **The "green" tire:** a breakthrough in tire energy efficiency with increased safety and longevity. Michelin's innovation of adding silica to the rubber mix led to the launch the first generation of tires in the MICHELIN Energy™ line.

2000 **The new generation wide base truck tire:** increased payloads and lower fuel consumption. Michelin replaced traditional twin truck tires with its MICHELIN X-One™ single truck tire.

2001 **Tires as a service:** improving safety, energy efficiency, longevity, while optimizing fleet management and reducing costs. From per-kilometer tire maintenance in the 1940s to the creation of Michelin Fleet Solutions in 2001 to the current Services & Solutions offer, Michelin delivers sustainable benefits to fleets.

2003 **The low-impact agriculture tractor tire:** reduced soil compaction and rutting, better efficiency, higher farm yields. The MICHELIN Ultraflex™ technology's sidewall flexion enables the tractor to operate with lower tire pressure which in turn protects soils.

2012 **Tires made for electric mobility:** safety combined with energy efficiency. The MICHELIN Energy™ E-V tire was the first tire especially designed for electric vehicles to receive the A rating for both wet braking and energy efficiency on the European label.

SUSTAINABILITY TODAY MEANS BUILDING A CIRCULAR ECONOMY

2014

Well before Michelin baptized its approach to the circular economy in 2014, it was already applying the 4R principles of reducing, reusing, recycling and renewing tire design, manufacturing, logistics, services for tires in use and end-of-life recovery.

Transitioning from a linear economic model based on "take-make-dispose" to a circular economy in which waste and pollutionare designed out, products and materials are kept in use and natural systems are regenerated* is imperative for responsibly using the Earth's limited resources.

The 4R framework guides our innovations and research, our environmental policy for operations, as well as our partnerships and involvement in sustainable mobility ecosystems

*Michelin embraces this circular economy concept as articulated by the Ellen MacArthur Foundation. https://www.ellenmacarthurfoundation.org/circular-economy/concept.

SUSTAINABILITY TODAY MEANS PERFORMANCE MADE TO LAST

2017

Our ongoing efforts to reduce carbon emissions naturally extend to the customer experience, with tires that are increasingly durable safe and energy efficient. By extending the life of our products, Michelin is proving that tires can and must offer very high performance until the tread wear indicators appear. If drivers used their tires until the legal tread depth of 1.6 mm, this would avoid wasting up to 400 million tires and emitting up to 35 million tons of CO_2 each year.*

Long-lasting tires: a great value for consumers

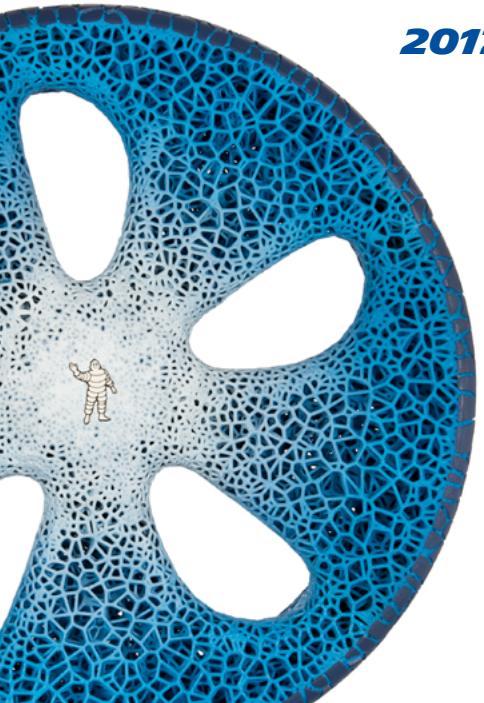
Save time & money
by keeping excellent tire mileage until the legal wear limit (1.6mm or 2/32nds)

Replacing fewer tires means saving saving resources and reducing waste

Reduce fuel consumption
as tire energy efficiency increases with mileage

*Worldwide estimations based on data from the EY report "Planned obsolescence is not inevitable", June 2017, and an internal study "Worldwide calculations_2016-09-27".

SUSTAINABILITY IS GUIDING OUR INNOVATION AND DESIGN PROCESS WELL INTO THE FUTURE



2017

VISION Concept Tire

It all started with design thinking around sustainable mobility. From a collaborative, user-centric process drawing on a diversity of expertise the Vision tire was born.

Combining technologies and services, Vision is a light, highly robust airless tire-wheel combination made from recycled and bio-sourced materials that last the life of the vehicle. The tread can be recharged on demand using a 3D printer, and connectivity enables the driver to receive advance warning of a potential problem.

Protected by 19 patents, Vision's innovations are inspiring our R&D teams across the organization, guiding advanced research on sustainable materials, light-weight designs and connectivity to build sustainable performance into future tire lines.

1 100% SUSTAINABLE MATERIALS

2 RECHARGEABLE TREAD

3 CONNECTED

4 AIRLESS

DELIVERING ON THE SUSTAINABLE VISION

2019

A new generation of airless solutions

Drawing on the sustainable features of the VISION concept, Uptis* is a prototype airless passenger car tire featuring ground-breaking improvements in architecture and composite materials which enable it to bear the car's weight at road-going speeds. Developed with General Motors, Uptis eliminates any risk of flats and blowouts, while making pressure checks obsolete. These advantages improve driving safety, reduce down time for repairs and optimize the productivity of vehicle fleets. Moreover, Uptis is adapted to the emerging forms of mobilities, whether electric, shared, autonomous or other.

Environmental benefits: Uptis eliminates the need for a spare tire and therefore the need to produce one, avoiding all the inputs – raw materials, energy, water – and the outputs – waste, CO_2 and other emissions, wastewater. Widely deploying Uptis innovations would result in considerable environmental savings: approximately 200 million tires worldwide are scrapped prematurely every year** as a result of punctures, damage from road hazards or uneven wear from improper air pressure.

From prototype to reality: The first on-road application of Uptis is planned for 2024.

*Unique puncture-proof tire system.
**In-house "scrapyard" survey (2012-2015) based on a sample of 135,000 tires and extrapolated on a global scale (~1 billion end-of-life tires are discarded/year).

Uptis development is supported through:

1 INNOVATION & TECHNOLOGY

2 VALUED PARTNERSHIPS

3 SUSTAINABLE DESIGNS

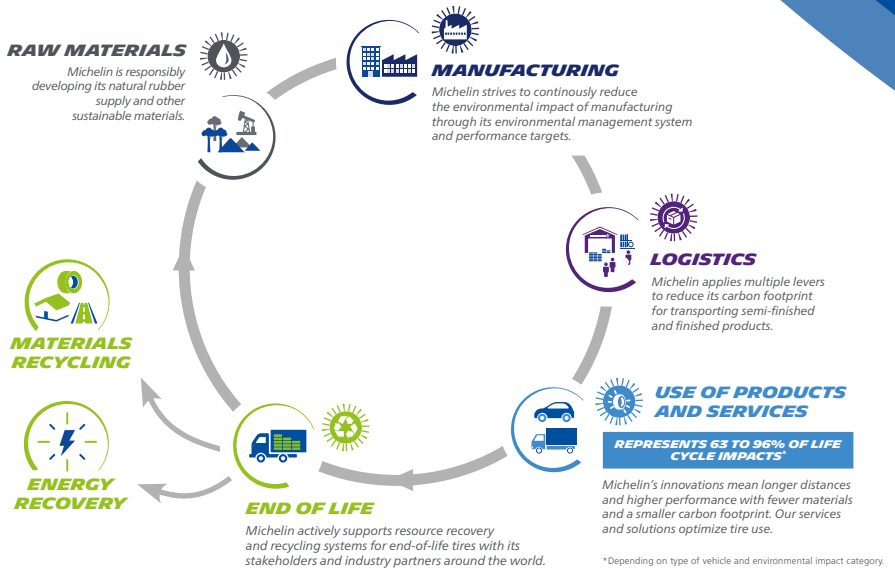
SUSTAINABILITY MEANS REDUCING THE LIFE CYCLE IMPACTS OF OUR PRODUCTS AND SERVICES

Across the value chain Michelin is:

- Reducing CO_2 emissions to achieve its targets validated by SBTi*
- Taking multiple actions under its biodiversity commitments
- Integrating life cycle assessment into the tire design process

We are developing a range of sustainable materials solutions, including micronized rubber powders from scrap tires and bio-sourced butadiene and resins.

As one of the world's leading users of natural rubber, Michelin was the first tire manufacturer to pursue a sustainable sourcing strategy built on the principles of zero deforestation, land conservation and respect for supplier communities.



*Science Based Targets initiative: https://sciencebasedtargets.org/.

SUSTAINABILITY MEANS REDUCING THE LIFE CYCLE IMPACTS OF OUR PRODUCTS AND SERVICES

2020

The **MICHELIN e•PRIMACY** was created through an eco-design process involving the evaluation of environmental impacts across the stages of the tire's life cycle, in comparison to the previous design.

Several types of environmental impacts were evaluated in this life cycle assessment (LCA):

- direct impacts to global warming and to ecosystem and human health
- indirect impacts from the use and reuse of resources.

What we learned from the LCA:

The LCA enabled a better understanding of the how the tire's design and performances impact the environment.

The R&D team compared different design scenarios to optimize the tire's performance, particularly regarding energy efficiency (rolling resistance) and longevity, and to minimize the environmental impacts, notably the contribution to global warming and use of resources.

MICHELIN e·PRIMACY

Eco-design, made to last

MICHELIN eco-designed summer tire for fuel, hybrid and electric vehicles

The range chosen by OEM looking for low fuel consumption

1st eco-designed tire range within a MICHELIN offer using life cycle assessment

Made in Europe

(a) Fuel efficiency class. | (b) Wet grip class. | (c) External rolling noise class and measured value in decibel (dB).

MICHELIN e•PRIMACY

Rolling Resistance

Energy passive compound: A unique high-elasticity elastomer. The better coupling between the elastomer and the filler allows for lower energy dissipation in the tire leading to lower rolling resistance and therefore a reduction in fuel consumption. The compound microstructure designed for a higher elastomer strength also improves longevity.

Slim belt: thinner top belts with fewer raw materials at equivalent strength, improving fuel consumption or autonomy for electrical vehicles.

Energyairshield: Super airtight layer with low energy dissipation leading to a better fuel consumption or more autonomy for electric vehicles.

Coolrunning sidewall: Energy absorbed by the sidewall during flexion is lower compared to standard sidewall, contributing to lower fuel consumption or more autonomy for electric vehicles.

Safety

U-shape groove: Thanks to a safety oriented new pattern design, MICHELIN e•PRIMACY tire maintains a high level of water clearance from the first to the last kilometer.

Longevity

MaxTouch Construction: Maximizes the tire's contact with the road and evenly distributes the forces of acceleration, braking and cornering, delivering longer tread life without sacrifice.

MICHELIN e•PRIMACY

205/55 R16 91V

SYNTHETIC RUBBER
1.94KG (24.5%)

NATURAL RUBBER
1.60KG (20.3%)

STEEL
0.87KG (11.1%)

TEXTILES
0.33KG (4.2%)

SILICA
0.75KG (9.5%)

CARBON BLACK
1.26KG (15.9%)

OTHER MATERIALS*
1.14KG (14.5%)

**Chemicals and additives*

CONTENT DECLARATION

EPD type and region of applicability:
Cradle to grave, Europe

Tire designation information:
- Tire size: 205/55 R16
- Tire mass: 7.90kg
- Tire sub-categories: Passenger car tire
- Nominal section width: 205mm
- Aspect ratio: 55
- Casing construction: 1 ply polyester
- Rim diameter: 16 inches
- Load index: 91
- Speed rating: V

Retreadability:
No

Rolling resistance coefficient value:
5.7kg/t

Tire category:
Passenger car tire

Functional unit:
1 tire driven 1000km

LCA software:
Simapro release 9.0.0.48

LCI databases:
EcoInvent 3.5

Plant:
Michelin plant in Cuneo, Italy

An EPD® within the same product category but from different programmes may not be comparable.

Calculated impacts are only related to tires within the scope of this PCR and shall not be compared to vehicle performance.

UNDERSTANDING ENVIRONMENTAL PERFORMANCE

Contribution to global warming is measured by the emission of **greenhouse gases.**

Ecosystem health impacts are measured by:

- Emissions of sulfur dioxide and other chemical substances that create **acid rain** which in turn damages terrestrial and freshwater ecosystems in a process called "acidification "
- Released chemicals that damage **the ozone layer** and its ability to absorb ultraviolet radiation that is harmful to plant life
- Nutrients that **degrade freshwater bodies** through the loss of oxygen and acidification in a process called "eutrophication"

Human health impacts are measured by:

- **Air pollution** caused by:
  - emissions of **particulate matter**
  - formation of **photochemical ozone,** a major contributor to **smog**
- released chemicals that **damage the ozone** layer and its ability to absorb ultraviolet radiation that is harmful to humans

Use of ressource:

- withdrawal of freshwater
- energy generation from both renewable and non-renewable sources
- depletion of minerals, fossil fuels and other non-living or "abiotic" resources that are non-renewable

Reuse of resources:

- mass of the product remaining at end of life
- ability to reuse the product's components
- recycling of the product by recovering materials and energy

***Product stage:** it represents the cradle-to-gate impacts of a tire, including the processes that provide the material and energy inputs into the product system, manufacturing of raw materials into the finished tire, and transport processes up to the factory gate, as well as the processing of any waste arising from the processes.

***Mounting stage:** includes the activities from the tire factory to the final user, i.e. successive transport stages.

***Use stage:** includes the activities covering the period from the handover of the tire until it reaches its end of life, including the fuel/energy consumption and related emissions attributable to the tire, and particle emissions related to tire and road abrasion.

***End of life stage:** The end of life stage of the tire product starts when it is removed from the vehicle, does not provide any further operational function, and is at the end of the reference service life. It includes the transportation of the tire to the end of life treatment facility and the end of life treatment of tires being landfilled or incinerated without energy recovery.

(*) see UL PCR Tires: UL 10006 version 3.04 for any further details

ENVIRONMENTAL IMPACT CATEGORY

			PRODUCT STAGE			MOUNTING STAGE	USE STAGE	END OF LIFE STAGE	
Europe (ILCD Method)	UNIT	TOTAL	RAW MATERIALS	TRANSPORTATION	MANUFACTURING	DISTRIBUTION	TIRE IN USE	TIRE END OF LIFE TRANSPORTATION	TIRE END OF LIFE TREATMENT
Global warming potential	kg Co_2eq	8.51E+00	3.76E-01	3.40E-02	4.89E-02	2.47E-02	8.03E+00	7.27E-05	6.03E-05
Acidification potential	mol H+eq	2.69E-02	2.47E-03	3.70E-04	3.51E-04	1.14E-04	2.36E-02	3.01E-07	5.36E-07
Eutrophication potential (freshwater aquatic)	kg Peq	3.39E-04	1.47E-04	3.36E-06	9.80E-06	2.98E-06	1.76E-04	5.93E-09	1.92E-08
Photochemical ozone formation potential	kg NMVOCeq	2.18E-02	1.43E-03	2.50E-04	9.91E-05	1.11E-04	2.00E-02	2.87E-07	5.45E-07
Ozone depletion potential	kg CFC-11eq	1.52E-06	4.80E-08	6.03E-09	7.66E-09	4.44E-09	1.46E-06	1.34E-11	1.64E-11
Abiotic depletion potential	kg Sbeq	3.85E-05	1.63E-05	1.81E-06	2.47E-07	1.78E-06	1.84E-05	5.53E-09	1.40E-09

INDICATORS DESCRIBING RESOURCE USE

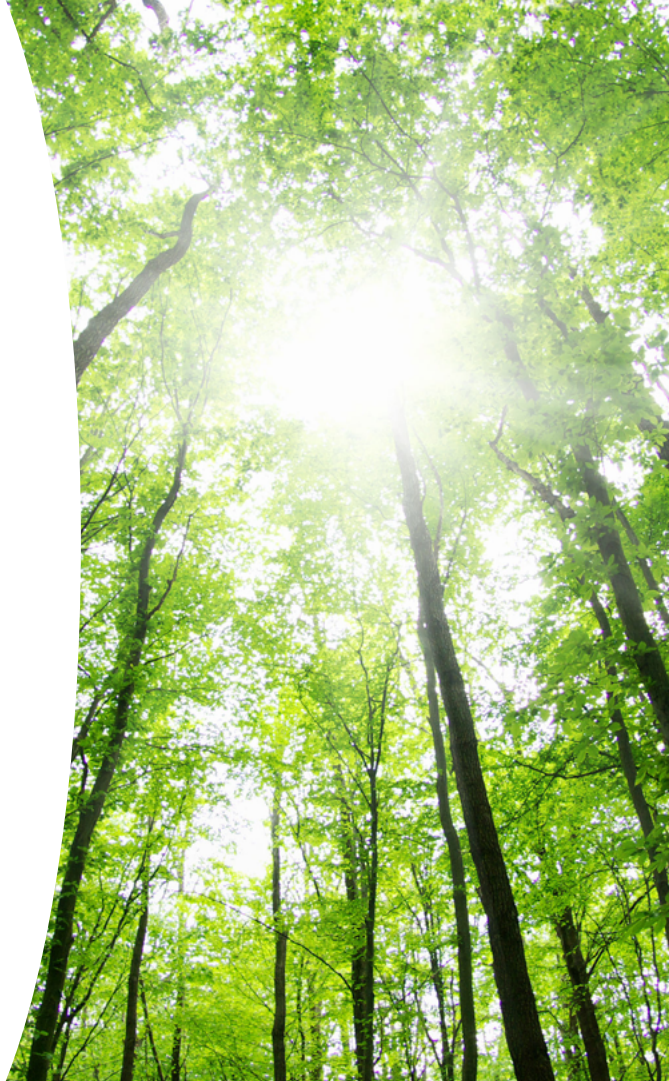
			PRODUCT STAGE			MOUNTING STAGE	USE STAGE	END OF LIFE STAGE	
	UNIT	TOTAL	RAW MATERIALS	TRANSPORTATION	MANUFACTURING	DISTRIBUTION	TIRE IN USE	TIRE END OF LIFE TRANSPORTATION	TIRE END OF LIFE TREATMENT
Total use of RENEWABLE primary energy	MJ	9.50E-01	2.88E-01	8.66E-03	1.24E-01	5.20E-03	5.24E-01	1.18E-05	2.40E-05
Total use of NON-RENEWABLE primary energy	MJ	1.34E+02	9.63E+00	5.45E-01	7.92E-01	4.02E-01	1.23E+02	1.19E-03	1.64E-03
Use of fresh water resources	m^3	6.33E-02	1.81E-02	4.67E-04	4.87E-03	3.29E-04	3.95E-02	8.01E-07	1.97E-05

INDICATORS DESCRIBING PARTICULATE EMISSIONS

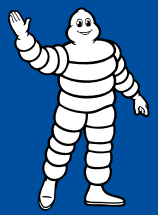
	Unit per FU/DU	TOTAL
Particulate matter (PM10)	kg	4.75E-04
Particulate matter (PM2.5)	kg	1.46E-04

INDICATORS DESCRIBING WASTE AND RESOURCE RECOVERY

	Unit per FU/DU	TOTAL
Tire end-of-life treatment	kg	1.25E-01
Components for reuse	kg	0.00E+00
Materials for recycling	kg	6.58E-02
Materials for energy recovery	kg	4.76E-02
Exported energy (materials for energy recovery)	MJ	1.44E+00



EPD PROCESS CERTIFICATION		CONTACT	LCA AUTHOR	PROGRAMME OPERATOR
EPD® THE INTERNATIONAL EPD® SYSTEM	BUREAU VERITAS 1828 BUREAU VERITAS	MICHELIN	MICHELIN	EPD® THE INTERNATIONAL EPD® SYSTEM
- **Product category rules (PCR):** Tires - **UL PCR Tires: UL 10006 version 3.04** (November 2017) - **PCR review was conducted by:** The Technical Committee of the International EPD® System. The PCR review panel may be contacted via info@environdec.com. - **Independent verification of the declaration and data, according to ISO 14025:2010** ☐ EPD® Process Certification (internal) ☒ EPD® Verification (external)	- **Third party verifier:** Damien PRUNEL, LCA & Ecodesign consultant LCIE BUREAU VERITAS 33, Avenue du Général Leclerc 92260 Fontenay aux Roses - FRANCE damien.prunel@bureauveritas.com - **Accredited by:** Recognized individual verifiers, approved by the International EPD® System.	**Manufacture Française des Pneumatiques MICHELIN** 23, Place des Carmes Dechaux 63040 Clermont-Ferrand Cedex 09 FRANCE For additional information related to the activities of the Michelin Group: www.michelin.com In regards to this environmental declaration, please contact: **Nicolas Beaumont**, Sustainable Development and Mobility department, nicolas.beaumont@michelin.com	**Vincent Debost** vincent.debost@michelin.com	**EPD® International AB** info@environdec.com **The International EPD® System** EPD International AB Box 210 60 SE-100 31 Stockholm Sweden www.environdec.com



General Programme Instructions of the International EPD® System.
Version 3.01 | 2019-09-18

All Contents – RCS 495 289 399 - 2021-09 - 20040169