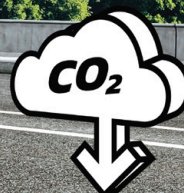


**MICHELIN UNVEILS THE**  
**MICHELIN X<sup>®</sup>**  
**LINE ENERGY<sup>™</sup> 3**  
**AND**  
**MICHELIN X<sup>®</sup>**  
**MULTI ENERGY<sup>™</sup> 2**



**PRESS KIT**

SEPTEMBER 16, 2024





# *MICHELIN UNVEILS THE **MICHELIN X<sup>®</sup> LINE ENERGY™ 3** AND **MICHELIN X<sup>®</sup> MULTI ENERGY™ 2***



**“Two tire ranges  
that deliver excellent  
fuel savings without  
compromising the other  
performances”**

1

At the IAA Transportation exhibition in Hannover, Germany, Michelin is revealing the **MICHELIN X<sup>®</sup> LINE ENERGY™ 3** and the **MICHELIN X<sup>®</sup> MULTI ENERGY™ 2** ranges. These ranges, specifically designed for long-distance and regional journeys, deliver excellent results in their market segment in terms of fuel savings<sup>(1)</sup> and lateral grip<sup>(2)</sup>, without compromising on other key performance metrics such as mileage, robustness and retreadability.

2

Michelin's technological know-how channeled into uncompromising performance.

3

Overall performance backed by a range of connected services to meet customers' demanding requirements.

*SPECIFICALLY DESIGNED FOR LONG-DISTANCE AND REGIONAL APPLICATIONS, THE **MICHELIN X® LINE ENERGY™ 3** AND **MICHELIN X® MULTI ENERGY™ 2** RANGES DELIVER UNCOMPROMISING, OPTIMAL ENERGY PERFORMANCE*

In an increasingly complex environment, some fleet managers may feel they need to compromise on their choice of tires. In launching the **MICHELIN X® LINE ENERGY™ 3** and **MICHELIN X® MULTI ENERGY™ 2** ranges, Michelin has positioned itself as the market leader for fuel savings<sup>(1)</sup> and lateral grip<sup>(2)</sup> without sacrificing the other performance metrics.



The optimal energy performance of the **MICHELIN X® LINE ENERGY™** and **MICHELIN X® MULTI ENERGY™ 2** ranges also enables fleet managers to take another step towards the ecological transition and into line with the current regulations.

**Whether for long-distance or regional journeys, Michelin is proving to its customers that it is possible to deliver all of the benefits combined.**

## THE MICHELIN X<sup>®</sup> LINE ENERGY™ 3 RANGE:

With two flagship tire sizes:

MICHELIN X<sup>®</sup> LINE ENERGY™ Z3 315/60 R 22.5

& MICHELIN X<sup>®</sup> LINE ENERGY™ D3 295/60 R 22.5

**The MICHELIN X<sup>®</sup> LINE ENERGY™ 3 range is specifically designed to meet the requirements of general freight shipping on long-distance toll roads.**



**Fuel savings<sup>(1)</sup>:** The MICHELIN X<sup>®</sup> LINE ENERGY™ 3 range is the first long-haul tire range in the 60 series to obtain the A energy-efficiency rating. It is the market leader for fuel savings<sup>(1)</sup>, beating premium brands' average by 0.62 L/100km. This cost saving represents between €700 and €2,200 per truck and per year, based on 0.3 L to 0.9 L/100 km x 150,000 km at a price of €1.65/liter.



**Reduced CO<sub>2</sub> emissions<sup>(4)</sup>:** The MICHELIN X<sup>®</sup> LINE ENERGY™ 3 range makes it possible to reduce CO<sub>2</sub><sup>(4)</sup> emissions by up to 2.03 kg/100 km, or over 3 tonnes per 150,000 km by comparison with other premium brands.



**Safety:** By improving lateral grip<sup>(2)</sup> by +4.42% (in new tires) and 2.02% (two-thirds worn tires) compared with the previous range, the MICHELIN X<sup>®</sup> LINE ENERGY™ 3 range achieves better performances than the other premium brands on the long-haul market (60 series).

**These performances have been improved without compromising the mileage performance<sup>(3)</sup>, which is better than that of the previous range.**





## THE MICHELIN X<sup>®</sup> MULTI ENERGY<sup>™</sup> 2 RANGE:

With two flagship tire sizes:

MICHELIN X<sup>®</sup> MULTI ENERGY<sup>™</sup> Z2 315/70 & 80 R 22.5

& MICHELIN X<sup>®</sup> MULTI ENERGY<sup>™</sup> D2 315/70 & 80 R 22.5

The MICHELIN X<sup>®</sup> MULTI ENERGY<sup>™</sup> 2 range offers a versatility of applications, whether for traveling on toll roads, national or local roads.



**Fuel savings<sup>(1)</sup>:** The MICHELIN X<sup>®</sup> MULTI ENERGY<sup>™</sup> range is the market leader for the regional and toll road segment in terms of fuel savings<sup>(1)</sup>, improving on premium brands' average by 0.16 L/100 km. This cost saving represents between €100 and €380 per truck per year, with a consumption difference ranging from 0.06 L/100 km to 0.23 L/100 km over 100,000 km, at a price of €1.65/liter.



**Reducing CO<sub>2</sub><sup>(4)</sup> emissions:** The MICHELIN X<sup>®</sup> MULTI ENERGY<sup>™</sup> 2 range makes it possible to reduce CO<sub>2</sub><sup>(4)</sup> emissions by up to 0.52 kg/100 km, or over 0.52 tonnes per 100,000 km, by comparison with other premium brands.



**Safety:** By improving lateral grip<sup>(2)</sup> by +5.06% (in new tires) and +5.67% (two-thirds worn tires) compared with the previous range, the MICHELIN X<sup>®</sup> MULTI ENERGY<sup>™</sup> range outperforms the other premium brands on the regional segment.

These performances have been improved without compromising the mileage performance<sup>(3)</sup>, which is better than that of the previous range.

Designed to live up to users' expectations and usage conditions, the MICHELIN X<sup>®</sup> LINE ENERGY<sup>™</sup> 3 et MICHELIN X<sup>®</sup> MULTI ENERGY<sup>™</sup> 2 have also been developed to help reduce carriers' environmental footprint by leveraging the Group's technological advance in rolling resistance and recycled or biosourced materials.

These regroovable and retreadable ranges allow users to take full advantage of the tires' performances over several lifetimes, all while reducing the consumption of raw materials.



## ***MICHELIN'S TECHNOLOGICAL KNOW-HOW CHanneLED INTO UNCOMPROMISING PERFORMANCE***

A long history of providing fleets with innovations, advice and support has enabled Michelin to forge its reputation as a benchmark manufacturer in the world of road transportation, with high-performance and increasingly long-lasting tires. It is in the Group's DNA to offer high-quality tires to satisfy its customers.



This history and a heavy investment in research and development enable Michelin to meet a wide range of seemingly contradictory challenges (mileage vs energy efficiency, or the environment vs safety) in order to create its tires, the ultimate composites of over 200 materials.

For over 130 years, Michelin has been exploring the possibilities opened up by materials science. With over 11,000 active patents worldwide, a 1.2 billion euro innovation budget and a team of 6,000 people in R&D, Michelin is backed by a unique innovation power.

Innovation in truck tires makes it possible to improve their performance and reduce their environmental impact, all while helping fleet managers anticipate their running costs.

## The MICHELIN X<sup>®</sup> LINE ENERGY<sup>™</sup> 3 and MICHELIN X<sup>®</sup> MULTI ENERGY<sup>™</sup> 2 ranges feature:

### A ROBUST, LIGHT, FLEXIBLE CASING

Advanced technologies such as INFINICOIL and POWERCOIL yield a casing that is robust, light and flexible, and which can deliver outstanding service life and longevity, along with energy efficiency, thanks to a regular, perfectly controlled contact patch.

- > **INFINICOIL TECHNOLOGY** incorporates a continuous steel belt that can be up to 400m long and which is wound around the tire. This steel belt provides greater stability, improved endurance, higher mileage and increased fuel savings.
- > **POWERCOIL TECHNOLOGY** is a new generation of more robust steel cords that provide better resistance to oxidation and make the casing longer-lasting. These steel cords are lighter, which translates into improved rolling resistance.

**Note that 90% of the MICHELIN carcasses submitted for REMIX retreading are accepted<sup>(5)</sup>.**

### HIGH-TECH MATERIALS

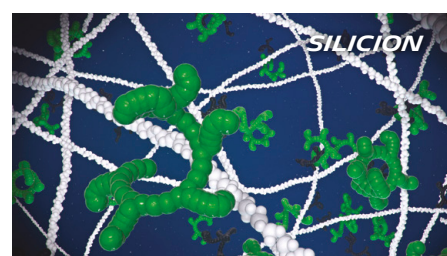
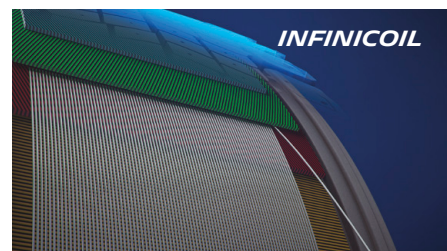
Michelin is recognized for designing products with increasingly long-lasting performances, thanks to its unique innovation power, rooted in its proficiency in materials.

- > **CARBION TECHNOLOGY** is a material resulting from an innovative mixing process in which certain tread components are mixed when liquid, creating a more uniform material. This material increases the tire's mileage performance and improves rolling resistance.
- > **SILICION TECHNOLOGY** incorporates a high percentage of silica into the tread rubber, pushing back the limits of rolling resistance to save fuel without compromising tire longevity.

### SELF-REGENERATING TREAD BLOCKS

Michelin launched its first tire produced from a 3D-printed mold in 2012. For over a decade, the Group has been honing the use of this technology to obtain the most efficient and sustainable performances, from the first to the last millimeter.

- > **REGENION TECHNOLOGY**: The award-winning REGENION technology consists in self-regenerating tread blocks, supported by 3D metal printing techniques providing strong grip throughout the tire's lifetime. The tread is more compact and more rigid, thereby reducing fuel consumption and increasing mileage.





### **OVERALL PERFORMANCE BACKED BY A RANGE OF CONNECTED SERVICES**

Michelin is not content to simply manufacture high-performance tires. The overall performance of its tires is bolstered by MICHELIN Connected Mobility, a range of connected services based on the assessment and analysis of fleet data (vehicle, drivers, etc.) together with personalized customer support for safer, more efficient and more sustainable operations.

From selecting the most suitable tires to managing the tire fleet, monitoring the tire budgetary item or automated inspection, Michelin makes the Group's extensive expertise available to its customers.



**MICHELIN Connected Mobility** makes it possible to reduce maintenance time and vehicle downtime. Operations on tires are more efficiently scheduled, unnecessary tire changes are avoided and the costs are significantly lower.

**MICHELIN Connected Mobility is underpinned by four main priorities:**



Using the most suitable tires, improving pressure control and extending tires' useful life will reduce fuel consumption and the associated CO<sub>2</sub> emissions. **MICHELIN Connected Mobility** accordingly reduces the carbon footprint by up to 12%<sup>(6)</sup>.

Michelin, which is recognized for its consummate knowledge of tire usage data and of vehicle and driver behaviors, has, in recent years, acquired a unique expertise in leveraging mobility data. Today the Group is a key player in connected products and services that enhance its customers' experiences on an everyday basis.



Michelin is building a world-leading manufacturer of composites and experiences that transform our everyday life. Pioneering engineered materials for more than 130 years, Michelin is uniquely positioned to make decisive contributions to human progress and a more sustainable world.

Drawing on its technological leadership in polymer composites, Michelin is constantly innovating to manufacture high-quality tires and critical components for such demanding and varied fields as mobility, construction, aeronautics, low-carbon energies and healthcare

The care taken with its products and its deep knowledge of their applications equip the Group to offer its customers unparalleled experiences, whether in data-driven, artificial intelligence-based solutions for business fleets, or by finding remarkable restaurants and hotels recommended by the MICHELIN Guide.



#### <sup>1</sup> Fuel savings:

**XLE3:** Michelin internal fuel consumption tests by comparison with the competitors. Duration: 65,975 km on an open toll road in the south of Spain. April - June 2024 under Dekra supervision (Report 23CPA11-239 - Lorca - CR Final). MICHELIN X<sup>®</sup> Line Energy™ Z3 & X<sup>®</sup> Line Energy™ D3, Continental Ecoplus HS3+ & HD3+, Bridgestone Ecopia H-Steer 002 & Ecopia H-Drive 002, Goodyear FUELMAX S Endurance & FUELMAX D mounted on the same Volvo FH500 I-Save trucks, carrying a 40 tonne load. Fuel savings measured on the basis of fuel consumption while the vehicle was being driven (Source: Volvo Connect KPI = fuel L/100 km). Actual consumption during testing: with MICHELIN X<sup>®</sup> Line Energy™ Z3 & X<sup>®</sup> Line Energy™ D3 = 30.30L/100km Continental Ecoplus HS3+ & HD3+ 30.90L/100km. Bridgestone Ecopia H-Steer 002 & Ecopia H-Drive 002 = 30.60L/100km and Goodyear FUELMAX S Endurance & FUELMAX D = 31.25L/100km, therefore competitor's average consumption: 30.92L/100km. Average difference in consumption by comparison with the competitors 30.92 - 30.30 = 0.62L/100km. Based on the cost of diesel at €1.65/L and an average distance per truck and per year in long-distance usage of 150,000 km, estimated savings per truck = calculated at €1,534. 0.62x1,500x€1.65 = €1,534.

**XME2:** Michelin internal fuel consumption tests by comparison with the competitors. Duration 53,933 km, south of Spain on open roads, April - July 2024, under Dekra supervision (Report 23CPA11-239 - Sorbas - Final Report). Identical Volvo FH500 I-Save trucks, fully charged at 40 tonnes, fitted with 315/70R22.5 MICHELIN X<sup>®</sup> Multi Energy™ Z2 & D2 tires vs competitors: Continental EcoRégional HS3+ & HD3+, Bridgestone Duravis R-Steer 002 & Duravis R-Drive 002, Goodyear FUELMAX S Endurance & FUELMAX D Endurance et Hankook Smartflex AL51 & DL51. Fuel savings are measured on the basis of the fuel consumption when the vehicle is driven (Source Volvo Connect KPI = fuel consumption L/100 km). Actual consumption during testing: MICHELIN X<sup>®</sup> Multi Energy™ Z2 & D2: 33.7L/100km. Continental EcoRégional HS3+ & HD3+: 33.9L/100km. Bridgestone Duravis R-Steer 002 & Duravis R-Drive 002: 33.8L/100km. Goodyear FUELMAX S Endurance & FUELMAX D Endurance: 33.9L/100km. Hankook Smartflex AL51 & Smartflex DL51: 33.9L/100km. Competitors' average consumption: 33.9L/100km (33.9 + 33.8 + 33.9 + 33.9)/4. XMulti Energy 2: 0.2L/100km less than the average of the competitors (33.9 L/100km - 33.7 L/100km)

#### <sup>2</sup> Lateral grip:

**XLE3:** MI 6%\* better lateral grip than the average of the competitors, with new and worn tires

MI 10%\* better lateral grip than the average of the competitors, with worn tires

\* Internal MICHELIN study conducted at the MICHELIN TECHNOLOGY CENTER Ladoux (France) in May 2024 under DEKRA supervision (Report 23CPAEXT - 239). 110 m diameter ring on a wet surface, water height 2.5mm, with three identical Volvo FM12 rigid trucks carrying a full load (19 tonnes) fitted with 315/60R22.5 & 295/60R22.5 tires in new and worn conditions at the same stage of wear (approximately 5mm) with identical pressure (front 9.0b; rear: 8.0.b). MICHELIN X<sup>®</sup> Line Energy™ Z3 & X<sup>®</sup> Line Energy™ D3 vs the following competitors: Continental Ecoplus HS3+ & HD3+, Bridgestone Ecopia H-Steer 002 & Ecopia H-Drive 002, Goodyear FUELMAX S Endurance & FUELMAX D.

Lap time in seconds: On average, with new tires: Michelin X<sup>®</sup> Line Energy™ Z3 & X<sup>®</sup> Line Energy™ D3 in 36.7 seconds, on average, with the competitors' tires in 39 seconds. Michelin is therefore 6% faster. In the same driving conditions as during the tests, extrapolating these results over 100 km would yield the following results: Michelin X<sup>®</sup> Line Energy™ Z3 & X<sup>®</sup> Line Energy™ D3 saves 35 minutes by comparison with the average of the competitors. On average, with worn tires: Michelin X<sup>®</sup> Line Energy™ Z3 & X<sup>®</sup> Line Energy™ D3 in 38.2 seconds, on average, with the competitors' tires in 42 seconds. Michelin is therefore 10% faster. In the same driving conditions as during the tests, extrapolating these results over 100 km would yield the following results: Michelin X<sup>®</sup> Line Energy™ Z3 & X<sup>®</sup> Line Energy™ D3 can save 57 minutes by comparison with the average of the competitors. The actual results may vary in real conditions/depending on road conditions and/or weather conditions.

**XME2:** MI 5%\* better lateral grip than the average of the competitors, with new and worn tires. MI 10%\* better lateral grip than the average of the competitors, with worn tires.

\* Internal MICHELIN study conducted at the MICHELIN TECHNOLOGY CENTER Ladoux (France) in May 2024 under DEKRA supervision (Report 23CPAEXT - 239). 110 m diameter ring on a wet surface, water height 2.5mm, with three identical Volvo FM12 rigid trucks with a full load (19 tonnes) fitted with 315/70R22.5 tires in new and worn conditions at the same stage of wear (approximately 5mm) with identical pressure (front 8.5b; rear: 7.5.b). MICHELIN X<sup>®</sup> Multi Energy™ Z2 & D2 vs the following competitors: Continental EcoRégional HS3+ & HD3+, Bridgestone Duravis R-Steer 002 & Duravis R-Drive 002, Goodyear FUELMAX S Endurance & FUELMAX D Endurance et Hankook Smartflex AL51 & DL51.

Lap time in seconds: With new tires: Michelin X<sup>®</sup> Multi Energy™ Z2 & D2 in 36.5 seconds, on average, with the competitors' tires in 38.4 seconds. Michelin is therefore 5% faster. In the same driving conditions as during the tests, extrapolating these results over 100 km would yield the following results: Michelin X<sup>®</sup> Multi Energy™ Z2 & D2 save 28 minutes by comparison with the average of the competitors. With worn tires: Michelin X<sup>®</sup> Multi Energy™ Z2 & D2 in 37.9 seconds, on average, with the competitors' tires in 41.6 seconds. Michelin is therefore 10% faster. In the same driving conditions as during the tests, extrapolating these results over 100 km would yield the following results: Michelin X<sup>®</sup> Multi Energy™ Z2 & D2 save 56 minutes by comparison with the average of the competitors. The actual results may vary in real conditions/depending on road conditions and/or weather conditions.

### <sup>3</sup> Mileage:

XLE3 Michelin is running internal tests of mileage performance for comparison with the previous X LINE ENERGY tire. Duration: 65,975 km on a toll road in the south of Spain. April - June 2024 under Dekra supervision (Report 23CPA11-239 - Lorca).

315/60R22.5 & 295/60R22.5: MICHELIN X<sup>®</sup> Line Energy™ Z3 & X<sup>®</sup> Line Energy™ D3 vs 315/60R22.5 & 295/60R22.5: MICHELIN X<sup>®</sup> Line Energy™ Z & X<sup>®</sup> Line Energy™ D. Projected mileage:

- X<sup>®</sup> Line Energy™ Z3 & X<sup>®</sup> Line Energy™ D3 : 182 263kms
- X<sup>®</sup> Line Energy™ Z & X<sup>®</sup> Line Energy™ D : 176 779kms
- Accordingly the new X<sup>®</sup> Line Energy™ 3 range yields an additional 3% mileage.

XME2 +4% by comparison with the earlier X<sup>®</sup> Multi Energy™ Z & D range. Michelin internal mileage tests by comparison with the previous generation. X<sup>®</sup> Multi Energy™ Z & D. Duration 53,933 km, south of Spain on open roads, April - July 2024, under Dekra supervision (Report 23CPA11-239-Sorbas-CR Final). Identical Volvo FH500 I-Save trucks, fully charged at 40 tons, fitted with 315/70R22.5 MICHELIN X<sup>®</sup> Multi Energy™ Z2 & D2 tires vs X<sup>®</sup> Multi Energy™ Z & D. Projected mileage with MICHELIN X<sup>®</sup> Multi Energy™ Z2 & D2: 177,908 km. Projected mileage with MICHELIN X<sup>®</sup> Multi Energy™ Z & D: 171,500 km.

### <sup>4</sup>Reduced CO2 emissions:

"The MICHELIN X<sup>®</sup> LINE ENERGY™3 range helps reduce CO<sub>2</sub> emissions by up to 2.03 kg/100 km, or over 3 tons per 150,000 km". Michelin ranked No.1 for CO<sub>2</sub> savings, X<sup>®</sup> Line Energy™ 3, 3 tons of CO<sub>2</sub><sup>(1)</sup> less than the competitors' average.

<sup>(1)</sup> Michelin internal fuel consumption tests by comparison with the competitors. Driven for 65,975 km on an open toll road in the south of Spain. April - June 2024 under Dekra supervision (Report 23CPA11-239). 315/60R22.5 & 295/60R22.5: MICHELIN X<sup>®</sup> Line Energy™ Z3 & X<sup>®</sup> Line Energy™ D3, Continental Ecoplus HS3+ & HD3+, Bridgestone Ecopia H-Steer 002 & Ecopia H-Drive 002, Goodyear FUELMAX S Endurance & FUELMAX D mounted on identical Volvo FH500 I-Save trucks, carrying a 40 ton load. CO<sub>2</sub> savings calculated on the fuel consumption findings. X<sup>®</sup> Line Energy™ 3 fuel consumption of 0.62 L/100km <sup>(2)</sup> is lower than the competitors' average. Fuel savings measured on the vehicles' fuel consumption while being driven (source: Volvo Connect indicator = Liter of diesel fuel/100 km while the vehicle is being driven).

<sup>(2)</sup> Fuel savings measured on the vehicles' fuel consumption while being driven (source: Volvo Connect indicator = Liter of diesel fuel/100 km). The MICHELIN vs competitors. Actual consumption figures during the tests:

With MICHELIN X<sup>®</sup> Line Energy™ Z3 & X<sup>®</sup> Line Energy™ D3 = 30.30L/100km, Continental Ecoplus HS3+ & HD3+ 30.90L/100km. Bridgestone Ecopia H-Steer 002 & Ecopia H-Drive 002 = 30.60L/100km and Goodyear FUELMAX S Endurance & FUELMAX D = 31.25L/100km, therefore competitors' average fuel consumption = 30.92L/100km.

<sup>(2)</sup> Average difference in consumption vs competitors: 30.92 - 30.30 = 0.62L/100km. Calculation based on the absolute kg of CO<sub>2</sub>/100km = Diesel: 3.38 kg CO<sub>2</sub> eq / Liter & an average distance travelled, in long-distance haulage applications, of 150,000 km per truck per year, kg of CO<sub>2</sub>/100km per brand:

With MICHELIN X<sup>®</sup> Line Energy™ Z3 & X<sup>®</sup> Line Energy™ D3 = 30.3L/100km, 30.3x 3.38 = 102.41 kg de CO<sub>2</sub>/100km. 102.41 x 1,500/1,000 = 153.62 tons of CO<sub>2</sub> per 150,000km. Continental Ecoplus HS3+ & HD3+; 30.90L/100km = 30.90x3.38 = 104.44 kg de CO<sub>2</sub>/100km. 104.44 x 1,500/1,000 = 156.66 tons of CO<sub>2</sub> per 150,000km. Bridgestone Ecopia H-Steer 002 & Ecopia H-Drive 002; 30.60L/100km = 30.60x3.38 = 103.43 kg de CO<sub>2</sub>/100km. 103.43 x 1,500/1,000 = 155.14 tons of CO<sub>2</sub> per 150,000km. Goodyear FUELMAX S Endurance & FUELMAX D = 31.2L/100km = 31.20x3.38 = 105.46 kg de CO<sub>2</sub>/100km. 105.46 x 1,500/1,000 = 158.18 tons of CO<sub>2</sub> per 150,000km. Therefore the competitors' average CO<sub>2</sub> production = 156.66 CO<sub>2</sub> tonnes. And the average of the CO<sub>2</sub> gains vs competitors = 3 tonnes of CO<sub>2</sub> (156.66-153.62=3.04).

<sup>(4)</sup> Index for converting L of diesel into kg of CO<sub>2</sub>: taken from the Ecoinvent 3.9 database and calculated with the EF 3.1 impact assessment method - Diesel: 3.38 kg CO<sub>2</sub> equivalent / L.

"The MICHELIN X<sup>®</sup> MULTI ENERGY™2 range helps reduce CO<sub>2</sub> emissions by up to 0.58 kg/100 km, or 0.52 tonnes per 100,000 km by comparison with the average of the competitors Bridgestone, Goodyear, Continental & Hankook." Michelin ranked No.1 for CO<sub>2</sub> savings, X<sup>®</sup> Multi Energy™ 2, 0.52 tonne of CO<sub>2</sub><sup>(1)</sup> vs the competitors' average.

<sup>(1)</sup> Michelin internal fuel consumption tests by comparison with the competitors. Driven for 53,999kms on an open toll road in the south of Spain. April - July 2024 under Dekra supervision (Report 23CPA11-239 Sorbas).

315/70R22.5 MICHELIN X<sup>®</sup> Multi Energy™ Z2 & X<sup>®</sup> Multi Energy™ D2, CONTINENTAL EcoRegional HS3+ & HD3+. BRIDGESTONE Duravis R-Steer 002 & Duravis R-Drive 002, GOODYEAR FUELMAX S Endurance & FUELMAX D endurance, HANKOOK Smartflex AL 51 & DL51 mounted on identical Volvo FH500 I-Save vehicles, carrying a 40 tonne load. CO<sub>2</sub> savings calculated on the fuel consumption findings. CO<sub>2</sub> savings achieved through XMULTI ENERGY 2 results, fuel consumption is 0.16 L/100 km<sup>(3)</sup> lower than that of the competition. Fuel savings measured on the basis of fuel consumption while the vehicle is driven (Source: Volvo Connect KPI = fuel L/100 km when driven).

<sup>(3)</sup> Fuel savings measured on the basis of fuel consumption while the vehicle was being driven (Source: Volvo Connect KPI = fuel L/100 km). Michelin by comparison with the competition. Actual consumption during testing:

With MICHELIN X<sup>®</sup> Multi Energy™ Z2 & X<sup>®</sup> Multi Energy™ D2 = 33.71L/100km, CONTINENTAL EcoRegional HS3+ & HD3+ 33.89L/100km. BRIDGESTONE Duravis R-Steer 002 & Duravis R-Drive 002 = 33.77L/100km and GOODYEAR FUELMAX S Endurance & FUELMAX D endurance = 33.94L/100km. HANKOOK Smartflex AL 51 & DL51: 33.86L/100km. As a result, the competitors' average fuel consumption is: 33.87L/100km. Average difference in consumption by comparison with the competitors: 33.87 - 33.71 = 0.16L/100km. Calculation based on the absolute kg of CO<sub>2</sub>/100km = Diesel: 3.38 kg CO<sub>2</sub> eq / Litre<sup>(4)</sup> & average distance per truck and per year for 100,000 km of regional transport, absolute kg of CO<sub>2</sub>/100km per brand: With MICHELIN X<sup>®</sup> Multi Energy™ Z2 & X<sup>®</sup> Multi Energy™ D2 = 33.71L/100km, 33.71x 3.38 = 113.94 kg of CO<sub>2</sub>/100km. 113.94 x 1,000/1,000 = 113.94 tonnes de CO<sub>2</sub> per 100,000km. CONTINENTAL EcoRegional HS3+ & HD3+; 33.89L/100km = 33.89 x 3.38 = 114.55 kg of CO<sub>2</sub>/100km. 114.55 x 1,000/1,000 = 114.55 tonnes of CO<sub>2</sub> per 100,000km. BRIDGESTONE Duravis R-Steer 002 & Duravis R-Drive 002; 33.77L/100km = 33.77x3.38 = 114.14 kg of CO<sub>2</sub>/100km. 114.14 x 1,000/1,000 = 114.14 tonnes of CO<sub>2</sub> per 100,000km. GOODYEAR FUELMAX S Endurance & FUELMAX D Endurance=33.94L/100km= 33.94x3.38 = 114.72 kg of CO<sub>2</sub>/100km. 114.72 x 1,000/1,000 = 114.72 tonnes of CO<sub>2</sub> per 100,000km. HANKOOK Smartflex AL 51 & DL51 = 33.86x3.38 = 114.45 kg of CO<sub>2</sub>/100km. 114.45 x 1,000/1,000 = 114.45 tonnes of CO<sub>2</sub> per 100,000km.

As a result, on average the competitors produce: 114.46 tonnes of CO<sub>2</sub>. And the average CO<sub>2</sub> reductions by comparison with the competitors is 0.52 tonne of CO<sub>2</sub> (114.46-113.94=0.52).

<sup>(4)</sup> Index for converting L of fuel into kg of CO<sub>2</sub>: taken from the Ecoinvent 3.9 database and calculated with the EF 3.1 impact assessment method - Diesel: 3.38 kg CO<sub>2</sub> eq / L.

<sup>5</sup>Retreading: Study conducted on over 473,000 casings between 2015 and 2018. Data collected in the United Kingdom by TRS, an independent casing collector; calculation of the retreading acceptance rate per brand, for a first retreading.

### <sup>6</sup>MICHELIN Connected Mobility reduces the carbon footprint by up to 12%:

Fuel consumption is reduced by up to 5% by fitting the fleet with MICHELIN X LINE Energy tires. Simulation conducted on April 4, 2023 using the VECTO (Vehicle Energy Consumption Calculation Tool) method, comparing a convoy (fitted with MICHELIN X LINE Energy Z2 & D2 315/70 R22.5 tires on the towing vehicle and MICHELIN X LINE Energy T 385/55R22.5 tires on the trailer axles) with another convoy (fitted with MICHELIN X MULTI Z & D 315/70 R22.5 tires on the towing vehicle and MICHELIN X MULTI T2 385/55R22.5 tires on the trailer axles), for 100% long-distance use and a total weight of 29 tonnes (towing vehicle + trailer + load).

**Usage up to an additional 1.3\* mm of rubber and a 1% reduction in fuel consumption.** Maximum gain in mm measured by regular use of Michelin QuickScan and the necessary maintenance. Comparative measurements, before and after installation of the Michelin QuickScan technology, involving 6,806 tires withdrawn between 2020 and 2022 at five sites belonging to six French carriers using the Michelin QuickScan technology. \* Michelin internal estimate based on a simulation of the fuel savings resulting from the use of the tires, conducted in 2022 using the following method: comparison of the fuel consumption of a convoy fitted with new tires and a convoy fitted with worn tires (minimum legal tread depth of 1.6 mm) in identical driving conditions (weather, road and driver behavior). Both convoys were fitted with MICHELIN X MULTI Z & D 315/70 R22.5 tires on the towing vehicle and MICHELIN X MULTI T2 385/55R22.5 tires on the trailer axles for 100% long-distance use and a total weight of 40 tonnes (towing vehicle + trailer + load), and a benchmark fuel consumption of 32.42 l/100. The fuel saving for an additional 1 mm of rubber used was 0.8%, i.e. a 1% reduction in fuel consumption for an additional 1.3 mm of rubber.

**A reduction in fuel consumption of up to 2% achieved by measuring tire pressure in real time and during servicing.** Michelin internal estimate in 2022 calculated on a simulation of the fuel savings using the following method: comparison of the fuel consumption of a convoy fitted with new tires at the recommended pressure and a convoy fitted with new tires under-inflated by 30% below the recommended pressure, in identical driving conditions (weather, road and driver behavior). Both convoys were fitted with MICHELIN X MULTI Z & D 315/70 R22.5 tires on the towing vehicle and MICHELIN X MULTI T2 385/55R22.5 tires on the trailer axles for 100% long-distance use, with a total weight of 40 tonnes (towing vehicle + trailer + load) and a benchmark fuel consumption of 32.42 l/100.

**A reduction in fuel consumption of up to 4% with Michelin Connected Fleet.** Minimum reduction in fuel consumption detected after 11 transport operations by Michelin Connected Fleet's European customers, involving their entire truck fleet, from 2019 to 2023.



**Photos available:**

<https://contentcenter.michelin.com:443/portal/shared-board/eaac2955-dd0a-4aa5-b7ea-48adea38fbf4>



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