

INDUSTRY EXPERT CALL
MICHELIN
TIRE EMISSION

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Speakers Introduction



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Michelin is taking action to reduce TRWP emissions

- **Tire and Road Wear Particles (TRWP)** represent a significant environmental question
- **Many factors influence their generation:** tire design is one of them, but not the main one. Some factors can increase emissions by 10 folds (e.g. driving style or road topology)
- Although it is mostly an industry topic, **Michelin is paving the way** for a reduction in these particles
 - By designing tires made with **less but innovative raw materials**
 - By promoting **worldwide regulations** to remove the worst tires from the market
 - By building awareness and knowledge for **science-based decisions and actions**
 - By **engaging the entire tire industry** to step up its commitment in this area
- Independent studies show that Michelin has a **considerable competitive edge**

What are Tire and Road Wear Particles?

DEFINITION

FRICITION

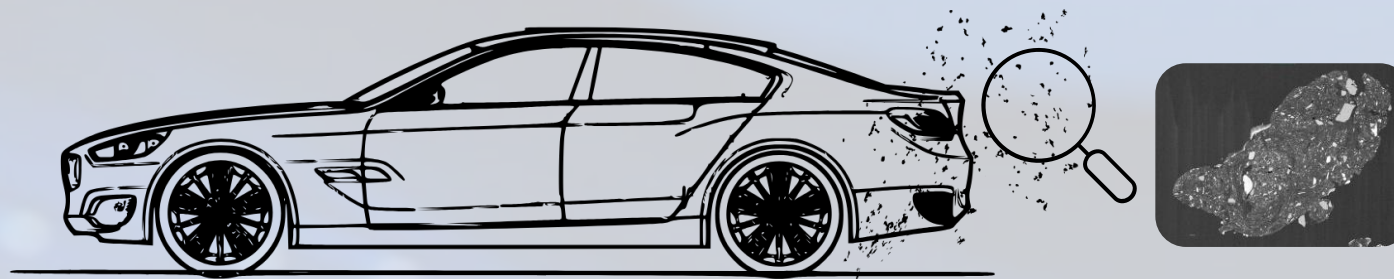
between tire and road

MIX

of rubber + road dust

1.8

Average Density



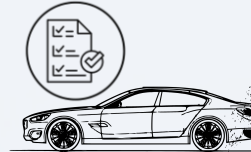
IMPACT

≈ 1 MILLION TONS
of TRWP emitted annually in Europe

Factors influencing emissions



Road topology



Car specifications



Driving style



Weather

TRWP environmental impacts still need to be refined



AIR

Studies confirm that

TRWP account for less than **10%** of particulate matter pollution (PM10)

PM10 = ~ **1%** of the tire mass loss

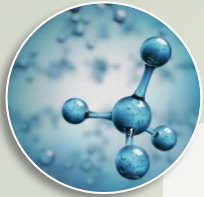


MARINE

Field monitoring studies show that

between **1 and 13%** of TRWP generated could reach the estuaries

(depending on the distance)



SUBSTANCES

On-going alternative analysis to precautionarily substitute 6PPD, a key ingredient used for rubber protection



BIODEGRADATION

BioDLab deepening data of

50% of degradation in **16** months:

initial state, composition and microorganisms' type

Industry governance (TIP) and regulations (EURO 7)

Tire Industry Project



***MICHELIN CO-FOUNDED
TIRE INDUSTRY PROJECT***

***STUDYING TRWP TRANSPORT,
FATE AND POTENTIAL IMPACT***

EURO 7



UNECE

***MICHELIN SUPPORTS
EURO 7 LIMITS***

***RELIABLE TESTING METHODS
ARE ESSENTIAL***

EURO 7 Market Assessment: Very limited risk to Michelin product portfolio



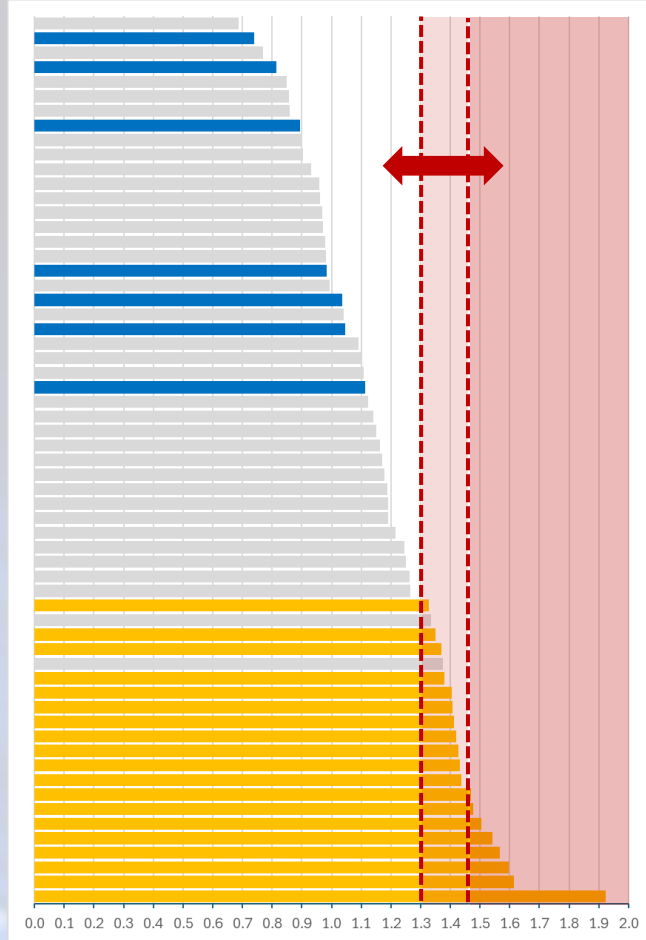
3PMSF tires

Limit ≈ 1.30 to 1.45
Still under discussion

MI Group

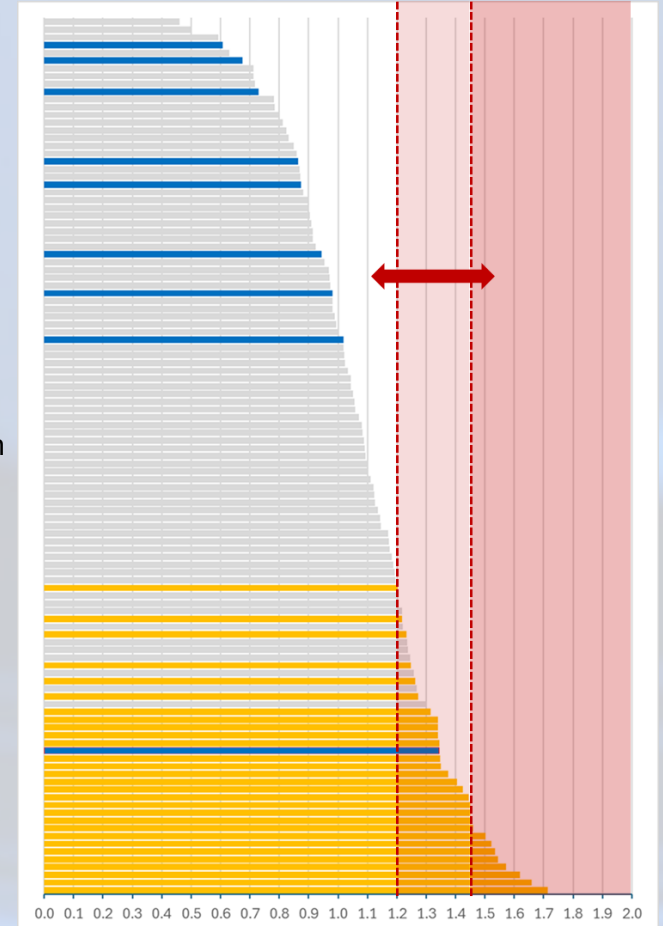
Competitors

Not compliant



Normal tires

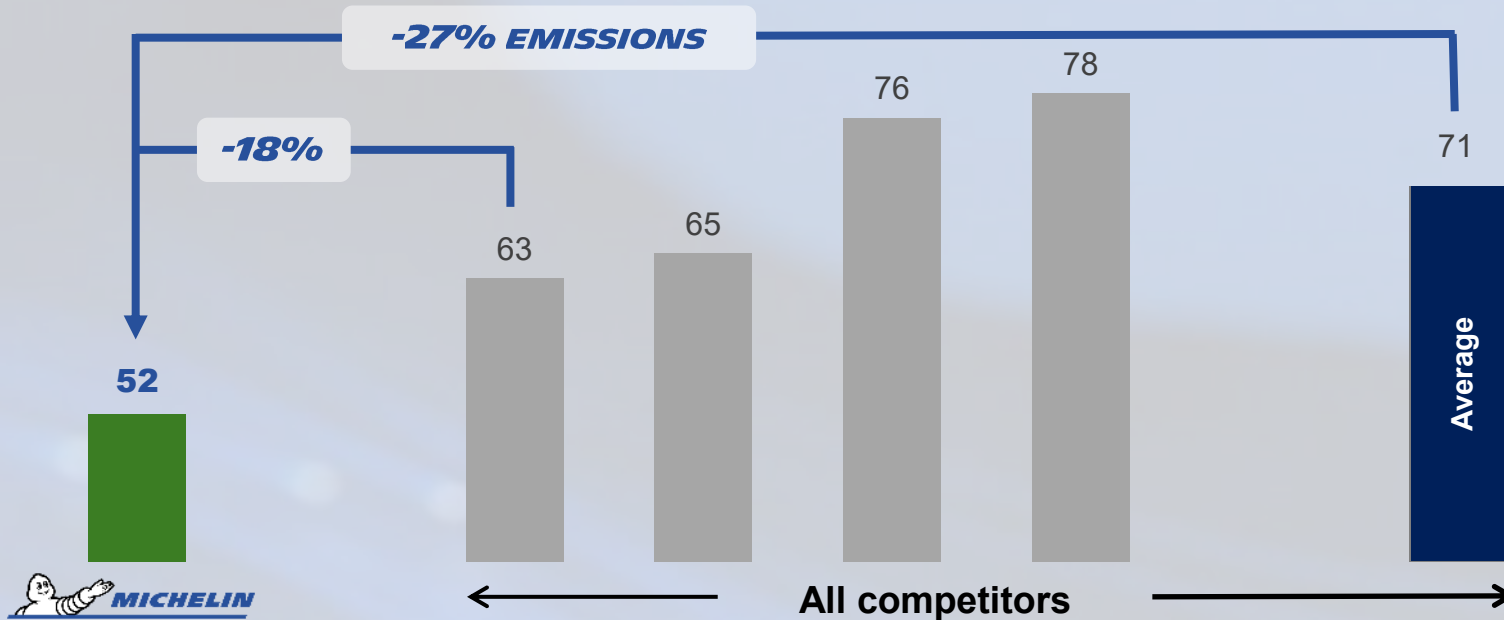
Limit ≈ 1.20 to 1.45
Still under discussion



Tires abrasion: A considerable competitive edge for Michelin, with no compromise on total performance

Particle emissions: Michelin ahead of all premium tiremakers

unit: g /1,000 km / ton of vehicle



Source : ADAC « Tyre abrasion in the environment » study – June 2025

DOWNLOAD

Michelin continues to offer by far the lowest abrasion tyres

MICHELIN
TOTAL PERFORMANCE
 =
NO COMPROMISE



Energy efficiency



Mileage



Safety



Handling capabilities



Noise



The electric vehicle: an opportunity for the Group to draw on its extensive expertise and its innovation potential

The electric vehicle is refocusing consumer and constructor attention on overall tire performance

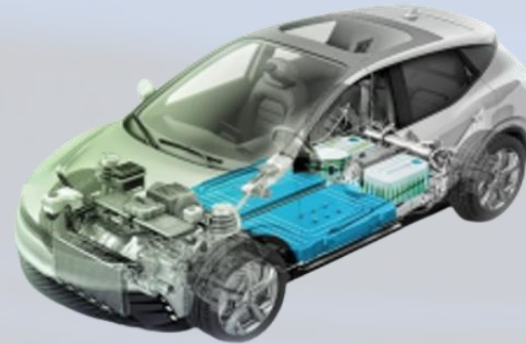
4 performances are particularly visible:



Lifespan



**Energy Efficiency
(Rolling Resistance)**



Load Capacity



Noise

Michelin is leading the way for a reduction in TRWP



DESIGNING TIRES

made with less but
innovative raw material



DEVELOPING NEW MATERIALS

thanks to its unrivaled material expertise



BUILDING AWARENESS

and knowledge for science-based
decisions and actions



ENGAGING THE ENTIRE TIRE INDUSTRY

to step up its commitment in this area



MICHELIN'S CONSIDERABLE COMPETITIVE EDGE

validated by independent studies

Disclaimer

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