

PRESS KIT

***THE TRUTH
ABOUT WORN TIRES***



MICHELIN

A better way forward



1. Context

■ The Truth about Worn Tyres

The strategy of the Michelin Group is to develop sustainable mobility solutions to improve its customers' mobility. The Group improves design, manufacturing and management of product and service offers. Michelin minimizes the use of resources to reduce their impact on the environment and society. Designing products with very high levels of performance from the first to the last kilometer forms an integral part of this approach.

2. Introduction

■ Introduction from Terry Gettys - Executive Vice President of Research and Development Member of the executive committee of the Michelin Group

All tyre manufacturers, car makers, industry test bodies, and consumer organisations focus on the testing of tyres when new... and most importantly the large differences in performance that exist when new. But the truth is that every tyre once fitted on a car and driven, starts to wear, and the more it wears, the more the specific characteristics of a tyre change. But the truth is that every tyre fitted to every car is worn; as soon as one begins driving on the new tyres they start to wear, and the more a tyre wears, the more the specific characteristics of the tyres change. By the law of averages, every tyre on every vehicle is half worn, but how do they perform? Who is doing the testing of these half worn tyres?

Tyres wear out; and the tyre performance changes as they wear out – for example wet braking performance will worsen over time. All tyres are not equal when they are new – what our tests at Ladoux have shown us is that tyre performance is even less equal when worn! In fact the differences are very much accentuated once a tyre is in the latter stages of its life. Quite surprisingly we have discovered that some tyres worn to the legal limit have a wet braking distance virtually the same as some new tyres... and this is one of our Corporate messages; tread depth is not a good indicator of wet braking performance.

Reinforcing our test results, recent independent studies have reported that there is no demonstrated link between accident rates and tread depth. And of course, thanks to the 6,000 people Michelin employs in its Research and Development activities, today's tyre technology makes it possible to have high levels of grip right down to the last millimetres of tread. We want to raise awareness of this and we believe that all organisations and all consumers should start to ask and consider both new and worn performance of tyres before purchase.

Additionally, if tyres are changed early, before the legal limit, this reduces the useful life of the product, and consumers would make unnecessary purchases. This would also have an adverse impact on the environment. So, early tyre removal has a huge environmental impact and also represents a significant and unjustified increase in costs for consumers.

You may be asking at this point, why is Michelin doing this? If tyres were removed earlier they would sell more! It's a good question, and certainly many manufacturers in many industries play the card of 'programmed obsolescence', that is to say an ever shorter life of their products. However Michelin has made the opposite choice, the one of the 'programmed longevity'. Sustainable performance is the key to our business strategy because we consider customer satisfaction with our products is paramount; our direction is not the disposable but on the durable! Today we want to encourage the tyre industry to commit to the same voice: Responsibility, sustainability and performance... for all of our customers around the world.

At Ladoux, innovation has consistently improved new and worn tyre performance for many decades, and as a result of our event 'The truth about worn tyres', you will see that the only criteria for safety is tyre performance, NOT tread depth.

Terry Gettys
Executive Vice President of Research and Development
Member of the executive committee of the Michelin Group



■ The Truth about Worn Tyres

Tyres do not perform the same when new – and as a tyre wears, and the tread depth reduces, the difference in performance will change, and differences may be accentuated. This is because tyre performance is affected by many individual characteristics; casing design, materials used, rubber compounds, tread design, shape of grooves and sipes etc. Modern tyre technology makes it possible to provide high levels of performance and grip from new, and through all of the tyre's life down to the legal tread wear limit.

With this in mind, changing tyres early (i.e. before they are fully worn) does not guarantee greater safety, and no current studies have established a direct link between accident levels and tyre tread depth. Suggestions that tyres need to be changed early (before the legal limit / tread wear indicator is reached) is akin to enforcing a form of planned obsolescence. A consumer would not throw away his shoes just because they need cleaning, or the tube of toothpaste which was half full, so why would he do this with tyres if he can be convinced that it is safe to do so? Premature removal reduces the useful life of the product and would increase the frequency at which tyres are replaced. Not only would consumers have to make unnecessary purchases, but this would also have an adverse impact on the environment.

Changing tyres too early would result in 128 million additional tyres being used a year in Europe, i.e. 9 million tons of additional CO₂ emissions every year. In addition to the environmental impact, replacing tyres before they are fully worn also represents a significant and unjustified increase in costs for consumers; Ernst and Young estimate an extra 6 billion euros in Europe alone.

All tyres are not born equal in terms of performance, and this is even truer when the tyres are worn; but how do consumers know that the tyres they have bought will maintain a high performance level throughout their lives? How do consumers ensure they do not need to change tyres early? At present, tyre tests are carried out on new products, but there is no consideration given to how their levels of performance will change over time. Michelin is now raising this issue – the fact that the only criteria for safety is tyre performance - NOT tread depth.

This initiative 'The truth about worn tyres' is calling on industry test bodies, and consumer organisations to start comparing and testing tyres when they are worn to the legal limit.

3. The Truth about Worn Tyres

■ Dry braking

When consumers reflect on road safety, they generally think about emergency braking in wet conditions – and with reason as braking distances increase in wet conditions. However, throughout Europe the road conditions are predominantly dry. In London, roads are dry for 71 per cent of days per year (106.5 days)* and with half the number of rainy days, the South of France has dry roads 85% of the time! Therefore, dry braking performance is important as these are the most prevalent conditions for all the vehicles throughout Europe.

The good news for motorists is that as long as tyres are not damaged in any way, the safety on dry roads actually improves as their tyres get worn. As seen on race circuits around the world, in dry conditions the 'slick' is the tyre of choice; and similarly for the ordinary motorist, levels of grip in dry conditions increase as the tyre tread depth reduces. A worn tyre will stop a vehicle more quickly in the dry than the same tyre when new.

Although the differences in stopping distance are not huge, demonstrations on the test track at Ladoux show a definite improvement, a shorter stopping distance on worn tyres in the dry.

Another surprising improvement in performance of a worn tyre over a new one is fuel consumption. As tyre tread depth reduces, the fuel economy of the vehicle will improve, and with one tank of fuel in five being used to simply overcome the rolling resistance of the vehicles tyres, this is a welcome benefit. The rolling resistance of a tyre at the point of removal at the legal tread limit is 80 per cent of that tyre in a new state. Therefore, keeping a tyre on the vehicle until the legal tread wear limit increases the time when it is in its most fuel efficient state, and reduces the motorist's fuel bill.

Since tyre labelling, the awareness of tyre noise levels has increased – particularly in urban environments, and another benefit of worn tyres is that the noise level reduces as the tyre usage increases.

Michelin believes that consumers should think carefully before changing tyres earlier than the legal tread limit as they will be removing the tyre when the dry braking performance and fuel efficiency will be at their peak.

* UK Met Office data over a 30 year period shows 106.5 days of rainfall per year on average. Marseille has 53 days of rainfall per year on average. (Day of rain is 1mm of rain or above).

■ Wet lateral grip

When demonstrating tyre performance, comparing different tyre brands and different stages of a tyre's life, it appears that the majority of testing is basic straight-line braking. Why do we not see more lateral grip demonstrations?

The simple reason for this is that it is relatively easy to measure, replicate and to quantify performance from wet braking tests, whereas the measuring of lateral grip and stability is very subjective and difficult to quantify. The good news is that wet lateral stability and wet braking are very correlated! It is the same quality that is being tested, only the direction of the tyre travel that changes – one sideways/ laterally, the other in the direction of travel/ longitudinally.

Demonstrations at Ladoux confirm that a better tyre in wet braking, is also a better tyre in wet cornering.

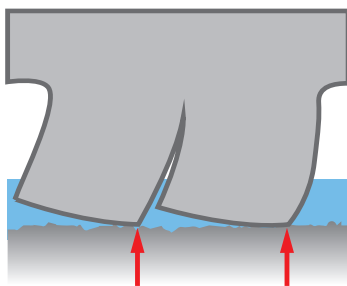


Ring N°10 - R 42m

■ Wet braking

Michelin tests at Ladoux have shown that on wet roads, some worn tyres can perform as well as some new tyres, and that although the remaining tread depth is a factor in wet braking, the performance of the tyre, at all stages of its life, is more important.

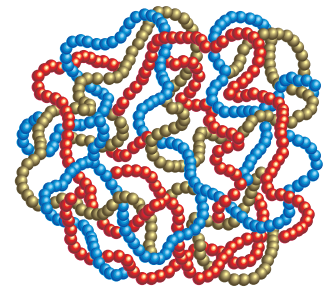
Tyre performance is affected by many factors; casing design, materials, rubber compounds, tread design, shape of grooves and sipes etc. and these all affect and influence how the tyre performs throughout the tyre's life – right down to the legal tread wear limit. All tyres do not perform the same when new – and the differences in performance are more accentuated when that tyre is worn, according to their design.



Sipes

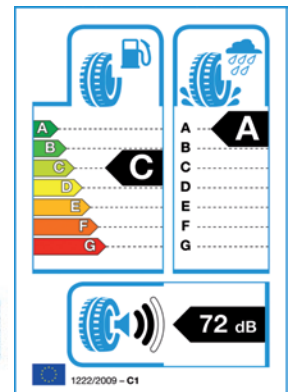


Tread Design



Polymers

Tyre labelling and European regulations have brought in minimum standards for tyre performance, and particularly for wet braking – one of the criteria measured by tyre labelling. Whilst all tyres legally sold in Europe meet this minimum standard when new, Michelin tests have shown that the wet braking capabilities of some tyres reduce quickly when worn, and may fall below this 'minimum standard' requirement. However, some premium products not only meet the criteria when new, they do so when worn to the legal tread wear limit.



Michelin workshops at Ladoux have shown that a premium tyre, worn to the tread wear limit can perform as well as a brand new lower performing tyre.

With these findings that wet braking distances and lateral wet grip depend on the performance of a tyre and not solely the tread depth, Michelin is calling on industry test bodies, and consumer organisations to start comparing and testing tyres when they are worn to the legal limit; then consumers will start to discover the truth about worn tyres.

4. Ernst & Young

■ Report on tyres and planned obsolescence

- Summer tyres have been subject to a harmonized regulation (1.6 mm) worldwide for a long time
- In practice, European drivers are incentivized to change their tyres at 3 mm by some stakeholders of the tyre industry
- Accident data is not conclusive in supporting a regulatory change of 1.6 to 3 mm of the minimum tread depth
- The environmental and economic impact of the enforced removal of tyres at 3 mm across the European Union would be significant
- Two recommendations to fight planned obsolescence: introduction of mandatory used tyre tests and an eco-modulation tax scheme

5. LADOUX Research & Development Centre

■ Key Numbers

450	Size of site in hectares, inc. 380 hectares of testing grounds
21	Test tracks totalling 43 km in length
75 000	No. of tests carried out per year with customers
2 billion	Kilometres driven per year
3 300	No. of employees
350	No. of metiers employed
72	Percent of Michelin tyres that are developed at Ladoux

■ LADOUX R&D Campus

- The largest building in France's Auvergne-Rhône-Alpes
- 67,000 square metres area
- 80 work platforms of 300 square metres
- 1,600 workstations : 600 in the initial opening phase, 1000 in the second
- 320 metres – the length of the "Innovation Street"
- On-site services to make life easier for researchers - a bank, dry cleaner, shoemaker and hairdresser as well as delivered vegetable baskets and other shopping etc.

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