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Michelin position on the revision of the General Safety Regulation and the Pedestrian Safety Regulation

As the only point of contact between the vehicle and the road, the tyre is a major element of road safety. The role of tyres will be all the more important as vehicle technologies progress; advanced technologies, and tomorrow automation, will reduce risks of accident by addressing the most influential driver related factors. However, studies[1] show that when technologies eliminate accident cases where the driver is the key factor, the impact of tyre grip level raises significantly. The General Safety Regulation acknowledges the role of tyres by implementing both environmental and safety performance thresholds defined in UN regulation 117. Since 2012, tyres on the EU market must comply with minimum performance thresholds on environment (CO_2 emissions and noise) and on safety (wet grip performance). But as soon as they are placed on the road, tyres wear, and their performances evolve. Among the three performances regulated in the EU, two evolve positively: rolling resistance and noise. A tyre will be more environmentally friendly when worn than when new. Conversely, **the wet grip performance of a tyre decreases with wear, but the level of deterioration is different according to the tyre and the way it has been designed.**

This decrease in wet grip performance is one of the important reasons behind consumers removing their tyres earlier than the legal tread depth limit of 1.6 mm[2]; this is also a widespread recommendation within the different actors of the mobility sector. However, such a practice has two drawbacks: not only does it prevent the issue of wet grip performance evolution with wear being adequately addressed, but it also has a significant negative impact on the environment. That is why the Commission has acknowledged the need to tackle this issue both within the recitals of its proposal for revision of regulation (EC) 2009/661 and in the action plan for road safety[3]. With tyres role in collisions becoming more important with advanced technologies and automation, addressing the question of in-use wet grip performance of tyres becomes critical.

1/ How can wet grip evolution with wear be addressed?

Today, tyre wet grip performance for type-approval is tested when new; but while we know the wet grip performance of the tyre will decrease throughout its life, there is no indication of the extent of this decrease. Michelin has conducted internal tests showing that tyre wet grip performance evolution depends on the tyre itself, its architecture, its compound, and not only its remaining tread depth. Due to these facts, some tyres when worn ensure a significant higher level of wet grip than others, and a reasonable braking distance while some others present worrying long braking distances.

That is why the best way to ensure a better level of safety on tyre wet grip in the EU would be to introduce a minimum wet grip threshold based on tests made at the tread wear indicator. In doing so, the EU would set a regulatory maximum braking distance for tyres in Europe, which would be closer to real-use than the current test conducted on new tyres. The report by Mrs. von Thun und Hohenstein introduces this need to tests tyres at worn stage in the annexes. It is an important step forward in the introduction of a future regulation in the EU that would enable tyre wet grip testing at worn stage.

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[1]. D. Christ, F. Goizet, *Simulating the Relative Influence of Factors Relating to Forward Collision Accident Rates*, Seventh International Symposium on Naturalistic Driving Research. Virginia Tech Transportation Institute Blacksburg, Virginia August 28-30, 2018

[2]. As set for passenger cars by Directive 89/459/EEC "On the approximation of the laws of the Member States relating to the tread depth of tyres of certain categories of motor vehicles and their trailers"

[3]. Recital 19 of the "Proposal for a regulation of the European Parliament and of the Council on type-approval requirements for motor vehicles and their trailers, and systems, components and separate technical units intended for such vehicles" (COM/2018/286) and "Commission Strategic Action Plan for Road Safety", Annex I to the "Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, Europe on the Move, Sustainable mobility for Europe: safe, connected and clean", (COM 2018/293)

2/ What is the environmental benefit of testing tyres at the tread wear indicator?

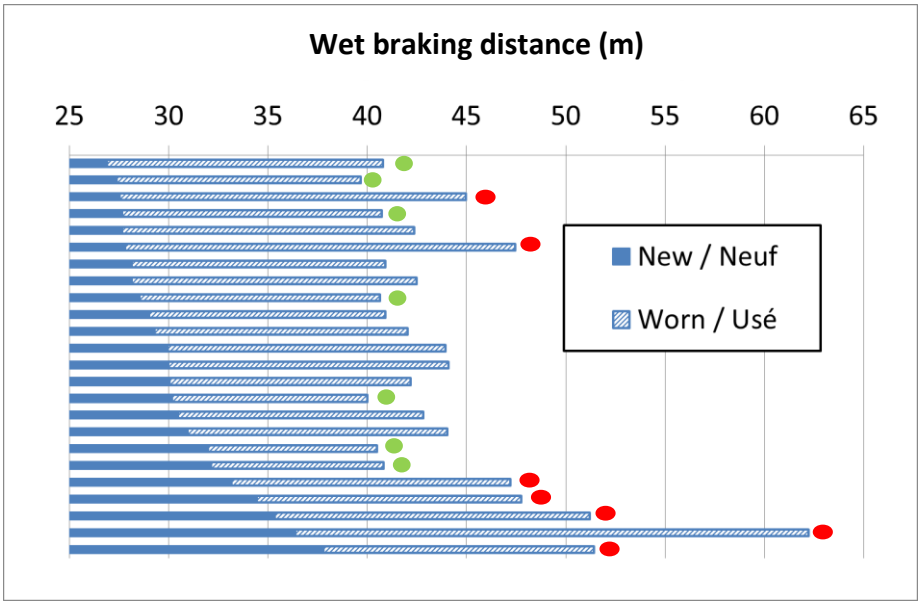
Having a minimum wet grip threshold for tyres at 1.6mm would not only improve the overall safety level of tyres in the EU, but would also positively impact environment. Indeed, it would help consumers trust their tyres and use them until the 1.6mm tread depth, instead of removing them earlier, as many do today. By doing so, they would avoid material waste, but also reduce CO_2 emissions, since tyres have a better environmental impact at the end of their life due to rolling resistance improvement. The environmental impact could reach 26% of avoided waste and up to 6,6 Mt CO_2 equivalent spared[4].

Michelin recommendation regarding General Safety Regulation:

The European Commission has clearly stated the need to deepen regulatory work on tyres at UN level in order to take into account wet grip performance throughout the whole life of tyres, to ensure a higher level of safety, and avoid premature waste of tyres. The current report by Mrs. von Thun und Hohenstein goes further by introducing the possibility of testing tyres at worn stage in annexes. This proposal should be encouraged and go further, so that passenger cars tyres are indeed tested at their performance worst case: new for environmental performance, but worn for wet grip.
It would enable to improve both road safety and energy efficiency in Europe, while fostering innovation.

Annex: Results of tyre testing:
Wet braking distance on 24 tyres (in meters) – New and worn stages

Wet grip performance at worn stage cannot be derived from new tyre performance



Source: Michelin internal tests.
Vehicle test:
- wet braking distance 80km/h – 20 km/h Regulation (EC) 661/2009 testing conditions
- tyres representative of the European market (summer, and winter, premium, intermediate and low price)

[4] . Source : « Planned obsolescence is not inevitable », EY report, May 2017