European Commission, Internet consultation on the CO2 emitted by cars

Michelin proposals about Tyre Rolling Resistance

Tyre Rolling Resistance is generated when the rubber compounds are distorted. It is influenced by 3 main factors: tyre design, tyre rubber compounds and tyre inflation pressure. Michelin has been working for more than 80 years to measure and reduce it. The introduction of silica as a filler of the rubber compounds in 1993 was a major break-through of Michelin to commercialise low Rolling Resistance tyres.
Proper tyre inflation pressure maintenance is the way consumers may day after day reduce the fuel consumption and CO2 emissions of their cars.

Low Rolling Resistance or “green” tyres are available. Michelin placed them on the market in 1993 and many tyre manufacturers today also offer such products. They currently represent about 50% of Passenger Car tyres sold in Europe on the replacement market. They are also available for truck fitment.
If the use of low rolling resistance was progressively generalised, about 20 Mt CO2 emissions would be saved annually by 2020. However their development on the market is very slow, firstly because the consumer is not paying much attention to the environmental impact when purchasing tyres in spite of marketing efforts of tyre manufacturers and secondly because it is very difficult for him to measure fuel savings engendered by switching to low rolling resistance tyres.
Indeed some other factors such as the type of travel and driver behaviour have much more influence than tyre Rolling Resistance on fuel consumption. More fundamentally, since tyre quantity of rubber compounds is reduced when tyres wear out, tyre Rolling Resistance does the same. In consequence, new Low Rolling Resistance tyres have similar Rolling Resistance level than the worn out standard tyres they replace and the consumer cannot properly measure any reduction of fuel consumption with his new tyres.
However the reduction of fuel consumption is significant on the tyre life, in average about 0.1 l/100 km or 2 to 3 gCO2/km for European Passenger Cars.

Michelin believes two major actions should be carried out to accelerate the spreading of “green tyres” on the market:

1. Set upper limits for the Rolling Resistance level of new tyres by means of a directive, as suggested in the Commission strategy on CO2 emission from cars.
2. Give non-financial incentives to the tyre buyers to orient their choice towards environment-friendly tyres.
   There are two main tyre markets in Europe: Original Equipment (tyres bought by vehicle manufacturers and fitted on the new vehicles they sell) and Replacement (tyres bought by the users to replace worn out ones).

   On Replacement Market, consumers should be given information on the Rolling Resistance level of the tyres they intend to buy, in order to orient their purchase towards green tyres. An EU regulation should define a compulsory “grading” available at the points of sales, as the EU directive for household appliances does. This grading introduction would accelerate the introduction of lower RR tyres than the one used for homologation on the whole existing vehicle stock. We think this grading should have a seven levels scale, as for the other products the consumers are used to.

On Original Equipment market, the future “130/10 gCO2/ km” regulation could grant car manufacturers a "CO2 bonus" when they fit their production cars with very lower rolling resistance tyres than the one used for homologation; CO2 savings engendered would be deduced from their annual reporting of CO2 emissions from new vehicles sales.

→ We think these proposals are measurable, monitor-able and accountable.

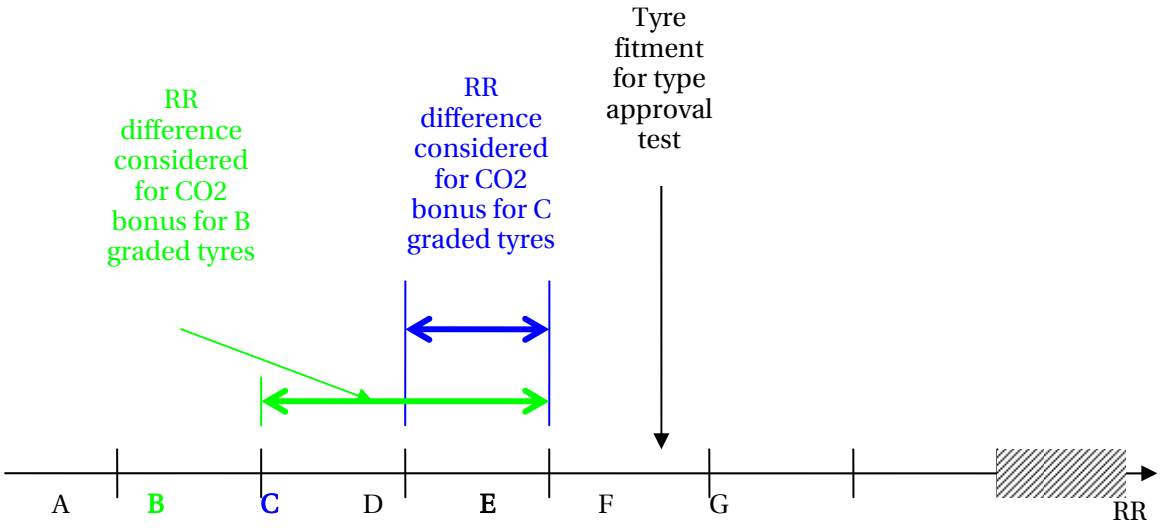
In more details, the principles of this CO2-Bonus could be as follows:

- This CO2 Bonus would be granted to the OEMs who commit themselves to fit their actual production vehicles with lower or very lower RR tyres than the one used for homologation.
- It would not consist of money but of a reduction of CO2 emission values in the yearly accounting.
- OEMs CO2 emissions are considered and treated by the Commission Services after the end of each calendar year. This treatment is carried out to evaluate the average yearly CO2 emission of the new cars placed on the market by each OEM and for the whole fleet.
  It appears likely that, when the envisioned regulation on CO2 emissions is enforced, the OEMs whose new cars exceed the limits will be fined or penalized in a way or another.
  It is already the case in the US with the CAFE regulation.
  Michelin proposal is that the CO2 Bonus is applied at this level only.
- The principle is that, for a given vehicle model and a given year, if the OEM can prove he actually fitted his production with tyres having a better RR grade that the ones he fitted for the model type approval, he will benefit for this model of a CO2 emission reduction corresponding to the effect of the RR difference.
  If the fitment concerned a given fraction of production, CO2 bonus would be granted in the same proportion.
  The proof of the fitment would be given by the tyre manufacturer invoices to the OEM.

→ The application of this principle should generate an incitation to the OEMs to fit their actual production vehicles with lower or very lower RR tyres than the one used for homologation.
It could also give a framework for the way the tyres could be taken into account within the 130/10 g.CO2/km regulation: the choice of the tyres fitted for the type-approval tests would be taken into account within the 130g part. The annual and voluntary choice of fitting production cars with lower RR tyres would be taken into account through this CO2 Bonus mechanism and within the 10g part.

Example

Let's assess that a compulsory grading with seven levels, A to G, was introduced for the RR level of passenger car tyres. The highest value of G class corresponds to the maximum RR authorised value for the considered range of tyres.
Let's assess that a given model car was type approved, fitted with E RR-graded tyres and had a 150 g.CO2/km emission value.
Let's assess that, a given year and for a given car model, an OEM fits his production with 30% E RR-graded, 40% C RR-graded and 30% B RR-graded tyres.
For the E RR-graded tyres he would get no CO2 bonus.
For the C RR-graded tyres he would get a bonus corresponding to the CO2 emission level difference between the lowest value of E-grade and the highest one of C-grade. Let's say 3 g.CO2/km.
For the B RR-graded tyres he would get a bonus corresponding to the CO2 emission level difference between the lowest value of E-grade and the highest one of B-grade. Let's say 6 g.CO2/km.



Considering the proportions of fitment, his CO2 Bonus would be:
40% x 3g + 30% x 6g = 3.0 g.CO2/km.
The CO2 emission level retained for the considered car model and year would be:
150 – 3 =147 g.CO2/km.

Conclusion

- Michelin is in favour of any solution allowing a decrease of CO2 emissions and is eager to contribute to their success.
- In this respect, we think regulatory actions on tyre Rolling Resistance should lead to significant improvement and help reach EU efforts regarding CO2 emissions, without any detrimental effects neither on the OEMs nor on the other tyre performances.
- We are in favour of the institution of RR maximum values for LDV tyres.
- We are also in favour of an incitation for customers to fit their cars with lower RR tyres through better information on the Rolling Resistance level of the tyres they intend to buy, in order to orient their purchase towards “green tyres”. An EU regulation should make compulsory a tyre Rolling Resistance seven levels “grading” available at the points of sales, as the EU directive for household appliances does.
  This grading introduction would also have the advantage of accelerating the introduction of low RR tyres on the whole existing vehicle stock, and not only on the new cars.
- We are, finally, in favour of an incitation for OEMs to fit their production cars with low RR tyres through the introduction of a "CO2 bonus". The future “130/10 gCO2/ km” regulation could grant car manufacturers a "CO2 bonus" when they fit their production cars with very lower rolling resistance tyres; CO2 savings engendered would be deduced from their annual reporting of CO2 emissions from new vehicles sales.
- We think our proposal of a CO2 Bonus could help the Commission to keep the interest of OEMs on lower and very lower RR tyres, but also introduce a framework for the way the tyres could be taken into account within the 130/10 g.CO2/km regulation.
- We think these proposals are measurable, monitor-able and accountable.