

Der negative Einfluss schlechter Reifeneigenschaften auf das dynamische Verhalten von Fahrzeugen

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Fahrzeughersteller hatten bis zum Jahr 2000 nach langwieriger und sorgfältiger Auswertung einer Vielzahl von Tests bestimmte Reifen für ihre Fahrzeuge festgelegt. Eine von der Europäischen Kommission gegen Deutschland eingereichte Beschwerde verbot die Zuordnung von Reifen zum Fahrzeug wegen „unnötiger Handelshemmnisse auf dem Markt“. Die heute üblichen Reifen mit gleichen Abmessungen weisen aufgrund der verschiedenen internen Herstellungsparameter der verschiedenen Reifenhersteller erhebliche Unterschiede auf. Reifen mit stark unterschiedlichen Eigenschaften, die an das gleiche Fahrzeug angebaut werden können, können aber das Fahr- und Bremsverhalten dieser Fahrzeuge dramatisch verändern. In diesem Aufsatz wird aufgezeigt, welchen negativen Einfluss nicht geeignete Reifeneigenschaften auf das dynamische Verhalten von Fahrzeugen haben und welche Konsequenzen aus den Ergebnissen der Dekra / EVU-Tests zu ziehen sind.

The negative influence of poor tyre performances on the dynamic behaviour of vehicles

Before 2000, vehicle manufacturer had stipulated certain tyres for their vehicles following a long lasting and careful evaluation of a large number of tests. A complaint filed by the European Commission against Germany prohibited the prescription of tyres because of „unnecessary trade obstructions in the market“. This decision allowed legally, to use tyres with very differently side force- and braking force characteristics in the same vehicle. The performance of today's tyres with the same dimensions varies greatly due to the variation of internal production parameters of the different tyre manufacturers. However, the wide range of tyres with greatly different performance characteristics, that can be adapted to a single vehicle, can dramatically change the driving and braking characteristics of that vehicle. This fact is valid especially for critical driving manoeuvres like rapid lane changing (while overtaking), braking in a turn, braking on μ -split etc. The originally good-natured and stable braking and steering behaviour of a vehicle can be changed abruptly into instability by using tyres with lower performance levels on rear axles. Tyre characteristics with lower adhesion levels in comparison to original tyres influence negatively the efficiency of electronic driving assistant systems, too. The demand of the European Commission to cancel the prescription of tyres for road vehicles was and is contra-productive to their own demand in their safety charter to halve the number of killed persons on our roads. A classification according to their performances has to be demanded for all tyres, but especially for the flood of unknown tyres being imported to the EU today. This is particularly important, when renewing the tyres, so that the safe configuration of the entire vehicle, which has been derived by the manufacturers in extensively conducted tests, can be retained over the lifetime of the vehicle. These demands could be integrated in the planned tyre label for cars by the EU for 2012. Such a label must also be developed for commercial vehicle tyres. With the paper the following items and resulting consequences will be discussed:

- The decision of the European Union to cancel all prescriptions of tyres for road vehicles
- Definition of the tyre characteristics

- Not suitable tyre characteristics and their negative influence on the dynamic performance of vehicles
- The consequences and demands from the results of the Dekra / [EVU](#) evaluation tests gained
- The to do's.

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[Ahlgrimm, J.; von Glasner, E. C.](#): Der negative Einfluss schlechter Reifeneigenschaften auf das dynamische Verhalten von Fahrzeugen. Verkehrsunfall und Fahrzeugtechnik 51 (2013), pp. 212 – 219 (#06)

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