Driving could become safer, quieter and greener thanks to TYROSAFE, an EU-funded project that has completed research on road surface and tyre interactions. A follow-on project is already using the results to develop common standards across Europe for monitoring such interactions. The key tyre/road interactions are skid resistance, rolling resistance and noise emission. Although there is a widespread understanding of the importance of the interactions for safety, fuel efficiency and noise, TYROSAFE found few common EU-wide policies or standards for measuring them or for optimising them.

TYROSAFE’s main recommendations were the development of common European policies and standards to improve the quality of road surfaces, and measurement tools for the consistent assessment of road surfaces and tyres across the EU.

TYROSAFE also developed a roadmap for common EU standards to assess road surfaces. This assessment is needed before new innovations can be applied, such as low-noise and low-rolling resistance road surfaces with safe levels of skid resistance.

“Implementation of TYROSAFE’s recommendations would contribute to a greener, quieter and safer
road transport system,” says project coordinator Manfred Haider of the Austrian Institute of Technology.

Boosting awareness

A road’s skid resistance, together with a tyre’s properties, determines the strength of a tyre grip to the road surface. Insufficient skid resistance, or gripping power, reduces road safety and can lead to accident black spots—locations where a large number of crashes tend to occur.

Tyre vibrations and air compression when the tyre contacts the road is a major contributor to road traffic noise.

Rolling resistance refers to the friction or drag encountered by a tire moving on a road surface. This frictional force affects fuel consumption. Higher resistance leads to greater fuel consumption—and output of greenhouse gases and air pollutants.

As these related effects all depend on tyre and road surface texture. Optimisation of the road surface for skid resistance, for example, may increase noise and rolling resistance.

TYROSAFE, which ran for two years until mid-2010, investigated existing knowledge on road surface measures of skid resistance, rolling resistance and noise emission and identified the knowledge gaps that would justify more research.

Currently skid resistance is measured by EU countries using a wide range of methods, which makes reliable comparisons impossible. The situation is better for assessing the influence of road surface on noise—two methods are used consistently, but are still applied differently in different countries. There is no standardised method for measuring the rolling resistance of road surfaces. In all three cases, a harmonised EU approach is needed, TYROSAFE concludes.

Work continues

Since the end of the project in June 2010, TYROSAFE’s partners have continued to work independently on the issues covered by the project.

ROSANNE, a follow-on project, is building on the research done by TYROSAFE and other related projects to speed up the preparation of European standards for measuring road surface characteristics. It is providing the European Committee for Standardisation (CEN) with new data on skid resistance, rolling resistance and noise emission. Haider looks forward to a set of CEN standards for the three areas: “It could be the basis for regulation.”

The three-year ROSANNE project began in November 2013. Haider, who is also ROSANNE’s coordinator, reports strong interest in the results of the two projects worldwide, including in the US, South Africa and Australia.

See also:
CORDIS [2]

Project:
Tyre and road surface optimisation for skid resistance and further effects

Project Acronym:
TYROSAFE

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