TYRE/ROAD FRICTION

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ABSTRACT
The vehicle’s dynamic behaviour is mainly defined by forces and moments transmitted between tire and road: tyre-to-road friction is therefore a basic feature of the system. The comprehension of the basic friction mechanism on wet and flooded roads still needs to be studied and this paper tackles this important issue.

The friction between road and tyre on wet surfaces is a function of many parameters such as tyre width, tyre thread depth, applied vertical load, speed, water depth etc. An extensive literature review has therefore been conducted within the VERT Project, funded by the EU to a consortium of 9 Partners including the University of Florence, to collect all the available friction measurements on wet and flooded roads to identify the “key-parameters” which need to be analysed.

Based on the results of this study an extensive test program has been conducted within the VERT Project (more than 1500 friction Vs. slip curves have been recorded) to isolate the effect of each single variable and to understand it’s influence on the overall tyre road friction.

Figure 1 shows an example of friction curves for which all the different parameters are left constant and only the water depth has been changed.

This paper will present the results the analysis conducted on the VERT Database referred compare the different friction curves and to identify the specific influence of tyre properties, load and speed on peak and locked wheel friction values as well as on the slip value at which the peak occurs.

REFERENCES