

Tyre rolling resistance ETRTO activity

European Union, as stated in Directive 2001/43/CE, and several countries or states are being considering the introduction of regulations on the rolling resistance of tyres.
In addition, the enhancement of international cooperation increases the need for exchanges about tyre rolling resistance.

In consequence, it is necessary that all the stake-holders can discuss on reliable and directly comparable rolling resistance values.

In this respect ISO standards were issued for passenger car, commercial vehicle and motorcycle tyres (ISO 8767, 9948, 13327) and are currently being gathered in ISO 18164.

However these international standards allow several variants for testing conditions or physical quantity measured. The consequence is that the results of measurements carried out properly according to the applicable standard on the same physical tyre may differ by as much as 2 kg/t for radial passenger car tyres, which is not satisfactory for regulatory or international cooperation exchanges.

ETRTO decided to create a Working Group (WG), with the main following objectives :

- To define a Reference Method for Rolling Resistance Measurement based on ISO 18164 norm, in particular for regulation and international cooperation purposes.
- To specify how the other existing methods will correlate.
- To establish a state of the art for passenger car and truck tyres' rolling resistance in Europe.

This WG has to work in close relationship with

- ISO/TC31 who is building ISO 18164 norm on RR measurement.
- The Russian Federation who is proposing an amendment to ISO 18164.

The kick-off meeting of the WG was held on March 31st, 2004.

The underlying philosophy of the participants for the definition of the Reference Method is

- to start from ISO 18164 and to remain completely consistent with this standard ;
- to fix the relevant parameters in order that the tyres are tested in the same thermodynamic state and in order that the same physical quantity is measured.

The first proposal was ready on May 12th, 2004.

The participating companies agreed to assess the validity of this proposal through a round robin test built as follows :

- The WG defined 5 different tyre sizes (2 passenger tyres, 1 light-truck tyre, 2 commercial vehicle tyre).
- Each of them will be provided by one of 5 companies
- Each company will measure the rolling resistance (according to the defined method) of several tyres within a lot of the retained tyre type and select 5 of them with a very close level of rolling resistance.
- Each company will send 4 of them to the 4 other companies and the 5 tyres of each type will be measured by the five companies (without a new break-in for the truck tyres).
- Each company will use its most commonly used measurement method (in practice torque or deceleration).
- All the tyres will be sent to the other companies and returned to the supplying company after having been measured.

The WG members will share the results during their next meeting, on October 8th 2004.

If an acceptable accuracy is found, the final proposal for a reference measurement method of tyre rolling resistance as well as the current state of the art in Europe will be delivered by the WG by December 31st 2004.

If an acceptable accuracy is not found, additional studies and further measurements will have to be carried out. The reference measurement method of tyre rolling resistance as well as the current state of the art in Europe shall be delivered by the WG by June 30th, 2005.
