

Regulation No. 117 (Tyre rolling Noise and wet grip adhesion)

Tyre wet grip adhesion results seems to conflict with other test results

1. ECE R117 wet grip tyre test of great importance to consumers from 2012

The UN ECE Regulation 117 concerns approval of tyres with regard to rolling sound emissions and to adhesion on wet surfaces.

According to [EU-Regulation No 1222/2009](#) of 25 November 2009 on the labelling of tyres sold in EU from 2012 tyres shall (besides noise and rolling resistance) carry declaration of wet grip adhesion measured according to Regulation 117.

2. Experience with ECE R117 wet grip test

In The Netherlands results from tyre testing according to ECE Regulation R117 have already been published on [“De Nieuve Band”](#) website. Test results for [ordinary \(summer\) tyres](#) and for [winter tyres](#) can be downloaded.

A total of 47 ordinary tyres and 45 winter tyres were tested.

The average wet grip coefficients are:

“De Nieuve Band” ECE R117 wet grip test results		
	Ordinary tyres	Winter tyres
Wet grip index	122	133
Difference		+ 9%

These results give the impression, that on wet road winter tyres have 9% better grip than ordinary tyres. This is however inconsistent with real world measurements from other sources. A need to look at the test conditions of Regulation 117 is thus indicated.

3. Wet grip results from other sources

Major well established motor magazines and consumer organisations carry out regular testing of both ordinary and winter tyres. Testing includes braking on wet surfaces.

At the latest “auto, motor und sport” in issue 7/2009 and 21/2009 and “AutoBild” in issue 39/2009 have published tyre test results of ordinary tyres and of winter tyres, including wet road braking performance.

The results are:

Tyre test wet grip braking results from AutoBild and ams			
Publication	Tyres tested	Average deceleration [m/s ²]	
		Ordinary tyres	Winter tyres
ams 7/2009 and ams 21/2009	12 ord. tyres and 10 winter tyres	8,8	8,1
AutoBild 39/2009	12 winter tyres and 1 ref. ord. tyre	8,4	7,4
Difference, average		+ 10%	

Similar results can be extracted from numerous similar sources.

So numerous wet grip tyre tests with ordinary cars show a benefit for ordinary tyres over winter tyres. However this is the opposite to results extracted from “De Nieuwe Band” ECE R 117 testing mentioned under paragraph 2 above.

4. What might be the reason for this inconsistency?

It is a well known fact, that the more slippery the surface of the road surface is, the better the winter tyre will perform in relation to the ordinary tyre.

For instance on drivers training centres with purpose made skid surfaces of epoxy sprinkled with water, the coefficient of friction will be as low as 0,1-0,2. Under these circumstances winter tyres are superior in relation to ordinary tyres. On very worn – polished – wet asphalt similar results can be experienced.

However these surfaces are not often driven on in the real world. Epoxy is not used for pavement, and worn down polished asphalt surfaces should be repaved at once as both are very slippery.

It is therefore a natural assumption, that the ECE R 117 specification of the test road surface for wet grip measurements should be more realistically defined and narrowed in to ensure coherence with real world measurements and road conditions.

5. Experience from “De Nieuwe Band” ECE R 117 measurements needed

From 2012 consumers are guided in their tyre choice by labelling relying on results from ECE R 117 wet grip testing. It is therefore of great importance that ranking of tyres reflects reality.

To be able to understand effects of and accordingly adjust the specified test methods it is therefore of importance to gain knowledge of test conditions of the “De Nieuwe Band” ECE R 117 tests.

The ECE R 117 annex 5 specifies a test report for the measurements of adhesion on wet surfaces. From the filled out test reports important data, for instance the “mean fully developed deceleration” and “peak brake force coefficient” and “test speed”, can be captured for analysis purposes.

It will be of great interest if The Netherlands could provide and present data from the “De Nieuwe Band” ECE R 117 tests with the purpose of necessary adjustments to the specified test method and test environment of wet grip testing.
