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NOISE AND VIBRATION CONTROL

NOTE

To	Ministry of V.R.O.M.	From	ir. M.S. Roovers
Att.	ir. B. Kortbeek	E-mail	roovers@am.mp.nl
Your reference	-	Our reference	GRB37/cr
		Date	September 16th 2002

Subject **Measurement results passenger car tyres**

M+P Noise and Vibration Consultants have conducted noise measurements on a total amount of 26 sets of passenger car tyres. The measurement program included:

- Coast-by measurements at 50 and 80 km/h;
- Cruise-by measurements at 50 and 80 km/h;
- All measurements at ISO 10844 asphalt and double layer porous asphalt;
- All measurements at 1.2 m and 5.0 m height; at ISO asphalt also at 3.0 m height;
- Several tyres were tested loaded / unloaded, and at different tyre pressures.

In figure 1 the results of the coast-by measurements at 80 km/h according to the measurement method of EU directive 2001/43 are presented. In figure 2 the results are corrected for temperature, are given an 1 dB(A) allowance, and are rounded down. An overall comparison of the results with the EU noise limits is given in figure 3.

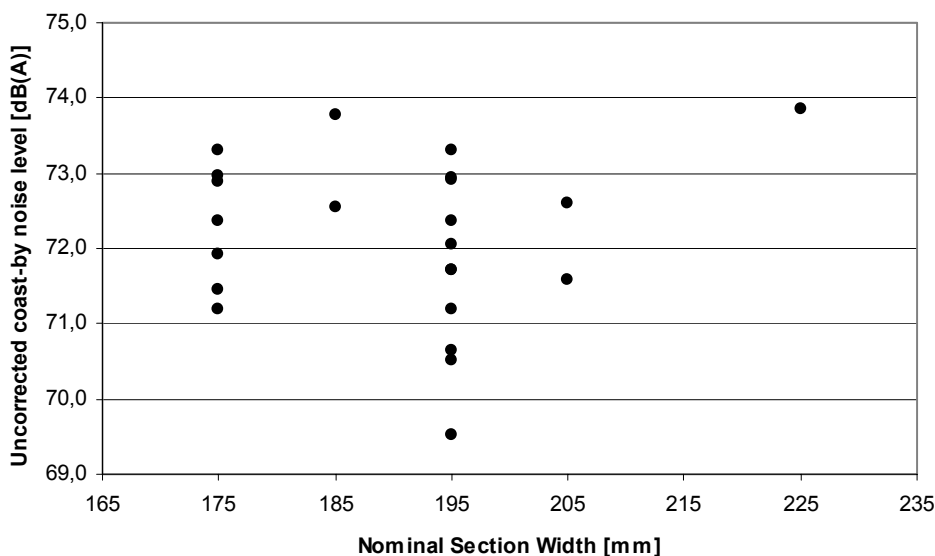


figure 1 *Results of coast-by noise measurements on 23 car tyres*

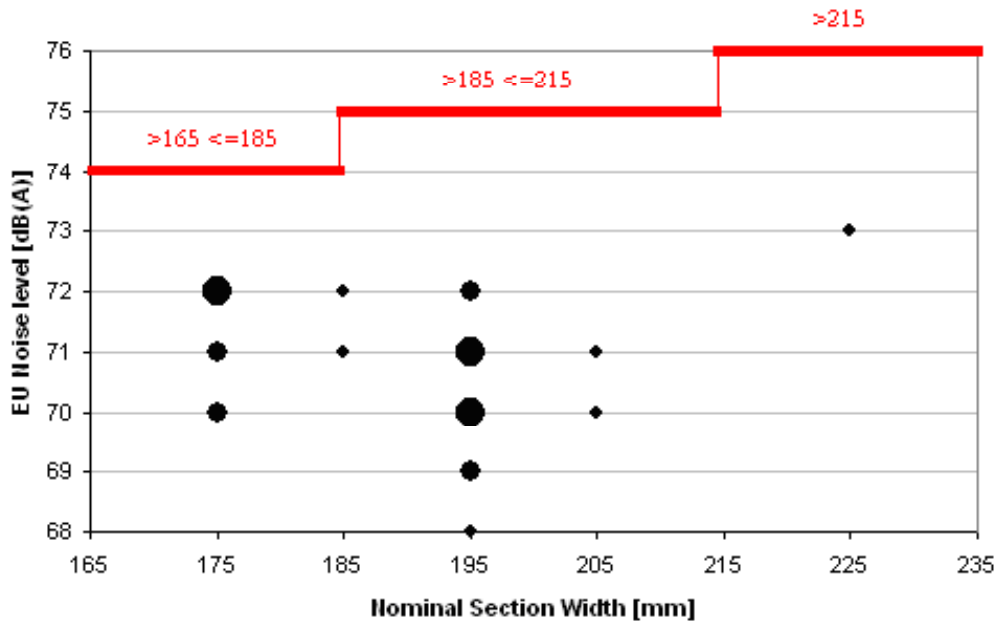


figure 2 Noise values of 23 car tyres according to EU directive including temperature correction, 1 dB(A) reduction and downward rounding (dot size represents 1, 2 or 3 tyres)

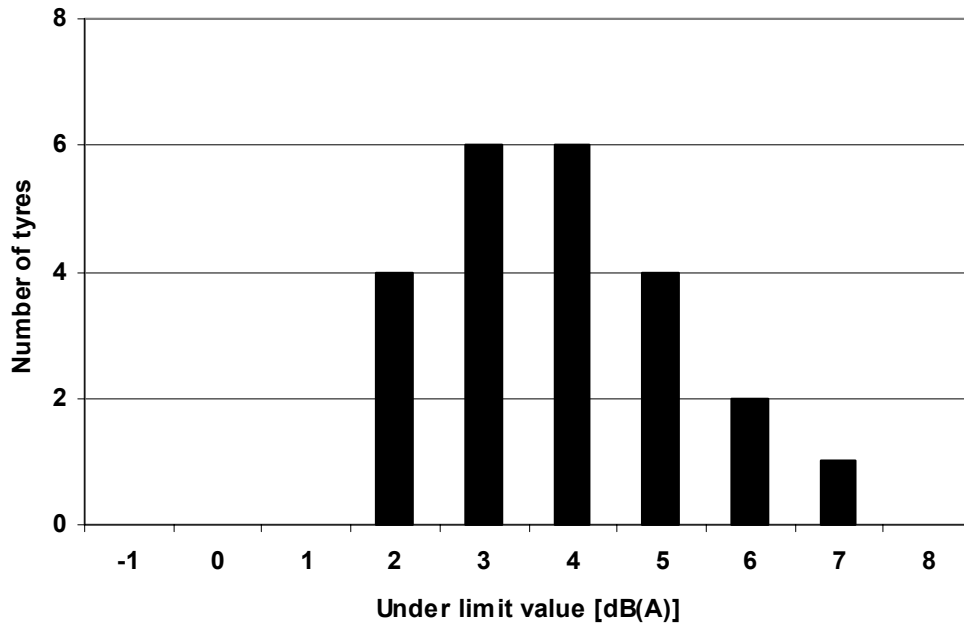


figure 3 Number of tyres under limit value of the EU directive

The results show that all tested tyres meet the EU tyre noise limit values. The Yokohama AVS dB 500 (currently marketed as specially designed low-noise “decibel”-tyre) turned out to be the most silent tyre of the 23 measured tyres with a margin of 7 dB(A) with respect to the EU noise limit.

The noise reduction of double layer porous asphalt with respect to ISO asphalt is shown in figure 4.

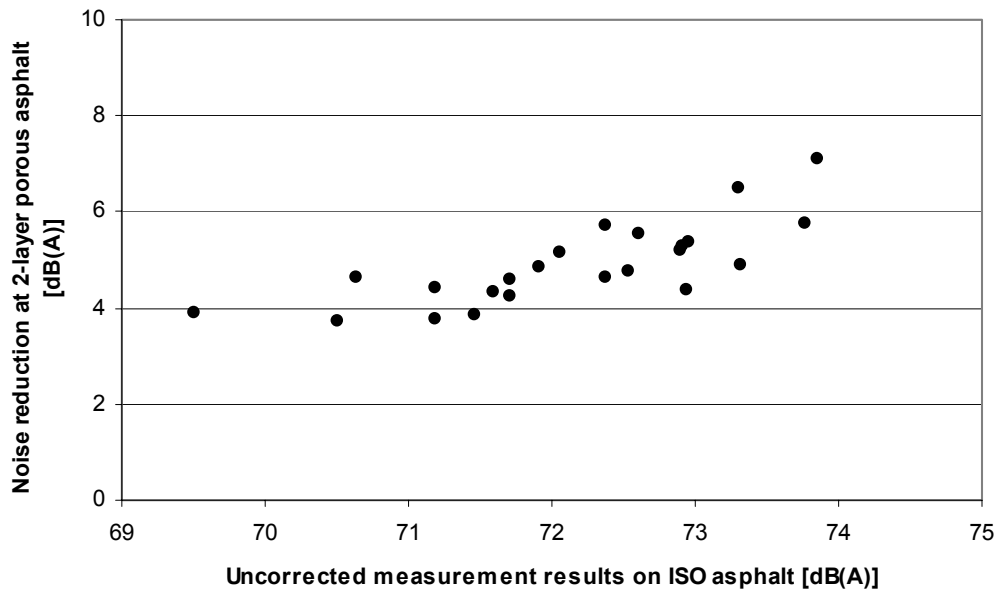


figure 4 Noise reduction of double layer porous asphalt for coast-by measurements at 80 km/h on 23 sets of passenger car tyres

The results indicate that most noisier tyres at the ISO asphalt will exhibit a higher noise reduction at double layer porous asphalt than the more silent tyres at the ISO asphalt. Accordingly, the spread of the noise measurement results at the ISO asphalt (MAX-MIN = 4,4 dB(A)) is higher than this spread at double layer porous asphalt (MAX-MIN = 2,9 dB(A)).