PoroElastic Road SUrface: an innovation to Avoid Damages to the Environment

From 2009-09-01 to 2015-08-31, closed project | PERSUADE Website

Objective

Low-noise road surfaces are recognized as a cost-effective tool for traffic noise abatement. The best performance can be achieved by optimizing surface texture and porosity. That way, a bottom line of a 3dB lifetime average reduction with respect to ordinary asphalt has been reached. Any progress must resort to another noise-relevant characteristic i.e. elasticity by which the noise due to tyre vibrations can be suppressed. A recently completed European project has shown that, in order to be effective, the elasticity of the road surface must be in the same range as that of the tyre itself. This explains why previous attempts of incorporating a little rubber in an asphalt mix failed to produce significant noise reductions. The solution consists of a fully rubberized, porous compound: a so-called “PoroElastic Road Surface” (PERS). Trials in Japan and Sweden have demonstrated vehicle noise reduction close to 10 dB. However, that promising technology is not ready for application. The following problems have to be solved: resistance to wear and tear, adhesion to the base, winter maintenance, mechanical behaviour and the following have to be clarified: rolling resistance, skid resistance, frost behaviour, fire hazard, workability and production/laying processes including workers safety. The project aims at developing a durable, cost-effective PERS using scrapped tyres, which would benefit the environment by contributing to abating traffic noise and vibrations but also helping to solve the problem of over 3 million tons of used tyres being dumped or burned every year in the 27 MS. One will take advantage of Swedish and Japanese experience. The former country is represented in the Consortium while the latter will be represented in an External Reference Group. Five countries including two NMS will host the experimental sites and test different variants of mixes and construction methods. One will also analyze the global, possibly positive impact on CO2 emissions.

Related information

Report Summaries

Final Report Summary - PERSUADE (PoroElastic Road SUrface: an innovation to Avoid Damages to the Environment)
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