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The pro-elastic road surface (PERS): a powerful weapon against traffic noise

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Traffic noise abatement

WHO – report 2011:

- 1,8 % of deceases by ischemic heart problems *exclusively* due to traffic noise
- for Belgium (pop. 11 000 000) this means annually 200 000 deceases due to traffic noise



NEED for POWERFUL NOISE ABATEMENT MEASURES !!!



What is a poro-elastic road surface (PERS)?

PERS can be defined as follows:

- it contains at least 20 % of rubber or another elastic material
- it has at least 20 % voids
- it contains no bitumen (cold mixture)
- the binder is a synthetic resin, like polyurethane



What is PERS?

PERS features:

- optimized texture
- high porosity/absorption
- elasticity: 100 to 1000 x more elastic than dense asphalt concrete



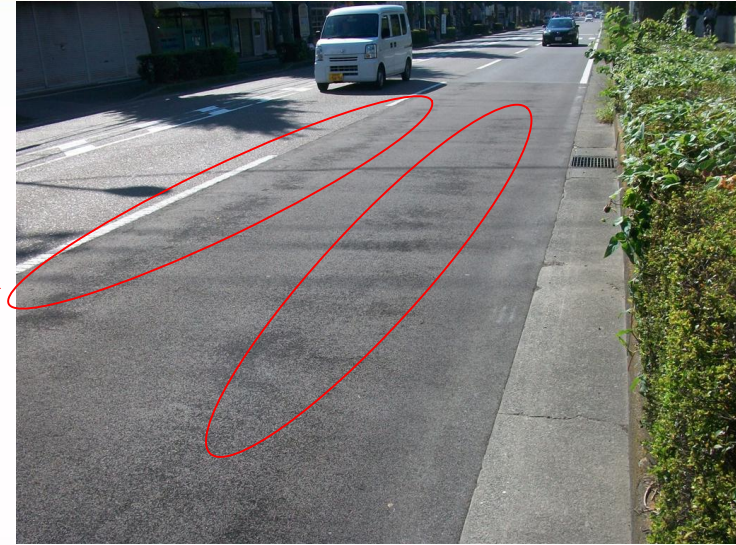
Why do we want PERS?

- PERS offers an unequalled rolling noise reduction, typically **10**, up to **12 dB(A)**
- Valuable « second life » of waste tyres



Main remaining challenges:

- ravelling
- debonding from sub layer
- insufficient polishing/
skid resistance



PoroElastic Road Surface for Avoiding Damage to the Environment



- 12 partners from 8 EU countries
- Duration: 6 years
- Start date: 1 september 2009
- 340 person-months
- Total budget: 4,7 M€ (3,4 M€ EU funding)



The PERSUADE project

Goal of the project: development of PERS from an experimental concept to a usable noise abatement measure

Approach:

- Completeness: technical, environmental, economical,...
- Stepwise approach: lab testing, small scale sections, full scale sections, monitoring
- Dissemination



Laboratory testing: ravelling resistance on ARTe

Testing on two families of PERS types:

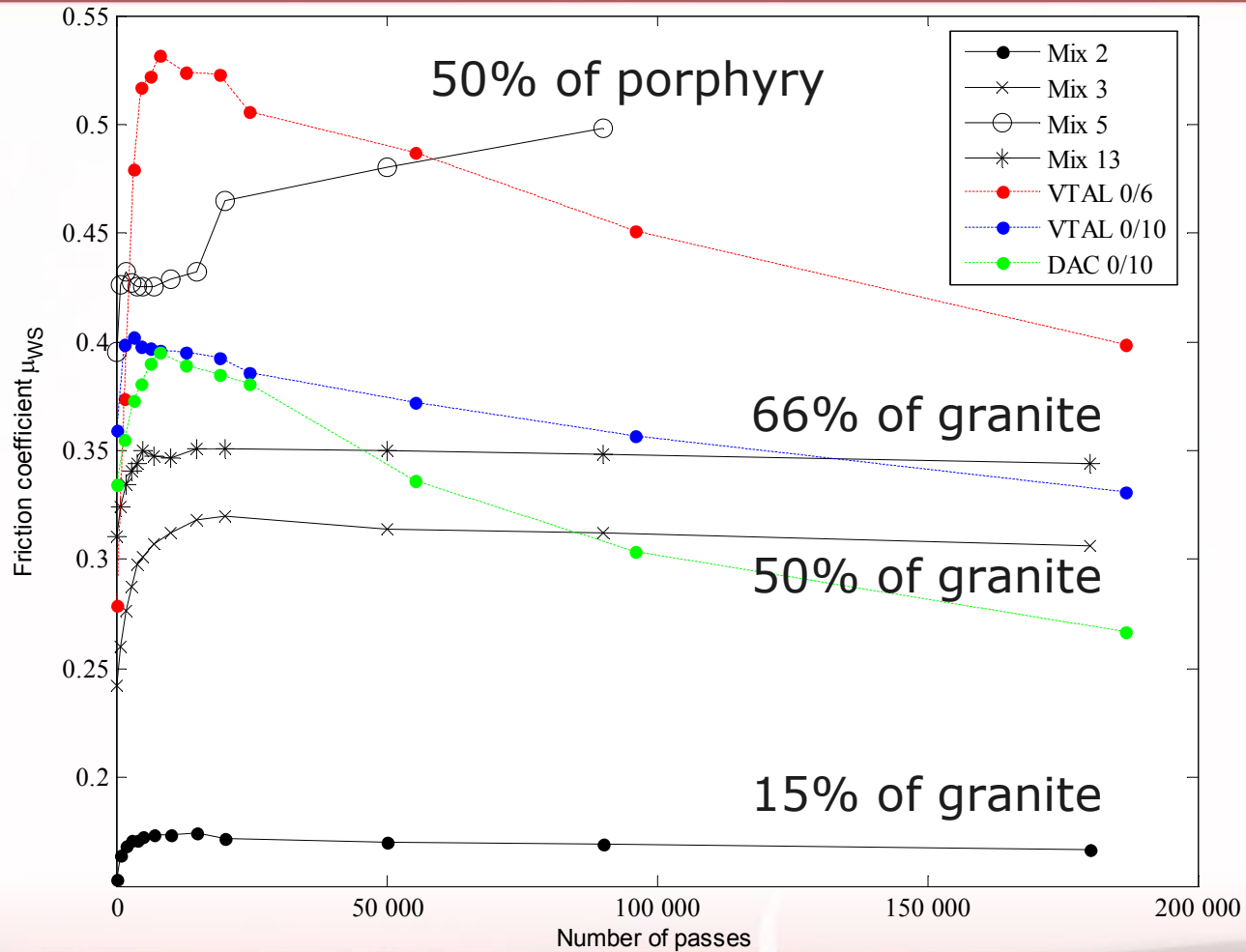
- 50% - 50% rubber/stone granulates: 2500 g of mass loss (!)
- 90% - 10% rubber/stone granulates: 120 g of mass loss, but...



Polishing/friction testing with Wehner-Schulze



Polishing/friction testing with Wehner-Schulze



Small scale test section

August 2011, Arnakke, Sjaelland, Denmark



Small scale test section

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Small scale test section

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Small scale test section

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Planned full scale test sections



> 40 m long



> 40 m long



> 40 m long



> 20 m long



Non laboratory work done so far

- Cost-Benefit analysis as a function of

- Cost/m²
- Lifetime of PERS
- Country (cost/dB is country dependent)
- Noise reduction

- Dissemination:

- Project web site:

www.persuadeproject.eu

- State of the Art



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



State-of-the-Art regarding poroelastic road surfaces

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will be continued...

