

## ASPHALT CONCRETE MIXTURES WITH TYRE RUBBER GRANULATE

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### *ABSTRACT*

An experimental study was undertaken to check the possible use of granulated rubber resulting from grinding disused tyres in the asphalt concrete mixtures for layers of flexible and semi-rigid road pavements. The tyre granulate replaces an appropriate portion of aggregate in the asphalt concrete mixtures with the objective of reducing the quantity of waste landfill with consequent environmental benefits.

The experimental investigation, conducted on asphalt concrete mixtures for surface course layers, develops through a detailed set of phases: selection of materials, mixtures optimization with and without tyre rubber granulate, executions and results analysis of appropriate mechanical characterization tests (Marshall, indirect tensile stress) and definition of the yielding-rupture domains by the use of the UNIBAS-MPT (Machine for Triaxial Tests) device. The experimentation has shown that the achievement of acceptable performance response is connected to the tyre rubber granulate pre-heating temperature and to the asphalt concrete mixing and compacting temperatures.

Various pre-heating and mixing temperatures were tested determining the optimal employment conditions to achieve the best mixtures performance.

*KEY WORDS:* Granulate rubber, surface course layer.