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Original Scientific Paper

FEASIBILITY OF USING RUBBER TIRES PARTICLES AS A PARTIAL REPLACEMENT FOR COARSE AGGREGATES IN RCC

Summary: *Although waste tire rubber particles have been used in conventional concrete for different applications, little information is available on the effect of such particles on the properties of roller compacted concrete.*
This experimental study has examined the feasibility of using rubber tire particles as a partial replacement of mineral aggregates. To assess this aim, concrete mix design is prepared using soil compaction concepts and various mixes were prepared using six designated rubber content varying from 5 to 30% by total aggregate volume. Moreover, a control mix with no replacement of the mineral aggregate was produced to make a comparative analysis.
The test results were compared with the respective conventional concrete and show that there is a reduction in compressive strength as well as flexural strength of the roller compacted concrete due to the inclusion of rubber aggregates. However, these defaults can be eliminated by increasing energy compaction and even though this may restricts its use in some structural applications, but it be used in pavements. The results show also that Roller rubberized concrete has desirable characteristics such as lower density and enhanced ductility. Benefits taken from such materials are more connected to the environmental aspects than the technical ones.
Key words: *Roller compacted concrete, tire rubber particles , workability, density, ductility, strength*

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