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RECYCLING OF STEEL SLAGS IN ROAD FOUNDATIONS

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Abstract

This paper presents the results of an investigation to verify the suitability of an industrial waste material, known as Electric Arc Furnace (EAF) steel slag, for recycling in the lithic matrix of cement bound granular material for road foundations.
A preliminary study of the chemical, leaching, physical and mechanical properties of the EAF steel slag was followed by the mix design, based on Proctor compaction, compression and indirect tensile tests. Mechanical characterization of the mixtures was completed with the elastic modulus evaluation, through ultrasonic tests.
The results have been extremely positive (compression and indirect tensile strength at 7 days of 5.06 MPa and 0.55 MPa respectively), demonstrating that the EAF steel slags could be successfully reused in partial substitution for natural aggregates, also with low cement content, thus reducing the production costs of the mixtures.

Key words: hydraulically bound mixtures, road foundations, steel slag

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