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TECHNICAL SOLUTIONS TO IMPROVE PERFORMANCE OF THE RECYCLED CEMENT CONCRETE AGGREGATES FOR DURABLE ROAD PAVEMENTS

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Abstract

This paper presents the results of the research analyses and laboratory studies, aiming to develop design guidelines and suitable technologies for the construction of durable and environmental friendly rigid pavements by using recycled cement concrete, resulted from various demolition works. Various recycling principles and technologies, specific laboratory methods of improved technical solutions to enhance wear coefficients, density homogeneity, mixture contamination and water absorption of these recycled materials, are described in detail. Adaptable technical solutions, involving a pre-wear procedure, leading to a significant improvement of the mechanical behavior of this waste material, by decreasing the original Los Angeles, micro-Deval and impact wear coefficients have been developed. The paper also recommends new laboratory procedures, to test the density homogeneity, considered as a significant decision tool in selecting the field of use of the RA. Finally valuable conclusions on costs for the implementation of the new developed laboratory and field technologies into full scale practice, in durable, road construction works, are formulated.

Key words: cement concrete recycling, demolition wastes, durable pavements, performance characteristics, recycled aggregates

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