

A NEW ALTERNATIVE FOR THE STABILIZATION OF RECYCLED MATERIALS IN ROADS INFRASTRUCTURES BY USING POLYMERIC PRODUCTS

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ABSTRACT

The recycling of old pavements is gaining interest each year for public administrations and for the society in general, due to the fact that this technology has a lower environmental impact (lower CO₂ footprint) because the exploitation of non renewable resources is reduced (aggregates).

The most common binders used in the stabilization of recycled materials are emulsified bitumen and cement. In this study, a new product is proposed to be used as binder. The new polymeric binder and the recycled materials have been mixed and tested as alternative to the traditional materials.

To determine the properties of the samples obtained from recycled asphalt pavement (RAP) and the polymer as a binder, a design has been made as well as an evaluation of its mechanical properties to check if the performance of the samples meets the Spanish General Technical Specifications for Roads and Bridges Construction, also known as PG-3, and the Spanish NLT Technical Standards (Road Tests) published by the Road Research Centre and the Spanish Association for Standardization (AENOR) UNE-EN standards.

The laboratory results conclude that stabilized materials with good mechanical and dynamic properties can be obtained. These promising results could boost recycling technologies in roads infrastructures, by means of using polymeric materials.

KEY WORDS: Pavements, recycling, rehabilitation, binders, polymers.