

POLYESTER GEOGRIDS AS ASPHALT REINFORCEMENT - A SUSTAINABLE SOLUTION FOR PAVEMENT REHABILITATION

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ABSTRACT

The conventional method for rehabilitation of cracked concrete or asphalt pavements is the installation of new asphalt layers. But a new overlay does not make the cracks disappear; they are still present in the old asphalt layers. Because bituminous bound materials are unable to withstand the high tensile stresses that result from external forces like traffic and temperature variations, these cracks rapidly propagate into the new asphalt overlay. This phenomenon, known as reflective cracking, is one of the major problems associated with the use of asphaltic overlays. In order to tackle the problem of reflective cracking and to therefore prolong the service life of a pavement, a reinforcement grid made of high modulus polyester has proven to be a very effective solution. Geosynthetics as asphalt reinforcement have consistently shown outstanding results in addressing the issue of crack initiation and propagation, eliminating the damage caused by water intrusion that ultimately leads to the failure of the pavement structure. The increased pavement life achieved by the use of this technology not only prevents excessive disruption to traffic flow and local business, but it also demonstrates strong environmental and economic benefits. Through basic theory and practical experiences this paper will demonstrate the success and extended pavement life that can be achieved in both highway and airfield applications. Special attention is given to a comparison of Embodied Carbon Dioxide for different rehabilitation methods showing the sustainability of using polyester asphalt reinforcement to extend pavement life.