

Investigation of Marshall Characteristics & Durability of Glass Powder Incorporated Dense-Graded Asphalt

Jayvant Choudhary¹, Brind Kumar², Ankit Gupta³

Abstract

Asphalt concrete is one the most widely used paving mix and its durability is a key issue with regards to long term pavement performance. The Cantabro durability test is one of the most practical and implementable test used to assess the durability of open graded asphalt mixes. However, previous studies have validated its superior viability in dense graded mixes as well. The durability as well as performance of asphaltic mixes is widely dependent on the nature and quantity of mineral filler. This study identifies the effect of incorporating waste glass powder as mineral filler over the Marshall Properties and durability of dense graded asphalt concrete mix. A suitable number of trail mixes were designed as Marshall mix design method having stone dust as conventional filler and glass powder as alternative filler. At optimum binder contents of both mixes, Cantabro durability tests were performed to measure their durability against raveling. It was observed that, although glass powder improve the Marshall properties of asphalt concrete mixes as compared to conventional filler, however, it also impaired the durability of same mixes against raveling.

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1. Research Scholar, Department of Civil Engineering, Indian Institute of Technology (Banaras Hindu University), Varanasi, India - 221005, Email: Jayvantc.rs.civ15@iitbhu.ac.in
 2. Associate Professor, Department of Civil Engineering, Indian Institute of Technology (Banaras Hindu University), Varanasi, India - 221005, Email: kumar_brind.civ@iitbhu.ac.in
 3. Assistant Professor, Department of Civil Engineering, Indian Institute of Technology (Banaras Hindu University), Varanasi, India - 221005, Email: ankit.civ@iitbhu.ac.in