



Evaluation of Forta fibers performance in hot asphalt mixture against concrete cover

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ABSTRACT

Today, the use of concrete fiber coatings is a common method worldwide due to the high speed implementation and thickness reduction of the reconstruction of concrete and asphaltic roads. These construction projects include concrete pavements including road surfaces, bridge decks, runways, parking lots and industrial floors. Fibers in concrete pavements, in addition to reducing the slab thickness and economical efficiency by controlling the shrinkage cracks and reducing the number of transverse joints, reduces the penetration of water into the pavement and leads to a reduction in maintenance costs. The important factors influencing this are the appearance of the shape and the geometry of the fibers, which is an important factor in the mechanical control of the fiber in concrete. This paper intends to evaluate the flexural strength and cracking strength of concrete made with different types and forms of polymeric fibers. Specific Concrete (produced internally by the Sirjan Foundation of Knowledge) considering the applicability of concrete concretes in concrete applications. The analysis of the results obtained from the experiments show that the use of fibers increases the flexural strength and cracking resistance and the shape of fibers can improve these properties. One of the main breakdowns occurs in flexible pavements are the melting of asphalt layers, the most important of which are fatigue, which is caused by traffic and caused by the effects of successive temperature changes. Improving the flexural strength and increasing the strength of the asphaltic layers against fatigue from various methods including The use of various additives such as fillers, fibers and materials, nano-polymers in asphalt mixtures is possible. The results of the experiments showed that the fatigue behavior and performance of the armed mixture with the Forta fibers were significantly improved compared to mixture. Today, the use of polymer modifiers, fibers and nano-materials to improve the properties of bitumen and improve the performance of asphalt mixtures can be very effective, but relatively expensive due to the cost of implementing relatively rarely, the recycling of materials and their use as secondary materials in asphalt mixtures. In addition to helping reduce costs, it can have beneficial effects on the environment. Laboratory research suggests that Forta fibers play a significant role in arsenal mixtures. Also, the mixture has the highest amount of additive with the best fatigue behavior. The most important positive effect of adding fibers to concrete is the increased flexibility of the concrete and increased absorption capacity of the concrete. In general, arming of asphalt mixtures with a minimum amount of 1.5 kg of fiber per ton of asphalt increases elastic behavior, which increases the fatigue life of the asphaltic mixture.

Keyword:

Forta fibers, Fatigue cracks, Asphalt mixture, Asphalt polymeric, Glass Fiber Ashpalt

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