Investigation of the Effect of Basalt Fiber on the Mechanical Properties of Asphalt Concrete Which Operated in the Extreme North

Shagenian, Ashot (School: Secondary School #2 of Nijniy Bestyakh)

The improvement of quality of a roadbed, physic mechanical and operational performance of a bituminous mixture operated in the harsh conditions of the Extreme North become more significant with the emergence of transport vehicles and increasing of road deterioration. The aim of my work is to improve the physic mechanical and operational performance of a bituminous mixture operated in the harsh conditions of the Extreme North, using basalt fiber. One of the most optimal fillers is basalt fiber, which has very high coefficient of water resistance (one of the most illustrative properties), climatic resistance that helps it to block channels of water penetration. A small quantity of water inflow makes asphalt mixture more durable (around 1.3 times as great as standard model of the roadway, operated in Extreme North). However, the graph of the function that describes compressive strength has a form of the parabola with branches directed down and with a vertex of the parabola at the point with the 1% fiber content (optimal variant). It (nonmonotonic graph of the compressive strength) happens because of replacement of denser materials with basalt fiber. Anyway, the most important value, water resistant increases (around 1.4 times as great as standard model of the roadway, operated in Extreme North). And it entails increasing of period of operation of asphalt mixture.

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