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## **POLYMER-MODIFIER FOR THE ROAD BITUMEN MANUFACTURE OF THE FOURTH GENERATION**

In the recent years, two contradictory trends have been observed in the production of road bitumen by the method of air oxidation. On the one hand, road bitumen consumers require the manufacturer to improve the quality of road bitumen. The reason for this is the growth of the vehicle fleet and increasing load on the road bed [1, 2]. On the other hand, the deepening of oil refining at oil refineries changes the ratio of the main components in tar and creates significant difficulties in obtaining high quality commercial bitumen by direct air oxidation [3, 4]. From a technological and economic point of view, it is advisable to obtain polymer bitumen compositions in order to improve the operational properties of bitumen for road construction.

The aim of this study is developing a polymer-bitumen composition based on oil road bitumen and a polymer modifier. The latter is obtained from petrochemical waste of polymer production, which differs by the use of cheaper and more accessible components compared to industrially used analogs.

To bring the main indicators of the quality of road bitumen to modern standards' requirements, it is proposed to use a thermally prepared combined additive with a concentration of up to 3% by weight. The cost of raw components of the combined additive is equal to the cost of the commercial road bitumen itself. For industrial implementation it is proposed to use a 1% combined additive obtained by mixing 1 part of plasticizer and 2 parts of polymer production waste. This will bring the main quality indicators of road bitumen of the BND 70/100 (petroleum road bitumen) in the line with the requirements of modern standards.

The proposed polymer-bitumen composition differs from industrially used analogs by the use of cheaper and more accessible components, and in terms of its basic performance indicators it approaches the requirements for modified road bitumens, ensuring their reliable operation in asphalt concrete mixtures.

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