

Practical aspects of development of Universal Emulsifiers for aqueous bituminous emulsions

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Abstract

A highly promising approach to the improvement of the properties of bituminous compositions for road building (BCRB) is introduction of surfactants that increase the strength of the adhesive bond between bitumen and the rock material surface and provide required rheological properties of BCRB as a result of emulsification of the bitumen binder in the aqueous medium. The performance characteristics, including the breaking rate of a bituminous emulsion (BE) are controlled by introducing modifying additives both into the dispersed phase and into the dispersion medium. The additives used for dispersion medium are usually stabilizers, organic and inorganic acids, or polymers and this issue has been comprehensively studied. The effect of petroleum fraction-based products on the BE properties is less studied. Only few studies dealing with BE modification with petroleum-based products were performed in Russia. Russian industry produces a limited range of surfactants and many of them, while having high emulsifying capacity, do not promote adhesion. Furthermore, they are rather expensive due to complex and multistage processes for their production. © IDOSI Publications, 2013.

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Keywords

Amines, Bitumen, Emulsification, Physico-chemical properties, Roadbed durability