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Study of the possibility of using diafen FP, sulfenamide C and *N,N'*-dithiodimorpholine of domestic production in rubber mixtures instead of imported analogues

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Abstract

The article presents the results of a study of various rubber compounds based on rubbers containing, in the composition, made by FGUP GosNIIOHT diafen FP, sulfenamide C and *N,N'*-dithiodimorpholine instead of imported analogues. Rubber compounds were made on a laboratory rubber mixer SKI-3L with Intermix rotors. After a day at room temperature, the rubber mixtures were vulcanized on a vacuum compression machine of column type a firm Panstone 3RT. The main technological indicators of rubber mixtures after their manufacture on the rolls were: ductility, ring modulus and density. These indicators characterize the processability of rubber mixtures in the manufacture of products from them. For the obtained vulcanizates, the elastic-deformation properties (conditional tensile strength, relative elongation at break, Shore A and ISO hardness, bond strength with metal at tearing, and abrasion resistance) were determined by standard methods. To assess the performance properties of rubbers, changes in conditional tensile strength, relative elongation at break, hardness, volume and mass after rubbers aging in corrosive media, as well as relative residual deformation of compression, temperature limit of brittleness and frost resistance were determined. The possibility of using diaphene FP, sulfenamide C and *N,N'*-dithiodimorpholine made by FSUE "GosNIIOHT" as part of various rubber mixtures instead of imported analogs is shown. The obtained rubbers according to the technological, elastic-deformation and operational properties comply with the requirements. These rubbers can be used for the manufacture of rubber-technical products with a special set of elastic-deformation and performance properties, and domestic ingredients manufactured by the Federal State Unitary Enterprise GosNIIOHT can be introduced into production.

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