SL 11.8

Synthesis, Properties and Application of Zinccontaining Polymer - Inorganic Composite in Elastomers

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In sphere of polymeric composite materials the tendency of expansion and updating of components assortment, including, received by technologies of processing products of secondary raw material is observed.
Zinccontaining polymer - inorganic composite (ZnUFP) is synthesized by a method of sol-gel technology of chemical manufactures metalcontaining wastes recycling by reaction of urea and formaldehyde polycondensation in a water solution of zinc salts. The polymer - inorganic composite consisting from zinc hydroxide, structurally connected with urea-formaldehyde polymer, represents ultradispersed powder of white colour, not toxic, well compatible with rubbers of general and special assignment.
The structure and physical-technical parameters of ZnUFP are established by the methods of differencial-thermal, Rentgen-structural analysis and IR-spectroscopy.
The influence of ZnUFP composite and its content on properties of rubber mixes and their vulkanizates is investigated. During researches is established:

- action of polymer - inorganic composite as vulkanization activator in structures of various types of vulkanization systems for rubbers of general and special assignment; limiting stages of sulfuric vulkanization process at presence ZnUFP;
- action of polymer - inorganic composite as vulkanization agent in structure of metaloxide vulkanization system for polychloroprene rubbers;
- action of polymer - inorganic composite as adhesion promoter of rubber to metal cord.

Is shown, that at equal-mass replacement of traditional zinc oxide on a polymer - inorganic composite with 60% contents of inorganic substance in rubber mixes on the basis of various rubbers the increase up to 25 % of the technological, physical-mechanical and operational characteristics is observed.