

The influence of functional ingredients on the technological properties of oil swelling rubber sealing elements

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Abstract

The influence of the nature and content of rubbers, syvillins, vulcanizing group, fillers, plasticizers, vermiculite, trans-polynorborene and needle-punched fabric on technological properties (plasticity, annular modulus, density, time before vulcanization, tackiness) of two rubber compounds was studied in the article. The study was carried out with the purpose of selecting the basis of rubber compounds for the production of the outer and inner layers of oil-swelling sealing elements (SOE) for the oil and gas extraction industry. It is established that the rubber mixture for the outer layer of SOE based on butadiene-nitrile BNKS-18AMN and isoprene SKI-3 caoutchoucs, as well as the rubber mixture for the inner layer of SOE based on butadiene-nitrile BNKS-18AMN and butadiene-methylstyrene SKMS-30ARK caoutchoucs at a ratio of rubbers 30:70 possess satisfactory technological properties. It has been shown that these rubber compounds containing a vulcanization group of sulfur + thiazole 2 MBS, sevylyene 11808-340, a combination of T-900 carbon black with rosyl 175, talc and chalk, oil-polymer resin "Sibplast", vermiculite and needle-punched fabric, are characterized by improved technological properties. These rubber mixtures can be recommended as a basis for the manufacture of the outer and inner layers of oil-swelling sealing elements.

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