

Effect of functional ingredients on the technological properties of rubber mixtures for sealing elements

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Abstract

The influence of acrylonitrile content in butadiene-nitrile caoutchoucs, various agents and coagents of vulcanization, antioxidants, technological additives and fibrous fillers on the express control technological properties (plasticity, ring modulus, density) of two model rubber mixtures has been studied in this article. The study has been carried out with the purpose of selecting the basis of rubber mixtures for the manufacturing of thermo-aggressive resistant sealing elements with hardness of 80±5 and 90±5 units. Shor A of packer and anchor equipment for the oil and gas industry. It has been established that rubber mixtures containing BNKS-18AMN caoutchouc with minimum amount of acrylonitrile have satisfactory technological properties. It has been shown that rubber mixtures with hardness of 80±5 and 90±5 units Shor A based on caoutchoucs ZN 35056 and BNKS-18AMN at 90:10 ratio containing Perkadox BC-FF vulcanizing agent and Maleid F coagent, triple combination of amine, phenolic antioxidants and nickel dibutyldithiocarbamate, Zincolet BB-222 processing aid and aramid fiber are characterized by improved technological properties. These rubber mixtures can be recommended as a basis for the manufacturing of thermo-aging resistant sealing elements.

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