

Investigation of the Mechanism of Sulfur Dioxide Adsorption from Gas Emissions of Sodium Bisulfite Production

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Abstract: It is proposed to purify industrial gas emissions from sulfur dioxide by the adsorption method. Waste from the power industry - sludge from the chemical water treatment of Kazan CHPP-1 - was used as an adsorption material. Its chemical composition is presented. Experimental studies of a new sorption material based on energy waste for gas purification from sulfur dioxide have been carried out. The kinetic dependence and isotherm of the adsorption process are obtained. The mechanism of the process of adsorption of sulfur dioxide by sorption material at different temperatures has been studied. The Gibbs free energy, differential heat, and activation energy of adsorption are determined. The economic and environmental impact of modernization of procedure for cleaning gas emissions from sulfur dioxide in sodium bisulfite production at JSC "Chemical factory named after L.Ya. Karpov" was measured.

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