

## Comparison of the Methods Based on the Radiometric Analysis and Characteristic X-Ray Radiation for Definition of Strontium by Zeolites

V.V. Levenets, A.Yu. Lonin\*, O.P. Omelnik, A.O. Shchur

National Science Center «Kharkov Institute of Physics and Technology» NAS of Ukraine, 1, Akademicheskaya St., Kharkov, 61108, Ukraine; \*e-mail: a\_lonin@kipt.kharkov.ua

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*The article investigated the sorption properties of natural and synthetic zeolites towards to radioactive and stable isotopes of strontium in static conditions. Have been used various methods for determining the strontium depending on the isotope content. The content of  $^{90}\text{Sr}$  was measured by the radiometric method. Determination of the content stable strontium was conducted nuclear-physical methods, according to the characteristic X-rays of the target that has been energized by a proton beam with an energy of 1.6 MeV. Has been defined the correlation coefficient by Pearson's equation. It amounted to 0.9523. This indicates that both methods give an adequate assessment of the sorption characteristics of zeolites. In the experiment have been calculated adsorption coefficients ( $K_s, \%$ ) for the zeolites, which was as follows: for the clinoptilolite 85.00–88.50 %, for the zeolite NaX 91.00–94.00 %, for the zeolite NaA 90.00–90.60 %. It is necessary to take into account that the use of the stable strontium compounds significantly increases the safety of conducting research to determine the sorption ability of sorbents, and allows to do the modeling experiments without using dangerous radioactive isotopes.*

**Keywords:** liquid radioactive waste, strontium, zeolite, radiometric analysis, proton beam, characteristic X-rays

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