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Safe trapping of Cs radionuclides in sintered matrix of zeolites

Mia Omerašević,¹ Miodrag Lukić,² Zvezdana Baščarević,³ Jovana Orlić,⁴
Miljana Mirković,¹ Marjetka Savić-Biserčić,⁵ Ljiljana Matović¹

¹University of Belgrade, Institute of Nuclear Sciences “Vinča”, Materials Department, PO Box 522, 11001 Belgrade, Serbia, ²Institute of Technical Sciences of SASA, Knez Mihailova 35/IV, Belgrade, Serbia, ³University of Belgrade, Institute for Multidisciplinary Research, Belgrade, Serbia, ⁴University of Belgrade, Faculty of Chemistry, Studentski trg 12-16, 11000 Belgrade, Serbia, ⁵University of Belgrade, Institute of Nuclear Sciences “Vinča”, Chemical Dynamics Laboratory, P.O. Box 522, 11001 Belgrade, Serbia

Cesium aluminosilicate phases are of the great interest as possible host for Cs immobilization in radioactive waste management. The possibility to use zeolite as a host material for radioactive Cs immobilization was investigated. Cs-exchanged forms of clinoptilolite and 13X which were prepared by ion-exchange treatment were compacted. The powders compacts of exchanged zeolites were thermally treated at 1200 °C. The XRD analysis showed that Cs was successfully immobilized after heat treatment by formation of stable cesium-aluminosilicate ceramic forms. Thermal and mechanical properties of the sintered samples were investigated. From the perspective of these characteristics, Cs-exchanged zeolite (clinoptilolite and 13 X) can be considered as a potential material for safe waste disposal.