

**Removal of thorium(IV) from aqueous radioactive waste using synthetic nanosize mordenite material by sorption treatment**

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The present studies mainly focused on two aspects; first synthesis of nano size mordenite (MOR) type zeolite materials, and second, application of these analogues of MOR in radioactive waste water treatment. The potential of self synthesized nano MOR type materials were examined in terms of their Th(IV) ion sorption capacity. A series of batch sorption experiments were carried out at different conditions to optimize the sorption process. The crystallinity of analogue of MOR was analyzed by X-ray diffraction as well as electron diffraction; different functionalities in the materials were studied by using infrared spectroscopy and nuclear magnetic resonance spectroscopy.

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