



Contribution ID : 15

Type : **Oral Presentation**

New route for synthesis of Synroc-like ceramic using non-selective sorbent LHT-9

Wednesday, 1 November 2017 17:00 (15)

Immobilization of bulk liquid high level waste (HLW) in Synroc ceramic is well-known reliable way for final isolation of waste from biosphere. It is proposed the alternative method of synthesis of titanate Synroc-like ceramic. Radionuclide incorporation into crystalline titanate host-phases can be provided as a result of direct radionuclide sorption from liquid HLW using non-selective sorbent – layered hydrazinium titanate (LHT-9). Such an approach allows excluding expensive multi-stage procedure of precursor preparation. The precipitate obtained after sorption can be easily transformed into Synroc-like ceramic by cold pressing and sintering in air at 1000-1100°. The highly radioactive samples of titanate ceramic loaded with 10 wt.% of real HLW were synthesized and studied at KRI hot-cell facility. Chemical durability of these samples was tested using MCC-1 static leach test (in distilled water at 90°C) and the leach rate was found to be comparable with Synroc ceramic.

Summary

Primary author(s) : Ms ZUBEKHINA, Bella (researcher, V.G. Khlopin Radium Institute (KRI), St-Petersburg, Russia)

Co-author(s) : Dr BURAKOV, Boris (V.G. Khlopin Radium Institute (KRI), St-Petersburg, Russia); Dr BRITVIN, Sergey (Saint-Petersburg State University, St-Petersburg, Russia); Mr MARARITSA, Valery (Socium Ltd, St-Petersburg, Russia); Mr DEMIDOV, Yuri (Socium Ltd, St-Petersburg, Russia)

Presenter(s) : Ms ZUBEKHINA, Bella (researcher, V.G. Khlopin Radium Institute (KRI), St-Petersburg, Russia)

Session Classification : Ceramic and Glass-Ceramic Wasteforms

Track Classification : National and international collaborative waste management programs