



Contribution ID: 218

Type: POSTER

Research on the management of MTR Spent fuel in the DMN-CAB-CNEA

The RA-3 research reactor was inaugurated in 1967 to cover the Argentinean demand for medical radioisotopes [1]. The spent fuels from this reactor have been stored in wet conditions in CAE facilities, in the past at the DCMFEI deposit and currently in the FACIRI deposit [2].

There are three proposals for the management research reactor spent fuels [2]:

- Uranium isotopic dilution for use in light water power reactors.
- Return to the country that supplied the enriched uranium when this possibility exists.
- Isotopic dilution conditioning for final disposal in the deep geological repository.

That will be defined when the country defines its nuclear fuel cycle.

In our Uranium Laboratory of the Nuclear Materials Department (LU-DMN) located in the Bariloche atomic centre, we worked on proposals for the conditioning and immobilization of these types of spent fuels by isotopic dilution and ceramization [3, 4], the addition of glass to the ceramization process [4], and glasses matrices for immobilization [5]. The proposal of this presentation is to show some of our research lines in the context of the nuclear fuel cycle of the Argentina nuclear energy sector, and in particular the results of the Cerus Project (Ceramization of radioactive elements in sintered uranium).

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[6]. Lago, Diana & Garcés, Diana & Prado, Miguel. (2012). Crystallization of an Yttrium Aluminosilicate Glass for Nuclear Waste Immobilization. Materials Research Society symposia proceedings. ISSN:0272-9172. 1475. 227-232. 10.1557/opl.2012.581.

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Track Classification: Track 5 - Practical experiences in integrating safety and sustainable development