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Conditioning of radioactive/nuclear wastes: An overview

Safe management of nuclear wastes is a critical aspect in ensuring the sustainability of the nuclear industry in some countries and/or to end legacy practices in other countries. Currently, these wastes are managed according to the containment and confinement option, where their radiological hazards are contained by isolating the wastes for a sufficient period to allow the decay of short-lived radioisotopes and limit the release of long-lived radionuclides. Conditioning is a predisposal activity that aims to produce an optimized waste package. Conditioning includes producing optimized waste form and encloses it in a suitable package. This work aims at summarizing the technical and academic efforts toward the optimization of the conditioning process and identifying the gaps in this area. Within this context, radioactive/nuclear waste classification and different activities in integrated radioactive waste management schemes will be introduced. Conventional and innovative conditioning technologies will be overviewed.

Methods to assess the optimized performance of these wastes will be summarized. Finally, methods to address the conditioning of problematic wastes and the required research efforts in this field will be identified.



Biography

Abdel Rahman is an Associate Professor of Chemical Nuclear Engineering at Atomic Energy Authority of Egypt. She received her PhD degree in Nuclear Engineering from Alexandria University, Egypt. Her research interests cover different aspects in radioactive waste management. She co-authored more than 30 peer-reviewed scientific papers, 10 book chapters, and 1 book, and edited 6 books. She serves as a verified reviewer in several international journals, member of organizing committees of international conferences, managing editor in IJEWM, and IJEE (Inderscience). She is an honored scientist of ASRT and of Publons sentinel of science 2016 and peer-review awards in 2017.

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