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Authors' reply to "Comment on the paper "Partitioning of selected fission products from irradiated oxide fuel induced by thermal treatment""

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Abstract

We thank R. Konings et al. for their interest and their valuable critical discussion of our article regarding the fission product release from irradiated oxide fuel during thermal treatment and reply to their comments appearing in this issue. Their feedback stimulated us to give more details on the sampling procedure of investigated materials as well as the measurement procedure in order to exclude misunderstandings. The release curves for iodine and cesium are compared to blank profiles and reanalyzed to demonstrate the features of inductive heating approach applied in authors' recent study on FP release under inert and oxidizing conditions.

Comments

Sampling procedure

The peeling sampling methodology applied in the study of Shcherbina et al. [1] has been originally developed for micro X-ray diffraction and absorption investigations by Degueldre et al. [2, 3]. The technique is schematically represented in Figure 1. A cross-cut of a fuel pellet is grinded using sand paper to produce fuel particles. Usually the particles are of micron size with a distribution within 10-20 μm (checked by optical microscope). The abraded surface of the fuel pellet is then pressed on adhesive Kapton tape to fix the fuel particles. Prepared in this way samples meet the requirements of dose rate limits for experiments outside of a shielded box (below 100 LA), as well as do not entail saturation of the ICP-MS detector.

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