



Contribution ID: 35

Type: Oral Presentation

Investigation of C-14 in the CRUD collected on the coolant filter for safety disposal of radioactive waste containing C-14 (I)- C-14 release behavior and thermal decomposition characteristics of crud particles collected from the coolant filter of commercial PWR -

Thursday, 2 November 2017 11:15 (15 minutes)

In the safety assessment of radioactive waste repository, it is important to evaluate the migration behavior of long half-life radionuclides in the disposal environment. It was reported that insoluble C-14 was generated in PWR. However, the knowledge about the chemical form of C-14 is little. In this study, particles including C-14 collected from the coolant filters in PWR were analyzed by TG/MS to identify the chemical forms of these particles. In addition, C-14 in released gases and the residue in TG measurements were also investigated.

Resultantly, it was revealed that fragments which were considered to be organic compounds derived from the ion-exchange resin were detected from the released gas, and that majority(>90%) of C-14 inventory were detected in the residue after the inert gas heating.

While the chemical forms of C-14 in the residue are not clarified, it is suggested that insoluble C-14 may exist in the thermo-stable compounds.

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Session Classification: Radionclide solubility, speciation, sorption & migration

Track Classification: National and international collaborative waste management programs