Contribution ID: **300** Type: **Poster**

Determination of distribution coefficients of 134-Cs from Baltic Sea water using Cs-selective sorbents.

Monday, 12 May 2014 17:15 (1h 30m)

Radiocaesium is one of the most important radionuclides introduced into natural environment by human activity. In spite of its small concentration 137Cs and 134Cs may cause serious hazard in case of spread of fission products in the air or contamination water reservoirs. This risk is a result of high radioactivity and long decay time of mentioned radioisotopes.
Decontamination of fresh or salty water needs special handling as a result of specific properties of caesium ions. Unlike to transition metals, caesium does not create insoluble precipitates and is weakly sorbed onto conventional cationic ion exchangers. Highly selective sorbents are used for that purposes. The most frequently used sorbents are titanates and silicotitanes, transition metal(II) hexacyanoferrates(II) and heteropoly-acid salts. The minor role plays zeolites and natural organic sorbents.
According to the Polish energy policy for the next two decades commissioning of two nuclear power plants is expected. In this poster a results of the determination of distribution coefficients of 134Cs from Baltic Sea water using commercially available and synthesised in a laboratory scale Cs-selective sorbents are presented. Comparison of these values may be important not only as an analytical purposes of radionuclide preconcentration, but also simulates decontamination of large volume salty water as a potential result of radioactive leakage. The research has been executed as a part of research task No. 8 „Study of processes occurring under regular operation of water circulation systems in nuclear power plants with suggested actions aimed at upgrade of nuclear safety" financed by the National Research and Development Centre in the framework of the strategic research project entitled „Technologies Supporting Development of Safe Nuclear Power Engineering".

Primary author: Dr BOROWIK, Krzysztof (Institute of Nuclear Chemistry and Technology)

Co-authors: Prof. POLKOWSKA-MOTRENKO, Halina (Institute of Nuclear Chemistry and Technology); Mrs OSTROWSKI, Jaroław (Fertilizer Research Institute)

Presenter: Dr BOROWIK, Krzysztof (Institute of Nuclear Chemistry and Technology)

Session Classification: Poster Session - Nuclear Analytical Methods

Track Classification: Nuclear Analytical Methods