



Contribution ID: 100

Type: Verbal

The adsorptive behaviour of cadmium on clays

Tuesday, 20 April 2010 10:30 (20 minutes)

Heavy metals present in the environment such as cadmium are considered harmful due to their toxicity. Adsorption-desorption reactions of metals from aqueous solutions to the soil play an important role in influencing the accumulation and transport of metal contaminants. These are affected by the surface and chemical properties of the soil components.

Sorption and desorption of Cd^{2+} has been examined on a series of clays bentonite, illite, illite-smectite, kaolin and montmorillonite through γ -spectroscopy as a function of pH and ionic strength. Experimental data acquired for the systems studied have been used to determine the isotherms. The order of increasing cadmium adsorption onto the clays in the absence of organic matter has been found to be:

illite \approx kaolin < montmorillonite < illite-smectite < bentonite

Further, to gain mechanistic insights to the sorption and desorption processes NMR and XRD have been used to probe these systems.

Primary author: Dr JAIN, Sneha (Loughborough University)

Co-authors: Ms CHARALAMBOUS, Maria (Loughborough University); Dr EVANS, Nick (Loughborough University)

Presenter: Dr JAIN, Sneha (Loughborough University)

Session Classification: Chemistry of Nuclear Fuel Cycle, Radiochemical Problems in Nuclear Waste Management 3

Track Classification: Chemistry of Nuclear Fuel Cycle, Radiochemical Problems in Nuclear Waste Management