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Environmental Behaviour of Americium(III) in Natural Waters.

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The behaviour of actinides in environmental systems is of primary importance when assessing the safety of various concepts for the the disposal of radioactive wastes in geologic repositories.
Natural waters are the main transport medium for transuranic elements in the goesphere. Among the ligands usually found in such systems, OH^-, CO_3^{2-} and humic substances are of particular interest due to the strong complexes they form with these elements. Formation constants for these ligands are presented and the americium(III) speciation in aqueous systems at varying pH, CO_2 partial pressure and humics concentration is discussed.
In the inorganic system at $pCO_2 = 10^{-13}$ atm (representative of a concrete environment) hydrolysis is the major phenomenonwhile at $pCO_2 = 0.1$ atm carbonate species become predominant. Already in the presence of very low concentrations of humic materials (0.1 mg/l) americium would be predominantly associated with humic humate ligands.