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Use of hydrolysis for separation and removal of radionuclides from solution

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Behaviour of radionuclides in such processes as sorption, ion-exchange, ultrafiltration, etc., that are used for removal of radionuclides from solution, is largely determined by their speciation in solution. The hydrolysis of metal ions in solution is particularly interesting in that respect, since most of the liquid radioactive wastes are aqueous solutions.
The following forms of metal ions (Mez+) occur in aqueous solution as the pH increases from acidic to basic conditions:

- hydrated cations (Me(H2O)z+)
- mononuclear hydroxocomplexes (Me(OH)qz-q+)
- polynuclear hydroxocomplexes (Mep(OH)qpz-q+)
- pseudocolloids

Each of the above forms possesses specific physico-chemical properties that can be effectively used

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