Studies of the Behavior of Trivalent Uranium in an Aqueous Solution. II. Absorption Spectra and Ion Exchange Behavior in Various Acid Solutions*

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Abstract

The absorption spectra of trivalent uranium in hydrochloric, sulfuric and perchloric acid solutions were investigated. It was found that there is a possibility of the formation of a chloro-complex from the fact that a large change in absorption spectra was observed at high concentrations of chloride ion. On the basis of the above facts, the behavior of trivalent uranium in those media toward ion exchange resin was studied. It was considered that an anionic complex of trivalent uranium begins to form at concentrations of hydrochloric acid above 7 N, which shows good agreement with results obtained on trivalent ions of plutonium, americium and curium, which are similar actinide elements. However, it was not possible to confirm the existence of a soluble carbonate complex of trivalent uranium, as in the case of trivalent plutonium or americium.