

## The Chemistry of Protactinium. I.

### The Preparation of Protactinium-233 and the Purification of Protactinium-231\*

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#### Abstract

Many methods, such as the co-precipitation method, the solvent extraction method and the ion exchange method, had previously been proposed for the separation and the purification of protactinium. However, these methods have some defects for the separation of Pa-233 produced by the thermal neutron irradiation of thorium dioxide and the purification of commercial Pa-231, when an attempt is made to study the chemistry of protactinium. From the above point of view, a combined method of solvent extraction and anion exchange was investigated. In the present paper, the detailed conditions for the TBP extraction of protactinium from a hydrochloric acid solution and the method for its final purification by anion exchange were described. The present method is comparatively simple and rapid, and chemically- and radiochemically-pure protactinium can thus be obtained.

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