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Studies of the Synthetic Inorganic Ion Exchanger. III
The Separation of the Fission Product by Means
of a Stannic Phosphate Cation Exchanger*

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Abstract

The mutual separation of various nuclides contained in fission product has been
carried out with a stannic phosphate cation exchanger. Various concentrations
of nitric acid and ammonium chloride solutions have been used as eluants, and the
separation has been performed on hydrogen- and ammonium-form exchangers.

The separations of $^{89}\text{Sr-}^{137}\text{Cs}$, $^{89}\text{Sr-}^{144}\text{Ce}$, $^{137}\text{Cs-}^{144}\text{Ce}$ and $^{90}\text{Sr-}^{90}\text{Y}$ were easy and
complete except for that of $^{137}\text{Cs-}^{144}\text{Ce}$ on a hydrogen-form exchanger. $^{95}\text{Zr}$ and
$^{95}\text{Nb}$ were almost completely adsorbed on the exchanger over a wide range of
acidity and salt concentration; therefore, they were not eluted at all. As the
behavior of $^{106}\text{Ru}$ is complex and its separation from other nuclides is impossible,
it is necessary to separate the ruthenium from the fission product in advance by a
method other than that of ion exchange.

With reference to the above results, the total analysis of the fission product on
an ammonium-form exchanger has been carried out. It is almost complete
except for the contamination of rare earth in the cesium fraction.

* The 1152nd report of the Research Institute for Iron, Steel and Other Metals. Published