hydrochloric acid. The separation of many other elements with Dowex 1 resin and hydrochloric acid eluant has been described by Kraus, et al.[15]

5. Other Ion Exchange Studies. An investigation of the behavior of some of the actinide elements in elution from columns of Dowex 1 anion resin using ammonium thiocyanate as eluant has been made.[16] A jacketed column (described in section 2) was prepared and loaded by the techniques described in section 3. The elution was performed at 87° C., using 1.0 M ammonium thiocyanate. A flow rate of 0.2 ml./cm.^{2}/min. was used.

A typical elution curve is shown in Fig. 7. Berkelium was absent in this experiment; its approximate elution position was obtained in separate experiments, and is indicated by a vertical line in Fig. 7.

Under these conditions, the rare earths precede curium in elution from the column.

Oxidation-Reduction Behavior

From the general trends of the oxidation potentials of the actinide elements it would not be expected that oxidation states other than III could be obtained of elements 99 and 100 in aqueous solutions.[6,8] This postulate has been based to some extent on some unreported work with californium in which an unsuccessful attempt was made to produce a V oxidation state and to carry it with the compound $KAmO_3$. The conclusion of this experiment was that californium is more difficult to oxidize to the V state than is americium.[17] It seems reasonable therefore that oxidation states greater than III will be even more difficult to obtain