

Ammonium Lactate. Reagent grade lactic acid was used to prepare a 0.4 M solution in conductivity water. The pH was adjusted to the required value (normally between 4.0 and 4.5) by the addition of conductivity water saturated with ammonia. The solution was finally made 0.01 M with respect to phenol to inhibit the growth of molds.

Column Apparatus. The column apparatus most frequently used is shown in Fig. 3. The diameter of the resin bed was usually 2 mm. (where essentially weightless materials were to be separated). The length was adjusted to give the degree and speed of separation required, but was normally 5 to 6 cm. These column dimensions were employed in the separations shown in Figs. 2a and 2b.

The resin was transferred to the column as an aqueous slurry. After the bed length had been adjusted, the column was heated to 87° C. by boiling the trichlorethylene and the eluant solution was allowed to flow through at a slow rate (roughly ~5 minutes per drop). The air bubbles which developed were removed by stirring the bed. As soon as bubbles stopped forming, the column could be used. However, if possible, the flow of the eluant was maintained for 24 hours to remove all soluble inorganic materials from the resin, thus reducing contamination of the actinide elements with impurities.

Column Operation. The flow of eluant was interrupted, and the ammonium lactate solution above the resin bed was removed. The space above the resin bed was washed carefully with hot (air-free) distilled water to remove traces of lactate. Finally, two drops of