

actual elution position (drop number), but not the positions of either the actinide or lanthanide elements relative to each other.

2. Dowex 50 Resin - Ammonium Lactate Elution at 87° C. This method has been applied to americium-curium separations⁹ and to rare earth separations.^{10,11} Its application to the separation of the heaviest elements was found to give improved reproducibility and better separations of the individual actinides, particularly at more rapid flow rates, than had been obtained using ammonium citrate. Separation of the actinide elements from each other by this method was improved when the amounts of other elements present were minimized by previous separations. The results of experiments in which the elements americium through 100 were separated from each other are illustrated in Fig. 2a. The separation of homologous rare earths under identical conditions is shown (Fig. 2b) in order to emphasize the similarity in relative spacings between the rare earths and actinides. It should be noted that the actual drop numbers of the elution of the rare earths are multiplied by the factor 0.721 to facilitate comparison.

Experimental

Resin. Dowex 50 spherical resin, 200-400 mesh size, 12% cross linked, was graded (in the hydrogen form) by allowing it to settle from aqueous suspension. The fraction with a settling rate between 0.5 and 0.25 cm./min. was collected. It corresponded to the finer fraction of the ungraded material. The graded resin was washed alternately with 12 M hydrochloric acid and ammonium hydroxide. It was stored in the ammonium form until required.