By spectrophotometric and potentiometric methods it is shown that trimers are formed in media of high ionic strength (3 M NaClO$_4$) and total concentrations of hexavalent actinides higher than $10^{-3}$ M. The equilibrium constants for the reactions

$$3 \text{MO}_2(\text{CO}_3)_3^{4-} \rightarrow (\text{MO}_2)_3(\text{CO}_3)_6^{6-} + 3 \text{CO}_3^{2-}$$

are $\text{lg } K(\text{U}) = -11.3 \pm 0.1$; $\text{lg } K(\text{Np}) = -10.1 \pm 0.1$; $\text{lg } K(\text{Pu}) = -7.4 \pm 0.2$. It is demonstrated that one of the cations of the trimer can be exchanged with another actinide cation: the equilibrium constants for the reactions

$$2 \text{UO}_2(\text{CO}_3)_3^{4-} + \text{MO}_2(\text{CO}_3)_3^{4-} \rightarrow (\text{UO}_2)_2\text{MO}_2(\text{CO}_3)_6^{6-} + 3 \text{CO}_3^{2-}$$

are $\text{lg } K = -11.3 \pm 0.1, -10.0 \pm 0.2$ and $-8.8$ respectively for $M \equiv \text{U, Np, Pu}$. Thus, polynuclear complexes can be efficient solution "carriers" for other hexavalent actinides in waste disposal. Some properties of the solid phases $\text{MO}_2\text{CO}_3(s)$ are discussed.

Experimental studies of chemical equilibria of americium (III, IV) are reviewed: in carbonate media americium(III) species are $\text{AmCO}_3^+$, $\text{Am(CO}_3)_2^-$, $\text{Am( CO}_3)_3^{3-}$, $(\text{Am}_2(\text{CO}_3)_3)_s$ and $(\text{NaAm( CO}_3)_2)_s$; for americium-(IV) $\text{lg } \beta_5 \approx 40$.

In 3 M NaClO$_4$ solubility measurements of neptunium(V) show that $\text{lg } \beta_1 = 5.09$, $\text{lg } \beta_2 = 8.15$, $\text{lg } \beta_3 = 10.46$, $\text{lg } K_s(\text{NaNpO}_2\text{CO}_3) = -10.56$ and $\text{lg } K_s(\text{Na}_3\text{NpO}_2(\text{CO}_3)_2) = -12.44$; ionic strength corrections are proposed on the basis of these results.