

# The Effect of Temperature on Uranium Isotope Effects Studied by Cation Exchange Displacement Chromatography

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The uranium isotope effect in the exchange system uranyl(VI)-malate ligand at 288–343 K has been studied by ion exchange displacement chromatography. At all temperatures  $^{235}\text{U}$  is enriched at the front of the uranium band. The single stage separation coefficient,  $(\varepsilon = \alpha - 1)$ , increased from  $(0.9 \pm 0.1) \times 10^{-4}$  at 288 K to  $(2.9 \pm 0.3) \times 10^{-4}$  at 343 K. The equilibrium constant of the isotope exchange reaction equaled the separation factor at the current experimental conditions. The increase of the separation coefficient with temperature, which is in contrast to the uranium(IV)-ligand exchange systems, can be explained by the introduction of the field shift effect.

*Key words:* Isotope Effects; Chromatography; Separation.