

exchange columns with Dowex-50 resins. The growth of a curium isotope decaying by the emission of alpha-particles of energy 5.84 Mev was observed in a radio-chemically pure berkelium fraction. This curium isotope is probably Cm^{243} produced by the electron-capture decay of Bk^{243} . Chemical separations on the decay products of the Bk^{243} also revealed an americium isotope of ~15-hour half-life, which appears to be identical within the limits of error of the experiment with the known 12-hour electron-capturing Am^{239} . The cross section for the formation of Bk^{243} by the $(\alpha, 2n)$ reaction is $\sim 10^{-26} \text{ cm}^2$. The chemical properties of the berkelium are typical of those of the actinide elements. Its tripositive oxidation state bears the same relationship to curium as does terbium to gadolinium as shown by the separations on ion exchange resin columns. The analogy between these two groups of elements is apparent, indicating the same kind of break in ionic radius at the point of half-filling of the 5f electron shell (curium) for the actinide elements as has been known to exist for the analogous point of half-filling of the 4f electron shell (gadolinium) for the lanthanide elements. The oxidation potential for the (III) \longrightarrow (IV) couple of berkelium is close to that of the corresponding couple for cerium (~-1.6 volts).

NAME

It is suggested that element 97 be given the name berkelium (symbol Bk) after the city of Berkeley in a manner similar to that used in naming its chemical homologue terbium (atomic number 65) whose name was derived from the town of Ytterby, Sweden, where the rare earth minerals were first found.