= Compounds of berkelium =

Berkelium forms a number of chemical compounds , where it normally exists in an oxidation state of + 3 or + 4 , and behaves similarly to its lanthanide analogue , terbium . Like all actinides , berkelium easily dissolves in various aqueous inorganic acids , liberating gaseous hydrogen and converting into the trivalent oxidation state . This trivalent state is the most stable , especially in aqueous solutions , but tetravalent berkelium compounds are also known . The existence of divalent berkelium salts is uncertain and has only been reported in mixed lanthanum chloride @-@ strontium chloride melts . Aqueous solutions of Bk3 + ions are green in most acids . The color of the Bk4 + ions is yellow in hydrochloric acid and orange @-@ yellow in sulfuric acid . Berkelium does not react rapidly with oxygen at room temperature , possibly due to the formation of a protective oxide surface layer ; however , it reacts with molten metals , hydrogen , halogens , chalcogens and pnictogens to form various binary compounds . Berkelium can also form several organometallic compounds .

= = Oxides = =

Two oxides of berkelium are known , with berkelium in the + 3 (Bk2O3) and + 4 (BkO2) oxidation states . Berkelium (IV) oxide is a brown solid that crystallizes in a cubic (fluorite) crystal structure with the space group Fm3m and the coordination numbers of Bk [8] and O [4] . The lattice parameter is 533 @.@ 4 ± 0 @.@ 5 pm .

Berkelium (III) oxide , a yellow @-@ green solid , is formed from BkO2 by reduction with hydrogen :

<formula>