Synthesis and Characterisation of BaMIV (PO4)2 in the View of Conditioning ot the Actinides

Abstract:
We present here a systematic study on the BaMIV(PO4)2 double phosphates. We successfully synthesized the compounds with MIV = Ti, Zr, Hf, Ge, Sn and Th. Several attempts to obtain the compounds with MIV = Pb, Re, Ce, U and Np have been also performed and the preliminary findings are discussed here. In agreement with previous studies, the BaMIV(PO4)2 (MIV = Ti, Zr, Hf, Ge and Sn) compounds crystallize in the C1 2/m 1 space group (yavapaiite structure), while BaTh(PO4)2 exhibit a different structure. The results on the stability of the BaZr(PO4)2 and BaHf(PO4)2 yavapaiite-like compounds upon heating and cooling are presented.

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