$Fe^{3+}V^{5+}O_4$ has been synthesized under high pressure high temperature conditions in a sealed platinum capsule. This phase cristallizes in a structure of monoclinic wolframite $NiWO_4$ type. The dense form of αPbO_2 type previously described by Young and Schwartz was shown to be probably a reduced form of composition $Fe_{1-x}V_{1+x}O_4$ containing some tetravalent vanadium. This disordered phase was also obtained when runs were performed in unsealed capsules. The monoclinic form undergoes at 570°C an irreversible transformation to the form stable at normal pressure conditions while the disordered form of αPbO_2 type transforms at about 540°C into intermediate form of $Cr^{3+}V^{5+}O_4$ type. The range of stability of this phase is very narrow and at about 570°C it transforms to the normal triclinic form.

Etude Systematique des Relations entre les Structures Wadeite et Tetragermanate. J. CHOISNET, A. DESCHANVRES, AND B. RAVEAU. Groupe de Cristallographie et Chimie du Solide ERA No. 305, Laboratoire de Chimie Minérale Industrielle, U.E.R. de Sciences, Université de Caen, 14032 Caen Cedex, France. Systematic study of solid solutions with general formula $A_{2-x}A_x'(B_{1-z}B_z')Ge_{3-y}Si_yO_9$ (A, A′ = K, Rb, Cs, Tl; B, B′ = Ge, Ti, Sn) has been carried out. These results allow us to propose a tridimensional diagram of existence of wadeite and tetragermanate structures, as a function of the sizes of A, B, Ge, and Si elements. Condition of stability based upon differences of sizes between A and M elements and B and M elements (M = Ge, Si) were found. The variation of compactness of wadeite and tetragermanate structures shows up the particular role of M element (Ge, Si).