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OMPO10. Crystal Structure Refinement of a Th-rich Weeksite Group Mineral

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Weeksite is a tectosilicate characterized by a Si:U ratio of 5:2. The most recent determination of its crystalline structure was made from a single crystal from Yavapai County, Arizona, USA, with formula $K_{1.26}Ba_{0.25}Ca_{0.12}[(UO_2)_2(Si_5O_{13})] \cdot H_2O$.

Weeksite display compositional variations, as for example the Ba-rich weeksite (K/Ba = 0.76/0.35) that occurs along fractures in the pegmatitic tourmaline granite of Perus, São Paulo, Brazil.

This work presents the results of a preliminary of a crystal structure refinement study (using the GSAS software) of a weeksite specimen from the Mina do Macaco, São Geraldo do Baixio, Minas Gerais, Brazil. Chemical and X-ray powder diffraction data show it is a Th-rich member of the weeksite group, not yet described in the literature.

Preliminary results, with Rwp index 0.1655, revealed the following unit cell parameters: a_0 14.1676(9), b_0 14.1935(9), c_0 35.754(2) Å. These results slightly differs from those for the Yavapai crystal [a_0 14.209(2), b_0 14.248(2), c_0 35.869(4) Å].

The possible structural sites occupied by Th will be investigated on the basis of WDS chemical data and Fourier difference maps.