

THE MORPHOLOGICAL SERIES OF HYDROXYAPOPHYLLITE CRYSTALS AND THEIR SIGNIFICANCE

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Apophyllite is a common silicate mineral with sheet structure, and occur generally in low temperature hydrothermal veins. A series of well developed hydroxyapophyllite crystals variate from plate-cubic-prismatic-pyramidal, occurred in the altered limestone zone of the contact metasomatic copper deposit of SE Hubei, China. They usually associate with heulandite, stilbite, anthophyllite, quartz etc.. As a result of crystal goniometry, it is estimated that the variation of crystal form is mainly controlled by the development of the tetragonal pyramids versus to the diminution of prisms during their genetic evolution.

1. The variation of hydroxyapophyllite forms may be illustrated as the result of triangular combination of three end member forms.

2. In structure, the net planes of pyramidal face of apophyllite truncate across the Si-O sheets and H_2O , OH sites located intra-sheet, a space more active than prismatic or basal direction. Therefore, the orientation and variation of the pyramidal faces are sensitive to the mother media composition and the growth environment. The unstable property of pyramidal faces is one important structural factor of the morphological variations.

3. The structural rule of apophyllite morphology could also be applied to other minerals. Furthermore, it may also be a gleam thrown upon the study of the relationship between crystal morphology and crystallization.