

The mineralogy of väyrynenite, $(\text{Mn,Fe})\text{Be}(\text{PO}_4)(\text{OH})^*$

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Auszug

Es wird über eine neue chemische Analyse und über die kristallographische Untersuchung an Einzelkristallen des Väyrynenits von Eräjärvi im zentralen Finnland berichtet. Die Analyse ergab: MnO 34,01, FeO 5,92, CaO 0,53, BeO 13,85, Na_2O 0,20, K_2O 0,04, Al_2O_3 0,40, P_2O_5 39,98, $\text{H}_2\text{O} +$ 4,93, $\text{H}_2\text{O} -$ 0,19, unlösl. 0,06. Die Raumgruppe ist $P2_1/a - C_2h^5$; die Gitterkonstanten sind $a = 5,41_1 \pm 0,005 \text{ \AA}$, $b = 14,49 \pm 0,02 \text{ \AA}$, $c = 4,73_0 \text{ \AA} \pm 0,005 \text{ \AA}$, $\beta = 102^\circ 45' \pm 5'$. Die Zelle enthält 4 Formeleinheiten $(\text{Mn,Fe})\text{Be}(\text{PO}_4)\text{OH}$. Die nahe Strukturverwandtschaft des Väyrynenits mit dem Euklas $\text{AlBe}(\text{SiO}_4)\text{OH}$ wird diskutiert.

Abstract

A new chemical analysis and x-ray single-crystal study are reported for väyrynenite, originally described by VOLBORTH (1954) from Eräjärvi in central Finland. The analysis gave: MnO 34.01, FeO 5.92, CaO 0.53, BeO 13.85, Na_2O 0.20, K_2O 0.04, Al_2O_3 0.40, P_2O_5 39.98, $\text{H}_2\text{O} +$ 4.93, $\text{H}_2\text{O} -$ 0.19, insol. 0.06; total 100.11. X-ray crystallographic data are: monoclinic, space group $P2_1/a - C_2h^5$; $a = 5.41_1 \pm 0.005 \text{ \AA}$, $b = 14.49 \pm 0.02$, $c = 4.73_0 \pm 0.005$, $\beta = 102^\circ 45' \pm 05'$; cell contents, 4 formula units. The first indexed x-ray powder data and new mineralogical observations on the physical properties are given. The close structural relation between väyrynenite, $(\text{Mn,Fe})\text{Be}(\text{PO}_4)(\text{OH})$, and euclase, $\text{AlBe}(\text{SiO}_4)(\text{OH})$, is discussed.

Introduction

The complex granite-pegmatite occurrence at Viitaniemi in the parish of Eräjärvi in central Finland shows a remarkable assemblage of phosphate minerals. There occur here particularly the rare beryllium phosphates, beryllonite $\text{NaBe}(\text{PO}_4)$, hurlbutite $\text{CaBe}_2(\text{PO}_4)_2$, herderite

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