Väyrynenite Mn$^{2+}$Be(PO$_4$)(OH)

Crystal Data: Monoclinic. Point Group: 2/m. Rare prismatic crystals, elongated and striated along [001], showing {001}, {010}, {110}, a number of additional modifying forms, to 6 cm; typically in fine-grained aggregates.


Cell Data: Space Group: P2$_1$/a. a = 5.411(5) b = 14.49(2) c = 4.730(5) β = 102°45′ Z = 4

X-ray Powder Pattern: Viitaniemi pegmatite, Finland. 3.452 (100), 7.251 (85), 2.885 (85), 4.399 (60), 2.662 (42), 2.951 (35), 4.960 (25)

Chemistry: (1) (2) (3)
P$_2$O$_5$ 39.98 40.5 40.34 Na$_2$O 0.20 0.03
Al$_2$O$_3$ 0.40 0.01 K$_2$O 0.04 0.01
FeO 5.92 3.4 H$_2$O$^{+}$ 4.93
MnO 34.01 38.4 40.32 H$_2$O$^{-}$ 0.19
BeO 13.85 12.2 14.22 H$_2$O [5.38] 5.12
CaO 0.53 0.07 insol. 0.06
Total 100.11 [100.00] 100.00

(1) Viitaniemi pegmatite, Finland: corresponds to (Mn$_{0.84}$Fe$_{0.14}$Ca$_{0.02}$)$_{Σ=1.00}$Be$_{0.98}$ (PO$_4$)$_{0.99}$(OH)$_{0.96}$. (2) “Chitral” [Pakistan or Afghanistan]: by AA, H$_2$O by difference; corresponds to (Mn$_{0.92}$Fe$_{0.08}$)$_{Σ=1.00}$Be$_{0.83}$(PO$_4$)$_{0.97}$(OH)$_{1.02}$. (3) MnBe(PO$_4$)(OH).

Occurrence: An alteration product of beryl and triphylite in complex zoned granite pegmatites.

Association: Eosphorite, moraesite, hurbute, beryllonite, amblygonite, apatite, tourmaline, topaz, muscovite, microcline, quartz.

Distribution: In the Viitaniemi pegmatite, near Eräjärvi, Finland. From the Norrö pegmatite, on Räviö Island, and from near Kapelludden, Utö Island, Sweden. In the Bendada pegmatite, near Guarda, Portugal. At the Fregeneda pegmatite, Salamanca Province, Spain. From the Kalba Range, eastern Kazakhstan. Large crystals found in Broghul Pass, Chitral Valley, Pakistan.

Name: To honor Professor Heikki Allan Väyrynen (1888–1956), Technical Institute, Helsinki, Finland.


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