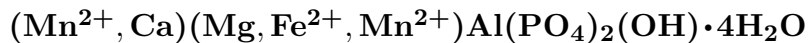


**Lun'okite**

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**Crystal Data:** Orthorhombic. *Point Group:*  $2/m\ 2/m\ 2/m$ . As prismatic crystals in flattened radial aggregates, to 1 mm.

**Physical Properties:** *Cleavage:* Perfect on {010}; imperfect on {001}. Hardness = 3–4 VHN = 240 (40 g load). D(meas.) = 2.66 D(calc.) = 2.69

**Optical Properties:** Semitransparent. *Color:* Colorless to pale yellowish white. *Optical Class:* Biaxial (+). *Orientation:*  $X = c$ ;  $Y = a$ ;  $Z = b$ . *Dispersion:*  $r < v$ .  $\alpha = 1.603$   $\beta = 1.608$   $\gamma = 1.616$   $2V(\text{meas.}) = 70^\circ$

**Cell Data:** *Space Group:*  $Pbca$ .  $a = 14.95(5)$   $b = 18.71(2)$   $c = 6.96(3)$   $Z = 8$

**X-ray Powder Pattern:** Mt. Vasin-Myl'k, Russia. 2.809 (10b), 9.39 (9), 2.92 (7), 3.48 (6), 5.15 (5), 1.877 (5), 1.568 (5)

**Chemistry:**

	(1)
P <sub>2</sub> O <sub>5</sub>	35.42
Al <sub>2</sub> O <sub>3</sub>	13.42
FeO	5.55
MnO	18.97
MgO	3.59
CaO	3.21
H <sub>2</sub> O	19.40
Total	99.56

(1) Mt. Vasin-Myl'k, Russia; by electron microprobe, total Fe as FeO, total Mn as MnO; corresponds to  $(\text{Mn}_{0.77}\text{Ca}_{0.23})_{\Sigma=1.00}(\text{Mg}_{0.35}\text{Fe}_{0.31}\text{Mn}_{0.30})_{\Sigma=0.96}\text{Al}_{1.05}(\text{PO}_4)_{1.99}(\text{OH})_{1.10} \cdot 3.78\text{H}_2\text{O}$ .

**Mineral Group:** Overite group.

**Occurrence:** In fractures and on crusts of mitridatite in granite pegmatites.

**Association:** Eosphorite, laeuite, kingsmountite, fairfieldite, mitridatite.

**Distribution:** On Mt. Vasin-Myl'k, Voron'i massif, Kola Peninsula, Russia.

**Name:** For the Lun'ok River, nearby Mt. Vasin-Myl'k, Russia.

**Type Material:** Geology Museum, Kola Branch, Academy of Sciences, Apatity, 5771; Mining Institute, St. Petersburg, 1340/1; A.E. Fersman Mineralogical Museum, Academy of Sciences, Moscow, Russia, 82541, 82542.

**References:** (1) Voloshin, A.V., Y.A. Pakhomovskii, and F.N. Tyusheva (1983) Lun'okite, a new phosphate, the manganese analog of overite, from granitic pegmatites of the Kola Peninsula. Zap. Vses. Mineral. Obshch., 112, 232–237 (in Russian). (2) (1984) Amer. Mineral., 69, 210–211 (abs. ref. 1).