

# Olympite

# LiNa<sub>5</sub>(PO<sub>4</sub>)<sub>2</sub>

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**Crystal Data:** Orthorhombic. *Point Group:* 222. Oval grains, to 5 mm.

**Physical Properties:** *Fracture:* Conchoidal. *Tenacity:* Brittle. Hardness = ~4  
VHN = 274–395, 310 average (40–50 g load). D(meas.) = 2.8 D(calc.) = 2.85 Easily soluble  
in cold H<sub>2</sub>O; decomposes rapidly in air.

**Optical Properties:** Translucent. *Color:* Colorless. *Luster:* Vitreous.  
*Optical Class:* Biaxial (+).  $\alpha = 1.510(2)$   $\beta = 1.510(2)$   $\gamma = 1.512(2)$   $2V(\text{meas.}) = 46(1)^\circ$

**Cell Data:** *Space Group:* P2<sub>1</sub>2<sub>1</sub>2<sub>1</sub>.  $a = 10.124(2)$   $b = 14.794(2)$   $c = 10.132(3)$   $Z = 8$

**X-ray Powder Pattern:** Mt. Rasvumchorr, Kola Peninsula, Russia.  
2.582 (10), 4.18 (9), 2.531 (7), 2.433 (7), 1.472 (7), 3.58 (6), 3.70 (5)

Chemistry:	(1)	(2)
P <sub>2</sub> O <sub>5</sub>	42.50	45.52
CO <sub>2</sub>	2.30	
MnO	0.50	
Li <sub>2</sub> O	n.d.	4.79
Na <sub>2</sub> O	54.50	49.69
Total	99.80	100.00

(1) Mt. Rasvumchorr, Kola Peninsula, Russia; MnO and CO<sub>2</sub> attributed to sidorenkite impurity.

(2) LiNa<sub>5</sub>(PO<sub>4</sub>)<sub>2</sub>.

**Occurrence:** An ultra-alkalic phase in nepheline syenite pegmatites in differentiated alkalic massifs.

**Association:** Sidorenkite, dorfmanite, nahpoite, villiaumite, shafanovskite, aegirine (Mt. Rasvumchorr, Kola Peninsula, Russia); natrite, natrosilite (Lovozero massif, Kola Peninsula, Russia).

**Distribution:** On Mt. Rasvumchorr, Khibiny massif, and in the Lovozero massif, Kola Peninsula, Russia.

**Name:** For the 1980 Summer Olympic Games, in Moscow, USSR.

**Type Material:** Geology Museum, Kola Branch, Academy of Sciences, Apatity, 5533; Mining Institute, St. Petersburg, 1208/1; I.M.G.R.E., Moscow; A.E. Fersman Mineralogical Museum, Academy of Sciences, Moscow, Russia, 80180.

**References:** (1) Khomyakov, A.P., A.V. Bykova, and Y.A. Malinovskii (1980) Olympite Na<sub>3</sub>PO<sub>4</sub> – a new mineral. Zap. Vses. Mineral. Obshch., 109, 476–479. (2) (1981) Amer. Mineral., 66, 438 (abs. ref. 1). (3) Rastsvetaeva, R.K. and A.P. Khomyakov (1994) A comparative crystal-chemical study of lithium-sodium phosphates (lithiophosphate, nalipoite, olympite, and Na<sub>3</sub>PO<sub>4</sub>). Crystallography Reports, 39, 35–41.