

Uralolite

 $\text{Ca}_2\text{Be}_4(\text{PO}_4)_3(\text{OH})_3 \cdot 5\text{H}_2\text{O}$

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Crystal Data: Monoclinic. *Point Group:* $2/m$. Bladed crystals, elongated and striated || [100], flattened on {010}, with {010}, {001}, {101}, {021}; typically in radial fibrous spherulites and matted aggregates, to 5 mm. *Twinning:* May show multiple twinning.

Physical Properties: *Cleavage:* {010}, {100}, indistinct. *Fracture:* Conchoidal. *Tenacity:* Brittle. Hardness = 2.5 D(meas.) = 2.05–2.14 D(calc.) = 2.197 Pale yellowish green fluorescence under LW UV, deep green under SW UV.

Optical Properties: Transparent to translucent. *Color:* White, colorless. *Luster:* Vitreous, silky for fibrous aggregates.

Optical Class: Biaxial (-). *Orientation:* $X = b$; $Z \wedge a = 9^\circ\text{--}20^\circ$. $\alpha = 1.510\text{--}1.512$
 $\beta = 1.525\text{--}1.526$ $\gamma = 1.533\text{--}1.536$ $2V(\text{meas.}) = 66^\circ$ $2V(\text{calc.}) = 70^\circ$

Cell Data: *Space Group:* $P2_1/n$. $a = 6.550(1)$ $b = 16.005(3)$ $c = 15.969(4)$
 $\beta = 101.64(2)^\circ$ $Z = 4$

X-ray Powder Pattern: Boevskoye deposit, Russia; spacings from a calculated pattern, intensities estimated visually.

3.562 (10), 7.12 (7), 5.59 (5), 3.03 (5), 5.25 (3), 3.203 (3), 7.82 (2)

Chemistry:

	(1)	(2)	(3)	(4)
P ₂ O ₅	39.57	38.26	40.1	39.27
Al ₂ O ₃	0.95			
BeO	19.28	18.31	17.5	18.45
CaO	18.02	20.15	21.2	20.68
H ₂ O	24.10	21.17	21.0	21.60
insol.	0.11			
Total	[102.03]	97.89	99.8	100.00

(1) Boevskoye deposit, Russia; H₂O taken as LOI, original total given as 102.05%; corresponding to Ca_{1.73}Be_{4.11}(PO₄)_{3.00}(OH)_{2.94}•5.69H₂O. (2) Dunton quarry, Maine, USA; corresponding to Ca_{2.00}Be_{4.07}(PO₄)_{3.00}(OH)₃•5H₂O. (3) Weinebene Pass, Austria; by electron microprobe, H₂O by LOI. (4) Ca₂Be₄(PO₄)₃(OH)₃•5H₂O.

Occurrence: In complex zoned granite pegmatites (Boevskoye deposit, Russia; Dunton quarry, Maine, USA); in a spodumene-rich pegmatite in high-grade metamorphic rocks (Weinebene Pass, Austria).

Association: Moraesite, beryllonite, apatite, carbonate-apatite, crandallite, beryl, fluorite (Boevskoye deposit, Russia); roscherite, hydroxyl-herderite, elbaite, beryllonite, lepidolite, albite (Dunton quarry, Maine, USA).

Distribution: In the Boevskoye beryllium deposit, 35 km southwest of Kamensk-Ural'skii, Middle Ural Mountains, Russia. At the Dunton quarry, Newry, Oxford Co., Maine, USA. From near Taquaral, Minas Gerais, Brazil. In the Weinebene Pass, Carinthia, Austria.

Name: For the Ural Mountain region, Russia, in which it was first found.

Type Material: Il'menskii Preserve Museum, Miass, 5523; A.E. Fersman Mineralogical Museum, Academy of Sciences, Moscow, Russia, 75439.

References: (1) Grigor'ev, N.A. (1964) Uralolite – a new mineral. Zap. Vses. Mineral. Obshch., 93, 156–162 (in Russian). (2) (1964) Amer. Mineral., 49, 1776 (abs. ref. 1). (3) Dunn, P.J. and R.V. Gaines (1978) Uralolite from the Dunton gem mine, Newry, Maine: a second occurrence. Mineral. Record, 9, 99–100. (4) Mereiter, K., G. Niedermayr, and F. Walter (1994) Uralolite, Ca₂Be₄(PO₄)₃(OH)₃•5H₂O: new data and crystal structure. Eur. J. Mineral., 6, 887–896. (5) Pekov, I.V. (1998) Minerals first discovered on the territory of the former Soviet Union, 222.

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