Uralolite

\[ \text{Ca}_2\text{Be}_4(\text{PO}_4)_3(\text{OH})_3\cdot5\text{H}_2\text{O} \]

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Crystal Data: Monoclinic. \textit{Point Group}: 2/m. Bladed crystals, elongated and striated \parallel [100], flattened on \{010\}, with \{010\}, \{001\}, \{011\}, \{021\}; typically in radial fibrous spherulites and matted aggregates, to 5 mm. Twinning: May show multiple twinning.

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

Optical Properties: Transparent to translucent. \textit{Color}: White, colorless. \textit{Luster}: Vitreous, silky for fibrous aggregates. \textit{Optical Class}: Biaxial (−). \textit{Orientation}: \( X = b; Z \wedge a = 9^\circ-20^\circ \). \( \beta = 1.525-1.526 \) \( \gamma = 1.533-1.536 \). \( 2V(\text{meas.}) = 66^\circ \) \( 2V(\text{calc.}) = 70^\circ \).

Cell Data: \textit{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: Boeveskoye 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:

| \( \text{P}_2\text{O}_5 \) | 39.57 | 38.26 | 40.1 | 39.27 |
| \( \text{Al}_2\text{O}_3 \) | 0.95 |
| \( \text{BeO} \) | 19.28 | 18.31 | 17.5 | 18.45 |
| \( \text{CaO} \) | 18.02 | 20.15 | 21.2 | 20.68 |
| \( \text{H}_2\text{O} \) | 24.10 | 21.17 | 21.0 | 21.60 |
| insol. | 0.11 |

Total \[102.03\] 97.89 99.8 100.00

(1) Boeveskoye deposit, Russia; \( \text{H}_2\text{O} \) taken as LOI, original total given as 102.05%; corresponding to \( \text{Ca}_{1.73}\text{Be}_{4.11}(\text{PO}_4)_3(\text{OH})_3\cdot5\text{H}_2\text{O} \). (2) Dunton quarry, Maine, USA; corresponding to \( \text{Ca}_{2.00}\text{Be}_{4.07}(\text{PO}_4)_3(\text{OH})_3\cdot5\text{H}_2\text{O} \). (3) Weinebene Pass, Austria; by electron microprobe, \( \text{H}_2\text{O} \) by LOI. (4) \( \text{Ca}_2\text{Be}_4(\text{PO}_4)_3(\text{OH})_3\cdot5\text{H}_2\text{O} \).

Occurrence: In complex zoned granite pegmatites (Boeveskoye 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 (Boeveskoye deposit, Russia); roscherite, hydroxyl-herderite, elbaite, beryllonite, lepidolite, albite (Dunton quarry, Maine, USA).

Distribution: In the Boeveskoye 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.


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