

Lermontovite

U⁴⁺(PO₄)(OH)•H₂O(?)

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Crystal Data: Orthorhombic. *Point Group:* 2/m 2/m 2/m. Fibrous, in veinlets, or radially fibrous botryoidal aggregates, to 1.5 mm.

Physical Properties: *Tenacity:* Very brittle. Hardness = n.d. D(meas.) = 4.00–4.50
D(calc.) = [4.08] Radioactive.

Optical Properties: Transparent. *Color:* Grayish green, green; grassy green in transmitted light. *Luster:* Dull, silky on fractures.

Optical Class: Biaxial (-). *Pleochroism:* In shades of green to greenish gray. *Orientation:* Z = c || elongation. $\alpha = 1.686\text{--}1.690$ $\beta = 1.707$ $\gamma = 1.724\text{--}1.726$ 2V(meas.) = n.d.
2V(calc.) = 88(6)°

Cell Data: *Space Group:* Ccca (probable). a = 9.74(1) b = 19.00(1) c = 10.10(1)
Z = [12]

X-ray Powder Pattern: Beshtau deposit, Russia, by X-ray and electron diffraction; decomposes rapidly under the electron beam.

3.92 (100), 3.29 (95), 4.87 (80), 4.12 (80), 3.83 (80), 3.58 (80), 4.69 (70)

Chemistry:

| | (1) | (2) |
|-------------------------------|----------|--------|
| UO ₂ | 65.63 | 73.38 |
| P ₂ O ₅ | 18.54 | 19.28 |
| TiO ₂ | 9.46 | |
| CaO | 0.27 | |
| H ₂ O | [6.10] | 7.34 |
| Total | [100.00] | 100.00 |

(1) Beshtau deposit, Russia; by electron microprobe, average of four analyses, H₂O by difference; corresponding to (U_{0.93}Tl_{0.17}Ca_{0.02})_{Σ=1.12}(PO₄)(OH)_{0.93}•0.8H₂O. (2) U(PO₄)(OH)•H₂O.

Occurrence: In uranium-bearing veins in a granite porphyry stock.

Association: Halloysite, vrbaite, lorandite, evansite, uraninite, marcasite, molybdenum sulfate.

Distribution: From the Beshtau uranium deposit, near Pyatigorsk, northern Caucasus Mountains, Russia.

Name: Honors Mikhail Yur'evich Lermontov (1814–1841), Russian poet.

Type Material: n.d.

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