

Törnebohmit-(La)**(La, Ce)₃Al(SiO₄)₂(OH)**

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Crystal Data: [Monoclinic, pseudo-hexagonal] [by analogy to törnebohmit-(Ce)]. *Point Group:* [2/*m*.] Rare crystals in fissures; more commonly as grains, to 3 mm, or veins in cerite; in concentrically zoned aggregates around cerite and bastnäsite.

Physical Properties: *Fracture:* Uneven. Hardness = 5 D(meas.) = 4.805 D(calc.) = n.d.

Optical Properties: Semitransparent. *Color:* Dark green or greenish gray. *Luster:* Vitreous to greasy.

Optical Class: Biaxial (+). *Pleochroism:* Extreme; *X* = strong bluish green; *Y* = yellow-green; *Z* = pinkish. *Dispersion:* *r* > *v*, very strong. $\alpha = 1.845\text{--}1.850$ $\beta = \text{n.d.}$ $\gamma = 1.870\text{--}1.880$ $2V(\text{meas.}) = 18^\circ\text{--}40^\circ$

Cell Data: *Space Group:* [*P*2₁/*c*.] pseudo-hexagonal cell $a = 7.74$ $c = 8.5$ $Z = \text{n.d.}$

X-ray Powder Pattern: Mochalin Log, Russia; diffuse.

3.15 (7.5), 2.860 (7.5), 2.665 (6), 2.202 (4.5), 2.003 (4.5), 1.807 (2.5), 1.734 (2)

Chemistry:

	(1)
SiO ₂	20.33
TiO ₂	0.12
Al ₂ O ₃	10.11
RE ₂ O ₃	62.88
Fe ₂ O ₃	2.61
MgO	0.92
CaO	2.46
H ₂ O ⁺	0.78
Total	100.21

(1) Mochalin Log, Russia; RE = La 48.1%, Ce 41.6%, Pr 2.9–3.2%, Nd 7.0–7.5%, Sm 0.2–0.4%, Gd 0.1–0.2%, Tb 0.1–0.2%, traces of Sc, Be, U, Zr; corresponds to (La_{1.02}Ce_{0.87}Ca_{0.23}Nd_{0.14})_{Σ=2.26}(Al_{1.04}Fe_{0.17}³⁺Mg_{0.11})_{Σ=1.32}Si₂O₈[O_{0.55}(OH)_{0.45}]_{Σ=1.00}.

Occurrence: Replaces cerite, in turn replacing bastnäsite, in granite pegmatite in the fenitization zone of a nepheline syenite massif.

Association: Cerite, bastnäsite, allanite, feldspar.

Distribution: From Mochalin Log, Kyshtym district, Southern Ural Mountains, Russia.

Name: For its content of *lanthanum* and relation to törnebohmit-(Ce).

Type Material: n.d.

References: (1) Svyazhin, N.V. (1962) Törnebohmit from the alkaline area of the Ural. Zap. Vses. Mineral. Obshch., 91, 97–99 (in Russian). (2) (1962) Chem. Abs., 6904 (abs. ref. 1).