Törnebohmite-(La) $(La,Ce)_3Al(SiO_4)_2(OH)$

Crystal Data: [Monoclinic, pseudohexagonal] [by analogy to törnebohmite-(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. α = 1.845–1.850 β = n.d. γ = 1.870–1.880 2V(meas.) = 18°–40°

Cell Data: *Space Group:* [$P2_1/c$.] pseudohexagonal cell $a = 7.74$ $c = 8.5$ Z = 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_2O_3	10.11
RE_2O_3	62.88
Fe_2O_3	2.61
MgO	0.92
CaO	2.46
H_2O^+	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 $(La_{1.02}Ce_{0.87}Ca_{0.23}Nd_{0.14})_{\Sigma=2.26}(Al_{1.04}Fe^{3+}_{0.17}Mg_{0.11})_{\Sigma=1.32}Si_2O_8[O_{0.55}(OH)_{0.45}]_{\Sigma=1.00}$.

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 törnebohmite-(Ce).

Type Material: n.d.

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