

Crystal Data: Monoclinic. *Point Group:* 2/m. As isolated anhedral grains to 0.4 mm in nodules.

Physical Properties: Cleavage: None. Tenacity: Brittle. Fracture: Uneven. Hardness = ~5 VHN = 657-787, 722 average (150 g load). D(meas.) = n.d. D(calc.) = 4.713 Nonfluorescent.

Optical Properties: Translucent. Color: Brown to dark brown. Streak: White. Luster: Vitreous. Optical Class: Biaxial (-). $\alpha = 1.780(6)$ $\beta = 1.807(6)$ $\gamma = 1.818(6)$ 2V(meas.) = 65(10) $^\circ$ 2V(calc.) = 61 $^\circ$ Non-pleochroic. Dispersion: Weak, $r > v$.

Cell Data: Space Group: P2₁/c. $a = 6.5642(3)$ $b = 6.7689(3)$ $c = 18.721(1)$ $\beta = 108.684(6)^\circ$ Z = 4

X-ray Powder Pattern: Mochalin Log REE deposit, Chelyabinsk Oblast', Southern Urals, Russia. 2.962 (100), 2.785 (76), 4.595 (63), 4.331 (62), 2.692 (59), 4.489 (56), 4.208 (50)

Chemistry:	(1)	(2)
CaO	1.20	
La ₂ O ₃	28.58	58.08
Ce ₂ O ₃	25.93	
Pr ₂ O ₃	1.37	
Nd ₂ O ₃	2.89	
ThO ₂	0.22	
MgO	0.25	
MnO	6.34	12.64
FeO	3.66	
SiO ₂	21.46	21.43
CO ₂	[7.86]	7.85
H ₂ O	[0.10]	
Total	99.86	100.00

(1) Mochalin Log REE deposit, Chelyabinsk Oblast', Southern Urals, Russia; average electron microprobe and Raman spectroscopic analyses, CO₂ and H₂O calculated from stoichiometry, CO₃:HCO₃ calculated for charge-balance; corresponds to (La_{0.98}Ce_{0.89}Nd_{0.10}Pr_{0.05})_{Σ=2.02} (Mn²⁺_{0.50}Fe²⁺_{0.29}Ca_{0.12}Mg_{0.03})_{Σ=0.94}(CO₃)_{0.94}(HCO₃)_{0.06}(Si₂O₇). (2) La₂Mn(CO₃)(Si₂O₇).

Mineral Group: Biraite group.

Occurrence: As part of rich REE mineralization in polymineralic nodules of the Mochalin Log placer deposit, probably formed during fenitization of granitic pegmatites within granite-gneisses in the exocontact zone of an alkaline intrusion.

Association: Allanite-(Ce)/-(La), bastnäsite-(Ce)/-(La), fluorbritholite-(Ce), perbœite-(Ce)/-(La), percleveite-(Ce)/-(La), törnebohmite-(Ce)/-(La), biraite-(Ce), ferriallanite-(Ce)/-(La), ferriperbœite-(Ce)/-(La), perrierite-(Ce)/-(La), monazite-(Ce)/-(La).

Distribution: From the Mochalin Log REE deposit, 14 km north of Kyshtym, Chelyabinsk Oblast', Southern Urals, Russia.

Name: Honors Russian mineral collector Alexey M. Kuznetsov (b. 1962) who provided samples of the studied material. The suffix is the dominant REE. The La analogue of alexkuznetsovite-(Ce).

Type Material: A.E. Fersman Mineralogical Museum, Russian Academy of Sciences, Moscow, Russia (5416/1; 97005 holotype, 97024 and 97025).

References: (1) Kasatkin, A.V., N.V. Zubkova, I.V. Pekov, N.V. Chukanov, R. Škoda, A.A. Agakhanov, D.I. Belakovskiy, S.N. Britvin, and D.Y. Pushcharovsky (2021) The mineralogy of the historical Mochalin Log REE deposit, South Urals, Russia. Part IV. Alexkuznetsovite-(La), La₂Mn(CO₃)(Si₂O₇), alexkuznetsovite-(Ce), Ce₂Mn(CO₃)(Si₂O₇) and biraite-(La), La₂Fe²⁺(CO₃)(Si₂O₇), three new isostructural minerals and a definition of the biraite group. Mineral. Mag., 85, 772-783.