Crystal Data: Monoclinic. *Point Group*: 2/*m*. As anhedral grains to 1.2 mm.

Physical Properties: *Cleavage*: None. *Tenacity*: Brittle. *Fracture*: Uneven.
Hardness = ~5 VHN = 636-800, 712 average (150 g load). D(meas.) = n.d. D(calc.) = 4.682

Optical Properties: Translucent. *Color*: Brown to dark brown. *Streak*: White. *Luster*: Vitreous.
Optical Class: Biaxial (-). α = 1.770(5) β = 1.790(5) γ = 1.800(5) 2V(meas.) = 70(10)°
2V(calc.) = 70° *Dispersion*: Weak, $r > v$.

Cell Data: *Space Group: P*$2_1/c$. a = 6.5660(10) b = 6.7666(11) c = 18.698(3) β = 108.952(16)°
Z = 4

X-Ray Diffraction Pattern: Mochalin Log REE deposit, Chelyabinsk Oblast, South Urals, Russia.
3.055 (100), 2.962 (66), 4.594 (49), 3.723 (47), 2.690 (38), 2.787 (35), 1.843 (33)

Chemistry:

	(1)	(2)
CaO	1.24	
La_2O_3	27.81	58.01
Ce_2O_3	25.88	
Pr_2O_3	1.29	
Nd_2O_3	2.56	
ThO_2	0.45	
MgO	0.48	
MnO	4.82	
FeO	5.67	12.78
SiO_2	21.67	21.38
CO_2	[7.98]	7.83
H_2O	[0.19]	.
Total	100.04	100.00

(1) Mochalin Log valley REE deposit, Chelyabinsk Oblast, South Urals, Russia; average electron microprobe analysis supplemented by Raman spectroscopy, CO_2 and H_2O calculated from stoichiometry; corresponds to $(La_{0.95}Ce_{0.87}Nd_{0.08}Pr_{0.04})_{\Sigma=1.94}Th_{0.01}Ca_{0.12}Fe^{2+}_{0.44}Mn^{2+}_{0.38}Mg_{0.07}(CO_3)_{0.88}(HCO_3)_{0.12}(Si_2O_7)$. (2) $La_2Fe^{2+}(CO_3)(Si_2O_7)$.

Mineral Group: Biraite group.

Occurrence: Formed in polymineralic nodules by metasomatism of primary bastnäsite-(La)/-(Ce) of probable alkaline pegmatitic origin.

Association: Allanite-(Ce)/-(La), bastnäsite-(Ce)/-(La), fluorbritholite-(Ce), perbøeite-(Ce)/-(La), percleveite-(Ce)/-(La), törnebohmite-(Ce)/-(La).

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

Name: Suffix indicates the lanthanum analog of *biraite*-(Ce).

Type Material: A.E. Fersman Mineralogical Museum, Russian Academy of Sciences, Moscow, Russia (97023).

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), $La_2Mn(CO_3)(Si_2O_7)$, alexkuznetsovite-(Ce), $Ce_2Mn(CO_3)(Si_2O_7)$ and biraite-(La), $La_2Fe^{2+}(CO_3)(Si_2O_7)$, three new isostructural minerals and a definition of the biraite group. Mineral. Mag., 85, 772-783.