Bastnäsite-(La) $(La, Ce)(CO_3)F$

Crystal Data: [Hexagonal.] [by analogy to bastnäsite-(Ce)]. *Point Group:* $\overline{6}2c$. Fine-grained massive.

Physical Properties: Hardness = [4–4.5] D(meas.) = n.d. D(calc.) = n.d.

Optical Properties: Semitransparent. *Color:* Dark brown.
Optical Class: Uniaxial (+). ω = n.d. ϵ = n.d.

Cell Data: *Space Group:* [$P\overline{6}2c$] [by analogy to bastnäsite-(Ce)]. a = n.d. c = n.d. Z = n.d.

X-ray Powder Pattern: Probably nearly identical to bastnäsite-(Ce).

Chemistry:

	(2)	(3)
CO_2	n.d.	20.14
La_2O_3	55.04	37.28
Ce_2O_3	n.d.	37.55
Pr_2O_3	4.35	
Nd_2O_3	11.49	
Sm_2O_3	n.d.	
CaO	1.72	
H_2O	n.d.	
F	n.d.	8.69
$-O = F_2$	n.d.	3.66
Total		100.00

(1) Belaya Zima deposit, Russia; analysis not given but stated to correspond to $(La_{0.44}Ce_{0.41}Nd_{0.14})_{\Sigma=0.99}(CO_3)F$. (2) Near Odegi, Nigeria; partial analysis by electron microprobe, corresponding to $(La_{0.71}Nd_{0.14}Ca_{0.09}Pr_{0.06})_{\Sigma=1.00}(CO_3)F$. (3) $(La, Ce)(CO_3)F$ with La:Ce = 1:1.

Occurrence: In late ankerite carbonatites (Belaya Zima deposit, Russia).

Association: Fluocerite, cerianite-(Ce) (near Odegi, Nigeria).

Distribution: From the Belaya Zima RE–Nb deposit, eastern Sayan, Siberia, Russia. Found near Odegi, Afu Hills, Nigeria.

Name: For its relation to *bastnäsite*-(Ce) and dominant *lanthanum* in its composition.

Type Material: n.d.

References: (1) Vainshtein, E.E., L.K. Pozharitskaya, and N.V. Turanskaya (1961) Behavior of rare earths in the process of carbonatite formation. Geokhimiya, 11, 1031–1034 (in Russian). (2) Styles, M.T. and B.R. Young (1983) Fluocerite and its alteration products from the Afu Hills, Nigeria. Mineral. Mag., 47, 41–46.