Melanocerite-(Ce) $(Ce, Ca)_5(Si, B)_3O_{12}(OH, F)\cdot nH_2O(?)$

Crystal Data: Hexagonal; commonly amorphous. *Point Group:* n.d. Crystals flat rhombohedral, to 2 cm.

Physical Properties: *Fracture:* Conchoidal. *Tenacity:* Brittle. Hardness = 5–6 D(meas.) = 4.13–4.29 D(calc.) = n.d.

Optical Properties: Translucent, transparent in thin fragments. *Color:* Brown, black; in thin section, bright wine-yellow. *Streak:* Light brown. *Luster:* Resinous to greasy. *Optical Class:* Uniaxial (–); commonly isotropic. $n = 1.70–1.76$; birefringence low.

Cell Data: *Space Group:* n.d. a = n.d. c = n.d. Z = n.d.

X-ray Powder Pattern: X-ray amorphous; when heated to 600 °C an apatitelike pattern results.

Chemistry:	(1)	(2)	(3)
SiO_2	13.07	12.97	15.68
ZrO_2	0.46	0.47	0.19
ThO_2	1.66	13.64	10.70
B_2O_3	[3.19]	4.70	3.23
Al_2O_3	0.83	0.87	0.91
Y_2O_3	9.17	2.21	
La_2O_3	41.37	35.92	51.44
Ce_2O_3	3.52	5.61	
Fe_2O_3	2.09	1.36	1.96
Mn_2O_3	1.22	0.66	
$(Nb, Ta)_2O_5$	3.65	3.11	0.01
MnO			0.75

	(1)	(2)	(3)
PbO			0.50
MgO	0.14	0.17	0.28
CaO	8.62	7.37	3.00
SrO			0.11
Na_2O	1.45	1.42	1.56
K_2O			0.15
F	5.78	5.63	1.92
H_2O	3.01	4.77	5.97
CO_2	1.75	0.35	
P_2O_5	1.29	0.86	2.62
$-O = F_2$	2.43	2.37	
Total	[99.84]	99.72	100.98

(1–2) Langesundsfjord, Norway. (3) Yenisei Ridge, Russia.

Occurrence: In nepheline syenite pegmatites (Langesundsfjord, Norway); in alkalic granite pegmatites (Russia).

Association: Astrophyllite, ferrian biotite, leucophanite, fluorite (Langesundsfjord, Norway); gadolinite, yttrialite, fergusonite (Russia).

Distribution: On Kjeø Island, near Barkevik, Langesundsfjord, Norway. In Russia, in Siberia, from the Burpala massif, about 120 km north of Lake Baikal, and on Yenisei Ridge.

Name: From the Greek for *black* or *dark* and *cerium* in its composition.

References: (1) Dana, E.S. (1892) Dana's system of mineralogy, (6th edition), 414–415 [includes caryocerite]. (2) Vlasov, K.A., Ed. (1966) Mineralogy of rare elements, v. II, 301–302. (3) Vasil'eva, Z.V. and E.V. Sveshnikova (1972) New data on melanocerite. Trudy Mineral. Muzeya Akad. Nauk SSSR, 21, 12–16 (in Russian). (4) (1972) Chem. Abs., 77, 167086 (abs. ref. 3).