

Braitschite-(Ce) $(\text{Ca, Na})_6(\text{Ce, La, Nd})_2\text{B}_{24}\text{O}_{42}(\text{OH})_6 \cdot 3\text{H}_2\text{O}(?)$

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Crystal Data: Hexagonal. *Point Group:* n.d. As hexagonal plates, to 70 μm ; in spherical aggregates.

Physical Properties: Hardness = n.d. $D(\text{meas.}) = 2.903(2)$ $D(\text{calc.}) = 2.837$

Optical Properties: Semitransparent. *Color:* Colorless to white, may be pink to red from admixed hematite. *Luster:* Vitreous.

Optical Class: Uniaxial (+). $\omega = 1.646(2)$ $\epsilon = 1.647(2)$

Cell Data: *Space Group:* n.d. $a = 12.256(1)$ $c = 7.377(5)$ $Z = 1$

X-ray Powder Pattern: Cane Creek mine, Utah, USA.

4.283 (100), 3.021 (92), 10.52 (54), 2.8090 (53), 3.168 (45), 3.155 (38), 1.8805 (35)

Chemistry:	(1)		(1)
B_2O_3	48.2	Dy_2O_3	0.25
Y_2O_3	1.50	Ho_2O_3	0.05
La_2O_3	4.57	Er_2O_3	0.08
Ce_2O_3	7.64	Tm_2O_3	0.02
Pr_2O_3	1.00	Yb_2O_3	0.02
Nd_2O_3	3.67	Lu_2O_3	0.01
Sm_2O_3	0.94	CaO	21.8
Eu_2O_3	0.39	Na_2O	1.68
Gd_2O_3	0.32	H_2O^+	7.75
Tb_2O_3	0.10	Total	[100.0]

(1) Cane Creek mine, Utah, USA; by a wide variety of analytical methods, recalculated to 100% from an original total of 99.91%; after deduction of about 35% admixed quartz, dolomite, hematite, and a chloritelike mineral, corresponds to $(\text{Ca}_{6.74}\text{Na}_{0.94})_{\Sigma=7.68}(\text{Ce}_{0.81}\text{La}_{0.49}\text{Nd}_{0.38}\text{Y}_{0.23}\text{Pr}_{0.11}\text{Sm}_{0.09}\text{Eu}_{0.04}\text{Gd}_{0.03}\text{Dy}_{0.02}\text{Tb}_{0.01}\text{Er}_{0.01})_{\Sigma=2.22}\text{B}_{24.00}\text{O}_{42}(\text{OH})_{4.54} \cdot 5.19\text{H}_2\text{O}$.

Occurrence: In anhydrite at the contact with sylvite in a thick sequence of marine evaporites, at a depth of about 1 km.

Association: Anhydrite, dolomite, halite, hematite, chalcocopyrite.

Distribution: From the Cane Creek potash mine, about 13 km southwest of Moab, and in the CC-1 well, about 1.8 km south of that mine, Grand Co., Utah, USA.

Name: Honors Dr. Otto Braitsch (1921–1966), University of Freiburg, Freiburg, Germany, for his contributions to evaporate mineralogy and geochemistry.

Type Material: National Museum of Natural History, Washington, D.C., USA, 120627.

References: (1) Raup, O.B., A.J. Gude, 3rd, E.J. Dwornik, F. Cuttitta, and H.J. Rose, Jr. (1968) Braitschite, a new hydrous calcium rare-earth borate mineral from the Paradox Basin, Grand County, Utah. *Amer. Mineral.*, 53, 1081–1095.