

Crystal Data: Hexagonal. *Point Group:* 3, $3m$, or 6. As crystals showing $\{0001\}$, $\{10\bar{1}1\}$, $\{11\bar{2}1\}$, with half-a-dozen less common forms, typically hemihedral, or prismatic along $[0001]$, to 1.5 cm. *Twining:* Noted, complex.

Physical Properties: *Cleavage:* Perfect on $\{0001\}$. *Fracture:* Irregular. Hardness = 3 VHN = 85 D(meas.) = 2.03–2.06 D(calc.) = 2.04

Optical Properties: Transparent to translucent. *Color:* Colorless to white, may be zoned. *Luster:* Vitreous.

Optical Class: Uniaxial (–). $\omega = 1.5804$ – 1.5817 $\epsilon = 1.485$ – 1.4928

Cell Data: *Space Group:* $P3$ (1T), with $a = 4.4328(8)$ $c = 5.337(1)$ $Z = 1$, or *Space Group:* $P3c1$ (2T), with $a = 4.4348(4)$ $c = 10.664(1)$ $Z = 2$, or *Space Group:* $P6_3$ (2H), with $a = 4.4403(8)$ $c = 10.655(2)$ $Z = 2$

X-ray Powder Pattern: Saga quarry, Norway (1T).
5.35 (100), 2.666 (50), 3.120 (45), 2.046 (20), 3.840 (5), 2.218 (5), 1.780 (5)

Chemistry:	(1)	(3)
B_2O_3	23.5	31.12
BeO	39.3	44.72
H_2O		24.16
LOI	33.2	
Total	96.0	100.00

(1) Luppikko deposit, Russia; hambergite and fluorite estimated 2%–3%. (2) Saga quarry, Norway; stated to have Be:B = 1.99–2.02:1.00. (3) $\text{Be}_2(\text{BO}_3)(\text{OH})\cdot\text{H}_2\text{O}$.

Polymorphism & Series: 1T, 2T, 2H polytypes.

Occurrence: In serpentized dolostone associated with W–Sr–B–Be-bearing skarns (Pitkäranta district, Russia); in vugs with natrolite (Saga quarry, Norway).

Association: Hambergite, schoenfliesite, helvite, apatite, cassiterite, fluorite, calcite, dolomite, magnetite, sphalerite, vesuvianite, chondrodite, diopside, smithsonite, goethite (Pitkäranta district, Russia); natrolite, thomsonite (Saga quarry, Norway).

Distribution: From the Luppikko deposit, Pitkäranta district, Lake Ladoga, Karelia, Russia. In the Saga and Tuften larvikite quarries, Tvedalen, and at Brønnebukta, Siktesøya Island, Langesundsfjord, Norway.

Name: For BERYllium and BORate in the composition.

Type Material: Mineralogical Museum, St. Petersburg, 15180; Mining Institute, St. Petersburg, 1003/1–1003/5; A.E. Fersman Mineralogical Museum, Academy of Sciences, Moscow, Russia, 69274.

References: (1) Nefedov, E.I. (1967) Berborite, a new mineral. *Doklady Acad. Nauk SSSR*, 174, 189–192 (in Russian). (2) (1968) *Amer. Mineral.*, 53, 348–349 (abs. ref. 1). (3) Schlatti, M. (1968) Hydrothermalsynthese und Strukturtyp des Berylliumborates $\text{Be}_2\text{BO}_3\text{OH}\cdot\text{H}_2\text{O}$. *Tschermaks Mineral. Petrog. Mitt.*, 12, 463–469 (in German with English abs.). (4) Giuseppetti, G., F. Mazzi, C. Tadini, A.O. Larsen, A. Åsheim, and G. Raade (1990) Berborite polytypes. *Neues Jahrb. Mineral., Abh.*, 162, 101–116.