Bohseite $Ca_4Be_4Si_9O_{24}(OH)_4$

Crystal Data: Orthorhombic (Monoclinic optical properties). *Point Group*: 2/*m* 2/*m* 2/*m*. As fan-like or parallel aggregates (to 0.7 cm) of platy striated crystals to 2 mm.

Physical Properties: *Cleavage*: Perfect on {001}, fair on {010}. *Fracture*: Splintery. *Tenacity*: Brittle. Hardness = 5-6 D(meas.) = n.d. D(calc.) = 2.719

Optical Properties: Translucent. *Color*: White. *Streak*: White. *Luster*: Vitreous. *Optical Class*: Biaxial (+). α = 1.579(2) β = 1.580(2) γ = 1.597(2) 2V(meas.) = 24(3)° 2V(calc.) = 27° *Dispersion*: Weak, $r < v$. *Orientation*: $X \wedge a$= 16°, $Y \wedge b$ = 16°, Z // c.

Cell Data: *Space Group*: *Cmcm*. a = 23.204(6) b = 4.9442(9) c = 19.418(6) Z = 4

X-ray Powder Pattern: Calculated pattern.
3.334 (100), 3.723 (51), 3.383 (44), 4.166 (38), 3.027 (37), 2.553 (31), 3.236 (28)

Chemistry:	(1)	(2)
SiO_2	58.83	57.41
Al_2O_3	3.51	3.51
CaO	24.61	23.75
Na_2O	0.07	0.18
F_2	0.45	0.55
BeO	[9.31]	[9.07]
H_2O	[3.12]	[3.05]
$- O = F_2$	0.19	0.23
Total	99.71	97.29

(1) Piława Górna quarry, ~50 km southwest of Wrocław, Poland; average of 17 electron microprobe analyses supplemented by FTIR spectroscopy, BeO and H_2O calculated so that Be = 13 – (Si+Al) and Ca+Na = Al+Be; corresponding to $(Ca_{4.02}Na_{0.02})_{\Sigma=4.04}(Be_{3.41}Al_{0.59})_{\Sigma=4.00}(Si_{8.96}Al_{0.04})_{\Sigma=9.00}O_{24.22}[(OH)_{3.17}F_{0.22}O_{0.61}]_{\Sigma=4.00}$. (2) Piława Górna quarry, ~50 km southwest of Wrocław, Poland; average of 10 electron microprobe analyses supplemented by FTIR spectroscopy, BeO and H_2O calculated so that Be = 13 – (Si+Al) and Ca+Na = Al+Be; corresponding to $(Ca_{3.97}Na_{0.05})_{\Sigma=4.02}(Be_{3.40}Al_{0.60})_{\Sigma=4.00}(Si_{8.96}Al_{0.04})_{\Sigma=9.00}O_{24.27}[(OH)_{3.17}F_{0.27}O_{0.56}]_{\Sigma=4.00}$.

Polymorphism & Series: Forms a series with bavenite.

Occurrence: In strongly fractionated parts of zoned anatectic (NYF-LCT) pegmatite dikes that cut amphibolite.

Association: Microcline, Cs-rich beryl, phenakite, helvite, lepidolite, bertrandite (Poland).

Distribution: From the Piława Górna quarry, eastern part of the Góry Sowie Block, NE part of the Bohemian massif, ~50 km southwest of Wrocław, Poland and from the Ilímaussaq alkaline complex, South Greenland.

Name: Honors the Danish geologist Hennning Bohse (b. 1942) who has worked for more than 40 years on the mineralogy and geology of the Ilímaussaq alkaline complex.

Type Material: Mineralogical Museum, University of Wrocław, Poland (MMUWr IV7678 and IV7679) and the Natural History Museum, Copenhagen, Denmark (GM 1995.32).

References: (1) Szełęg, E., B. Zuzens, F.C. Hawthorne, A. Pieczka, A. Szuszkiewicz, K. Turniak, K. Nejbert, S.S. Ilnicki, H. Friis, E. Makovicky, M.T. Weller, and M.-H. Lemée-Cailleau (2017) Bohseite, ideally $Ca_4Be_4Si_9O_{24}(OH)_4$, from the Piława Górna quarry, the Góry Sowie Block, SW Poland. Mineral. Mag., 81(1), 35-46. (2) (2017) Amer. Mineral., 102, 1961-1962 (abs. ref. 1).