

Pellyite**Ba₂Ca(Fe²⁺, Mg)₂Si₆O₁₇**

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Crystal Data: Orthorhombic. *Point Group:* 2/m 2/m 2/m. Crystals rare, tabular on {010}, to 1 cm; crystalline, fine granular; massive.

Physical Properties: *Cleavage:* Prismatic, poorly developed. *Fracture:* Conchoidal. Hardness = 6 D(meas.) = 3.51 D(calc.) = 3.48

Optical Properties: Translucent. *Color:* Colorless to pale yellow. *Luster:* Vitreous. *Optical Class:* Biaxial (+). *Orientation:* X = c; Y = b; Z = a. *Dispersion:* r > v, very strong. $\alpha = 1.627\text{--}1.643$ $\beta = 1.629\text{--}1.645$ $\gamma = 1.641\text{--}1.649$ 2V(meas.) = 53°–61°

Cell Data: *Space Group:* Amma. a = 14.209(6) b = 15.677(4) c = 7.151(2) Z = 4

X-ray Powder Pattern: Ross River, Canada.

3.43 (100), 3.19 (65), 2.308 (60), 3.46 (55), 3.83 (50), 2.117 (50), 3.17 (45)

Chemistry:

	(1)	(2)
SiO ₂	40.50	41.03
Al ₂ O ₃	3.53	3.59
FeO	12.46	12.23
MnO	0.57	1.44
ZnO	1.05	0.20
MgO	1.46	0.76
CaO	6.25	6.06
BaO	34.16	34.10
Total	99.98	99.41

(1) Ross River, Canada; corresponding to Ba_{1.88}Ca_{0.94}(Fe_{1.46}Mg_{0.31}Zn_{0.11}Mn_{0.07})_{Σ=1.95}(Si_{5.72}Al_{0.58})_{Σ=6.30}O₁₇. (2) Big Creek, California, USA; by electron microprobe, corresponding to Ba_{1.89}Ca_{0.91}(Fe_{1.45}Mn_{0.17}Mg_{0.16}Zn_{0.02})_{Σ=1.80}(Si_{5.76}Al_{0.59})_{Σ=6.35}O₁₇.

Occurrence: In lenses and bands of barium silicate rocks developed in metamorphic skarns near the contact with granite or granodiorite.

Association: Barite, hedenbergite, quartz, taramellite, gillespite, sanbornite, alforsite, witherite, andradite.

Distribution: From near the headwaters of the Ross and Pelly Rivers, about three km southwest of Gillespite Lake [Gunn claim, Itsy Mountains, near Macmillan Pass], Yukon Territory, Canada. From Trumbull Peak, near Incline, Mariposa Co., and at Big Creek, Fresno Co., California, USA. In the La Madrelena mine, Tres Pozos, Baja California, Mexico.

Name: For the Pelly River, Canada, near the headwaters of which it was first recognized.

Type Material: University of British Columbia, Vancouver, Canada, S-79-21844; National Museum of Natural History, Washington, D.C., USA, 148587.

References: (1) Montgomery, J.H., R.M. Thompson, and E.P. Meagher (1972) Pellyite: a new barium silicate mineral from the Yukon Territory. *Can. Mineral.*, 11, 444–447. (2) Meagher, E.P. (1976) The atomic arrangement of pellyite: Ba₂Ca(Fe, Mg)₂Si₆O₁₇. *Amer. Mineral.*, 61, 67–73. (3) Pabst, A. and J. Harris (1984) Pellyite: new localities and new data. *Can. Mineral.*, 22, 653–658.