

Crystal Data: Monoclinic. *Point Group:* 2/m. As lamellae (to 1.5 mm wide) in optical orientation with each other, epitaxially intergrown with triphylite.

Physical Properties: *Cleavage:* Good on {010} and {100}. *Fracture:* Irregular. *Tenacity:* Brittle. *Hardness* = ~5 *D(meas.)* = n.d. *D(calc.)* = 3.610

Optical Properties: Transparent. *Color:* Pale brown, colorless in transmitted light.

Streak: Very pale brown. *Luster:* Vitreous.

Optical Class: Biaxial (+). $\alpha = 1.685(2)$ $\beta = 1.688(2)$ $\gamma = 1.700(5)$ $2V(\text{meas.}) = 46.0(5)^\circ$

$2V(\text{calc.}) = 53^\circ$ *Orientation:* $X \parallel b$, $Y \wedge a = 40.3^\circ$ in β obtuse, $Z \wedge a = 49.7^\circ$ in β acute.

Dispersion: $r < v$, weak. *Pleochroism:* None.

Cell Data: Space Group: $P2_1/c$. $a = 8.7990(18)$ $b = 11.724(2)$ $c = 6.1700(12)$ $\beta = 99.23(3)^\circ$ $Z = 4$

X-ray Powder Pattern: Calculated pattern.

2.904, (100), 3.564 (97), 2.932 (87), 2.873 (86), 2.718 (86), 2.991 (76), 3.030 (58)

Chemistry:	(1)	(2)
P ₂ O ₅	41.63	41.76
FeO	19.43	
MnO	23.63	41.74
MgO	nd	
CaO	15.45	16.50
Total	100.14	100.00

(1) Yellowknife pegmatite field, Northwest Territories, Canada; average of 10 electron microprobe analyses supplemented by Raman and Mössbauer spectroscopy; corresponds to

Ca_{0.94}(Mn_{1.13}Fe_{0.92})_{Σ=2.05}(PO₄)_{2.00}. (2) CaMn₂(PO₄)₂.

Polymorphism & Series: Forms series with beusite and graftonite members of the group.

Mineral Group: Graftonite group.

Occurrence: A common primary phosphate in a beusite-triphylite nodule (6×5×3 cm) in beryl-columbite-phosphate subtype of zoned rare-element pegmatites, in a small dike, which cuts an interlayered sequence of amphibolite and granodiorite. The product of exsolution from a (Li,Ca)-rich graftonite-like parent phase crystallized at high temperature from P-bearing hydrosaline melts related to anatectic melts, generated by partial melting of metasedimentary-metavolcanics rocks.

Association: Triphylite-lithiophilite, sarcopside.

Distribution: In the Yellowknife pegmatite field, between Upper Ross Lake and Redout Lake, 75 km northeast of Yellowknife and 3.5 km east of the Redout granite, Northwest Territories, Canada.

Name: The suffix indicates the *Ca*-analogue of *beusite*.

Type Material: Department of Mineral Sciences, National Museum of Natural History, Washington, D.C., USA (177054).

References: (1) Hawthorne, F.C., M.A. Wise, P. Černý, Y. Abdu, N.A. Ball, A. Pieczka, and A. Włodek (2018) Beusite-(Ca), ideally CaMn²⁺₂(PO₄)₂, a new graftonite-group mineral from the Yellowknife pegmatite field, Northwest Territories, Canada: Description and crystal structure. *Mineral. Mag.*, 82(6), 1323-1332. (2) (2020) *Amer. Mineral.*, 105(7), 972-973 (abs. ref. 1). (3) Hawthorne, F.C. and A. Pieczka (2018) Classification of the minerals of the graftonite group. *Mineral. Mag.*, 82(6), 1301-1306.