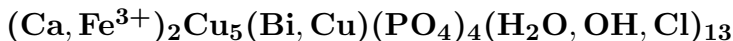


Bleasdaleite

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Crystal Data: Monoclinic. *Point Group:* $2/m$. As equant anhedral crystals, to 1 cm, and in nodular aggregates.**Physical Properties:** *Cleavage:* On {010}, perfect; a parting on {100}. *Tenacity:* Brittle. Hardness = 4 D(meas.) = 3.54(1) D(calc.) = 3.57**Optical Properties:** Transparent. *Color:* Green-brown to red-brown. *Streak:* Yellow-brown. *Luster:* Resinous, bronzy on parting planes.*Optical Class:* Biaxial (+). *Pleochroism:* Moderate; $X = Y =$ yellow-orange; $Z =$ orange.*Orientation:* $Y = b$; $X \wedge a = 10^\circ$. *Absorption:* $Z > X \simeq Y$. $\alpha = 1.694(1)$ $\beta = 1.698(1)$ $\gamma = 1.715(2)$ $2V(\text{meas.}) = 46.4(2)^\circ$ $2V(\text{calc.}) = 52^\circ$ **Cell Data:** *Space Group:* $P2_1/n$. $a = 12.776\text{--}12.843$ $b = 12.478\text{--}12.518$
 $c = 10.966\text{--}11.035$ $\beta = 97.21^\circ\text{--}97.47^\circ$ $Z = 4$ **X-ray Powder Pattern:** Cross Lake, Canada.

3.054 (100), 2.082 (67), 2.869 (66), 2.508 (53), 2.712 (49), 1.575 (43), 2.902 (37)

Chemistry:

	(1)	(2)	(3)
P ₂ O ₅	45.2	43.8	43.75
Al ₂ O ₃	7.5	4.9	5.24
Fe ₂ O ₃	6.9	7.4	8.20
FeO	0.3	3.6	
MnO	31.7	32.2	36.44
ZnO	0.1	0.3	
MgO	0.3	0.4	
CaO	1.2	0.6	
Na ₂ O	6.8	6.3	6.37
H ₂ O	0.3	0.3	
Total	100.3	99.8	100.00

(1) Cross Lake, Canada; by electron microprobe, average of five analyses, red-brown material; Fe²⁺:Fe³⁺ by Mössbauer spectroscopy; H₂O by TGA; from crystal-structure analysis, the semi-empirical formula is (Na_{2.07}Mn_{0.53}Ca_{0.20})_{Σ=2.80}(Mn_{3.68}²⁺Al_{1.39}Fe_{0.81}³⁺Mg_{0.07}Fe_{0.04}²⁺Zn_{0.01})_{Σ=6.00}P_{5.99}[O_{23.69}(OH)_{0.31}]_{Σ=24.00}. (2) Do.; by electron microprobe, average of two analyses, green-brown material. (3) Na₂Mn₅FeAl(PO₄)₆.

Occurrence: An uncommon primary mineral in the intermediate zone of a granite pegmatite enriched in manganese and fluorine.**Association:** Beusite, fillowite, triplite, apatite, alluaudite.**Distribution:** From the Gotcha claim, on an island in Cross Lake, Manitoba, Canada.**Name:** To honor Emeritus Professor Robert Bury Ferguson (1920–), Canadian mineralogist, University of Manitoba, Winnipeg, Canada, especially for his contributions to pegmatite mineralogy.**Type Material:** University of Manitoba, Winnipeg, Manitoba, M6083; Royal Ontario Museum, Toronto, Canada, M42687.**References:** (1) Ercit, T.S., A.J. Anderson, P. Černý, and F.C. Hawthorne (1986) Bobfergusonite: a new primary phosphate mineral from Cross Lake, Manitoba. *Can. Mineral.*, 24, 599–604. (2) Ercit, T.S., F.C. Hawthorne, and P. Černý (1986) The crystal structure of bobfergusonite. *Can. Mineral.*, 24, 605–614. (3) (1988) *Amer. Mineral.*, 73, 190 (abs. refs. 1 and 2).

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