

Crystal Data: Monoclinic. *Point Group:* 2/m. Massive with crystals to 0.9 mm; as blocky or tabular fragments.

Physical Properties: *Cleavage:* Perfect on {010}. *Tenacity:* Brittle. *Fracture:* n.d. Hardness = ~5 D(meas.) = 3.68(1) D(calc.) = 3.689

Optical Properties: Transparent. *Color:* Deep green-brown. *Streak:* Pale green-yellow. *Luster:* Vitreous.

Optical Class: Biaxial (+). $\alpha = 1.698$ (2) $\beta = 1.705$ (2) $\gamma = 1.727$ (2) $2V(\text{meas.}) = 65(2)^\circ$ $2V(\text{calc.}) = 60^\circ$ *Orientation:* $X \wedge a = 16^\circ$, $Y = b$. *Pleochroism:* $X =$ yellowish brown, $Y =$ brown, $Z =$ deep brown. *Dispersion:* Very strong, $r > v$.

Cell Data: *Space Group:* $P2_1/n$. $a = 12.7156(3)$ $b = 12.3808(3)$ $c = 10.9347(3)$ $\beta = 97.3320(10)^\circ$ $Z = 4$

X-Ray Diffraction Pattern: Victory mine, Custer County, South Dakota, USA. 2.489 (37), 4.085 (35), 4.180 (34), 2.845 (34), 2.790 (28), 6.182 (26), 2.070 (26)

Chemistry:	(1)
P ₂ O ₅	45.26
Al ₂ O ₃	6.59
Fe ₂ O ₃	[6.50]
FeO	26.45
MnO	6.64
ZnO	0.77
MgO	1.84
<u>CaO</u>	<u>5.61</u>
Total	99.66

(1) Victory mine, Custer County, South Dakota, USA; average electron microprobe analysis supplemented by Raman spectroscopy, Fe²⁺/Fe³⁺ ratio for electroneutrality; corresponds to (Na_{1.72}□_{1.28})_{Σ=3.00}(Fe²⁺_{3.50}Mn_{0.89}Mg_{0.44}Ca_{0.13})_{Σ=4.96}(Fe³⁺_{0.77}Al_{0.23})_{Σ=1.00}Al(PO₄)₆.

Mineral Group: Alluaudite supergroup, bobfergusonite group.

Occurance: In zoned granitic pegmatite.

Association: Ferrowyllieite, schorl, fillowite, arrojadite, quartz, muscovite.

Distribution: From the Victory mine, Custer County, South Dakota, USA.

Name: Prefix, *ferro*, identifies the iron-dominant analog of *bobfergusonite*.

Type Material: University of Arizona Mineral Museum (21437) and the RRUFF Project (R140993), Tucson, Arizona, USA.

References: (1) Yang, H., T. Yong, and R.T. Downs (2021) Ferrobobfergusonite, $\square\text{Na}_2\text{Fe}^{2+}_5\text{Fe}^{3+}\text{Al}(\text{PO}_4)_6$, a new mineral of the bobfergusonite group from the Victory mine, Custer County, South Dakota, USA. *Can. Mineral.*, 59, 617-627.