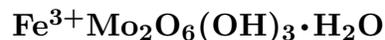


Bamfordite

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Crystal Data: Triclinic. *Point Group:* $\bar{1}$ or 1. As tabular, diamond-shaped crystals, to 0.05 mm, showing {001}, {100}, {010}, {110}, {1 $\bar{1}$ 0}, in aggregates.

Physical Properties: *Cleavage:* {100}, traces. *Tenacity:* Compact to friable in aggregates. Hardness = 2–3 D(meas.) = 3.620(8) D(calc.) = 3.616

Optical Properties: Transparent. *Color:* Bright apple-green with slight yellowish tinge. *Streak:* Greenish yellow. *Luster:* Vitreous, earthy in aggregates. *Optical Class:* Biaxial (-). *Pleochroism:* Pale to moderate; in yellowish greens. *Orientation:* $Y \simeq a$; $c \wedge Z' = 7^\circ$; length-slow. $\alpha = 1.91(1)$ $\beta = 2.03(1)$ $\gamma = 2.11(1)$ $2V(\text{meas.}) = \sim 90^\circ$ $2V(\text{calc.}) = 74^\circ$

Cell Data: *Space Group:* $P\bar{1}$ or $P1$. $a = 5.889(5)$ $b = 7.545(5)$ $c = 9.419(5)$
 $\alpha = 71.46(4)^\circ$ $\beta = 83.42(4)^\circ$ $\gamma = 72.78(4)^\circ$ $Z = 2$

X-ray Powder Pattern: Bamford Hill, Australia.
 3.319 (100), 3.232 (90), 5.620 (70), 4.095 (70), 4.711 (50), 2.614 (50), 1.956 (50)

Chemistry:	(1)	(2)
MoO ₃	68.93	69.75
WO ₃	1.90	
P ₂ O ₅	0.39	
Fe ₂ O ₃	18.93	19.34
H ₂ O	9.9	10.91
Total	100.05	100.00

(1) Bamford Hill, Australia; by electron microprobe, H₂O by CHN analyzer; with (OH)¹⁻ calculated for charge balance, corresponds to Fe_{1.00}(Mo_{2.01}W_{0.03}P_{0.02})_{Σ=2.06}O₆(OH)_{3.34}•0.64H₂O.
 (2) FeMo₂O₆(OH)₃•H₂O.

Occurrence: Formed in miarolitic cavities and vugs by oxidation of molybdenite under strongly acidic conditions in a W–Mo–Bi deposit.

Association: W–Mo–Bi oxides, “clay”, muscovite, quartz.

Distribution: On Bamford Hill, 85 km west-southwest of Cairns, Queensland, Australia.

Name: For its occurrence on Bamford Hill, Australia.

Type Material: South Australian Museum, Adelaide, 20653; Museum of Victoria, Melbourne, Australia, M7424.

References: (1) Birch, W.D., A. Pring, E.M. McBriar, B.M. Gatehouse, and C.A. McCammon (1998) Bamfordite, Fe³⁺Mo₂O₆(OH)₃•H₂O, a new hydrated iron molybdenum oxyhydroxide from Queensland, Australia. *Amer. Mineral.*, 83, 172–177.