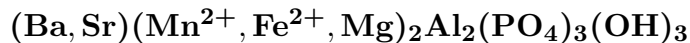


Bjarebyite

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Crystal Data: Monoclinic. *Point Group:* 2/m. As multiply-faceted, steeply-terminated, spearhead-shaped crystals, to 3 mm, with as many as 14 forms discernable. Also as etched and striated prismatic crystals, and fibrous, massive.

Physical Properties: *Cleavage:* Perfect on {010} and {100}. *Hardness* = 4
D(meas.) = 3.90–3.95 D(calc.) = 3.92–4.02

Optical Properties: Translucent. *Color:* Emerald-green, with a faint bluish tint; pistachio to dark green. *Streak:* White. *Luster:* Subadamantine.

Optical Class: Biaxial (+). *Pleochroism:* Weak, grayish tan to pale yellow-green; also strong, X = colorless to pale brownish yellow; Y = brownish green; Z = apple-green or olive-green.

Orientation: Y = b; Z ∧ c = 7°–8°. *Dispersion:* r ≫ v to r < v. α = 1.692–1.724
β = 1.695–1.727 γ = 1.710–1.749 2V(meas.) = ~35°–38° 2V(calc.) = 40°56'

Cell Data: *Space Group:* P2₁/m. a = 8.930(14) b = 12.073(24) c = 4.917(9)
β = 100.15(13)° Z = 2

X-ray Powder Pattern: Palermo #1 mine, New Hampshire, USA.
3.090 (10), 8.81 (7), 2.681 (7), 1.495 (5), 4.97 (4), 4.47 (4), 2.910 (4)

Chemistry:

	(1)	(2)
P ₂ O ₅		32.96
Al ₂ O ₃	13.43	13.25
Fe ₂ O ₃		3.30
FeO	8.67	5.94
MnO	9.56	15.98
SrO	1.57	
BaO	23.69	23.87
H ₂ O		4.70
Total		100.00

(1) Palermo #1 mine, New Hampshire, USA; by electron microprobe, partial analysis, total Fe as FeO, total Mn as MnO; corresponds to (Ba_{1.1}Sr_{0.1})_{Σ=1.2}Al_{1.8}(Mn_{0.9}Fe_{0.9}Mg_{0.2})_{Σ=2.0}(PO₄)₃(OH)₃.

(2) Buranga mine, Rwanda; average of two analyses, corresponding to Ba_{1.00}(Mn_{1.45}Fe_{0.53})_{Σ=1.98}(Al_{1.67}Fe_{0.28}³⁺)_{Σ=1.95}(PO₄)_{2.97}(OH)_{2.90}.

Mineral Group: Bjarebyite group.

Occurrence: A rare late stage reaction product of triphylite and amblygonite in complex granite pegmatites.

Association: Palermoite, augelite, childrenite, montebasite, scorzalite, whitlockite, carbonate-apatite, siderite (Palermo #1 mine, New Hampshire, USA); bertossaite, lazulite-scorzalite, burangaite, trolleite, apatite, quartz (Buranga mine, Rwanda).

Distribution: From the Palermo #1 mine, near North Groton, Grafton Co., New Hampshire, USA. At the Buranga pegmatite, near Gatumba, Rwanda. In the Västana mine, near Nässum, Skåne, Sweden.

Name: Honors Alfred Gunnar Bjareby (1899–1967), Swedish-American student of New England pegmatite minerals, Boston, Massachusetts, USA, who collected the first specimen.

Type Material: n.d.

References: (1) Moore, P.B., D.H. Lund, and K.L. Keester (1973) Bjarebyite, (Ba, Sr)(Mn, Fe, Mg)₂Al₂(OH)₃(PO₄)₃, a new species. *Mineral. Record*, 4, 282–285. (2) (1974) *Amer. Mineral.*, 59, 873 (abs. ref. 1). (3) Moore, P.B. and T. Araki (1974) Bjarebyite, Ba(Mn, Fe)₂²⁺Al₂(OH)₃[PO₄]₃: Its atomic arrangement. *Amer. Mineral.*, 59, 567–572. (4) von Knorring, O. and A.-M. Fransolet (1975) An occurrence of bjarebyite in the Buranga pegmatite, Rwanda. *Schweiz. Mineral. Petrog. Mitt.*, 55, 9–18. (5) Mandarino, J.A. and B.D. Sturman (1976) Kulanite, a new barium iron aluminum phosphate from the Yukon Territory, Canada. *Can. Mineral.*, 14, 127–131.

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