

Minasgeraisite-(Y)**Ca(Y, Bi)₂Be₂Si₂O₁₀**

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Crystal Data: Monoclinic. *Point Group:* 2/*m*. As curved, sheaflike crystals, to < 5 μm, forming single and multiple rosettes, to 1 mm.

Physical Properties: *Cleavage:* Perfect on probable {100}; good on {001}. Hardness = 6–7 D(meas.) = > 4.25 D(calc.) = 4.90

Optical Properties: Translucent. *Color:* Lavender to lilac-purple, with individual rosettes having lighter-colored cores than rims; in transmitted light, colorless to pale yellow or purple. *Streak:* Light purple. *Luster:* Earthy to subvitreous. *Optical Class:* Biaxial (+). *Pleochroism:* Moderate; *X* = colorless; *Y* = pale grayish yellow; *Z* = lavender-purple. *Dispersion:* *r* > *v*, very weak. $\alpha = 1.740(4)$ $\beta = 1.754(4)$ $\gamma = 1.786(4)$ 2*V*(meas.) = 50°–72°, average 68° 2*V*(calc.) = 68°

Cell Data: *Space Group:* *P*2₁/*a*. *a* = 9.833(2) *b* = 7.562(1) *c* = 4.702(1) β = 90.46(6)° *Z* = 2

X-ray Powder Pattern: José Pinto pegmatite, Brazil.

3.11 (100), 2.830 (100), 2.540 (90), 1.768 (35), 5.99 (30), 3.71 (30), 3.41 (30)

Chemistry:	(1)	(2)		(1)	(2)
SiO ₂	[26.37]	24.5	MnO	2.83	3.5
TiO ₂	0.02	0.0	CuO	0.14	0.1
ZrO ₂	< 0.02	0.0	ZnO	0.35	0.3
B ₂ O ₃	1.45	1.5	BeO	7.8	7.8
Al ₂ O ₃	0.00	0.0	MgO	0.61	0.6
Y ₂ O ₃	16.38		CaO	11.47	8.1
RE ₂ O ₃	15.78	23.1	Na ₂ O	< 0.1	< 0.1
Bi ₂ O ₃	14.7	28.5	P ₂ O ₅	1.21	1.2
FeO	0.69	0.7			
			Total	[99.8]	99.9

(1) José Pinto pegmatite, Brazil; by electron microprobe, ICP, and AA, after deduction of SiO₂ 0.6% as mica; RE₂O₃ = La₂O₃ 0.25%, Ce₂O₃ 0.20%, Pr₂O₃ 0.13%, Nd₂O₃ 0.50%, Sm₂O₃ 0.26%, Eu₂O₃ 0.00%, Gd₂O₃ 0.32%, Tb₂O₃ 0.23%, Dy₂O₃ 1.26%, Ho₂O₃ 0.37%, Er₂O₃ 1.94%, Tm₂O₃ 0.75%, Yb₂O₃ 7.86%, Lu₂O₃ 1.71%; corresponds to (Ca_{0.45}Mn_{0.20}Mg_{0.08}Fe_{0.05}Zn_{0.02}Cu_{0.01})_{Σ=0.81} (Y_{0.72}Ca_{0.56}RE_{0.41}Bi_{0.31})_{Σ=2.00}(Be_{1.55}Si_{0.24}B_{0.21})_{Σ=2.00}(Si_{1.95}P_{0.08})_{Σ=2.03}O₁₀. (2) Do.; Bi-richest portion, with (RE_{0.86}Bi_{0.65}Ca_{0.49})_{Σ=2.00}.

Mineral Group: Gadolinite group.

Occurrence: A late-stage accessory mineral in a zoned complex granite pegmatite.

Association: Milarite, muscovite, quartz, albite, orthoclase, hematite, garnet, magnetite, churchite, elbaite, anatase.

Distribution: In the José Pinto pegmatite, at Jaguaracú, near Coronel Fabriciano, Minas Gerais, Brazil.

Name: For the state of Minas Gerais, Brazil, and *yttrium* in the composition.

Type Material: National Museum of Natural History, Washington, D.C., USA, 164209.

References: (1) Foord, E.E., R.V. Gaines, J.G. Crock, W.B. Simmons, Jr., and C.P. Barbosa (1986) Minasgeraisite, a new member of the gadolinite group from Minas Gerais, Brazil. *Amer. Mineral.*, 71, 603–607.

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