

Magnesioaxinite

Ca₂MgAl₂BSi₄O₁₅(OH)

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Crystal Data: Triclinic. *Point Group:* $\bar{1}$. As crystals, to 3 cm, with the axe-head-shaped morphology typical of axinites; originally found as a rough gemstone.

Physical Properties: *Cleavage:* [Good on {100}, poor on {001}, {110}, and {011}] (by analogy to the axinite group). *Fracture:* [Uneven to conchoidal.] *Tenacity:* [Brittle.] Hardness = ~6.5 D(meas.) = 3.178 D(calc.) = [3.18] Fluoresces red-orange in LW UV, duller red in SW UV.

Optical Properties: Transparent to translucent. *Color:* Pale blue to pale violet; light brown to light pink. *Streak:* White. *Luster:* [Vitreous.]

Optical Class: Biaxial (+) or (-). *Pleochroism:* Pale blue to pale violet and pale gray.

Dispersion: $r > v$, strong. $\alpha = 1.656\text{--}1.667$ $\beta = 1.660\text{--}1.673$ $\gamma = 1.668\text{--}1.678$

$2V(\text{meas.}) = 82(2)^\circ$

Cell Data: *Space Group:* $P\bar{1}$. $a = 8.933$ $b = 9.155$ $c = 7.121$ $\alpha = 102.59^\circ$ $\beta = 98.28^\circ$ $\gamma = 88.09^\circ$ $Z = 2$

X-ray Powder Pattern: Tanzania.

2.796 (100), 3.440 (65), 3.139 (65), 2.150 (32), 2.176 (28), 6.29 (25), 2.556 (25)

Chemistry:

	(1)	(2)
SiO ₂	44.0	44.63
TiO ₂	0.03	
B ₂ O ₃	n.d.	6.46
Al ₂ O ₃	17.9	18.93
V ₂ O ₃	0.13	
MnO	0.4	
ZnO	0.06	
MgO	6.9	7.48
CaO	21.7	20.83
K ₂ O	0.01	
H ₂ O	n.d.	1.67
Total	91.13	100.00

(1) Tanzania; by electron microprobe, B confirmed qualitatively, Cr, Fe, Ni, Na not found.

(2) Ca₂MgAl₂BSi₄O₁₅(OH).

Mineral Group: Axinite group.

Occurrence: [Typically a mineral formed during contact metamorphism and boron metasomatism.]

Association: Epidote, tremolite, calcite (London Bridge, Australia); prehnite, epidote, actinolite, vesuvianite (Luning, Nevada, USA).

Distribution: From an unrecorded locality in the Arusha district, Tanzania. At London Bridge, near Queanbeyan, New South Wales, Australia. Found near Luning, Santa Fe district, Mineral Co., Nevada, USA.

Name: For dominant *magnesium* in the composition, and its membership in the *axinite* group.

Type Material: Natural History Museum (Geological Museum), London, England, MI 34610.

References: (1) Jobbins, E.A., A.E. Tresham, and B.R. Young (1975) Magnesioaxinite, a new mineral found as a blue gemstone from Tanzania. *J. Gemmol.*, 14, 368–375. (2) (1976) *Amer. Mineral.*, 61, 503–504 (abs. ref. 1). (3) Dunn, P.J., P.B. Leavens, and C. Barnes (1980) Magnesioaxinite from Luning, Nevada, and some nomenclature designations for the axinite group. *Mineral. Record*, 11, 13–15.

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