Magnesioaxinite $Ca_2MgAl_2BSi_4O_{15}(OH)$

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. α = 1.656–1.667 β = 1.660–1.673 γ = 1.668–1.678
2V(meas.) = 82(2)°

Cell Data: *Space Group:* $P\bar{1}$. $a = 8.933$ $b = 9.155$ $c = 7.121$ $\alpha = 102.59°$ $\beta = 98.28°$ $\gamma = 88.09°$ 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_2O_3	n.d.	6.46
Al_2O_3	17.9	18.93
V_2O_3	0.13	
MnO	0.4	
ZnO	0.06	
MgO	6.9	7.48
CaO	21.7	20.83
K_2O	0.01	
H_2O	n.d.	1.67
Total	91.13	100.00

(1) Tanzania; by electron microprobe, B confirmed qualitatively, Cr, Fe, Ni, Na not found.
(2) $Ca_2MgAl_2BSi_4O_{15}(OH)$.

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.