Andremeyerite $BaFe_2^{2+}Si_2O_7$

Crystal Data: Monoclinic, pseudo-orthorhombic. *Point Group:* $2/m$. As crystals, < 0.2 mm, with {100} and {010} dominant, also {011} and {120}. *Twinning:* Multiple twinning on {100}.

Physical Properties: *Cleavage:* Perfect on {100} and {010}. Hardness = 5.5 VHN = 440 D(meas.) = 4.15 D(calc.) = 4.14

Optical Properties: Transparent to translucent. *Color:* Pale emerald-green. *Optical Class:* Biaxial (+). *Pleochroism:* X = pale bluish green; $Y = Z$ = colorless with faint brownish tint. *Orientation:* $Z = b$; $X \wedge c = 2°$ at 670 nm to 61° at 470 nm. *Dispersion:* Very strong. *Absorption:* $X > Y \simeq Z$. $\alpha = 1.740(5)$ $\beta = 1.740(5)$ $\gamma = 1.760(5)$ 2V(meas.) = 0°–80°

Cell Data: *Space Group:* $P2_1/c$. $a = 7.488(1)$ $b = 13.785(1)$ $c = 7.085(1)$ $\beta = 118.23(1)°$ Z = 4

X-ray Powder Pattern: Mt. Nyiragongo, Congo.
3.055 (100), 3.122 (80), 3.288 (60), 2.472 (55), 4.63 (40), 2.811 (40), 3.198 (20)

Chemistry:

	(1)	(2)
SiO_2	32.46	28.81
Al_2O_3	1.00	
FeO	31.55	34.44
MnO	1.33	
MgO	0.75	
CaO	0.52	
BaO	32.55	36.75
Na_2O	0.10	
K_2O	0.65	
Total	100.91	100.00

(1) Mt. Nyiragongo, Congo; by electron microprobe. (2) $BaFe_2Si_2O_7$.

Occurrence: In vesicles of melilite-leucite-nephelinite; may represent crystallization of an associated green glass.

Association: Nepheline, leucite, clinopyroxene, kirschsteinite, melilite, apatite, magnetite, götzenite, troilite, glass.

Distribution: From the rim of Mt. Nyiragongo volcano, Kivu Province, Congo (Zaire).

Name: To honor André Marie Meyer (1890–?), Belgian geologist with the Geological Survey of the Belgian Congo, who first collected the mineral.

Type Material: University of Helsinki, Helsinki, Finland.

References: (1) Sahama, T.G., J. Siivola, and P. Rehtijärvi (1973) Andremeyerite, a new barium iron silicate from Nyiragongo, Zaire. Bull. Geol. Soc. Finland, 45, 1–8. (2) (1974) Amer. Mineral., 59, 381 (abs. ref. 1). (3) Cannillo, E.C., F. Mazzi, and G. Rossi (1988) Crystal structure of andremeyerite, $BaFe(Fe,Mn,Mg)Si_2O_7$. Amer. Mineral., 73, 608–612.