

Crystal Data: Orthorhombic. *Point Group:* $2/m\ 2/m\ 2/m$. Very rarely showing traces of crystal faces; coarsely crystalline to compact, massive.

Physical Properties: *Cleavage:* Good on {110} and {001}. *Hardness* = 6.5
D(meas.) = 3.065 D(calc.) = 3.073

Optical Properties: Translucent to transparent in thin flakes. *Color:* White.
Luster: Vitreous, pearly on cleavage.
Optical Class: Biaxial (+). *Orientation:* $X = c$; $Y = a$; $Z = b$. $\alpha = 1.5695$ $\beta = 1.5710$
 $\gamma = 1.5775$ $2V(\text{meas.}) = 41(3)^\circ$

Cell Data: *Space Group:* *Ibam*. $a = 8.496(2)$ $b = 9.983(2)$ $c = 16.755(3)$ $Z = 4$

X-ray Powder Pattern: Benallt mine, Wales; close to stronalsite.
3.53 (100), 5.20 (90), 8.50 (80), 3.21 (80), 2.90 (80), 2.09 (80), 3.77 (70)

Chemistry:	(1)	(2)
SiO ₂	34.74	36.44
Al ₂ O ₃	31.20	30.92
MnO	0.03	
MgO	1.00	
CaO	0.81	
BaO	21.99	23.25
Na ₂ O	8.43	9.40
K ₂ O	0.66	
H ₂ O	1.08	
Total	99.94	100.00

(1) Benallt mine, Wales. (2) BaNa₂Al₄Si₄O₁₆.

Mineral Group: Feldspar group.

Occurrence: In veinlets through manganese ore and in lenses in metamorphosed mudstone (Benallt mine, Wales).

Association: Tephroite, alleghanyite, jacobsite, barite, calcite (Benallt mine, Wales).

Distribution: In the Benallt mine, Rhiw, Lleyen Peninsula, Wales. At Långban, Värmland, Sweden. From the Kalahari manganese field, Cape Province, South Africa.

Name: Derived from the chemical symbols for the major constituents, *Ba*, *Na*, *Al*, *Si*.

Type Material: National School of Mines, Paris, France; The Natural History Museum, London, England, 1944,420–423; Harvard University, Cambridge, Massachusetts, 108656; National Museum of Natural History, Washington, D.C., USA, 105854.

References: (1) Campbell Smith, W., F.A. Bannister, and M.H. Hey (1944) A new barium-feldspar from Wales. *Nature*, 154, 336–337. (2) (1945) *Amer. Mineral.*, 30, 85 (abs. ref. 1). (3) Campbell Smith, W., F.A. Bannister, and M.H. Hey (1944) Banalsite, a new barium-feldspar from Wales. *Mineral. Mag.*, 27, 33–47. (4) Haga, N. (1973) The crystal structure of banalsite, BaNa₂Al₄Si₄O₁₆, and its relation to the feldspar structure. *Mineral. J. (Japan)*, 7, 262–281. (5) Welin, E. (1968) X-ray powder data for minerals from Långban and the related mineral deposits of Central Sweden. *Arkiv Mineral. Geol.*, 4(30), 499–541.