

Crystal Data: Monoclinic, pseudo-orthorhombic. *Point Group:* $2/m$. Crystals prismatic, dominated by {110} and {120}, with chisel-shaped termination by {201}, to 5 cm; confused aggregates of crystals; massive. *Twinning:* Simple twinning on {100}; lamellar on {201}.

Physical Properties: *Cleavage:* {110}, poor; $(110) \wedge (1\bar{1}0) = 87^\circ$. *Fracture:* Subconchoidal. Hardness = ~ 6 D(meas.) = 3.29–3.32 D(calc.) = 3.342

Optical Properties: Transparent to translucent. *Color:* Colorless to white, pale yellow. *Luster:* Vitreous.

Optical Class: Biaxial (–). $\alpha = 1.5702$ $\beta = 1.5824$ $\gamma = 1.5869$ $2V(\text{meas.}) = 50^\circ 35' - 52^\circ 42'$

Cell Data: *Space Group:* $P2_1/a$. $a = 9.065\text{--}9.076$ $b = 9.568\text{--}9.588$ $c = 8.577\text{--}8.578$
 $\beta = 90.01^\circ\text{--}90.21^\circ$ $Z = 4$

X-ray Powder Pattern: Benallt mine, Wales.

4.00 (100), 3.80 (70), 2.99 (50), 2.73 (50), 2.56 (50), 3.59 (45), 2.37 (45)

Chemistry:	(1)	(2)
SiO ₂	33.01	32.01
Al ₂ O ₃	27.16	27.16
Fe ₂ O ₃	0.28	
MgO	0.14	
CaO	0.06	
BaO	38.53	40.83
Na ₂ O	0.15	
K ₂ O	0.54	
H ₂ O	0.05	
Total	99.92	100.00

(1) Benallt mine, Wales. (2) BaAl₂Si₂O₈.

Polymorphism & Series: Dimorphous with celsian.

Mineral Group: Feldspar group.

Occurrence: In a band through shales and sandstones, associated with a metamorphosed manganese deposit (Benallt mine, Wales).

Association: Celsian (Benallt mine, Wales).

Distribution: From Candoglia, Valle d'Ossola, Piedmont, Italy. In the Benallt mine, Rhiw, Llleyn Peninsula, Wales.

Name: A combination of the Greek *para*, for *near*, and the mineral's dimorph, *celsian*.

Type Material: n.d.

References: (1) Tacconi, E. (1905) Di un silicato di alluminio e bario [paracelsian] dei calcefi di Candoglia in valle del Toce. Rend. R. Istit. Lombardo Sci. Lett., Milano, 38, 636–643, esp. 642 (in Italian). (2) (1907) Mineral. Mag., 14, 406 (abs. ref. 1). (3) Spencer, L.J. (1942) Barium feldspars, (celsian and paracelsian) from Wales. Mineral. Mag., 26, 231–245. (4) Smith, J.V. (1953) The crystal structure of paracelsian, BaAl₂Si₂O₈. Acta Cryst., 6, 613–620. (5) Deer, W.A., R.A. Howie, and J. Zussman (1963) Rock-forming minerals, v. 4, framework silicates, 166–178. (6) Chiari, G., G. Gazzoni, J.R. Craig, G.V. Gibbs, and S.J. Louisnathan (1985) Two independent refinements of the structure of paracelsian, BaAl₂Si₂O₈. Amer. Mineral., 70, 969–974.

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