Brontesite $(NH_4)_3PbCl_5$

Crystal Data: Orthorhombic. *Point Group*: 2/*m* 2/*m* 2/*m*. Crystals tabular on {010}, to 0.1 mm; pseudotetragonal, exhibiting forms {110}, {011}, {121}.

Physical Properties: *Cleavage*: None observed. *Fracture*: None observed.
Tenacity: n.d. Hardness = n.d. D(meas.) = 2.72(1) D(calc.) = 2.728

Optical Properties: Translucent. *Color*: Colorless to white. *Streak*: White.
Luster: Vitreous.
Optical Class: Biaxial. n = 1.70(3) *Orientation:* n.d.

Cell Data: *Space Group*: *Pnma*. *a* = 8.434(1) *b* = 15.759(2) *c* = 8.462(1) Z = 4

X-ray Powder Pattern: La Fossa crater, Vulcano, Aeolian Islands, Italy.
3.067 (100), 2.020 (80), 2.710 (78), 1.910 (78), 2.421 (75), 1.491 (75), 1.457 (65)

Chemistry:

	(1)	(2)
K	1.1	
Pb	47.8	47.25
Cl	36.1	40.43
Br	3.7	
NH_4	11.3	12.32
Total	100.0	100.00

(1) La Fossa crater, Vulcano, Sicily, Italy; average of 6 EDS analyses, NH_4 by difference after confirmation by IR and microchemical tests, corresponding to $[(NH_4)_{2.87}K_{0.13}]_{\Sigma=3.00}Pb_{1.09}(Cl_{4.79}Br_{0.21})_{\Sigma=5.00}$. (2) $(NH_4)_3PbCl_5$.

Occurrence: A product of fumarolic activity.

Association: Bismuthinite, godovikovite, demicheleite-(Cl), demicheleite-(Br), alunite.

Distribution: La Fossa crater, Vulcano, Aeolian Islands, Sicily, Italy.

Name: For Brontes, one of the Cyclopes and a son of Uranus, helpers of the Greek god of fire whose workshops were alleged to be located at Vulcano.

Type Material: Department of Structural Chemistry and Inorganic Stereochemistry, University of Milan, Italy (reference collection 2008-03).

References: (1) Demartin, F., C.M. Gramaccioli, and I. Campostrini (2009) Brontesite, $(NH_4)_3PbCl_5$, a new product of fumarolic activity from La Fossa crater, Vulcano, Aeolian Islands, Italy, Can. Mineral., 47, 1237–1243. (2) (2010) Amer. Mineral., 95, 1122 (abs. ref. 1).