Aluminopyracmonite $(NH_4)_3Al(SO_4)_3$

Crystal Data: Hexagonal. *Point Group*: $\bar{3}$. As six-sided prismatic crystals to 0.2 mm, in divergent sprays.

Physical Properties: *Cleavage*: None. *Fracture*: n.d. *Tenacity*: n.d. Hardness = n.d. D(meas.) = 2.12(1) D(calc.) = 2.143

Optical Properties: Transparent. *Color*: Colorless to white. *Streak*: White. *Luster*: Vitreous. *Optical Class*: Uniaxial (-). ω = 1.545(3) ε = 1.532(3)

Cell Data: *Space Group*: $R\bar{3}$. a =15.0324(8) c = 8.8776(5) Z = 6

X-ray Powder Pattern: La Fossa crater, Vulcano, Aeolian Islands, Sicily, Italy. 3.336 (100), 7.469 (62), 3.288 (60), 4.289 (45), 2.824 (29), 4.187 (27), 2.796 (26)

Chemistry:	(1)	(2)
K_2O	1.26	
Fe_2O_3	0.30	
Al_2O_3	16.07	13.81
SO_3	62.22	65.04
$(NH_4)_2O$	[20.15]	21.15
Total	100.00	100.00

(1) La Fossa crater, Vulcano, Aeolian Islands, Sicily, Italy; average of 12 electron microprobe analyses, $(NH_4)_2O$ by difference and confirmed by IR spectroscopy; corresponding to $[(NH_4)_{2.89}K_{0.10}]_{\Sigma=2.99}(Al_{1.18}Fe_{0.01})_{\Sigma=1.19}S_{2.91}O_{12}$. (2) $(NH_4)_3Al(SO_4)_3$.

Occurrence: A sublimate from medium-temperature (~250º C) gases emanating from an intracrater volcanic fumarole**.**

Association: Adranosite, mascagnite, alunite, salammoniac.

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

Name: For the essential *alumin*um and chemical analogy with *pyracmonite*.

Type Material: Reference Collection, Department of Chemistry, University of Milan, Italy (2012-01).

References: (1) Demartin, F., C. Castellano, and I. Campostrini (2013) Aluminopyracmonite, $(NH_4)_3Al(SO_4)_3$, a new ammonium aluminium sulfate from La Fossa crater, Vulcano, Aeolian Islands, Italy. Mineral. Mag., 77(4), 443-451. (2) (2015) Amer. Mineral., 100, 2352 (abs. ref. 1).