Adranosite $(NH_4)_4NaAl_2(SO_4)_4Cl(OH)_2$

Crystal Data: Tetragonal. *Point Group*: 4/*m* 2/*m* 2/*m.* As sprays of acicular crystals to 300 μm exhibiting {100}, {110}, and {111}.

Physical Properties: *Cleavage*: n.d. F*racture*: n.d. *Tenacity*: n.d. D(meas.) = 2.15(1) D(calc.) = 2.176 *Hardness* = n.d.

Optical Properties: Translucent. *Color*: White to colorless. *Streak*: White. *Luster*: Vitreous. *Optical Class*: Uniaxial (-). ω = 1.55(1) ε = 1.54(1)

Cell Data: *Space Group*: $I4_1/acd$. a = 18.118(3) c = 11.320(3) Z = 8

X-ray Powder Pattern: La Fossa crater, Vulcano, Aeolian Islands, Sicily, Italy. 2.980 (100), 2.265 (87), 4.530 (86), 6.398 (80), 3.020 (65) 3.202 (47), 1.902 (44)

Chemistry:

	(1)	(2)
Na_2O	5.88	5.14
Al_2O_3	17.40	16.91
K_2O	0.90	
$(NH_4)_2O$	[16.52]	17.29
SO_3	51.31	53.12
Cl	5.68	5.88
H_2O	[2.99]	2.99
–O=Cl	1.28	1.33
Total	99.40	100.00

(1) La Fossa crater, Vulcano, Aeolian Islands, Sicily, Italy; average of 6 electron microprobe analyses, H_2O calculated from structure analysis, NH_4 by the Nessler reaction and structure analysis; corresponds to $[(NH_4)_{3.89}K_{0.12}]_{\Sigma=4.01}Na_{1.16}Al_{2.09}S_{3.93}O_{15.99}Cl_{0.98}(OH)_{2.03}$.

Occurrence: A sublimate on pyroclastic breccia around an active volcanic fumarole.

Association: Aiolosite, alunite, anhydrite, bismuthinite, sassolite, dimicheleite-(Br), dimicheleite-(Cl), demicheleite-(I).

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

Name: For the ancient god of fire, *Adranos.*

Type Material: University of Milan, Italy (#2008-06).

References: (1) Demartin, F., C.M. Gramaccioli, and I. Campostrini (2010) Adranosite, $(NH_4)_4NaAl_2(SO_4)_4Cl(OH)_2$, a new ammonium sulfate chloride from La Fossa crater, Vulcano, Aeolian Islands, Italy. Can. Mineral., 48(2), 315-321. (2) (2011) Amer. Mineral., 96, 936 (abs. ref. 1).