Farneseite $[(Na,K)_{46}Ca_{10}]_{\Sigma=56}(Si_{42}Al_{42}O_{168})(SO_4)_{12}\cdot 6H_2O$

Crystal Data: Hexagonal. *Point Group*: 6/*m*. Crystals are prismatic elongated along [0001], to 0.5 mm, and show complex hexagonal morphologies with streaked faces. *Twinning*: The structural refinement suggested $(1\bar{1}\,00)$ twins.

Physical Properties: *Cleavage*: Poor on {0001}. *Fracture*: Conchoidal. *Tenacity*: Brittle. *Hardness* = 5 D(meas.) = n.d. D(calc.) = 2.425

Optical Properties: Transparent. *Color*: Colorless. *Streak*: White. *Luster*: Vitreous. *Optical Class*: Uniaxial (+). ω = 1.499(1) ε = 1.503(1)

Cell Data: *Space Group*: $P6_3/m$. a = 12.8784(2) c = 37.0078(12) Z = 1

X-ray Powder Pattern: Farnese, Viterbo Province (north of Rome), Italy.
3.722 (100), 3.485 (65), 3.119 (36), 2.149 (34), 2.648 (32), 3.668 (26), 3.862 (23)

Chemistry:

	(1)	(2)
SiO_2	33.00	32.08
Al_2O_3	27.34	27.22
CaO	6.34	7.13
Na_2O	14.59	14.58
K_2O	5.59	5.39
SO_3	11.82	12.22
F	0.04	
Cl	0.22	
H_2O	[0.71]	1.38
-O = (F,Cl)	0.07	.
Total	99.58	100.00

(1) Farnese, Viterbo Province, Italy; electron microprobe analysis supplemented by IR spectroscopy, H_2O calculated from structure analysis; corresponds to $(Na_{36.43}K_{9.18}Ca_{8.75})_{\Sigma=54.36}(Si_{42.50}Al_{41.50})_{\Sigma=84.00}O_{168}(SO_4)_{11.43}F_{0.16}Cl_{0.48}\cdot 3.03H_2O$. (2) $[(Na,K)_{46}Ca_{10}]_{\Sigma=56}(Si_{42}Al_{42}O_{168})(SO_4)_{12}\cdot 6H_2O$.

Mineral Group: Cancrinite-sodalite group.

Occurrence: In vugs between interlocking sanidine within a syenitic pyroclastic rock.

Association: Sanidine, andradite, clinopyroxene (augite), biotite, Fe-oxides, feldspathoids.

Distribution: From Farnese, Viterbo Province (north of Rome), Italy.

Name: For the locality, *Farnese*, that produced the first specimens.

Type Material: Museum of Mineralogy, University of Rome, "La Sapienza", Italy (# 33000/1).

References: (1) Cámara, F., F. Bellatreccia, G. Della Ventura, and A. Mottana (2005) Farneseite, a new mineral of the cancrinite-sodalite group with a 14-layer stacking sequence: occurrence and crystal structure. Eur. J. Mineral., 17, 839-846. (2) (2006) Amer. Mineral., 91, 1454 (abs. ref. 1).