Marinellite $[(Na,K)_{42}Ca_6](Si_{36}Al_{36}O_{144})(SO_4)_8Cl_2 \cdot 6H_2O$

Crystal Data: Hexagonal. *Point Group*: 3*m*. As ill-formed crystals, to < 2 mm. *Twinning*: Merohedral twinning on (001) deduced from structural analysis.

Physical Properties: *Cleavage*: Poor on {001}. *Fracture*: Conchoidal. *Tenacity*: Brittle. Hardness = 5.5 D(meas.) = 2.405(5) D(calc.) = 2.40

Optical Properties: Transparent. *Color*: Colorless. *Streak*: White. *Luster*: Vitreous. *Optical Class*: Uniaxial (-). ω = 1.495(1) ε = 1.497(1) *Pleochroism*: None.

Cell Data: *Space Group*: *P*31*c*. *a* = 12.893(1) *c* = 31.718(5) Z = 1

X-ray Powder Pattern: Sacrofano volcano, Biacchella Valley, Latium, Italy.
3.725 (100), 3.513 (80), 4.20 (42), 3.089 (40), 2.150 (40), 3.296 (35), 2.555 (35)

Chemistry:

	(1)
K_2O	7.94
Na_2O	14.95
CaO	5.14
Al_2O_3	27.80
SiO_2	32.73
SO_3	9.84
Cl	0.87
H_2O	[0.93]
$-O = Cl_2$	0.20
Total	100.00

(1) Sacrofano volcano, Biacchella Valley, Latium, Italy; electron microprobe analysis, H_2O by difference; corresponds to $(Na_{31.86}K_{11.13}Ca_{6.06})_{\Sigma=49.05}(Si_{35.98}Al_{36.02})_{\Sigma=72.00}O_{144.60}(SO_4)_{8.12}Cl_{1.62} \cdot 3.41H_2O$.

Mineral Group: Cancrinite-sodalite group.

Occurrence: In a highly-reacted xenolith of evaporitic rock as volcanic ejecta.

Association: Giuseppettite, sanidine, nepheline, haüyne, biotite, kalsilite.

Distribution: Near the Sacrofano volcano, Biacchella Valley, Latium, Italy.

Name: Honors Giorgio Marinelli (1922-1993), Earth Science Department, University of Pisa, Italy.

Type Material: Natural History Museum, University of Pisa, Italy (13216).

References: (1) Bonaccorsi, E. and P. Orlandi (2003) Marinellite, a new feldspathoid of the cancrinite-sodalite group. Eur. J. Mineral., 15, 1019-1027. (2) (2004) Amer. Mineral., 89, 1830-1831 (abs. ref. 1).