

**Marinellite**

**Crystal Data:** Hexagonal. *Point Group:* 3m. 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 (-).  $\omega = 1.495(1)$   $\varepsilon = 1.497(1)$  *Pleochroism:* None.

**Cell Data:** *Space Group:* P31c.  $a = 12.893(1)$   $c = 31.718(5)$   $Z = 1$

**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)

<b>Chemistry:</b>	(1)
K <sub>2</sub> O	7.94
Na <sub>2</sub> O	14.95
CaO	5.14
Al <sub>2</sub> O <sub>3</sub>	27.80
SiO <sub>2</sub>	32.73
SO <sub>3</sub>	9.84
Cl	0.87
H <sub>2</sub> O	[0.93]
<u>-O = Cl<sub>2</sub></u>	<u>0.20</u>
Total	100.00

(1) Sacrofano volcano, Biacchella Valley, Latium, Italy; electron microprobe analysis, H<sub>2</sub>O by difference; corresponds to (Na<sub>31.86</sub>K<sub>11.13</sub>Ca<sub>6.06</sub>) $\Sigma=49.05$ (Si<sub>35.98</sub>Al<sub>36.02</sub>) $\Sigma=72.00$ O<sub>144.60</sub>(SO<sub>4</sub>)<sub>8.12</sub>Cl<sub>1.62</sub>•3.41H<sub>2</sub>O.

**Mineral Group:** Cancrinite-sodalite group.

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

**Association:** Giuseppettite, sanidine, nepheline, hauyne, biotite, kalsilite.

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

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**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).