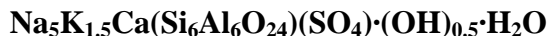


**Alloriite**

**Crystal Data:** Hexagonal. *Point Group:* 3m. Crystals hexagonal equant, tabular on {0001}, or prismatic, to 2 mm, displaying {0001}, {10 $\bar{1}$  0}, {10 $\bar{1}$  3}, {10 $\bar{1}$  4}, {11 $\bar{2}$  0}.

**Physical Properties:** *Cleavage:* Imperfect on {10 $\bar{1}$  0}. *Fracture:* Conchoidal.  
*Tenacity:* Brittle. Hardness = 5 D(meas.) = 2.35(1) D(calc.) = 2.358

**Optical Properties:** Transparent. *Color:* Colorless to pale violet. *Streak:* White.  
*Luster:* Vitreous.

*Optical Class:* Uniaxial (+).  $\omega = 1.497(2)$   $\varepsilon = 1.499(2)$  *Pleochroism:* E = pale pink, O = pale pinkish yellow. *Absorption:* E > O.

**Cell Data:** *Space Group:* P31c.  $a = 12.892(3)$   $c = 21.340(5)$   $Z = 4$

**X-ray Powder Pattern:** Mt. Cavalluccio, Sacrofano caldera, Latium, Italy.  
3.33 (100), 4.85 (90), 3.76 (80), 11.3 (70), 3.68 (70), 2.694 (70), 4.03 (60)

Chemistry:	(1)	(2)
Na <sub>2</sub> O	13.55	14.75
K <sub>2</sub> O	6.67	6.72
CaO	6.23	5.34
Al <sub>2</sub> O <sub>3</sub>	26.45	29.11
SiO <sub>2</sub>	34.64	34.31
SO <sub>3</sub>	8.92	7.62
Cl	0.37	
H <sub>2</sub> O	2.1	2.14
CO <sub>2</sub>	0.7	
-O=Cl <sub>2</sub>	0.08	
Total	99.55	99.99

(1) Mt. Cavalluccio, Sacrofano caldera, Latium, Italy; electron microprobe analysis, water by Penfield method, CO<sub>2</sub> by selective sorption, anionic groups confirmed by IR, corresponding to Na<sub>19.16</sub>K<sub>6.21</sub>Ca<sub>4.87</sub>(Si<sub>25.26</sub>Al<sub>22.74</sub>O<sub>96</sub>)(SO<sub>4</sub>)<sub>4.88</sub>(CO<sub>3</sub>)<sub>0.70</sub>Cl<sub>0.46</sub>(OH)<sub>0.76</sub>·4.73H<sub>2</sub>O (for Z = 1).

(2) Na<sub>5</sub>K<sub>1.5</sub>Ca(Si<sub>6</sub>Al<sub>6</sub>O<sub>24</sub>)(SO<sub>4</sub>)·(OH)<sub>0.5</sub>·H<sub>2</sub>O (for Z = 4).

**Mineral Group:** Cancrinite group.

**Occurrence:** Lining the walls of smallmiarolitic cavities in a sanidine-syenite volcanic bomb.

**Association:** Sanidine, biotite, andradite, apatite.

**Distribution:** Mt. Cavalluccio, Campagnano di Roma, Sacrofano caldera, Rome Province, Latium, Italy.

**Name:** Honors Roberto Allori (b. 1933), an amateur mineralogist who has studied the Latium region.

**Type Material:** A.E. Fersman Mineralogical Museum, Academy of Sciences, Moscow, Russia, 3459/1.

**References:** (1) Chukanov N V, Rastsvetaeva R K, Pekov I V, Zadov A E (2007) Alloriite, Na<sub>5</sub>K<sub>1.5</sub>Ca(Si<sub>6</sub>Al<sub>6</sub>O<sub>24</sub>)(SO<sub>4</sub>)·(OH)<sub>0.5</sub>·H<sub>2</sub>O, a new mineral of the cancrinite group. *Zapiski Rossiiskogo Mineralogicheskogo Obshchestva*, 136, 82-89; (2007) *Geology of Ore Deposits*, Vol. 49, 752-757 (in English). (2) Rastsvetaeva, R.K., A.G. Ivanova, N.V. Chukanov, and I.A. Verin (2007) Crystal structure of alloriite. *Dokl. Akad. Nauk*, 415(2), 242-246 (in Russian); *Dokl. Earth Sci.*, 415, 815-819 (in English). (3) (2009) *Amer. Mineral.*, 94, 399 (abs. ref. 2).