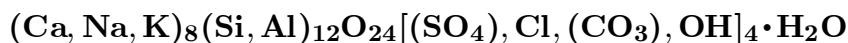


**Liottite**

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**Crystal Data:** Hexagonal. *Point Group:*  $\bar{6}m2$ . As short prismatic crystals with pyramidal and pinacoidal terminations, up to 1 cm.

**Physical Properties:** Hardness = 5 D(meas.) = 2.56(2) D(calc.) = 2.61

**Optical Properties:** Transparent. *Color:* Colorless.

*Optical Class:* Uniaxial (-).  $\omega = 1.530$   $\epsilon = 1.528$

**Cell Data:** *Space Group:*  $P\bar{6}m2$ .  $a = 12.842(3)$   $c = 16.091(5)$   $Z = 6$

**X-ray Powder Pattern:** Pitigliano, Italy.

3.715 (100), 3.315 (75), 4.84 (36), 2.141 (24), 2.686 (10), 2.471 (10), 1.801 (10)

**Chemistry:**

	(1)
SiO <sub>2</sub>	30.51
Al <sub>2</sub> O <sub>3</sub>	24.92
Fe <sub>2</sub> O <sub>3</sub>	0.36
CaO	16.71
Na <sub>2</sub> O	7.97
K <sub>2</sub> O	4.98
Cl	2.57
H <sub>2</sub> O	1.8
CO <sub>2</sub>	2.1
SO <sub>3</sub>	8.66
-O = Cl <sub>2</sub>	0.58
Total	100.00

(1) Pitigliano, Italy; by AA and XRF, corresponds to  $(\text{Ca}_{3.59}\text{Na}_{3.10}\text{K}_{1.27}\text{Fe}_{0.05}^{3+})_{\Sigma=8.01}$   
 $(\text{Si}_{6.11}\text{Al}_{5.89})_{\Sigma=12.00}\text{O}_{24}[(\text{SO}_4)_{1.30}\text{Cl}_{0.87}(\text{CO}_3)_{0.57}(\text{OH})_{1.19}]_{\Sigma=3.93} \cdot 0.61\text{H}_2\text{O}$ .

**Mineral Group:** Cancrinite group.

**Occurrence:** In cavities in ejecta blocks of metasomatized carbonate rocks in a pumice deposit.

**Association:** Melilite, latiumite, clintonite, anorthite, vesuvianite, grossular, andradite, pyroxene.

**Distribution:** At Pitigliano, near Grosseto, Tuscany, Italy.

**Name:** For mineral collector Luciano Liotti, who donated the specimen in which this mineral was first found.

**Type Material:** University of Pisa, Pisa, 3209; University of Modena, Modena, Italy.

**References:** (1) Merlino, S. and P. Orlandi (1977) Liottite, a new mineral in the cancrinite-davyne group. *Amer. Mineral.*, 62, 321–326.