

**Crystal Data:** Triclinic. *Point Group:*  $\bar{1}$ . As tiny plates lining cavities in the glassy crust of lapilli.

**Physical Properties:** Hardness = 5–6 D(meas.) = 2.75 D(calc.) = 2.85

**Optical Properties:** Semitransparent. *Color:* Blue.

*Optical Class:* Biaxial.  $\alpha = 1.548$   $\beta = 1.574$   $\gamma = \text{n.d.}$   $2V(\text{meas.}) = 56^\circ$

**Cell Data:** *Space Group:*  $P\bar{1}$ .  $a = 9.80(1)$   $b = 8.01(1)$   $c = 6.97(1)$   $\alpha = 114.12(8)^\circ$   
 $\beta = 99.52(6)^\circ$   $\gamma = 105.59(8)^\circ$   $Z = 2$

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

3.372 (100), 2.409 (85), 3.223 (75), 2.675 (37), 6.75 (35), 3.652 (18), 2.835 (18)

**Chemistry:**

	(1)	(2)	(3)
SiO <sub>2</sub>	71.57	69.36	60.39
Fe <sub>2</sub> O <sub>3</sub>		0.94	
FeO	4.02		
CuO	6.49	13.29	19.99
PbO		0.73	
CaO		3.25	
Na <sub>2</sub> O	6.78	5.10	7.79
K <sub>2</sub> O	10.92	5.82	11.83
Total	99.78	99.49	100.00

(1) Vesuvius, Italy; average of two analyses of undoubtedly contaminated samples. (2) Do.; considered to contain tridymite ~40%. (3) KNaCuSi<sub>4</sub>O<sub>10</sub>.

**Occurrence:** In lapilli strongly modified by fumerolic action subsequent to the 1873 eruption of Vesuvius.

**Association:** Tridymite, wollastonite, glass.

**Distribution:** Found in the crater of Vesuvius, Campania, Italy.

**Name:** From the Greek for *pebble*, [Greek diminutive of *lithos*, for *stone*; *lithidion* in English, *litidion* in Italian] presumably for the size and shape of the lapilli on which the mineral occurs.

**Type Material:** Natural History Museum, Paris, France, 99.788.

**References:** (1) Dana, E.S. (1892) Dana's system of mineralogy, (6th edition), 1041 [lithidionite]. (2) Zambonini, F. (1935) Mineralogia Vesuviana, (2nd edition), Stab. Industrie Editoriali Meridionali, Naples, 435–439 [litidionite] (in Italian). (3) Pozas, J.M.M., G. Rossi, and V. Tazzoli (1975) Re-examination and crystal structure analysis of litidionite. *Amer. Mineral.*, 60, 471–474. (4) Kawamura, K. and J.T. Iiyama (1981) Crystallochemistry and thermochemistry of sodipotassic copper silicate Na<sub>2-2x</sub>K<sub>2x</sub>CuSi<sub>4</sub>O<sub>10</sub>. *Bull. Minéral.*, 104, 387–395.