

Chlorothionite

$\text{K}_2\text{Cu}(\text{SO}_4)\text{Cl}_2$

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Crystal Data: Orthorhombic. *Point Group:* $2/m\ 2/m\ 2/m$. As crystalline incrustations.

Physical Properties: Hardness = 2.5 D(meas.) = 2.69 D(calc.) = [2.68] Soluble in H_2O .

Optical Properties: Semitransparent. *Color:* Bright to pale blue, may be pale greenish blue. *Optical Class:* Biaxial (+) (synthetic). *Dispersion:* $r > v$. $\alpha = \text{n.d.}$ $\beta = \text{n.d.}$ $\gamma = \text{n.d.}$ $2V(\text{meas.}) = \text{Moderately large}$.

Cell Data: *Space Group:* $Pnma$. $a = 7.732(15)$ $b = 6.078(1)$ $c = 16.292(3)$ $Z = 4$

X-ray Powder Pattern: Vesuvius, Italy.

3.04 (100), 2.187 (70), 2.847 (35), 5.69 (30), 3.26 (30), 3.15 (20), 2.491 (20)

Chemistry:

	(1)	(2)
SO_3	27.50	25.93
CuO	24.48	25.77
K_2O	31.67	30.51
Cl	20.04	22.97
LOI	1.12	
$-\text{O} = \text{Cl}_2$	4.52	5.18
Total	100.29	100.00

(1) Vesuvius, Italy; here converted to oxides from an original elemental analysis totalling 100.00%.

(2) $\text{K}_2\text{Cu}(\text{SO}_4)\text{Cl}_2$.

Occurrence: As sublimates around volcanic fumaroles.

Association: n.d.

Distribution: From Vesuvius, Campania, Italy.

Name: From the Greek for *chlorine* and *sulfur* in the composition.

Type Material: Mineralogical Museum, University of Bari, Bari, Italy.

References: (1) Palache, C., H. Berman, and C. Frondel (1951) Dana's system of mineralogy, (7th edition), v. II, 547. (2) Giacobozzo, C., E. Scandale, and F. Scordari (1976) The crystal structure of chlorothionite [sic], $\text{CuK}_2\text{Cl}_2\text{SO}_4$. Zeits. Krist., 144, 226–237.