Cyanochroite $K_2Cu(SO_4)_2 \cdot 6H_2O$

Crystal Data: Monoclinic. *Point Group:* $2/m$. Small euhedral crystals are tabular on {001}; typically forms crystalline crusts intermixed with other soluble compounds.

Physical Properties: *Cleavage:* On $\{\bar{2}01\}$, perfect. Hardness = n.d. D(meas.) = 2.22 D(calc.) = [2.23] Soluble in H_2O.

Optical Properties: Transparent. *Color:* Greenish blue. *Luster:* Vitreous. *Optical Class:* Biaxial (+). *Orientation:* $Y = b$; $X \wedge c = 18°33'$. *Dispersion:* $r < v$, strong. $\alpha = 1.484$–1.485 $\beta = 1.486$–1.488 $\gamma = 1.502$ 2V(meas.) = $45°32'$–$46°32'$

Cell Data: *Space Group:* $P2_1/c$. $a = 6.159$ $b = 12.131$ $c = 9.086$ $\beta = 104°27'$ Z = 2

X-ray Powder Pattern: Synthetic.
3.673 (100), 4.179 (90), 4.057 (79), 2.975 (65), 2.377 (45), 2.816 (42), 2.993 (39)

Chemistry: (1) Analyses of natural material have not been made; identification depends on correspondence of other properties with those of synthetic material.

Mineral Group: Picromerite group.

Occurrence: A rare product of fumarolic action (Vesuvius, Italy).

Association: n.d.

Distribution: From Vesuvius, Campania, Italy. At Laurium, Greece, in slag.

Name: From the Greek for *blue* and *color*, in reference to its appearance in white light.

Type Material: Natural History Museum, Paris, France, 175.358.

References: (1) Palache, C., H. Berman, and C. Frondel (1951) Dana's system of mineralogy, (7th edition), v. II, 454–455. (2) Carapezza, M. and L. Riva di Sanseverino (1968) Crystallography and genesis of double sulfates and their hydrates. II. Structure, powder pattern and thermo-analysis of cyanochroite, $K_2Cu(SO_4)_2 \cdot 6H_2O$. Mineral. Petrolog. Acta, 14, 23–37. (3) Burns, P.C. and F.C. Hawthorne (1996) Static and dynamic Jahn-Teller effects in Cu^{2+} oxysalt minerals. Can. Mineral., 34, 1089–1105, esp. 1100. (4) (1985) NBS Mono. 25, 21, 99.