Mitscherlichite $K_2CuCl_4 \cdot 2H_2O$

Crystal Data: Tetragonal. *Point Group:* $4/m\ 2/m\ 2/m$ (probable). Crystals, short prismatic along [001], or pyramidal {011}, minute; in stalactitic growths.

Physical Properties: Hardness = 2.5 D(meas.) = 2.418 D(calc.) = [2.39]

Optical Properties: Transparent. *Color:* Greenish blue; colorless in transmitted light.
Luster: Vitreous.
Optical Class: Uniaxial (–). *Pleochroism:* O = sky-blue; E = grass-green. *Absorption:* $O > E$.
$\omega = 1.6365$ $\epsilon = 1.6148$

Cell Data: *Space Group:* $P4_2/mnm$, probable, synthetic. a = 7.477(13) $c = 7.935(19)$
Z = 2

X-ray Powder Pattern: Synthetic.
2.635 (100), 2.711 (95), 5.42 (70), 3.164 (50), 3.072 (25), 1.977 (25), 1.5814 (25)

Chemistry: Natural samples were shown to contain only K, $CuCl_2$, and H_2O; no more complete analyses of natural material appear to have been made.

Occurrence: A volcanic sublimate (Vesuvius, Italy); an alteration product of ponomarevite (Tolbachik volcano, Russia).

Association: Sylvite, metavoltine, gypsum (Vesuvius, Italy); ponomarevite, tolbachite, dolerophanite, piypite, chalcocyanite, halite, sylvite, tenorite (Tolbachik volcano, Russia).

Distribution: In the crater of Vesuvius, Campania, Italy. From the Tolbachik fissure volcano, Kamchatka Peninsula, Russia.

Name: Honors Eilhardt Mitscherlich (1794–1863), German crystallographer and chemist, who first synthesized the compound.

Type Material: University of Florence, Florence, Italy, 225/l; The Natural History Museum, London, England, 1928,239.

References: (1) Palache, C., H. Berman, and C. Frondel (1951) Dana's system of mineralogy, (7th edition), v. II, 100–101. (2) Chidambaram, R., Q.O. Navarro, A. Garcia, K. Linggoatmodjo, L. Shi-Chien, and I.-H. Suh (1970) Neutron diffraction refinement of the crystal structure of potassium copper chloride dihydrate, $K_2CuCl_4 \cdot 2H_2O$. Acta Cryst., 26, 827–830. (3) (1971) NBS Mono. 25, 9, 34.