

# Chloroxiphite

# $\text{Pb}_3\text{CuO}_2\text{Cl}_2(\text{OH})_2$

©2001-2005 Mineral Data Publishing, version 1

**Crystal Data:** Monoclinic. *Point Group:*  $2/m$ . As bladed crystals, often curved, to 4 cm, elongated along [010] and flattened on  $\{\bar{1}01\}$ , which is striated  $\parallel$  [010]; as subparallel groups.

**Physical Properties:** *Cleavage:* Perfect on  $\{\bar{1}01\}$ , distinct on  $\{100\}$ . *Tenacity:* Very brittle; friable. Hardness = 2.5 D(meas.) = 6.76–6.93 D(calc.) = 6.84

**Optical Properties:** Transparent. *Color:* Dull olive-green or pistachio-green. *Streak:* Pale yellowish green. *Luster:* Resinous to adamantine.

*Optical Class:* Biaxial (–). *Pleochroism:*  $Y$  = yellowish brown;  $Z$  = bright emerald-green.

*Orientation:*  $Z = b$ ;  $X \simeq \perp \{\bar{1}01\}$ . *Dispersion:*  $r > v$ , medium to strong.  $\alpha = 2.16$   $\beta = 2.24$   $\gamma = 2.25$   $2V(\text{meas.}) = \sim 70^\circ$

**Cell Data:** *Space Group:*  $P2_1/m$ .  $a = 10.458(4)$   $b = 5.759(3)$   $c = 6.693(3)$   
 $\beta = 97.79(4)^\circ$   $Z = 2$

**X-ray Powder Pattern:** Higher Pitts Farm, England. (ICDD 8-112).  
2.86 (100), 10.3 (80), 3.84 (80), 2.80 (70), 5.90 (60), 2.68 (60), 2.06 (60)

## Chemistry:

	(1)	(2)	(3)
CuO	10.90	10.47	9.68
PbO	81.15	79.82	81.45
Cl	7.19	8.97	8.63
$\text{H}_2\text{O}^+$	2.56	2.52	2.19
$-\text{O} = \text{Cl}_2$	1.62	2.03	1.95
Total	100.18	99.75	100.00

(1–2) Higher Pitts Farm, England;  $\text{H}_2\text{O}$  by loss on ignition. (3)  $\text{Pb}_3\text{CuO}_2\text{Cl}_2(\text{OH})_2$ .

**Occurrence:** A secondary mineral associated with lead- and copper-bearing pods in Mn–Fe deposits developed along fissures in dolomitic conglomerate and limestone.

**Association:** Mendipite, diabolite, parkinsonite, wulfenite, cerussite, hydrocerussite.

**Distribution:** In England, at the Higher Pitts Farm, near Priddy, and in the Merehead quarry, near Shepton Mallet, Mendip Hills, Somerset.

**Name:** From the Greek for *green* and *blade* or *straight sword*, for the typical crystal habit.

**Type Material:** The Natural History Museum, London, England, 1923,712–717.

**References:** (1) Palache, C., H. Berman, and C. Frondel (1951) Dana's system of mineralogy, (7th edition), v. II, 84–85. (2) Spencer, L.J. and E.D. Mountain (1923) New lead-copper minerals from the Mendip Hills (Somerset). Mineral. Mag., 20, 67–92. (3) Finney, J.J., E.J. Graeber, A. Rosenzweig, and R.D. Hamilton (1977) The structure of chloroxiphite,  $\text{Pb}_3\text{CuO}_2(\text{OH})_2\text{Cl}_2$ . Mineral. Mag., 41, 357–361. (4) Symes, R.F. and P.G. Embrey (1977) Mendipite and other rare oxychloride minerals from the Mendip Hills, Somerset, England. Mineral. Record, 8, 298–303.