Mendipite $Pb_3O_2Cl_2$

Crystal Data: Orthorhombic. *Point Group:* 222. In columnar or fibrous aggregates, and cleavable masses, to 12 cm.

Physical Properties: *Cleavage:* {010}, perfect; {100} and {010}, less perfect. *Fracture:* Conchoidal to uneven. Hardness = 2.5 D(meas.) = 7.240 D(calc.) = 7.22

Optical Properties: Translucent, rarely transparent. *Color:* Colorless to white, brownish cream, gray, tinged yellow, pink, red, or blue; nearly colorless in transmitted light. *Streak:* White. *Luster:* Pearly to silky on cleavages; resinous to adamantine on fractures. *Optical Class:* Biaxial (+). *Orientation:* $X = a$; $Y = b$; $Z = c$. *Dispersion:* $r < v$, very strong. $\alpha = 2.24(2)$ $\beta = 2.27(2)$ $\gamma = 2.31(2)$ 2V(meas.) = $\sim 90°$

Cell Data: *Space Group:* $P2_12_12_1$. $a = 9.52$ $b = 11.95$ $c = 5.87$ Z = 4

X-ray Powder Pattern: Långban, Sweden.
2.78 (10), 2.64 (9), 3.04 (8), 3.51 (7), 7.40 (6), 3.78 (6), 3.08 (6)

Chemistry:

	(1)	(2)	(3)
Pb	85.87	85.69	85.79
O	4.53	[4.44]	4.42
Cl	9.35	9.87	9.79
Total	99.75	[100.00]	100.00

(1) Mendip Hills, England; corresponds to $Pb_{3.14}Cl_2O_{2.15}$. (2) Kunibert mine, near Brilon, Germany. (3) $Pb_3O_2Cl_2$.

Occurrence: In nodules in manganese oxide ores (Somerset, England).

Association: Hydrocerussite, cerussite, malachite, pyromorphite, calcite, chloroxiphite, diaboleite, parkinsonite (Somerset, England).

Distribution: In England, from the Higher Pitts Farm, the Priddy Hill Farm, the Wesley mine, and near Churchill, Mendip Hills, and in the Merehead quarry, near Shepton Mallet, Somerset. In the Kunibert mine, near Brilon, North Rhine-Westphalia, Germany. At Långban, Värmland, Sweden. From Tarnowitz, Silesia, Poland. From Laurium, Greece, in slag. Found in the Elura Zn–Pb–Ag deposit, 43 km northeast of Cobar, New South Wales, Australia.

Name: For the occurrence in the Mendip [Myne-deepes, Old English] Hills, England.

Type Material: Swedish Academy of Sciences, Stockholm, Sweden.

References: (1) Palache, C., H. Berman, and C. Frondel (1951) Dana's system of mineralogy, (7th edition), v. II, 56–58. (2) Gabrielson, O. (1958) The crystal structure of mendipite, $Pb_3O_2Cl_2$. Arkiv Mineral. Geol., 2(16), 299–304. (3) Vincent, H. and G. Perrault (1971) Structure cristalline de l'oxychlorure de plomb synthétique $Pb_3O_2Cl_2$. Bull. Soc. fr. Minéral., 94, 323–331 (in French with English abs.). (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. (5) Welin, E. (1968) X-ray powder data for minerals from Långban and the related mineral deposits of Central Sweden. Arkiv Mineral. Geol., 4(30), 499–541.