

Crystal Data: Triclinic, pseudo-orthorhombic. *Point Group:* $\bar{1}$ or 1. Steep pseudohexagonal dipyrramids bounded by pseudohexagonal prisms, to 6 mm, striated strongly \perp pseudohexagonal [0001] and commonly exhibiting a medial re-entrant \parallel pseudohexagonal [0001]. *Twinning:* Common on pseudo-orthorhombic $\{1\bar{1}0\}$ and $\{310\}$, forming pseudohexagonal groups.

Physical Properties: *Cleavage:* On pseudo-orthorhombic $\{110\}$, imperfect. *Fracture:* Uneven. Hardness = 4–4.5 $D(\text{meas.}) = 3.707(4)$ $D(\text{calc.}) = 3.69$ Fluoresces yellow under SW and LW UV.

Optical Properties: Transparent to translucent. *Color:* Colorless to snow-white; also pale gray, pale cream, pink to pale rose-red, which may fade on exposure to light; colorless in transmitted light, showing six or twelve domains. *Streak:* White. *Luster:* Vitreous. *Optical Class:* Biaxial (-). *Orientation:* $X = c$; $Y = a$; $Z = b$. *Dispersion:* $r > v$, weak. $\alpha = 1.526$ $\beta = 1.671$ $\gamma = 1.672$ $2V(\text{meas.}) = 6^\circ$

Cell Data: *Space Group:* $C\bar{1}$ or $C1$. $a = 30.14$ $b = 17.40$ $c = 6.12$ $\alpha = 90^\circ$ $\beta = 90^\circ$ $\gamma = 90^\circ$ $Z = 24$

X-ray Powder Pattern: Alston, England; essentially identical to paralstonite. 3.55 (100), 2.507 (35), 2.050 (23), 1.941 (19), 1.846 (15), 2.835 (10), 1.589 (8)

Chemistry:	(1)	(2)
CO ₂	29.41	29.59
CaO	17.60	18.85
SrO	4.25	
BaO	48.54	51.56
Total	99.80	100.00

(1) Alston, England. (2) CaBa(CO₃)₂.

Polymorphism & Series: Trimorphous with barytocalcite and paralstonite.

Occurrence: Typically in low-temperature hydrothermal Pb–Zn deposits; rare in carbonatites.

Association: Calcite, barite, ankerite, siderite, benstonite, galena, sphalerite, pyrite, quartz.

Distribution: In England, from the Bromley Hill Pb–Zn mine, near Alston, Cumbria, in the Fallowfield lead mine, near Hexham, Northumberland, and at New Brancepeth, Durham. From Mine BK-3, Llantrisant, 10 km north of Cardiff, Wales. From the Vuoriyarvi carbonatite complex, Kola Peninsula, Russia. Found in the Tajno borehole, 70 km north of Bialystok, Poland. From the Garaoulère Zn–Pb orebody, Pierrefitte, Pyrénées, France. In the USA, at the Minerva No. 1 mine, Cave-in-Rock, Hardin Co., Illinois. From the Wittingham Coal Measures, Hunter Valley, New South Wales, Australia.

Name: For the original locality near Alston, England.

Type Material: Mining Academy, Freiberg, Germany, 15818.

References: (1) Palache, C., H. Berman, and C. Frondel (1951) Dana's system of mineralogy, (7th edition), v. II, 218–219. (2) Sartori, F. (1975) New data on alstonite. *Lithos*, 8, 199–207. (3) Alabaster, C. (1990) Alstonite and barytocalcite from Llantrisant, South Wales and barytocalcite from Holwell, Mendip Hill, England. *J. Russell Soc.*, 3(1), 1–6. (4) Young, B., L. Greenbank, and P.H.A. Nancarrow (1990) Alstonite *in situ* at Brownley Hill mine, Nenthead, Cumbria. *Mineral. Mag.*, 54, 515–516.