Epistilbite $CaAl_2Si_6O_{16}\cdot 5H_2O$

Crystal Data: Monoclinic. *Point Group:* $2/m$, m, or 2. Crystals prismatic, to 3 cm; in spherulitic or sheaflike aggregates. *Twinning:* Always on {100}, pseudo-orthorhombic; on {110} to form penetration crosses.

Physical Properties: *Cleavage:* {010}, perfect. *Fracture:* Uneven. *Tenacity:* Brittle. Hardness = 4 D(meas.) = 2.22–2.28 D(calc.) = 2.266 Piezoelectric.

Optical Properties: Transparent to translucent. *Color:* Colorless, white, pinkish, yellowish; colorless in thin section. *Luster:* Vitreous.
Optical Class: Biaxial (–). *Orientation:* $Y = b$; $Z \wedge c \simeq -10°$; $X \wedge a = 11°$.
Dispersion: $r < v$. $\alpha = 1.485$–1.505 $\beta = 1.497$–1.515 $\gamma = 1.497$–1.519 2V(meas.) = $\sim 44°$

Cell Data: *Space Group:* $C2/m$, Cm, or $C2$. $a = 9.08(1)$ $b = 17.74(1)$ $c = 10.25(1)$ $\beta = 124.54(5)°$ Z = 3

X-ray Powder Pattern: Locality unknown. (ICDD 19-213).
3.45 (100), 8.89 (90), 3.21 (90), 3.87 (70), 4.91 (65), 6.89 (60), 2.917 (60)

Chemistry:

	(1)
SiO_2	57.79
Al_2O_3	17.62
Fe_2O_3	0.02
MgO	0.02
CaO	8.21
Na_2O	1.39
K_2O	0.06
H_2O^+	12.21
H_2O^-	3.10
Total	100.42

(1) Fossarfell, Iceland; corresponds to $(Ca_{0.90}Na_{0.27}K_{0.01})_{\Sigma=1.18}Al_{2.12}Si_{5.89}O_{16}\cdot 5.20H_2O$.

Polymorphism & Series: Dimorphous with goosecreekite.

Mineral Group: Zeolite group.

Occurrence: In cavities in basalts and gneisses.

Association: Zeolites, quartz.

Distribution: While relatively rare, many localities are known. Exceptional crystals from around the Berufjord, Iceland. Found near San Piero in Campo, Elba, Italy. At Giebelsbach, near Fiesch, Valais, Switzerland. In Japan, at Kuroiwa, Niigata Prefecture; Yugawara, Kanagawa Prefecture; and elsewhere. Large crystals from Nasik and Khandivali quarry, Bombay, Maharashtra, India. In the USA, large crystals from Kosmos, near Morton, Lewis Co., Washington; at Goble, Columbia Co., Oregon.

Name: From the Greek, *epi* for *near*, and the quite similar mineral *stilbite*.

References: (1) Dana, E.S. (1892) Dana's system of mineralogy, (6th edition), 577–578. (2) Deer, W.A., R.A. Howie, and J. Zussman (1963) Rock-forming minerals, v. 4, framework silicates, 377–385. (3) Perrotta, A.J. (1967) The crystal structure of epistilbite. Mineral. Mag., 36, 480–490. (4) Slaughter, M. and W.T. Kane (1969) The crystal structure of a disordered epistilbite. Zeits. Krist., 130, 68–87. (5) Galli, E. and R. Rinaldi (1974) The crystal chemistry of epistilbites. Amer. Mineral., 59, 1055–1061. (6) Akizuki, M. and H. Nishido (1988) Epistilbite: symmetry and twinning. Amer. Mineral., 73, 1434–1439.