

Epistilbite

CaAl₂Si₆O₁₆•5H₂O

©2001 Mineral Data Publishing, version 1.2

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 $D(\text{meas.}) = 2.22\text{--}2.28$ $D(\text{calc.}) = 2.266$ Piezoelectric.

Optical Properties: Transparent to translucent. *Color:* Colorless, white, pinkish, yellowish; colorless in thin section. *Luster:* Vitreous.

Optical Class: Biaxial (–). *Orientation:* $Y = b$; $Z \wedge c \simeq -10^\circ$; $X \wedge a = 11^\circ$.

Dispersion: $r < v$. $\alpha = 1.485\text{--}1.505$ $\beta = 1.497\text{--}1.515$ $\gamma = 1.497\text{--}1.519$ $2V(\text{meas.}) = \sim 44^\circ$

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

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 ₂ O ₃	17.62
Fe ₂ O ₃	0.02
MgO	0.02
CaO	8.21
Na ₂ O	1.39
K ₂ O	0.06
H ₂ O ⁺	12.21
H ₂ O [–]	3.10
Total	100.42

(1) Fossarfell, Iceland; corresponds to (Ca_{0.90}Na_{0.27}K_{0.01})_{Σ=1.18}Al_{2.12}Si_{5.89}O₁₆•5.20H₂O.

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.

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise without the prior written permission of Mineral Data Publishing.