

Goosecreekite

$\text{CaAl}_2\text{Si}_6\text{O}_{16} \cdot 5\text{H}_2\text{O}$

©2001 Mineral Data Publishing, version 1.2

Crystal Data: Monoclinic. *Point Group:* 2. As equant euhedral crystals, highly curved, to 4 cm; in polycrystalline aggregates.

Physical Properties: *Cleavage:* {010}, perfect. Hardness = ~ 4.5 D(meas.) = 2.21 D(calc.) = 2.23

Optical Properties: Transparent. *Color:* Colorless to white. *Streak:* White.

Luster: Vitreous to pearly on crystal faces.

Optical Class: Biaxial (-). *Orientation:* $Y = b$; $Z \wedge c = 46^\circ$. $\alpha = 1.495(2)$ $\beta = 1.498(2)$ $\gamma = 1.502(2)$ $2V(\text{meas.}) = 82(5)^\circ$

Cell Data: *Space Group:* $P2_1$. $a = 7.401(3)$ $b = 17.439(36)$ $c = 7.293(3)$ $\beta = 105.44(4)^\circ$ $Z = 2$

X-ray Powder Pattern: Goose Creek quarry, Virginia, USA.

4.53 (100), 7.19 (50), 5.59 (50), 4.91 (50), 3.350 (40), 3.526 (25), 3.277 (25)

Chemistry:

	(1)
SiO ₂	59.3
Al ₂ O ₃	17.2
CaO	9.3
H ₂ O	15.0
Total	100.8

(1) Goose Creek quarry, Virginia, USA; by electron microprobe, H₂O by DTA-TGA analysis; corresponding to $\text{Ca}_{1.01}\text{Al}_{2.05}\text{Si}_6\text{O}_{16.09} \cdot 5.06\text{H}_2\text{O}$.

Polymorphism & Series: Dimorphous with epistilbite.

Mineral Group: Zeolite group.

Occurrence: A late-stage mineral in vugs and fractures in a Triassic diabase (Goose Creek quarry, Virginia, USA); in cavities in basalt (Nasik, India).

Association: Prehnite, actinolite, chlorite, epidote, babingtonite, quartz, titanite, stilbite, albite, apophyllite (Goose Creek quarry, Virginia, USA); quartz (Nasik, India).

Distribution: In the Goose Creek quarry, Leesburg, Loudoun Co., Virginia, USA. Exceptional crystals from the Pandulena quarry, Nasik, Maharashtra, India. In the Oberbaumühle quarry, Windischeschenbach, Bavaria, Germany.

Name: For the initially described occurrence in the Goose Creek quarry, Virginia, USA.

Type Material: American Museum of Natural History, New York City, New York; Harvard University, Cambridge, Massachusetts, 117087; National Museum of Natural History, Washington, D.C., USA, 145880; Canadian Geological Survey, Ottawa; Royal Ontario Museum, Toronto, Canada; The Natural History Museum, London, England, 1980,579.

References: (1) Dunn, P.J., D.R. Peacor, N. Newberry, and R.A. Ramik (1980) Goosecreekite, a new calcium aluminum silicate hydrate, possibly related to brewsterite and epistilbite. Can. Mineral., 18, 323–327. (2) (1981) Amer. Mineral., 66, 1275 (abs. ref. 1). (3) Rouse, R.C. and D.R. Peacor (1986) Crystal structure of the zeolite mineral goosecreekite $\text{CaAl}_2\text{Si}_6\text{O}_{16} \cdot 5\text{H}_2\text{O}$. Amer. Mineral., 71, 1494–1501.