

Crystal Data: Monoclinic. *Point Group:* 2/*m*. As pseudo-hexagonal crystals, tabular on {001}, with {101}, {110}, to 3 cm. Also as lamellar or acicular aggregates, stalactitic, or mammillary; in enamellike coatings, compact earthy. *Twinning:* Common on {001}, less common on {100} and {110}; also very common about [130] with {001} of the individuals in parallel.

Physical Properties: *Cleavage:* {001}, perfect. *Tenacity:* Tough. Hardness = 2.5–3.5 D(meas.) = 2.40 D(calc.) = [2.42] Strong argillaceous odor when breathed upon.

Optical Properties: Transparent. *Color:* Colorless, white, gray, pale green, pale red; colorless to brownish in thin section. *Luster:* Vitreous, pearly on cleavage surfaces, dull in aggregates. *Optical Class:* Biaxial (+). *Orientation:* $X = b$; $Y \wedge a = 25.5^\circ$; $Z \wedge c \simeq -21^\circ$. *Dispersion:* $r > v$, strong; sometimes $v > r$. $\alpha = 1.56\text{--}1.58$ $\beta = 1.56\text{--}1.58$ $\gamma = 1.58\text{--}1.60$ $2V(\text{meas.}) = 0^\circ\text{--}40^\circ$

Cell Data: *Space Group:* $P2_1/n$. $a = 8.684(1)$ $b = 5.078(1)$ $c = 9.736(2)$ $\beta = 94.54(1)^\circ$ $Z = 8$

X-ray Powder Pattern: Langesundsfjord, Norway. (ICDD 29-41). 4.853 (100), 4.380 (36), 4.328 (18), 2.389 (16), 2.456 (12), 2.052 (12), 1.8074 (10)

Chemistry:	(1)	(2)	(1)	(2)
SiO ₂	1.03		MgO	trace
Al ₂ O ₃	64.92	65.36	CaO	0.17
Fe ₂ O ₃	trace		H ₂ O	34.12
			<hr/>	<hr/>
			Total	100.24
				100.00

(1) Klein-Tresny, Moravia. (2) Al(OH)₃.

Polymorphism & Series: Polymorphous with bayerite, doyleite, and nordstrandite.

Occurrence: A typical product of weathering of aluminous minerals, common in lateritic soils and bauxite. Also formed in low-temperature hydrothermal and metamorphic environments, replacing aluminous minerals.

Association: Diaspore, böhmite, corundum, kaolinite, goethite.

Distribution: Widespread, particularly in bauxite deposits. Some prominent localities are: in the USA, at Richmond, Berkshire Co., Massachusetts; Unionville, Chester Co., Pennsylvania; large crystals from the Champion mine, White Mountains, Mono Co., California; from Toombsboro, Wilkinson Co., Georgia; at Tar Branch, near Winston-Salem, Forsyth Co., North Carolina. Around Saramenha, Ouro Preto, Minas Gerais, Brazil. From Paramaribo, Surinam. On Eikaholmen and Lille-Arø Islands, Langesundsfjord, and at Tredalen, near Larvik, Norway. Large crystals from Schischinskaya, near Zlatoust, Ural Mountains, Russia. On the Vogelsberg, Hesse, and on the Katzenbuckel, Baden-Württemberg, Germany. In India, many localities, as at Kodikanal, Madras, and Talevadi, near Bombay, Maharashtra. From Dundas, Tasmania, Australia.

Name: Honors Colonel George Gibbs (1776–1833), a prominent mineral collector of New Haven, Connecticut, USA.

Type Material: n.d.

References: (1) Palache, C., H. Berman, and C. Frondel (1944) Dana's system of mineralogy, (7th edition), v. I, 663–667. (2) Deer, W.A., R.A. Howie, and J. Zussman (1962) Rock-forming minerals, v. 5, non-silicates, 93–101. (3) Saalfeld, H. and M. Wedde (1974) Refinement of the crystal structure of gibbsite, Al(OH)₃. Zeits. Krist., 139, 129–135. (4) Catti, M., G. Ferraris, and S. Hull (1991) Powder neutron-diffraction study of brucite and gibbsite and pressure dependence of the structure of Mg(OD)₂. Zeits. Krist., supplement 4, 316. (5) Phillips, W.R. and D.T. Griffen (1981) Optical mineralogy, 42–43.

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