

# Tachyhydrite

# CaMg<sub>2</sub>Cl<sub>6</sub>•12H<sub>2</sub>O

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**Crystal Data:** Hexagonal. *Point Group:*  $\bar{3}$ . In rounded masses.

**Physical Properties:** *Cleavage:* {10 $\bar{1}$ 1}, perfect. Hardness = 2 D(meas.) = 1.667  
D(calc.) = 1.673 Very deliquescent; tastes sharp and bitter.

**Optical Properties:** Transparent. *Color:* Wax-yellow to honey-yellow, may be colorless; colorless to pale yellow in transmitted light. *Luster:* Vitreous.  
*Optical Class:* Uniaxial (-).  $\omega = 1.520$   $\epsilon = 1.512$

**Cell Data:** *Space Group:*  $R\bar{3}$  (synthetic).  $a = 10.136(1)$   $c = 17.318(2)$   $Z = 3$

**X-ray Powder Pattern:** Synthetic.

2.884 (100), 5.77 (35), 2.609 (25), 1.443 (25), 1.983 (20), 5.07 (12), 3.097 (10)

**Chemistry:**

|                  | (1)    | (2)    | (3)    |
|------------------|--------|--------|--------|
| Mg               | 9.97   | 9.71   | 9.39   |
| Ca               | 7.16   | 7.72   | 7.74   |
| Cl               | 40.85  | 40.89  | 41.10  |
| H <sub>2</sub> O | 42.50  | 42.20  | 41.77  |
| Total            | 100.48 | 100.52 | 100.00 |

(1) Stassfurt, Germany; average of two analyses. (2) Krügershall, Germany.

(3) CaMg<sub>2</sub>Cl<sub>6</sub>•12H<sub>2</sub>O.

**Occurrence:** A rare mineral in bedded salt deposits of oceanic origin.

**Association:** Kainite, carnallite, sylvite, halite, kieserite, bischofite, anhydrite.

**Distribution:** In Germany, from Stassfurt, 34 km south of Magdeburg, Saxony-Anhalt, at Krügershall-Teutschenthal, near Halle, and from Vienenburg, Lower Saxony. In the Santa Rosa de Lima and Taquari Basins, Sergipe, Brazil, with reserves estimated at 4 billion t. On the Khorat Plateau, Thailand, also massive reserves.

**Name:** From the Greek for *quick* and *water*, remarking on its deliquescence.

**References:** (1) Palache, C., H. Berman, and C. Frondel (1951) Dana's system of mineralogy, (7th edition), v. II, 95–96. (2) Erd, R.C., M.A. Clynne, J.R. Clark, and R.W. Potter II (1979) Crystal data for tachyhydrite, CaMg<sub>2</sub>Cl<sub>6</sub>•12H<sub>2</sub>O. J. Applied Crystallography, 12, 481–482. (3) Clark, J.R., H.T. Evans, Jr., and R.C. Erd (1980) Tachyhydrite, dimagnesium calcium chloride 12-hydrate. Acta Cryst., 36, 2736–2739.