## Tachyhydrite $CaMg_2Cl_6 \cdot 12H_2O$



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

**Physical Properties:** *Cleavage:* $\{10\overline{1}1\}$, 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:* $R\overline{3}$ (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 |
| $H_2O$ | 42.50 | 42.20 | 41.77 |
| Total | 100.48 | 100.52 | 100.00 |

(1) Stassfurt, Germany; average of two analyses. (2) Krügershall, Germany.
(3) $CaMg_2Cl_6 \cdot 12H_2O$.

**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, $CaMg_2Cl_6 \cdot 12H_2O$. 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.