

**Crystal Data:** Tetragonal. *Point Group:*  $4/m\ 2/m\ 2/m$ . Crystals are dipyramidal {023}, also prismatic, elongated along [001], modified by {001}, {010}, {113}, to 7.5 cm; as nodules and coatings, fine-grained massive.

**Physical Properties:** *Cleavage:* {023}, indistinct. *Fracture:* Conchoidal. *Tenacity:* Slightly sectile. Hardness = 2–2.5 D(meas.) = 1.64 D(calc.) = 1.65 May fluoresce pale yellow to blue under SW and LW UV.

**Optical Properties:** Transparent to translucent. *Color:* Honey-yellow, deep red, pale shades of red, brown, gray, white; colorless to pale yellow in transmitted light. *Streak:* White. *Luster:* Resinous to vitreous.

*Optical Class:* Uniaxial (–), may be anomalously biaxial. *Pleochroism:* Weak; *O* = yellowish brown; *E* = yellow. *Orientation:*  $X = c$ .  $\omega = 1.539$   $\epsilon = 1.511$   $2V(\text{meas.}) = \text{Small}$ .

**Cell Data:** *Space Group:*  $I4_1/acd$ .  $a = 15.53(1)$   $c = 23.19(1)$   $Z = 8$

**X-ray Powder Pattern:** Artern, Germany.

7.99 (100), 4.23 (70), 5.80 (55), 5.16 (40), 3.46 (30), 3.39 (30), 2.985 (25)

**Chemistry:**

	(1)	(2)
C <sub>4</sub> O <sub>3</sub>	42.6	42.48
Al <sub>2</sub> O <sub>3</sub>	15.1	15.03
H <sub>2</sub> O	[42.3]	42.49
Total	[100.0]	100.00

(1) Artern, Germany; recalculated from a partial analysis C 8.01%, Al 21.3%, corresponding to 15.7H<sub>2</sub>O by difference. (2) Al<sub>2</sub>[C<sub>6</sub>(COO)<sub>6</sub>]•16H<sub>2</sub>O.

**Occurrence:** An uncommon secondary mineral in brown coal and lignite deposits, aluminum typically derived from clay.

**Association:** n.d.

**Distribution:** In Germany, from Artern, Thuringia, and near Bitterfeld, Saxony-Anhalt. At Lušice, near Bílina, Valchov, and Boskovice, Czech Republic. Large crystals from the Csordakút mine, Tatabánya, Hungary. From Malevka, Bogoroditsk district, southeast of Tula, Russia.

**Name:** From the Greek for *honey*, in allusion to the color.

**References:** (1) Palache, C., H. Berman, and C. Frondel (1951) Dana's system of mineralogy, (7th edition), v. II, 1104–1105. (2) Giacobozzo, C., S. Menchetti, and F. Scordari (1973) The crystal structure of mellite. *Acta Cryst.*, 29, 26–31. (3) Jobbins, E.A., G.A. Sergeant, and B.R. Young (1965) X-ray and other data for mellite. *Mineral. Mag.*, 35, 542–544.