

**Crystal Data:** Orthorhombic. *Point Group:*  $2/m\ 2/m\ 2/m$ . As acicular to bladed crystals, with {100} and {110} dominant, typically in radial aggregates to 200-300  $\mu\text{m}$ .

**Physical Properties:** *Cleavage:* None. *Fracture:* n.d. *Tenacity:* Very brittle. *Hardness* = 2-2.5  
D(meas.) = 2.486(20) D(calc.) = 2.514 Fluoresces pale yellow under SW and LW UV.  
Dissolves quickly in dilute HCl with effervescence.

**Optical Properties:** Transparent to translucent. *Color:* White to colorless. *Streak:* White.  
*Luster:* Vitreous, silky in aggregates.  
*Optical Class:* Biaxial (-).  $\alpha = 1.597(3)$   $\beta = \text{n.d.}$   $\gamma = 1.603(6)$   $2V(\text{meas.}) = \text{n.d.}$   
 $2V(\text{calc.}) = \text{n.d.}$  *Orientation:* n.d. *Dispersion:* Weak,  $r < v$ .

**Cell Data:** *Space Group:*  $Pnma$ .  $a = 15.564(6)$   $b = 5.591(4)$   $c = 9.112(4)$   $Z = 4$

**X-ray Powder Pattern:** Mány, Tatabánya coalfield, Hungary.  
5.9154 (100), 7.8607 (87), 4.3718 (86), 7.7830 (62), 2.9570 (48), 2.9455 (44), 1.9021 (26)

### Chemistry:

(1) Mány, Tatabánya coalfield, northeastern Transdanubian Mountains, Hungary; analyses by prompt gamma activation analysis (PGAA), energy-dispersive X-ray spectrometry (EDS),  $\text{H}_2\text{O}$  by thermogravimetry,  $\text{CO}_2$  by mass spectrometry correspond to  $\text{Ca}_{0.9}\text{Al}_2(\text{CO}_3)_{1.9}(\text{OH})_4 \cdot 1.3\text{H}_2\text{O}$ .

**Mineral Group:** Dundasite group.

**Occurrence:** A secondary mineral formed by the contemporaneous weathering of böhmite, pyrite and calcite in brown coal beds.

**Association:** Intimately intergrown with gibbsite, commonly associated with calcite and gypsum; quartz, pyrite, böhmite, dolomite, calcite, gibbsite, kaolinite, illite, alumohydrocalcite, gypsum, felsöbányaite.

**Distribution:** From the I/A shaft of the coal mine in Mány, Tatabánya coalfield, northeastern Transdanubian Mountains, Hungary.

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**Type Material:** Hungarian Natural History Museum, Budapest (568/2004), Herman Ottó Museum, Miskolc (2004-72) and Minerals of the Carpathian Basin (Lajos Kövecses-Varga collection), Siófok, Hungary (12004/1-3).

**References:** (1) Sajó, I.E. and S. Szakáll (2007) Kochsándorite, a new Ca-Al carbonate mineral species from the Mány coal deposit, Hungary. *Can. Mineral.*, 45, 479-483. (2) (2007) *Amer. Mineral.*, 92, 1777 (abs. ref. 1).