

**Crystal Data:** Triclinic, pseudohexagonal. *Point Group:*  $\bar{1}$  or 1. Crystals are platy, pseudohexagonal, flattened on {001}, corroded or skeletal, to 0.05 mm; typically granular. *Twinning:* Common, lamellar.

**Physical Properties:** *Cleavage:* {001}, distinct. *Fracture:* Uneven. Hardness = n.d. D(meas.) = 1.83 (synthetic). D(calc.) = 1.82 Soluble in  $\text{H}_2\text{O}$ .

**Optical Properties:** Transparent. *Color:* Colorless, white. *Optical Class:* Biaxial (-). *Orientation:*  $Z = b$ ;  $X \wedge c = 78^\circ$ .  $\alpha = 1.501$   $\beta = 1.516$   $\gamma = 1.525$   $2V(\text{meas.}) = 75^\circ$

**Cell Data:** *Space Group:*  $P\bar{1}$  or  $P1$  (synthetic).  $a = 5.87(1)$   $b = 10.17(3)$   $c = 8.27(1)$   $\alpha = 101.1(4)^\circ$   $\beta = 111.1(1)^\circ$   $\gamma = 89.9(2)^\circ$   $Z = 2$

**X-ray Powder Pattern:** Synthetic.  
4.95 (100), 4.98 (85), 3.77 (80), 3.39 (75), 2.932 (50), 3.36 (45), 4.65 (35)

Chemistry:	(1)	(2)
$\text{SO}_3$	63.92	64.76
$(\text{NH}_4)_2\text{O}$	20.19	20.67
$\text{H}_2\text{O}$	[15.89]	14.57
Total	[100.00]	100.00

(1) Kladno, Czech Republic. (2)  $\text{H}(\text{NH}_4)_3(\text{SO}_4)_2$ .

**Occurrence:** A rare secondary mineral, formed from burning coal (Czech Republic); deposited from hot springs (The Geysers, California, USA).

**Association:** Sulfur (Letovice, Czech Republic); mascagnite, boussingaultite (The Geysers, California, USA).

**Distribution:** In the Czech Republic, from Písěčná, near Letovice; at Libušín, near Kladno; and from Radvanice. At Ormosbánya, Hungary. Found at The Geysers, Sonoma Co., California, USA.

**Name:** For Letovice, Czech Republic, the locality first noted for the mineral.

**Type Material:** Moravian Museum, Brno, Czech Republic, A6110.

**References:** (1) Palache, C., H. Berman, and C. Frondel (1951) Dana's system of mineralogy, (7th edition), v. II, 397. (2) Davis, B.L. and L.R. Johnson (1984) The true unit cell of ammonium hydrogen sulfate,  $(\text{NH}_4)_3\text{H}(\text{SO}_4)_2$ . J. Appl. Cryst., 17, 331-333.