

Crystal Data: Triclinic. *Point Group:* $\bar{1}$. As acicular crystals, to 1.5 mm, elongated and striated along [001], with {100}, {010}, small {hk0}, $\{\bar{1}11\}$, usually in fan-shaped aggregates.

Physical Properties: *Cleavage:* On {100}, perfect. Hardness = n.d. $D(\text{meas.}) = 2.28(2)$
 $D(\text{calc.}) = 2.275$ Slowly topotactically dehydrates to rauenthalite in dry air.

Optical Properties: Semitransparent. *Color:* Colorless. *Luster:* Vitreous.
Optical Class: Biaxial (+). *Orientation:* $Y \wedge c = 13^\circ$; $\text{OAP} \sim \perp \{001\}$. $\alpha = 1.532(2)$
 $\beta = 1.542(2)$ $\gamma = 1.556(2)$ $2V(\text{meas.}) = \sim 80^\circ$

Cell Data: *Space Group:* $P\bar{1}$. $a = 12.563(7)$ $b = 12.181(6)$ $c = 6.205(4)$ $\alpha = 88.94(3)^\circ$
 $\beta = 91.67(3)^\circ$ $\gamma = 113.44(4)^\circ$ $Z = 2$

X-ray Powder Pattern: Sainte-Marie-aux-Mines, France; close to rauenthalite.
 11.49 (10), 6.23 (9), 3.276 (9), 5.42 (8), 2.443(7), 2.963 (6), 2.810 (6)

Chemistry:	(1)	(2)
As ₂ O ₅	39.0	38.54
CaO	28.2	28.22
H ₂ O	31.5	33.24
Total	98.7	100.00

(1) Sainte-Marie-aux-Mines, France; by AA, H₂O by the Penfield method.

(2) $\text{Ca}_3(\text{AsO}_4)_2 \cdot 11\text{H}_2\text{O}$.

Occurrence: A very rare post-mine low-temperature reaction product of carbonate gangue with arsenical solutions derived from arsenic (Sainte-Marie-aux-Mines, France).

Association: Picropharmacolite, pharmacolite, sainfeldite, rauenthalite, ferrarisite, löllingite, calcite, aragonite (Sainte-Marie-aux-Mines, France).

Distribution: From the Gabe-Gottes mine, Rauenthal, near Sainte-Marie-aux-Mines, Haut-Rhin, France. In the Svatá Anna uranium deposit, Planá, near Mariánské Lázně (Marienbad), Czech Republic. At Schlema-Hartenstein, Saxony, and from the Bauhaus district, Richelsdorf Mountains, Hesse. In the Muckross mine, Co. Kerry, Ireland.

Name: From *Phaunoux*, the French name for the Rauenthal Valley, France, within which the mineral was first found.

Type Material: University of Torino, Torino, Italy; University of Strasbourg, Strasbourg; Natural History Museum, Paris; National School of Mines, Paris, France; National Museum of Natural History, Washington, D.C., USA, 142221.

References: (1) Bari, H., M. Catti, G. Ferraris, G. Ivaldi, and F. Permingeat (1982) Phaunouxite, $\text{Ca}_3(\text{AsO}_4)_2 \cdot 11\text{H}_2\text{O}$, a new mineral strictly associated with rauenthalite. *Bull. Minéral.*, 105, 327–332. (2) (1983) *Amer. Mineral.*, 68, 850 (abs. ref. 1). (3) Catti, M. and G. Ivaldi (1983) On the topotactic dehydration $\text{Ca}_3(\text{AsO}_4)_2 \cdot 11\text{H}_2\text{O}$ (phaunouxite) \rightarrow $\text{Ca}_3(\text{AsO}_4)_2 \cdot 10\text{H}_2\text{O}$ (rauenthalite) and structures of both minerals. *Acta Cryst.*, 39, 4–10.