

Sainfeldite



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Crystal Data: Monoclinic. *Point Group:* $2/m$. Crystals are elongate along [001], flattened on {100}, showing {100}, {010}, {110}, {011}, {001}; in radiating groups and flattened rosettes, to 3 mm.

Physical Properties: Hardness = n.d. $D(\text{meas.}) = 3.04(2)$ $D(\text{calc.}) = 3.00(4)$

Optical Properties: Transparent. *Color:* Colorless to light pink.

Optical Class: Biaxial (-). *Orientation:* $X = b$; $Y \wedge c = \sim 20^\circ$. $\alpha = 1.600(2)$ $\beta = 1.610(2)$
 $\gamma = 1.616(2)$ $2V(\text{meas.}) = 80(2)^\circ$

Cell Data: *Space Group:* $C2/c$ (synthetic). $a = 18.781(7)$ $b = 9.820(4)$ $c = 10.191(4)$
 $\beta = 97^\circ 1(3)'$ $Z = 4$

X-ray Powder Pattern: Sainte-Marie-aux-Mines, France.

3.37 (FFF), 3.18 (FF), 8.7 (F), 4.64 (F), 3.06 (F), 4.86 (mF), 4.45 (mF)

Chemistry:

	(1)	(2)
As ₂ O ₅	54.7	55.37
CaO	33.4	33.78
H ₂ O	11.5	10.85
Total	99.6	100.00

(1) Sainte-Marie-aux-Mines, France. (2) $\text{Ca}_5(\text{AsO}_4)_2(\text{AsO}_3\text{OH})_2 \cdot 4\text{H}_2\text{O}$.

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

Association: Picroparmacolite, pharmacolite, ferrarisite, rauenthalite, fluckite, phaunouxite, calcite, löllingite (Sainte-Marie-aux-Mines, France); irhtemite (Bou Azzer, Morocco).

Distribution: In France, from the Gabe Gottes and Glückauf mines, Rauenthal, near Sainte-Marie-aux-Mines, Haut-Rhin; in the Salsigne mine, 15 km north of Carcassone, Aude; and at Duranus, Alpes Maritimes. From Jáchymov (Joachimsthal), Czech Republic. In the Anton mine, Heubachtal, near Schiltach, and the Sophia mine, near Wittichen, Black Forest, Germany. At Bou Azzer, Morocco.

Name: Honoring Paul Sainfeld (1916–), Honorary Curator, National School of Mines, Paris, France, who collected the type material.

Type Material: National School of Mines, Paris, France.

References: (1) Pierrot, R. (1964) Contribution à la minéralogie des arséniate calciques et calcomagnésiens naturels. Bull. Minéral., 87, 169–211 (in French). (2) (1965) Amer. Mineral., 50, 806 (abs. ref. 1). (3) Ferraris, G. and F. Abbona (1972) The crystal structure of $\text{Ca}_5(\text{HAsO}_4)_2(\text{AsO}_4)_2 \cdot 4\text{H}_2\text{O}$ (sainfeldite). Bull. Soc. fr. Minéral., 95, 33–41.