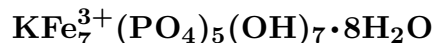


# Meurigite



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**Crystal Data:** Monoclinic. *Point Group:*  $2/m$ , 2, or  $m$ . As tabular {001} to fibrous crystals elongated along [010], typically in hemispheres and globular aggregates of radiating crystals, to 2 mm; as fibrous rosettes or drusy coatings.

**Physical Properties:** *Cleavage:* Perfect on {001}. *Hardness* =  $\sim 3$  *D*(meas.) = 2.96 *D*(calc.) = 2.86

**Optical Properties:** Translucent. *Color:* Yellowish brown, cream to white, canary-yellow, pale yellow to pale orange. *Streak:* Very pale yellow to cream. *Luster:* Vitreous, waxy to silky. *Optical Class:* Biaxial (+).  $\alpha = 1.780(5)$   $\beta = 1.785(5)$   $\gamma = 1.800(5)$   $2V$ (meas.) = n.d.  $2V$ (calc.) =  $60^\circ$

**Cell Data:** *Space Group:*  $C2$ ,  $Cm$ , or  $C2/m$ .  $a = 29.52(4)$   $b = 5.249(6)$   $c = 18.26(1)$   $\beta = 109.27(7)^\circ$   $Z = 4$

**X-ray Powder Pattern:** Santa Rita mine, New Mexico, USA.  
3.216 (100), 4.84 (90), 3.116 (80), 4.32 (70), 9.41 (60), 3.470 (60), 4.25 (50)

## Chemistry:

	(1)	(2)
P <sub>2</sub> O <sub>5</sub>	30.71	30.38
As <sub>2</sub> O <sub>5</sub>	0.03	
CO <sub>2</sub>	0.73	
Al <sub>2</sub> O <sub>3</sub>	0.70	
Fe <sub>2</sub> O <sub>3</sub>	47.40	47.85
CuO	0.16	
Na <sub>2</sub> O	0.07	
K <sub>2</sub> O	3.37	4.03
H <sub>2</sub> O	16.2	17.74
Total	99.37	100.00

(1) Santa Rita mine, New Mexico, USA; by electron microprobe, average of five analyses, total Fe as Fe<sub>2</sub>O<sub>3</sub>, H<sub>2</sub>O and CO<sub>2</sub> by CHN analyzer; corresponding to  $(\text{K}_{0.85}\text{Na}_{0.03})_{\Sigma=0.88}(\text{Fe}_{7.01}\text{Al}_{0.16}\text{Cu}_{0.02})_{\Sigma=7.19}(\text{PO}_4)_{5.11}(\text{CO}_3)_{0.20}(\text{OH})_{6.7} \cdot 7.25\text{H}_2\text{O}$ . (2)  $\text{KFe}_7(\text{PO}_4)_5(\text{OH})_7 \cdot 8\text{H}_2\text{O}$ .

**Occurrence:** A late-stage mineral, rare at all localities. Along fault gouge in the oxidized zone of a copper sulfide deposit (Santa Rita mine, New Mexico, USA); by alteration of triphylite in granite pegmatite (Hagendorf, Germany); in the oxidized zone of a low-temperature sediment-hosted Carlin-type hydrothermal gold deposit (Gold Quarry mine, Nevada, USA).

**Association:** Dufrenite, beraunite, leucophosphite, hematite (Santa Rita mine, New Mexico, USA); nontronite, rockbridgeite, apatite, vivianite, strengite, beraunite, robertsite-mitridatite, cyrilovite, laueite, stewartite (Hagendorf, Germany); fluellite, kingite, tincite, leucophosphite, strengite/variscite, hewettite, tyuyamunite, torbernite (Gold Quarry mine, Nevada, USA); rockbridgeite, cyrilovite, leucophosphite (Wycheproof, Australia).

**Distribution:** In the USA, from the Santa Rita copper mine, Silver City, Grant Co., New Mexico; in the Gold Quarry mine, near Carlin, Maggie Creek district, and at the Goldstrike mine, Lynn district, Eureka Co., and from the Silver Coin mine, near Valmy, Iron Point district, Humboldt Co., Nevada. At Hagendorf and Waidhaus, Bavaria, and from Rengersdorf, Saxony, Germany. At Wycheproof, Victoria, Australia.

**Name:** Honors Professor John Meurig Thomas (1932– ), crystal chemist, University of Cambridge, Cambridge, England.

**Type Material:** n.d.

**References:** (1) Birch, W.D., A. Pring, P.G. Self, R.B. Gibbs, E. Keck, M.C. Jensen, and E.E. Foord (1996) Meurigite, a new fibrous iron phosphate resembling kidwellite. *Mineral. Mag.*, 60, 787–793. (2) (1997) *Amer. Mineral.*, 82, 622 (abs. ref. 1).

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