

**Crystal Data:** Monoclinic. *Point Group:* 2/m. As steeply terminated prisms elongated along [100], to 0.5 mm, that display {010}, {001}, {021}, and {1.13.0}, the later are typically curved and may correspond to a combination of several forms. As divergent crystal sprays.

**Physical Properties:** Cleavage: Good on {010}, fair on {100}. *Tenacity:* Brittle.  
*Fracture:* Conchoidal to even. Hardness = ~3 D(meas.) = 2.82(3) D(calc.) = 2.883  
 Nonfluorescent.

**Optical Properties:** Transparent. *Color:* Yellow to orange-yellow. *Streak:* Pale yellow.  
*Luster:* Vitreous.  
*Optical Class:* Biaxial (+).  $\alpha = 1.628(2)$   $\beta = 1.637(2)$   $\gamma = 1.665(2)$   $2V(\text{meas.}) = 60(2)^\circ$   
 $2V(\text{calc.}) = 59.9^\circ$  *Dispersion:* Strong,  $r > v$ . *Orientation:*  $Y = b$ ,  $X \wedge c \sim 25^\circ$  in obtuse  $\beta$ .  
*Pleochroism:*  $X = \text{orange yellow}$ ,  $Y = Z = \text{yellow}$ . *Absorption:*  $X > Y \approx Z$ .

**Cell Data:** *Space Group:* C2/c.  $a = 7.5491(3)$   $b = 16.8652(6)$   $c = 12.1574(4)$   $\beta = 94.064(1)^\circ$   $Z = 4$

**X-ray Powder Pattern:** Monte Arsiccio mine, Stazzema, Apuan Alps, Tuscany, Italy.  
 3.085 (s), 6.9 (m), 3.006 (m), 2.704 (m), 4.91 (mw), 3.612 (mw), 3.427 (mw)

Chemistry:	(1)	(2)
SO <sub>3</sub>	47.82	48.06
TiO <sub>2</sub>	0.05	
Al <sub>2</sub> O <sub>3</sub>	0.40	
Fe <sub>2</sub> O <sub>3</sub>	25.21	23.97
MgO	0.07	
Na <sub>2</sub> O	0.20	
K <sub>2</sub> O	21.35	21.21
H <sub>2</sub> O	[6.85]	6.76
Total	101.95	100.00

(1) Monte Arsiccio mine, Stazzema, Apuan Alps, Tuscany, Italy; average electron microprobe and Raman spectroscopic analyses, H<sub>2</sub>O calculated from structure; corresponding to  $(\text{K}_{2.98}\text{Na}_{0.04})_{\Sigma=3.02}(\text{Fe}^{3+}_{2.08}\text{Al}_{0.05}\text{Mg}_{0.01})_{\Sigma=2.14}\text{S}_{3.93}\text{O}_{16}(\text{OH})(\text{H}_2\text{O})_2$ . (2)  $\text{K}_3\text{Fe}^{3+}_2(\text{SO}_4)_4(\text{OH})(\text{H}_2\text{O})_2$ .

**Mineral Group:** Alcaparrosite group.

**Occurrence:** Secondary in an oxidized baryte-pyrite-magnetite-hematite deposit in K-bearing rocks.

**Association:** Alum-(K), giacovazzoite, gypsum, jarosite, krausite, melanterite, scordariite.

**Distribution:** From the Monte Arsiccio mine, Stazzema, Apuan Alps, Tuscany, Italy.

**Name:** Honors Stefano *Magnanelli* (b. 1959), chemist and mineral collector, for contributions to the mineralogy of the hydrothermal veins of the Apuan Alps.

**Type Material:** Natural History Museum, University of Pisa, Italy (19894 holotype) and the Natural History Museum of Los Angeles County, Los Angeles, California, USA (67241 cotype).

**References:** (1) Biagioni, C., L. Bindi, and A.R. Kampf (2019) Crystal-chemistry of sulfates from the Apuan Alps (Tuscany, Italy). VII. Magnanelliite,  $\text{K}_3\text{Fe}^{3+}_2(\text{SO}_4)_4(\text{OH})(\text{H}_2\text{O})_2$ , a new sulfate from the Monte Arsiccio mine. *Minerals*, 9, 779, 1-11.