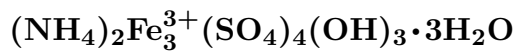


Clairite

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Crystal Data: Triclinic. *Point Group:* $\bar{1}$ or 1. As powdery aggregates of pseudo-hexagonal plates, to 50 μm .

Physical Properties: *Cleavage:* Perfect on {001}. *Hardness* = n.d. *D(meas.)* = 2.31 *D(calc.)* = 2.32 Slowly soluble in H_2O .

Optical Properties: Transparent to translucent. *Color:* Yellow. *Optical Class:* Biaxial. *Pleochroism:* X = pale yellow; Z' = dark yellow. *Orientation:* $X = c$. $\alpha = 1.595$ $\beta = \text{n.d.}$ $\gamma = 1.607$ $2V(\text{meas.}) = \text{n.d.}$

Cell Data: *Space Group:* [$P\bar{1}$ or $P1$] (by analogy to metavoltine). $a = 9.368$ $b = 9.150$ $c = 52.610$ $\alpha = 88.15^\circ$ $\beta = 90^\circ$ $\gamma = 118.36^\circ$ $Z = 8$

X-ray Powder Pattern: Lone Creek Fall Cave, South Africa. 17.5 (100), 8.78 (100), 3.279 (25), 8.23 (20), 3.424 (20), 3.041 (20), 4.743 (15)

Chemistry:

	(1)	(2)
SO_3	43.86	46.21
Al_2O_3	0.10	
Fe_2O_3	31.42	34.57
Mn_2O_3	1.23	
Na_2O	0.35	
K_2O	0.03	
$(\text{NH}_4)_2\text{O}$	6.97	7.52
H_2O	10.85	11.70
insol.	4.41	
Total	99.22	100.00

(1) Lone Creek Fall Cave, South Africa; Na and K by flame photometry, insoluble is quartz; corresponding to $[(\text{NH}_4)_{1.95}\text{Na}_{0.08}]_{\Sigma=2.03}(\text{Fe}_{2.87}\text{Mn}_{0.11}\text{Al}_{0.02})_{\Sigma=3.00}(\text{SO}_4)_4(\text{OH})_{3.03} \cdot 2.88\text{H}_2\text{O}$.

(2) $(\text{NH}_4)_2\text{Fe}_3(\text{SO}_4)_4(\text{OH})_3 \cdot 3\text{H}_2\text{O}$.

Occurrence: A rare secondary mineral formed by alteration of pyrite to ferric sulfate, and reaction, at pH ~ 2 , with ammonia produced as the result of decay of organic matter (*Hyrax* excreta).

Association: Loncreekite, sabieite, tschermigite.

Distribution: On the ceiling of Lone Creek Fall Cave, near Sabie, Eastern Transvaal, South Africa.

Name: Honors Claire Zingg Martini (1936–), wife of the author of the type description, who assisted her husband in cave exploration and mineral collecting.

Type Material: Museum of the Geological Survey, Pretoria, South Africa.

References: (1) Martini, J.E.J. (1983) Loncreekite, sabieite, and clairite, new secondary ammonium ferric-iron sulphates from Lone Creek Fall Cave, near Sabie, Eastern Transvaal. *Ann. Geol. Surv. S. Africa*, 17, 29–34. (2) (1986) *Amer. Mineral.*, 71, 229 (abs. ref. 1).