Mohrite $(NH_4)_2Fe^{2+}(SO_4)_2 \cdot 6H_2O$

Crystal Data: Monoclinic. *Point Group:* $2/m$. As subhedral crystals, to 0.2 mm, and irregular laminae.

Physical Properties: *Cleavage:* Perfect on $\{\bar{1}02\}$; distinct on $\{010\}$. Hardness = n.d. D(meas.) = 1.800–1.862 D(calc.) = 1.805–1.870 Soluble in H_2O.

Optical Properties: Semitransparent. *Color:* Pale green to colorless. *Luster:* Vitreous. *Optical Class:* Biaxial (+). α = 1.480–1.486 β = n.d. γ = 1.486–1.497 2V(meas.) = 65°–75°

Cell Data: *Space Group:* $P2_1/c$ (synthetic). a = 6.24(1) b = 12.65(2) c = 9.32(2) β = 106.8(1)° Z = 2

X-ray Powder Pattern: Travale, Italy.
3.801 (100), 4.200 (65), 2.460 (28), 3.153 (25), 3.025 (20), 2.823 (20), 5.40 (18)

Chemistry:

	(1)	(2)
SO_3	41.05	42.69
FeO	17.49	9.86
MnO	0.11	0.34
MgO	0.56	5.08
$(NH_4)_2O$	13.13	13.40
H_2O	27.10	28.69
insol.	0.16	0.15
Total	99.60	100.21

(1) Travale, Italy; corresponds to $(NH_4)_{1.99}(Fe_{0.96}Mg_{0.06}Mn_{0.01})_{\Sigma=1.03}(SO_4)_{2.03} \cdot 5.95H_2O$.
(2) Do.; corresponds to $(NH_4)_{1.95}(Fe_{0.52}Mg_{0.48}Mn_{0.02})_{\Sigma=1.02}(SO_4)_{2.01} \cdot 6.01H_2O$.

Occurrence: In boriferous fumaroles and geysers.

Association: n.d.

Distribution: From Travale, near Montieri, Val di Cecina, Tuscany, Italy.

Name: To honor Karl Friedrich Mohr (1806–1879), German analytical chemist, for whom the synthetic compound has long been named.

Type Material: University of Florence, Florence, Italy, 16817/G.

References: (1) Garavelli, C.L. (1964) Mohrite: un nuovo minerale della zona borifera toscana. Atti Rend. Accad. Lincei, 36, 524–533 (in Italian). (2) (1965) Amer. Mineral., 50, 805 (abs. ref. 1). (3) Montgomery, H., R.V. Chastain, J.J. Natt, A.M. Witkowska, and E.C. Lingafelter (1967) The crystal structure of Tutton's salts. VI. Vanadium(II), iron(II) and cobalt(II) ammonium sulfate hexahydrates. Acta Cryst., 22, 775–780.