Metahohmannite $Fe^{3+}_2O(SO_4)_2 \cdot 4H_2O$

Crystal Data: Triclinic. *Point Group*: $\bar{1}$. Pulverulent massive.

Physical Properties: Hardness = n.d. D(meas.) = n.d. D(calc.) = 2.568

Optical Properties: Semitransparent. *Color*: Orange.
Optical Class: Biaxial (+). $\alpha = 1.709$ $\beta = 1.718$ $\gamma = 1.734$ 2V(meas.) = n.d. *Pleochroism*: X = pale yellow; Y = reddish yellow; Z = reddish brown.

Cell Data: *Space Group*: $P\bar{1}$. $a = 7.3484(5)$ $b = 9.7710(6)$ $c = 7.1521(5)$ $\alpha = 91.684(5)°$ $\beta = 98.523\ (5)°$ $\gamma = 86.390\ (5)°$ $Z = 2$

X-ray Powder Pattern: Saghand, Iran; artificially dehydrated from hohmannite. (ICDD 39-379). 7.18 (100), 4.27 (71), 3.28 (71), 2.96 (71), 2.70 (71), 2.49 (71), 9.7 (57)

Chemistry:

	(1)	(2)
SO_3	39.61	40.86
Fe_2O_3	39.25	40.75
H_2O	20.29	18.40
Total	99.15	100.01

(1) Alcaparrosa, Chile. (2) $Fe^{3+}_2O(SO_4)_2 \cdot 4H_2O$.

Mineral Group: Amarantite group.

Occurrence: Formed by the partial dehydration of hohmannite.

Association: Hohmannite.

Distribution: In Chile, in Antofagasta, from Chuquicamata, at Quetena, west of Calama, and Alcaparrosa, near Cerritos Bayos, southwest of Calama. From Saghand, Yazd, Iran. At the Redington mercury mine, Knoxville, Napa Co., California, USA.

Name: The prefix, from the Greek, *meta*, indicates a lower hydrate than *hohmannite*.

Type Material: Harvard University, Cambridge, Massachusetts, USA, 99049, 99051.

References: (1) Palache, C., H. Berman, and C. Frondel (1951) Dana's system of mineralogy, (7th edition), v. II, 608. (2) Scordari, F., G. Ventruti, and A.F. Gualtieri (2004) The structure of metahohmannite, $Fe^{3+}_2[O(SO_4)_2] \cdot 4H_2O$, by in situ synchrotron powder diffraction. Amer. Mineral., 89, 265-370.