

Crystal Data: Triclinic. *Point Group:* $\bar{1}$. Massive stalactitic, to 5 cm long.

Physical Properties: Hardness = ~2.5 D(meas.) = 2.03 D(calc.) = 2.094 Readily soluble in H₂O; dehydrates to illesite in dry air.

Optical Properties: Transparent to translucent. *Color:* Pale pink; colorless in thin section.

Streak: White. *Luster:* Vitreous.

Optical Class: Biaxial (-). *Dispersion:* Very weak. $\alpha = 1.498(3)$ $\beta = 1.510(3)$ $\gamma = 1.517(3)$
2V(meas.) = 70°–80°

Cell Data: *Space Group:* $[P\bar{1}]$ (by analogy to chalcantite). $a = 6.37$ $b = 10.77$ $c = 6.13$
 $\alpha = 98^\circ 46'$ $\beta = 109^\circ 58'$ $\gamma = 77^\circ 50'$ $Z = 2$

X-ray Powder Pattern: Jokoku mine, Japan.

5.84 (100), 2.727 (72), 4.98 (61), 5.66 (56), 1.622 (31), 2.290 (27), 3.28 (25)

Chemistry:

	(1)	(2)
SO ₃	33.06	33.21
FeO	1.13	
MnO	27.34	29.42
ZnO	0.94	
MgO	0.00	
CaO	0.00	
H ₂ O	37.68	37.37
Total	100.15	100.00

(1) Jokoku mine, Japan; corresponds to (Mn_{0.94}Fe_{0.04}Zn_{0.03})_{Σ=1.01}(S_{1.00}O₄)•5.07H₂O.

(2) MnSO₄•5H₂O.

Mineral Group: Chalcantite group.

Occurrence: As efflorescences in oxidized portions of mine workings, apparently deposited from mine waters at 25 °C.

Association: Gypsum, szmikite, illesite, rozenite, siderotil, ferroxahydrite, mallardite, melanterite, goslarite (Jokoku mine, Japan).

Distribution: In the Jokoku and Inakuraishi mines, Hokkaido, Japan. At Chvaletice, Czech Republic.

Name: For the Jokoku mine, Japan, where the first specimens were collected.

Type Material: Tohoku University, Sendai; National Science Museum, Tokyo, Japan, M-21492; National Museum of Natural History, Washington, D.C., USA, 136582.

References: (1) Nambu, M., K. Tanida, and T. Kitamura (1978) Jökokuite, MnSO₄•5H₂O, a new mineral from the Jökoku mine, Hokkaido, Japan. *Mineral. J. (Japan)*, 9, 28–38. (2) (1979) *Amer. Mineral.*, 64, 655 (abs. ref. 1).