Tamaite $(Ca, K, Na)_xMn_6(Si, Al)_{10}O_{24}(OH)_4 \cdot n\ H_2O$ (x = 1-2; n = 7-11)

Crystal Data: Monoclinic. *Point Group*: 2/*m*. As micaceous, platy crystals to ~0.5 mm.

Physical Properties: *Cleavage*: Perfect on {001}. *Tenacity*: Brittle. *Fracture*: n.d. Hardness = 4
D(meas.) = 2.85(5) D(calc.) = 2.83 Nonfluorescent.

Optical Properties: Transparent. *Color*: Colorless to pale yellowish brown, colorless in thin section.
Streak: White. *Luster*: Vitreous to pearly.
Optical Class: Biaxial (-). β = 1.612(2) 2V = <15° Interference color similar to muscovite.

Cell Data: Space Group: $P2_1/a$. a = 16.64(1) b = 27.11(2) c = 25.35(2) β = 98.74(7)° Z = 4

X-ray Powder Pattern: Shiromaru mine, near Okutama, Tama district, Japan.
12.6 (vvs), 2.69 (vs), 3.13 (s), 2.84 (s), 2.60 (s), 2.46 (s), 3.46 (m)

Chemistry:

	(1)
Na_2O	0.34
K_2O	0.82
CaO	1.94
BaO	2.03
MgO	0.23
FeO	0.16
MnO	35.17
Al_2O_3	7.79
SiO_2	41.23
H_2O	11.07
Total	100.78

(1) Shiromaru mine, near Okutama, Tama district, Japan; electron microprobe analysis, H_2O by Karl-Fischer method, OH and H_2O by analogy to ganophyllite; corresponding to $(Ca_{1.65}K_{0.83}Ba_{0.63}Na_{0.53})_{\Sigma=3.64}(Mn_{23.71}Mg_{0.27}Fe_{0.11}Al_{0.12})_{\Sigma=24.21}(Si_{32.81}Al_{7.19})_{\Sigma=40.00}O_{95.27}(OH)_{16.73}\cdot 21H_2O$.

Occurrence: In veinlets to 1.5 mm in width in a weakly metamorphosed Mn ore deposit.

Association: Celsian, barian orthoclase, aegirine, manganoan grossular, andradite, strontiopiemontite, copper.

Distribution: At the Shiromaru mine, near Okutama, Tama district, ~60 km from Tokyo, Japan.

Name: For the locality, the *Tama* district, where the first samples were collected.

Type Material: National Science Museum, Tokyo, Japan (NSM-M 27936).

References: (1) Matsubara, S., R. Miyawaki, T. Tiba, and H. Imai (2000) Tamaite, the Ca-analogue of ganophyllite, from the Shiromaru mine, Okutama, Tokyo, Japan. J. Mineral. Petrol. Sci., 95, 79-83. (2) (2001) Amer. Mineral., 86, 769 (abs. ref. 1).