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**Crystal Data:** Monoclinic. *Point Group:* 2/m. Platy crystals, to 0.1 mm, elongated along [010] and tabular on  $\{001\}$ ; fine granular.

**Physical Properties:** Cleavage: One perfect, presumably  $\{001\}$ , seen in thin section. Hardness =  $\sim 5$  in aggregate. D(meas.) = n.d. D(calc.) = 3.34

**Optical Properties:** Semitransparent. Color: Light grayish pink to brownish pink. Streak: Light grayish pink. Luster: Vitreous. Optical Class: Biaxial (-). Pleochroism: Strong; X = pale pink; Y = Z = brownish pink.  $\alpha = 1.752(2)$   $\beta = 1.795(5)$   $\gamma = 1.800(5)$   $2V(\text{meas.}) = \sim 40^{\circ}$ 

**Cell Data:** Space Group: A2/m. a = 8.923 b = 5.995 c = 19.156  $\beta = 97^{\circ}8'$  Z = 4

**X-ray Powder Pattern:** Ochiai mine, Japan. 2.930 (100), 2.725 (90), 4.75 (65), 3.844 (65), 2.654 (55), 2.533 (50), 2.205 (45)

Chemistry:

	(1)
$\mathrm{SiO}_2$	35.66
$TiO_2$	0.02
$Al_2 \bar{O}_3$	13.40
$Fe_2O_3$	2.43
$Mn_2O_3$	7.74
MnO	13.41
MgO	0.89
CaO	20.69
$Na_2O$	0.01
$H_2O$	[5.75]
Total	[100.00]

(1) Ochiai mine, Japan; by electron microprobe, H<sub>2</sub>O by difference; corresponds to  $(Ca_{1.89}Mn_{0.08}^{2+})_{\Sigma=1.97}(Mn_{0.89}^{2+}Mg_{0.11})_{\Sigma=1.00}(Al_{1.34}Mn_{0.50}^{3+}Fe_{0.16}^{3+})_{\Sigma=2.00}Si_{3.03}O_{11}(OH)_2 \bullet 1.26H_2O.$ 

Mineral Group: Pumpellyite group.

**Occurrence:** In braunite ore in a syngenetic bedded manganese deposit developed in low-grade metamorphic rocks.

Association: Braunite, piemontite, clinozoisite, caryopilite, johannsenite, rhodochrosite, albite, quartz, calcite.

Distribution: In the Ochiai mine, 3.5 km west of Barazawa, Yamanashi Prefecture, Japan.

**Name:** For its membership in the *pumpellyite* group and dominant *manganous manganese* content.

**Type Material:** National Science Museum, Tokyo, Japan, M23125; National Museum of Natural History, Washington, D.C., USA, 147159, 147160.

**References:** (1) Kato, A., S. Matsubara, and R. Yamamoto (1981) Pumpellyite-(Mn<sup>2+</sup>) from the Ochiai mine, Yamanashi Prefecture, Japan. Bull. Minéral., 104, 396–399. (2) (1983) Amer. Mineral., 68, 1250 (abs. ref. 1).