

**Crystal Data:** Hexagonal. *Point Group:*  $\bar{3}$ . As granular to irregular inclusions, to 100  $\mu\text{m}$ .

**Physical Properties:** *Cleavage:* n.d. *Fracture:* n.d. *Tenacity:* n.d. *Hardness:* = n.d.  
D(meas.) = n.d. D(calc.) = 4.06

**Optical Properties:** Transparent. *Color:* Colorless. *Streak:* White. *Luster:* n.d.  
*Pleochroism:* Very weak.  
*Optical Class:* n.d.

**Cell Data:** *Space Group:*  $P\bar{3}$ .  $a = 5.3642(10)$   $c = 7.039(2)$   $Z = 1$

**X-ray Powder Pattern:** Tanohata mine, Iwate Prefecture, Japan.  
2.806 (100), 1.9388 (91), 2.683 (74), 4.646 (67), 3.877 (48), 2.506 (46), 7.0315 (39)

<b>Chemistry:</b>	(1)	(2)
Na <sub>2</sub> O	14.66	14.47
BaO	35.52	35.81
SrO	2.43	
MnO	13.26	16.57
MgO	1.55	
<u>P<sub>2</sub>O<sub>5</sub></u>	<u>32.65</u>	<u>33.15</u>
Total	100.07	100.00

(1) Tanohata mine, Japan; average of 10 electron microprobe analyses, PO<sub>4</sub> confirmed by Raman spectroscopy; corresponding to Na<sub>2.026</sub>(Ba<sub>0.993</sub>Sr<sub>0.101</sub>)<sub>Σ=1.094</sub>(Mn<sub>0.801</sub>Mg<sub>0.164</sub>)<sub>Σ=0.965</sub>P<sub>1.971</sub>O<sub>8</sub>.

(2) Na<sub>2</sub>BaMn(PO<sub>4</sub>)<sub>2</sub>.

**Occurrence:** In a Ba- and Sr-bearing manganese deposit.

**Association:** Sérandite.

**Distribution:** From the No. 3 (Matsumaezawa) deposit, Tanohata mine, Tanohata Village, Iwate Prefecture, Japan.

**Name:** For the Japanese Prefecture (*Iwate*) that contains the locality that produced the first specimens.

**Type Material:** National Museum of Nature and Science, Tokyo, Japan (NSM-M43779).

**References:** (1) Nishio-Hamane, D., T. Minakawa, and H. Okada (2014) Iwateite, Na<sub>2</sub>BaMn(PO<sub>4</sub>)<sub>2</sub>, a new mineral from the Tanohata mine, Iwate Prefecture, Japan. *Journal of Mineralogical and Petrological Sciences*, 109(1), 34-37. (2) (2015) *Amer. Mineral.*, 100, 335-336 (abs. ref. 1).