

Crystal Data: Monoclinic. *Point Group:* *m*. As prismatic crystals with pyramidal terminations to 0.8 mm, elongated along [001]; in massive aggregates <2 mm in diameter.

Physical Properties: *Cleavage:* Poor. *Fracture:* Conchoidal. *Tenacity:* Brittle.
Hardness = 5.5-6 VHN = 707-946 (100 g load). D(meas.) = n.d. D(calc.) = 3.24

Optical Properties: Transparent. *Color:* Yellowish green. *Streak:* White with a greenish tint.
Luster: Vitreous.

Optical Class: Biaxial (+). $\alpha = 1.686(2)$ $\beta(\text{calc.}) = 1.694$ $\gamma = 1.720(5)$ $2V(\text{meas.}) = 60(5)^\circ$
Dispersion: Perceptible, $v > r$. *Pleochroism:* Moderate, yellowish to pale yellowish green.

Cell Data: *Space Group:* *Cc*. $a = 16.450(16)$ $b = 12.492(7)$ $c = 9.995(8)$ $\beta = 115.32(6)^\circ$ $Z = 4$

X-ray Powder Pattern: Tanohata mine, Iwate Prefecture, Japan.
3.19 (100), 2.49 (93), 2.94 (90), 4.52 (85), 9.58 (84), 2.90 (66), 3.52 (63)

Chemistry:	(1)
Na ₂ O	7.10
K ₂ O	4.89
Li ₂ O	1.6
CaO	0.03
MgO	1.61
BaO	0.88
MnO	12.28
FeO	0.35
VO ₂	15.10
TiO ₂	3.13
<u>SiO₂</u>	<u>52.64</u>
Total	99.61

(1) Tanohata mine, Iwate Prefecture, Japan; average electron microprobe analysis, Li₂O by LAM-ICP-MS; corresponds to (K_{0.94}Ba_{0.05})_{Σ=0.99}Na_{2.08}Li_{0.97}(Mn_{1.57}Mg_{0.36}Fe_{0.04})_{Σ=1.97}(V_{1.66}Ti_{0.36})_{Σ=2.02}Si_{7.97}O₂₄.

Occurrence: In veinlets in a metamorphosed Mn deposit.

Association: "Potassicleakeite", quartz, K-feldspar, serandite, suzukite, roscolite, copper, chalcopyrite, yarrowite.

Distribution: In dump material from the No. 3 orebody, Tanohata mine, Iwate Prefecture, Japan.

Name: For *Watatsumi*, the Japanese god of the sea, in recognition that the mineral is the V and Mn analog of neptunite, whose name alludes to Neptune, the Roman god of the sea.

Type Material: National Science Museum, Tokyo, Japan (NSM-M28187).

References: (1) Matsubara, S., R. Miyawaki, M. Kurosawa, and Y. Suzuki (2003) Watatsumiite, KNa₂LiMn₂V₂Si₈O₂₄, a new mineral from the Tanohata mine, Iwate Prefecture, Japan. *J. Mineral. Petrol. Sci.*, 98, 142-150. (2) (2004) *Amer. Mineral.*, 89, 896 (abs. ref. 1).