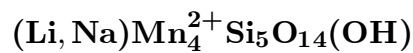


Nambulite

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Crystal Data: Triclinic. *Point Group:* $\bar{1}$. As prismatic to tabular crystals, to 8 mm; massive in veinlets.**Physical Properties:** *Cleavage:* Perfect on {001}, distinct on {010} and {100}.
Hardness = 6.5 D(meas.) = 3.53(1) D(calc.) = 3.55**Optical Properties:** Transparent. *Color:* Reddish brown with an orange tint. *Streak:* Pale yellow. *Luster:* Vitreous.*Optical Class:* Biaxial (+). *Pleochroism:* Slight. *Orientation:* $X' \wedge c = 19^\circ$ on {010}.*Dispersion:* $r > v$, weak. $\alpha = 1.707(2)$ $\beta = 1.710(2)$ $\gamma = 1.730(2)$ $2V(\text{meas.}) = 30(2)^\circ$ **Cell Data:** *Space Group:* $P\bar{1}$. $a = 7.621(5)$ $b = 11.761(8)$ $c = 6.731(5)$ $\alpha = 92^\circ 46(3)'$
 $\beta = 95^\circ 5(3)'$ $\gamma = 106^\circ 52(5)'$ $Z = 2$ **X-ray Powder Pattern:** Funakozawa mine, Japan.

2.96 (100), 2.97 (80), 2.92 (70), 3.17 (65), 3.07 (60), 3.09 (55), 3.14 (45)

Chemistry:

	(1)		(1)
SiO ₂	49.23	Na ₂ O	2.49
TiO ₂	0.01	K ₂ O	0.04
Al ₂ O ₃	0.37	Cl	0.00
Fe ₂ O ₃	0.40	H ₂ O ⁺	1.63
MnO	40.67	H ₂ O ⁻	0.26
MgO	1.32	CO ₂	0.19
CaO	0.81	P ₂ O ₅	0.02
Li ₂ O	1.55	SO ₃	0.00
		<u>Total</u>	<u>98.99</u>

(1) Funakozawa mine, Japan; corresponding to (Li_{0.50}Na_{0.49}K_{0.01})_{Σ=1.00}(Mn_{3.48}Mg_{0.20}Li_{0.14}Ca_{0.09}Al_{0.04}Fe_{0.03})_{Σ=3.98}Si₅O_{13.90}(OH)_{1.10}.**Polymorphism & Series:** Forms a series with natronambulite.**Occurrence:** In veinlets cutting braunite ores in chert (Funakozawa mine, Japan).**Association:** Braunite, albite, neotocite, rhodochrosite (Funakozawa mine, Japan).**Distribution:** In the Funakozawa and Ohtaniyama mines, Ohno, Iwate Prefecture, and the Gozaisho mine, Iwaki, Fukushima Prefecture, Japan.**Name:** For Professor Matsuo Nambu, Tohoku University, Sendai, Japan.**Type Material:** National Science Museum, Tokyo, Japan, M18829.**References:** (1) Yoshii, M., Y. Aoki, and K. Maeda (1972) Nambulite, a new lithium- and sodium-bearing manganese silicate from the Funakozawa mine, northeastern Japan. *Mineral. J. (Japan)*, 7, 29–44. (2) (1973) *Amer. Mineral.*, 58, 1112 (abs. ref. 1). (3) Narita, H., K. Koto, and N. Morimoto (1975) The crystal structure of nambulite (Li, Na)Mn₄Si₅O₁₄(OH). *Acta Cryst.*, 31, 2422–2426.