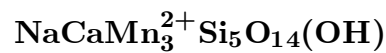


Marsturite



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Crystal Data: Triclinic. *Point Group:* $\bar{1}$ or 1. As imperfectly terminated prismatic crystals, elongated along [010], with pinacoids {100} and {001}, to 2 mm, striated on {001} || [100]; also as crusts.

Physical Properties: *Cleavage:* Imperfect on {100} and {001}. *Hardness* = ~6
D(meas.) = 3.46 D(calc.) = 3.465

Optical Properties: Translucent. *Color:* Colorless, white to very light pink. *Luster:* Frosty, on the tips of crystals.

Optical Class: Biaxial (+). *Orientation:* $X \simeq c$; $Z' \wedge b = 4^\circ \perp \{001\}$; $Z' \wedge b = 15^\circ \perp \{100\}$.
Dispersion: $r > v$, very weak. $\alpha = 1.686(2)$ $\beta = 1.691(1)$ $\gamma = 1.708(1)$ $2V(\text{meas.}) = 60(1)^\circ$
 $2V(\text{calc.}) = 57.4^\circ$

Cell Data: *Space Group:* n.d. $a = 7.70(1)$ $b = 12.03(3)$ $c = 6.78(1)$ $\alpha = 85.26(35)^\circ$
 $\beta = 94.10(26)^\circ$ $\gamma = 111.04(12)^\circ$ $Z = 2$

X-ray Powder Pattern: Franklin, New Jersey, USA.
2.725 (100), 2.916 (90), 2.999 (80), 3.18 (40), 1.441 (40), 3.11 (30), 2.219 (30)

| Chemistry: | (1) |
|-------------------|--------|
| SiO ₂ | 48.94 |
| FeO | 0.24 |
| MnO | 34.16 |
| MgO | 0.12 |
| CaO | 12.46 |
| Na ₂ O | 4.08 |
| H ₂ O | n.d. |
| Total | 100.00 |

(1) Franklin, New Jersey, USA; by electron microprobe, average of three analyses; corresponding to $\text{Na}_{0.81}\text{Ca}_{1.36}(\text{Mn}_{2.96}\text{Fe}_{0.02}\text{Mg}_{0.02})_{\Sigma=3.00}\text{Si}_5\text{O}_{15}$.

Occurrence: Implanted on manganaxinite and epitaxially overgrown on rhodonite in a metamorphosed stratiform zinc deposit (Franklin, New Jersey, USA).

Association: Rhodonite, manganaxinite, ganophyllite, willemite, franklinite (Franklin, New Jersey, USA); natronambulite, kôzulte (Tanohata mine, Japan).

Distribution: From Franklin, Sussex Co., New Jersey, USA. In the Tanohata mine, Iwate Prefecture, Japan. From the Molinello manganese mine, near Chiavari, Val Graveglia, Liguria, Italy.

Name: For MARion STUart, of Bellevue, Idaho, USA, benefactress of fossil and mineral collections in the USA.

Type Material: National Museum of Natural History, Washington, D.C., USA, 127923.

References: (1) Peacor, D.R., P.J. Dunn, and B.D. Sturman (1978) Marsturite, $\text{Mn}_3\text{CaNaHSi}_5\text{O}_{15}$, a new mineral of the nambulite group from Franklin, New Jersey. *Amer. Mineral.*, 63, 1187–1189. (2) Dunn, P.J. and P.B. Leavens (1986) Marsturite epitaxial on rhodonite from Franklin, New Jersey. *Mineral. Record*, 17, 123–125.