

Kanoite

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Crystal Data: Monoclinic. *Point Group:* $2/m$, (probable). As grains up to 0.1 mm.
Twinning: Polysynthetic on $\{100\}$, common.

Physical Properties: *Cleavage:* Perfect on $\{110\}$, $(110) \wedge (1\bar{1}0) \sim 88^\circ$. Hardness = 6
D(meas.) = 3.66 D(calc.) = 3.60

Optical Properties: Semitransparent. *Color:* Light pinkish brown; colorless in thin section.
Streak: White. *Luster:* Vitreous.

Optical Class: Biaxial (+). *Orientation:* $Y = b$; $Z \wedge c = 42^\circ$. $\alpha = 1.715(2)$ $\beta = 1.717(2)$
 $\gamma = 1.728(2)$ $2V(\text{meas.}) = 40^\circ\text{--}42^\circ$

Cell Data: *Space Group:* $P2_1/c$ (probable). $a = 9.739$ $b = 8.939$ $c = 5.260$
 $\beta = 108.56^\circ$ $Z = 4$

X-ray Powder Pattern: Tatehira, Japan.

3.211 (100), 3.021 (90), 2.910 (90), 2.921 (80), 2.493 (40), 1.627 (40), 2.573 (30)

Chemistry:

	(1)
SiO ₂	50.20
Al ₂ O ₃	0.04
Fe ₂ O ₃	0.39
FeO	2.64
MnO	31.19
MgO	15.08
CaO	[0.61]
Na ₂ O	0.03
K ₂ O	0.03
Total	[100.21]

(1) Tatehira, Japan; by electron microprobe, average of three analyses; Fe₂O₃, FeO, Na₂O, and K₂O by wet chemical analysis; original CaO 0.57% and original total given as 100.17%; corresponds to $(\text{Mn}_{1.04}^{2+}\text{Mg}_{0.88}\text{Fe}_{0.09}^{2+}\text{Ca}_{0.02}\text{Fe}_{0.01}^{3+})_{\Sigma=2.04}\text{Si}_{1.97}\text{O}_6$.

Polymorphism & Series: Dimorphous with donpeacorite.

Mineral Group: Pyroxene group.

Occurrence: In a seam cutting a pyroxmangite-cummingtonite metamorphic rock.

Association: Spessartine, manganoan cummingtonite, pyroxmangite.

Distribution: From near Tatehira, Oshima Peninsula, Hokkaido, Japan.

Name: To honor Dr. Hiroshi Kano, Professor of Petrology, Akita University, Akita, Japan.

Type Material: Shimane University, Matuse; National Science Museum, Tokyo, Japan, M21331.

References: (1) Kobayashi, H. (1977) Kanoite, $(\text{Mn}^{2+}, \text{Mg})_2[\text{Si}_2\text{O}_6]$, a new clinopyroxene in the metamorphic rock from Tatehira, Oshima Peninsula, Hokkaido, Japan. *J. Geol. Soc. Japan*, 83, 537–542. (2) (1978) *Amer. Mineral.*, 63, 598 (abs. ref. 1).