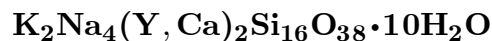


Monteregianite-(Y)



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Crystal Data: Monoclinic, pseudo-orthorhombic. *Point Group:* $2/m$. Crystals needlelike, elongated and flattened, to 2.5 cm; may be tabular; as irregular micaceous masses, radiating clusters, and parallel groups.

Physical Properties: *Cleavage:* Perfect on $\{1\bar{1}0\}$, very good on $\{010\}$, good to fair on $\{110\}$. Hardness = ~ 3.5 $D(\text{meas.}) = 2.42(2)$ $D(\text{calc.}) = 2.41$ Fluoresces green under SW UV.

Optical Properties: Transparent to opaque. *Color:* Colorless, white, gray; pale rose or violet, rarely mauve or pale green; may be color zoned. *Streak:* White. *Luster:* Vitreous to silky. *Optical Class:* Biaxial (+). *Orientation:* $X = c$; $Y = a$; $Z = b$. $\alpha = 1.510(1)$ $\beta = 1.513(1)$ $\gamma = 1.517(1)$ $2V(\text{meas.}) = 87(1)^\circ$ $2V(\text{calc.}) = 82^\circ$

Cell Data: *Space Group:* $P2_1/n$. $a = 9.512(2)$ $b = 23.956(4)$ $c = 9.617(2)$
 $\beta = 93.85(1)^\circ$ $Z = 2$

X-ray Powder Pattern: Mont Saint-Hilaire, Canada.

12.00 (100), 7.03 (100), 4.42 (100), 2.873 (80), 6.02 (50), 3.405 (50), 3.026 (50)

Chemistry:

	(1)
SiO ₂	60.30
Al ₂ O ₃	0.50
Y ₂ O ₃	11.97
MgO	0.15
CaO	0.65
BaO	0.35
Na ₂ O	9.14
K ₂ O	5.36
H ₂ O	11.40
Total	99.82

(1) Mont Saint-Hilaire, Canada; Y by electron microprobe, H₂O by DTA; corresponds to $\text{K}_{1.80}\text{Na}_{4.66}(\text{Y}_{1.68}\text{Ca}_{0.18}\text{Mg}_{0.06}\text{Ba}_{0.04})_{\Sigma=1.96}(\text{Si}_{15.87}\text{Al}_{0.16})_{\Sigma=16.03}\text{O}_{38} \cdot 10.02\text{H}_2\text{O}$.

Occurrence: In miarolitic cavities, metamorphosed inclusions, and rheomorphic breccias in nepheline syenite in an intrusive alkalic gabbro-syenite complex.

Association: Calcite, pectolite, microcline, albite, aegirine, arfvedsonite, phlogopite, fluorite, quartz, ekanite, sepiolite, ashcroftine, lorenzenite, narsarsukite, natrolite, harmotome, apophyllite, molybdenite, pyrite.

Distribution: At Mont Saint-Hilaire, Quebec, Canada.

Name: For the Monteregian Hills, of which Mont Saint-Hilaire is one, and *yttrium* in the composition.

Type Material: Canadian Museum of Nature, Ottawa, Canada, 37130; National Museum of Natural History, Washington, D.C., USA, 145548.

References: (1) Chao, G.Y. (1978) Monteregianite, a new hydrous sodium potassium yttrium silicate mineral from Mont St-Hilaire, Québec. *Can. Mineral.*, 16, 561–565. (2) (1980) *Amer. Mineral.*, 65, 207 (abs. ref. 1). (3) Ghose, S., P.K. Sen Gupta, and C.F. Campana (1987) Symmetry and crystal structure of monteregianite [*sic*], $\text{Na}_4\text{K}_2\text{Y}_2\text{Si}_{16}\text{O}_{38} \cdot 10\text{H}_2\text{O}$, a double-sheet silicate with zeolitic properties. *Amer. Mineral.*, 72, 365–374. (4) Mandarino, J.A. and V. Anderson (1989) *Monteregian Treasures*. Cambridge Univ. Press, 144–145.

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