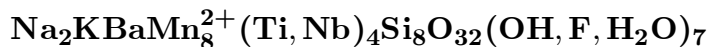


**Perraultite**



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**Crystal Data:** Monoclinic. *Point Group:*  $2/m, m,$  or  $2.$  Prismatic crystals, flattened on  $\{010\}$  and elongated along  $[100],$  with  $\{001\}, \{010\}, \{100\},$  and  $\{h0l\},$  to 1 mm.

*Twinning:* Simple contact twins, with  $\{001\}$  as twin and composition plane, common.

**Physical Properties:** *Cleavage:* Very good on  $\{001\}.$  *Fracture:* Uneven to irregular.

*Tenacity:* Very brittle. Hardness =  $\sim 4$  D(meas.) = 3.71(5) D(calc.) = 3.808

**Optical Properties:** Opaque to translucent, transparent in small fragments. *Color:* Orange-brown. *Streak:* Pale brown. *Luster:* Vitreous on fresh surfaces to slightly waxy on exposed faces.

*Optical Class:* Biaxial (-). *Pleochroism:*  $X = Y =$  light yellow;  $Z =$  dark brown. *Orientation:*  $X = b; Y \wedge a = 19^\circ.$  *Dispersion:*  $r < v,$  strong.  $\alpha = 1.785(2)$   $\beta = 1.81(1)$   $\gamma = 1.82(1)$   $2V(\text{meas.}) = 66(1)^\circ$   $2V(\text{calc.}) = 64^\circ$

**Cell Data:** *Space Group:*  $C2/m, Cm,$  or  $C2.$   $a = 10.820(2)$   $b = 13.843(4)$   $c = 20.93(1)$   $\beta = 95.09(2)^\circ$   $Z = 4$

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

3.474 (100), 10.43 (42), 2.606 (40), 3.186 (15), 2.804 (15), 2.867 (13), 3.573 (11)

**Chemistry:**

	(1)		(1)
SiO <sub>2</sub>	27.32	MgO	0.06
TiO <sub>2</sub>	9.44	BaO	8.88
ZrO <sub>2</sub>	0.12	Na <sub>2</sub> O	3.52
Al <sub>2</sub> O <sub>3</sub>	0.03	K <sub>2</sub> O	2.68
Nb <sub>2</sub> O <sub>5</sub>	13.35	F	0.84
FeO	1.12	H <sub>2</sub> O	3.49
MnO	31.14	-O = F <sub>2</sub>	0.35
		<hr/>	
		Total	101.64

(1) Mont Saint-Hilaire, Canada; by electron microprobe, average of three analyses, H<sub>2</sub>O by TGA; corresponds to  $\text{Na}_{2.02}\text{K}_{1.00}\text{Ba}_{1.02}(\text{Mn}_{7.73}\text{Fe}_{0.27}\text{Mg}_{0.03})_{\Sigma=8.03}(\text{Ti}_{2.08}\text{Nb}_{1.77}\text{Zr}_{0.02})_{\Sigma=3.87}(\text{Si}_{8.01}\text{Al}_{0.01})_{\Sigma=8.02}\text{O}_{32}[(\text{OH})_{5.62}\text{F}_{0.78}(\text{H}_2\text{O})_{0.60}]_{\Sigma=7.00}.$

**Occurrence:** In pegmatite dikes in nepheline syenite in an intrusive alkalic gabbro-syenite complex.

**Association:** Kupletskite, catapleite, microcline, albite, aegirine, rhodochrosite, natrolite, tetranatrolite, lorenzenite, polyolithionite, ancylite, fluorite, calcite, pyrochlore.

**Distribution:** From Mont Saint-Hilaire, Quebec, Canada.

**Name:** To honor Professor Guy Perrault, École Polytechnique, Montreal, Canada, for his work on the mineralogy of Mont Saint-Hilaire.

**Type Material:** Canadian Museum of Nature, Ottawa, 50037; Royal Ontario Museum, Toronto, Canada, M41005.

**References:** (1) Chao, G.Y. (1991) Perraultite, a new hydrous Na-K-Ba-Mn-Ti-Nb silicate species from Mont Saint-Hilaire, Quebec. *Can. Mineral.*, 29, 355–358. (2) (1991) *Amer. Mineral.*, 76, 2023 (abs. ref. 1). (3) Mandarino, J.A. and V. Anderson (1989) *Monteregian treasures.* Cambridge Univ. Press, 163. (4) Horváth, L. and R.A. Gault (1990) *The mineralogy of Mont Saint-Hilaire, Quebec. Mineral. Record*, 21, 284–359, esp. 329. (5) (1991) *Amer. Mineral.*, 76, 300 (abs. refs. 3 and 4).

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