

**Crystal Data:** Monoclinic. *Point Group:* n.d. In bladed to highly elongated crystals with curved faces; in globules composed of radiating crystals, to 2 mm; aggregated in groups.

**Physical Properties:** *Cleavage:* Basal, parting. *Hardness =* n.d. *D(meas.) =* 2.72(1) *D(calc.) =* 2.74–2.84 Dehydrates, reversibly; fluoresces pale yellow under LW UV, more intensely under SW UV.

**Optical Properties:** Transparent to opaque. *Color:* White, colorless, grayish blue. *Streak:* White. *Luster:* Vitreous to adamantine, silky on fractures. *Optical Class:* Biaxial (-). *Orientation:* X ⊥ plane of blades; Y ⊥ elongation; Z || elongation. α = 1.72(1) β = [1.78(1)] γ = 1.79(1) 2V(meas.) = 35(5)°

**Cell Data:** *Space Group:* n.d. a = 22.22(1) b = 12.857(5) c = 6.359(4) β = 92.24(6)° Z = 4

**X-ray Powder Pattern:** Francon quarry, Canada. 11.0 (10), 5.55 (7), 4.73 (6), 3.18 (6), 4.21 (5), 3.21 (5), 2.626 (5)

Chemistry:	(1)	(2)	(3)
Nb <sub>2</sub> O <sub>5</sub>	75.4	76.2	70.35
SiO <sub>2</sub>	0.5		
TiO <sub>2</sub>	0.9	0.3	
Al <sub>2</sub> O <sub>3</sub>	0.0		
CaO	0.7	0.4	
SrO	0.0		
Na <sub>2</sub> O	8.5	9.2	8.20
H <sub>2</sub> O	[14.0]	13.8	21.45
Total	[100.0]	99.9	100.00

(1) Francon quarry, Canada; by electron microprobe, H<sub>2</sub>O by difference, originally given as 13.0%; using H<sub>2</sub>O 21%–22% as confirmed by mass spectrometry, corresponds to (Na<sub>1.82</sub>Ca<sub>0.08</sub>)<sub>Σ=1.90</sub>(Nb<sub>3.76</sub>Si<sub>0.17</sub>Ti<sub>0.08</sub>)<sub>Σ=4.01</sub>O<sub>11</sub>•9H<sub>2</sub>O. (2) Vishnevogorsk complex, Russia; by electron microprobe, average of three analyses, H<sub>2</sub>O taken as LOI; corresponds to (Na<sub>2.03</sub>Ca<sub>0.09</sub>)<sub>Σ=2.12</sub>(Nb<sub>3.92</sub>Si<sub>0.10</sub>)<sub>Σ=4.02</sub>O<sub>11</sub>•9.6H<sub>2</sub>O. (3) Na<sub>2</sub>Nb<sub>4</sub>O<sub>11</sub>•9H<sub>2</sub>O.

**Occurrence:** In vugs of a dawsonite-bearing sill in a limestone deposit (Francon quarry, Canada); in cavities in altered pegmatite dikes, hornfels, sodalite syenite, or miarolitic cavities, associated with an intrusive alkalic gabbro-syenite complex (Mont Saint-Hilaire, Canada).

**Association:** Hochelagaite, weloganite, calcite, quartz (Francon quarry, Canada); burbankite, muscovite, albite, microcline, chlorite, calcite, strontianite, natrolite (Vishnevogorsk complex, Russia).

**Distribution:** In the Francon quarry, Montreal Island, Montreal, at Mont Saint-Hilaire, and near Saint-Amable, Quebec, Canada. In the Vishnevogorsk alkalic complex, Vishnevyy-Ilmen Mountains, Southern Ural Mountains, Russia.

**Name:** For the Francon quarry, Montreal, Canada, where it was first found.

**Type Material:** Geological Survey of Canada, Ottawa, 62094, 63748–63750; Royal Ontario Museum, Toronto, Canada, M39041.

**References:** (1) Jambor, J.L., A.P. Sabina, A.C. Roberts, M. Bonardi, R.A. Ramik, and B.D. Sturman (1984) Franconite, a new hydrated Na–Nb oxide mineral from Montreal Island, Quebec. *Can. Mineral.*, 22, 239–243. (2) (1985) *Amer. Mineral.*, 70, 436–437 (abs. ref. 1). (3) Jambor, J.L., A.P. Sabina, A.C. Roberts, M. Bonardi, D.R. Owens, and B.D. Sturman (1986) Hochelagaite, a new calcium-niobium oxide mineral from Montreal, Quebec. *Can. Mineral.*, 24, 449–453. (4) Horváth, L. and R.A. Gault (1990) The mineralogy of Mont Saint-Hilaire, Quebec. *Mineral. Record*, 21, 284–359, esp. 310. (5) Nikandrov, S.N. (1990) Franconite, first find in the USSR. *Doklady Acad. Nauk SSSR*, 305, 700–703 (in Russian).

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