

Ferrokentbrooksit

Crystal Data: Hexagonal. *Point Group:* 3m. As pseudo-octahedral crystals to ~1 cm, that display {00*1}, {10*1}, {01*2}, with minor {02*1} and {11*0}.

Physical Properties: *Cleavage:* None. *Fracture:* Uneven to conchoidal. *Tenacity:* Brittle. Hardness = 5-6 D(meas.) = 3.06(3) D(calc.) = 3.06

Optical Properties: Transparent. *Color:* Reddish brown to red, thin grains exhibit pale rose-orange tints in transmitted light. *Streak:* White. *Luster:* Vitreous.

Optical Class: Uniaxial (-). $\omega = 1.6221(3)$ $\varepsilon = 1.6186(3)$ Can be anomalously biaxial with $2V(\text{meas.}) = \sim 5^\circ$.

Cell Data: *Space Group:* R3m. $a = 14.2099(7)$ $c = 30.067(2)$ $Z = 3$

X-ray Powder Pattern: Poudrette quarry, Mont Saint-Hilaire, Rouville County, Quebec, Canada. 2.968 (100), 2.847 (98), 3.391 (51), 5.694 (50), 4.300 (43), 7.104 (38), 3.955 (31)

Chemistry:	(1)		(1)
Na ₂ O	11.96	Gd ₂ O ₃	0.17
K ₂ O	0.44	SiO ₂	44.70
CaO	7.99	TiO ₂	0.09
MnO	3.88	ZrO ₂	11.20
FeO	5.08	HfO ₂	0.17
SrO	0.45	Nb ₂ O ₅	2.51
Al ₂ O ₃	0.11	Ta ₂ O ₅	0.16
Y ₂ O ₃	0.58	F	0.40
La ₂ O ₃	1.51	Cl	0.93
Ce ₂ O ₃	2.51	H ₂ O	[0.35]
Nd ₂ O ₃	0.53	- O = F, Cl	0.38
Sm ₂ O ₃	0.11	Total	95.45

(1) Poudrette quarry, Mont Saint-Hilaire, Rouville County, Quebec, Canada; average electron microprobe analysis, H₂O calculated; corresponding to (Na_{13.05}REE_{0.99}K_{0.32}Ca_{0.23}Sr_{0.15}) $\Sigma=14.74$ (Ca_{4.59}Mn_{1.24}Y_{0.17}) $\Sigma=6.00$ (Fe_{2.39}Mn_{0.61}) $\Sigma=3.00$ (Zr_{3.00}Ti_{0.04}Hf_{0.03}) $\Sigma=3.07$ (Nb_{0.64}Si_{0.23}Zr_{0.07}Ta_{0.02}) $\Sigma=0.96$ (Si_{24.93}Al_{0.07}) $\Sigma=25.00$ O₇₃(O,OH,H₂O) $\Sigma=2.47$ [Cl_{0.89}F_{0.71}(OH)_{0.40}] $\Sigma=2.00$.

Mineral Group: Eudialyte group.

Occurrence: A late-stage phase in agpaitic pegmatite dikes in nepheline syenite associated with an alkaline intrusive complex.

Association: Microcline, nepheline (partly altered to natrolite), fluorite, fluorapatite, natrolite, gonnardite, rhodochrosite, aegirine, albite, calcite, sérandite, ancylite-(Ce), catapleite.

Distribution: From Poudrette quarry, Mont Saint-Hilaire, Rouville County, Quebec, Canada [TL]. From the Narssârssuk pegmatite, Igaliko alkaline complex, southwestern Greenland. In Norway, from the Langesundfjord area, at Brønnebukta, Siktesøya; Barkevik Strand; and the Bjørndalen quarry, Tvedalen, also at Kariåsen in the Sandefjord area. In the Burpala alkaline complex, Baikal area, Russia.

Name: A prefix, *ferro*, indicates the Fe²⁺-dominant analog of *kentbrooksit*.

Type Material: Canadian Museum of Nature, Ottawa, Ontario (CMNMC 81563).

References: (1) Johnsen, O., J.D. Grice, R.A. Gault (2003) Ferrokentbrooksit, a new member of the eudialyte group from Mont Saint-Hilaire, Quebec, Canada. *Can. Mineral.*, 41, 55-60. (2) (2003) *Amer. Mineral.*, 88(11), 1836-1867 (abs. ref. 1).