

**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)

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

(1) Poudrette quarry, Mont Saint-Hilaire, Rouville County, Quebec, Canada; average electron microprobe analysis, H<sub>2</sub>O calculated; corresponding to (Na<sub>13.05</sub>REE<sub>0.99</sub>K<sub>0.32</sub>Ca<sub>0.23</sub>Sr<sub>0.15</sub>) $\Sigma=14.74$  (Ca<sub>4.59</sub>Mn<sub>1.24</sub>Y<sub>0.17</sub>) $\Sigma=6.00$ (Fe<sub>2.39</sub>Mn<sub>0.61</sub>) $\Sigma=3.00$ (Zr<sub>3.00</sub>Ti<sub>0.04</sub>Hf<sub>0.03</sub>) $\Sigma=3.07$ (Nb<sub>0.64</sub>Si<sub>0.23</sub>Zr<sub>0.07</sub>Ta<sub>0.02</sub>) $\Sigma=0.96$ (Si<sub>24.93</sub>Al<sub>0.07</sub>) $\Sigma=25.00$ O<sub>73</sub>(O,OH,H<sub>2</sub>O) $\Sigma=2.47$ [Cl<sub>0.89</sub>F<sub>0.71</sub>(OH)<sub>0.40</sub>] $\Sigma=2.00$ .

**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 Fe<sup>2+</sup>-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).