

Kentbrooksit $(\text{Na},\text{REE})_{15}(\text{Ca},\text{REE})_6\text{Mn}_3\text{Zr}_3\text{Nb}(\text{Si}_{25}\text{O}_{73})(\text{O},\text{OH},\text{H}_2\text{O})_3(\text{F},\text{Cl})_2$

Crystal Data: Hexagonal. *Point Group:* 3m. As anhedral to subhedral aggregates to 2 cm.

Physical Properties: *Cleavage:* None. *Tenacity:* Brittle. *Fracture:* Uneven. Hardness = 5-6
D(meas.) = 3.10(4) D(calc.) = 3.08 Strongly pyroelectric.

Optical Properties: Transparent. *Color:* Yellow-brown. *Streak:* White. *Luster:* Vitreous.
Optical Class: Uniaxial (-). $\omega = 1.628(2)$ $\varepsilon = 1.623(2)$ Nonpleochroic.

Cell Data: *Space Group:* R3m. $a = 14.1686(2)$ $c = 30.0847(4)$ $Z = 3$

X-Ray Diffraction Pattern: Amdrup Fjord, Kangerdlugssuaq intrusion, East Greenland.
2.839 (100), 2.961 (91), 11.385 (43), 7.088 (41), 3.380 (37), 4.295 (34), 5.682 (30)

| Chemistry: | (1) | | (1) |
|--------------------------------|-------|--------------------------------|-------|
| SiO ₂ | 45.34 | Nb ₂ O ₅ | 2.26 |
| ZrO ₂ | 11.08 | Al ₂ O ₃ | 0.21 |
| Na ₂ O | 14.51 | SrO | 0.49 |
| CaO | 5.62 | TiO ₂ | 0.56 |
| FeO | 1.58 | HfO ₂ | 0.36 |
| MnO | 8.01 | MgO | 0.06 |
| K ₂ O | 0.43 | Cl | 0.29 |
| La ₂ O ₃ | 2.23 | F | 0.88 |
| Ce ₂ O ₃ | 2.44 | H ₂ O | 1.28 |
| Nd ₂ O ₃ | 0.69 | -O = Cl | 0.07 |
| Y ₂ O ₃ | 1.46 | -O = F | 0.37 |
| | | <hr/> | |
| | | Total | 99.34 |

(1) Amdrup Fjord, Kangerdlugssuaq intrusion, East Greenland; average electron microprobe analysis supplemented by IR spectroscopy, H₂O by CHN analysis; corresponds to $(\text{Na}_{14.93}\text{REE}_{0.44}\text{Y}_{0.42}\text{K}_{0.30}\text{Sr}_{0.15})_{\Sigma=16.24}(\text{Ca}_{3.27}\text{Mn}_{1.78}\text{REE}_{0.62}\text{Na}_{0.33})_{\Sigma=6.00}(\text{Mn}_{1.90}\text{Fe}_{0.72}\text{Al}_{0.13}\text{Mg}_{0.05})_{\Sigma=2.80}(\text{Nb}_{0.55}\text{Zr}_{0.12}\text{Ti}_{0.10})_{\Sigma=0.77}\text{Si}_{0.60}(\text{Zr}_{2.81}\text{Hf}_{0.06}\text{Ti}_{0.13})_{\Sigma=3}[(\text{Si}_3\text{O}_9)_2(\text{Si}_9\text{O}_{27})_2\text{O}_2][\text{F}_{1.51}\text{Cl}_{0.27}(\text{OH})_{0.22}]_{\Sigma=2}\cdot 2.3\text{H}_2\text{O}$.

Polymorphism & Series: The Nb,REE,Mn,F endmember of a series in the eudialyte group.

Mineral Group: Eudialyte group.

Occurrence: In alkaline pegmatitic bodies cutting pulaskite.

Association: Kupletskite, låvenite, catapleiite, hjortdahlite, eudialyte, alkali feldspar, nepheline, aegirine, albite.

Distribution: From near the head of Amdrup Fjord, Kangerdlugssuaq intrusion, East Greenland.

Name: Honors geologist C. Kent Brooks for significant contributions to the understanding of the Kangerdlugssuaq area as a rifted continental margin.

Type Material: Geological Museum, University of Copenhagen, Denmark and in the Canadian Museum of Nature, Ottawa, Ontario, Canada.

References: (1) Johnsen, O., J.D. Grice, and R.A. Gault (1998) Kentbrooksit from the Kangerdlugssuaq intrusion, East Greenland, a new Mn-REE-Nb-F end-member in a series within the eudialyte group: Description and crystal structure. *Eur. J. Mineral.*, 10, 207-219. (2) (1999) *Amer. Mineral.*, 84, 194 (abs. ref. 1). (3) Rastsvetaeva, R.K. and N.V. Chukanov (2012) Classification of eudialyte-group minerals. *Geology of Ore Deposits* 54, 487-497.