Ferro-richterite
Na[NaCa](Fe<sup>2+</sup>, Mg)<sub>5</sub>Si<sub>8</sub>O<sub>22</sub>(OH)<sub>2</sub>

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Crystal Data: Monoclinic. Point Group: 2/m. Crystals prismatic; in reticulated masses; as overgrowths on clinopyroxene. Twinning: [Simple or multiple twinning || {100}.]


Luster: [Vitreous.]

Cell Data: Space Group: [C2/m.] a = 9.982(7) (synthetic ferro-richterite). b = 18.223(6) c = 5.298(5) β = 103°44′(7) γ = 2 Z = 2

X-ray Powder Pattern: Synthetic ferro-richterite.
8.58 (100), 2.739 (70), 3.18 (65), 2.540 (50), 3.43 (35), 2.615 (35), 3.32 (25)

Chemistry:

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\begin{array}{cccc}
\text{SiO}_2 & 48.85 & 51.15 & \text{MnO} \\
\text{TiO}_2 & 1.02 & 1.33 & \text{MgO} \\
\text{Al}_2\text{O}_3 & 2.39 & 1.33 & \text{CaO} \\
\text{Fe}_2\text{O}_3 & 0.82 & \text{Na}_2\text{O} & 4.37 \\
\text{Cr}_2\text{O}_3 & 0.04 & \text{K}_2\text{O} & 1.24 \\
\text{FeO} & 30.19 & 20.98 & \text{Total} \\
\end{array}
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(1) Baie-des-Moutons, Quebec, Canada; by electron microprobe, Fe<sup>2+</sup>:Fe<sup>3+</sup> calculated from stoichiometry, original total given as 99.68%, corresponding to (Na<sub>0.59</sub>K<sub>0.25</sub>)<sub>Σ=0.84</sub>(Ca<sub>0.52</sub>Na<sub>0.17</sub>Mn<sub>0.02</sub>)[Fe<sup>2+</sup><sub>0.98</sub>Al<sub>0.02</sub>]<sub>Σ=2.00</sub>(Fe<sup>2+</sup><sub>0.39</sub>Mg<sub>0.51</sub>Ti<sub>0.12</sub>Al<sub>0.05</sub>)<sub>Σ=5.00</sub>(Si<sub>6.10</sub>Al<sub>0.39</sub>)<sub>Σ=8.00</sub>O<sub>22</sub>(OH)<sub>2</sub>. (2) Kangerdlugssuaq Fjord, Greenland; by electron microprobe, Fe<sup>2+</sup>:Fe3+ calculated: corresponding to (Na<sub>0.77</sub>K<sub>0.23</sub>)<sub>Σ=0.99</sub>(Ca<sub>1.82</sub>Na<sub>0.18</sub>)<sub>Σ=2.00</sub>(Fe<sup>2+</sup><sub>0.24</sub>Mg<sub>1.83</sub>Ti<sub>0.15</sub>Fe<sup>3+</sup><sub>0.09</sub>Al<sub>0.02</sub>)<sub>Σ=5.00</sub>(Si<sub>7.78</sub>Al<sub>0.22</sub>)<sub>Σ=8.00</sub>O<sub>22</sub>(OH)<sub>2</sub>.

Polymorphism & Series: Forms a series with richterite.

Mineral Group: Amphibole (sodic-calcic) group: Mg/[(Mg + Fe<sup>2+</sup>)] < 0.5; (Na + K)<sub>A</sub> ≥ 0.5; 0.67 Na<sub>B</sub> ≥ 1.33; (Ca + Na)<sub>B</sub> ≥ 1.34; Si ≥ 7.5.

Occurrence: A rare accessory mineral in sodium-rich syenites and their volcanic equivalents; replacing ferromagnesian minerals in granite.

Association: Feldspar, pyroxenes, zircon, fayalite, ferro-actinolite.

Distribution: From the Baie-des-Moutons complex, La Tabatière, Quebec, Canada. At the Kangerdlugssuaq Fjord, Greenland. From the Tibchi ring complex, Nigeria.

Name: For the ferrous iron in its composition and similarity to richterite.

Type Material: n.d.


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