Ferri-kaersutite \( \text{NaCa}_2(\text{Mg}_3\text{TiFe}^{3+})(\text{Si}_6\text{Al}_2)\text{O}_{22}\text{O}_2 \)

Crystal Data: Monoclinic.  \textbf{Point Group}: \( 2\overline{1}m \).  As prismatic crystals to 200 \( \mu \text{m} \).


Cell Data: \textbf{Space Group}: \( \text{C}2\overline{1}m \).  \( a = 9.8378(8) \) \( b = 18.0562(9) \) \( c = 5.3027(3) \) \( \beta = 105.199(9)^\circ \) \( Z = 2 \)

X-ray Powder Pattern: Harrow Peaks, Victoria Land, Antarctica.  
8.4 (s), 2.707 (s), 3.379 (ms), 3.115 (ms), 2.598 (ms), 3.266 (m), 2.938 (m)

Chemistry:

\begin{array}{lcc}
\text{SiO}_2 & 41.69 & 40.68 \\
\text{TiO}_2 & 5.30 & 9.01 \\
\text{Al}_2\text{O}_3 & 13.65 & 11.51 \\
\text{Cr}_2\text{O}_3 & 0.09 & \\
\text{Fe}_2\text{O}_3 & 4.52 & 9.01 \\
\text{MgO} & 15.54 & 13.64 \\
\text{CaO} & 11.03 & 12.65 \\
\text{MnO} & 0.11 & \\
\text{FeO} & 2.83 & \\
\text{Na}_2\text{O} & 2.88 & 3.50 \\
\text{K}_2\text{O} & 0.96 & \\
\text{H}_2\text{O} & 0.70 & \\
\text{F} & 0.24 & \\
\text{Cl} & 0.08 & \\
\text{O} = (\text{F,Cl})_2 & 0.12 & \\
\text{Total} & 99.50 & 100.00 \\
\end{array}

(1) Harrow Peaks, Victoria Land, Antarctica; average of 10 electron microprobe analyses supplemented by SIM and Mössbauer spectroscopy; corresponds to 
\( (\text{Na}_{0.816}\text{K}_{0.179})_2\text{Fe}^{3+}_1\text{Al}_{1.911}\text{Si}_{6.089}\text{O}_{22}\text{O}_2 \)


Occurrence: In an ultramafic (spinel-bearing lherzolite) mantle xenolith in alkaline mafic rock.

Association: Forsterite, diopside, Cr-bearing spinel.

Distribution: From Harrow Peaks, Victoria Land, Antarctica.

Name: For an amphibole with sodium and calcium dominant in the A and B sites respectively, ferric iron in the C site and \( \text{O}^2- \) dominant in the W site.

Type Material: Natural History Museum, University of Pisa, Italy (19689).

References: (1) Gentili, S., C. Biagioni, P. Comodi, M. Pasero, C. McCammon, and C. Bonadiman (2016) Ferri-kaersutite, \( \text{NaCa}_2(\text{Mg}_3\text{TiFe}^{3+})(\text{Si}_6\text{Al}_2)\text{O}_{22}\text{O}_2 \), a new oxo-amphibole from Harrow Peaks, Northern Victoria Land, Antarctica. Amer. Mineral., 101, 461-468.