Gjerdingenite-Na  
\[
K_2Na(Nb_3Ti)Si_8O_{24}(OH)_2O_2\cdot5H_2O
\]

Crystal Data: Monoclinic.  
Point Group: 2/m.  
Crystals, to 0.5 mm, are equant, prismatic or tabular, and poorly formed, displaying {100}, {001} and {010}. Crystals curved or divergent; some are hollow. As cavernous, or massive granular pseudomorphs of vuonnemite, to 13 cm.

Physical Properties:  
Cleavage: None.  
Fracture: Uneven.  
Tenacity: Brittle.  
Hardness = 5  
D(meas.) = 2.71(1)  
D(calc.) = 2.69

Optical Properties:  
Transparent to translucent.  
Color: Colorless to pale pink, whitish pink and cream-colored.  
Streak: White.  
Luster: Vitreous.

Optical Class: Biaxial (+).  
\[ \alpha = 1.647(2) \]  
\[ \beta = 1.653(2) \]  
\[ \gamma = 1.755(3) \]  
2V(meas.) = 25(10)°  
2V(calc.) = 28.5°  
Orientation: \( Y = b \).  
Dispersion: None.

Cell Data:  
Space Group: \( C2/m \).  
\[ a = 14.6119(5) \]  
\[ b = 14.1426(6) \]  
\[ c = 7.9022(6) \]  
\[ \beta = 117.432(6)° \]  
\[ Z = 2 \]

X-ray Powder Pattern: Poudrette quarry, Mont Saint-Hilaire, Quebec, Canada.  
3.249 (100), 7.044 (54), 3.252 (51), 4.995 (44), 6.510 (42), 7.102 (29), 3.148 (28)

Chemistry:

\[
\begin{array}{cccc}
\text{Na}_2O & 4.04 & 2.60 & \text{Fe}_2O_3 \\
\text{K}_2O & 3.97 & 7.90 & \text{Al}_2O_3 \\
\text{CaO} & 1.95 & & \text{SiO}_2 \\
\text{BaO} & 0.92 & & \text{TiO}_2 \\
\text{MnO} & 0.27 & & \text{Nb}_2O_5 \\
\text{ZnO} & 0.17 & & \text{H}_2O \\
\end{array}
\]

Total 100.98  
(1) Poudrette quarry, Mont Saint-Hilaire, Quebec, Canada; average of 9 electron microprobe analyses, \( H_2O \) by TGA; corresponding to \((K_{0.99}Na_{0.62}Ca_{0.37}Ba_{0.07})\Sigma_{2.01}(Na_{0.90}Ca_{0.04}Mn_{0.04}Zn_{0.02})\Sigma_{1.00}(Nb_{2.14}Ti_{1.44}Fe_{0.09})\Sigma_{4.00}(Si_{7.95}Al_{0.05})\Sigma_{5.00}(OH)_{2.09}O_{1.91}H_2O_{5.32}.
(2) \( K_2Na(Nb_3Ti)Si_8O_{24}(OH)_2O_2\cdot5H_2O. \)

Mineral Group: Labuntsovite group, kuzenkoite subgroup.

Occurrence: As alteration of vuonnemite formed in hydrothermal assemblages of peralkaline pegmatites related to agpaitic feldspathoidal syenites.

Association: Microcline, albite, aegirine, analcime, a eudialyte-group mineral, natrolite, epistolite, polylithionite, steacyite, thorite, ekanite, brockite, fluorapatite, yofortierite, calcite, hemimorphite, sauconite (?), earthy Mn oxides.

Distribution: From the East Hill suite, De-Mix quarry (now part of the Poudrette quarry), Mont Saint-Hilaire, Quebec, Canada.

Name: Signifies the structural analog of gjerdingenite-Fe with dominant \( Na \) in the \( D \) structural site.

Type Material: A.E. Fersman Mineralogical Museum, Academy of Sciences, Moscow, Russia (92112) and Canadian Museum of Nature, Ottawa, Canada (CMNMC 85457).

References:  