Loudounite

\[ \text{NaCa}_5\text{Zr}_4\text{Si}_{16}\text{O}_{40}(\text{OH})_{11}\cdot8\text{H}_2\text{O} \]

Crystal Data: n.d.  Point Group: n.d.  As radiating fibrous crystals, forming spherules, to 0.1 mm.

Physical Properties:  Hardness = \( \sim 5 \)  D(meas.) = 2.48(3)  D(calc.) = n.d.


Optical Class: Biaxial. \( \alpha = 1.536(4) \)  \( \beta = \) n.d. \( \gamma = 1.550(4) \)  2V(meas.) = n.d.


X-ray Powder Pattern:  Goose Creek quarry, Virginia, USA.

2.931 (10b), 4.06 (7b), 7.37 (6), 5.81 (5), 3.527 (4), 2.694 (4), 4.56 (3)

Chemistry:

\[
\begin{align*}
\text{SiO}_2 & \quad 45.8 \\
\text{ZrO}_2 & \quad 25.7 \\
\text{Al}_2\text{O}_3 & \quad 0.8 \\
\text{FeO} & \quad 2.0 \\
\text{MnO} & \quad \text{trace} \\
\text{MgO} & \quad 0.3 \\
\text{CaO} & \quad 12.1 \\
\text{Na}_2\text{O} & \quad 1.3 \\
\text{K}_2\text{O} & \quad 0.2 \\
\text{H}_2\text{O} & \quad [11.8] \\
\text{Total} & \quad [100.0]
\end{align*}
\]

(1) Goose Creek quarry, Virginia, USA; by electron microprobe, \( \text{H}_2\text{O} \) by difference; corresponds to (\( \text{Na}_{0.85}\text{K}_{0.09}\text{Ca}_{0.06}\))\( \Sigma = 1.00(\text{Ca}_{4.31}\text{Fe}_{0.56}\text{Mg}_{0.15})\Sigma = 5.02\text{Zr}_{4.22}(\text{Si}_{15.44}\text{Al}_{0.32})\Sigma = 15.67\text{O}_{40}(\text{OH})_{10.70}\cdot 7.92\text{H}_2\text{O}.

Occurrence:  A late-stage mineral in the alteration of diabase.

Association: Ancylite, epidote, prehnite, chlorite, actinolite, stilbite, albite, zircon, apophyllite, apatite, titanite, quartz, calcite.

Distribution: In the Goose Creek quarry, Leesburg, Loudoun Co., and the Fairfax quarry, Centreville, Fairfax Co., Virginia, USA.

Name:  For the occurrence in Loudoun Co., Virginia, USA.
