Yusupovite

\( \text{Na}_2\text{Zr(Si}_6\text{O}_{15})(\text{H}_2\text{O})_3 \)

Crystal Data: Monoclinic.  \textit{Point Group}: 2/m.  As prismatic crystals to 2 mm.


Hardness = 5 \quad \text{D(meas.)} = 2.69(2) \quad \text{D(calc.)} = 2.713


\textit{Optical Class}: Biaxial (+).  \( \alpha = 1.563(2) \quad \beta = 1.565(2) \quad \gamma = 1.577(2) \quad 2V(\text{meas.}) = 42(3)^\circ \)

\( 2V(\text{calc.}) = 45^\circ \quad \text{Dispersion}: \quad r > v. \)

Cell Data:  Space Group: \textit{C2}/m.  \( a = 14.5975(4) \quad b = 14.1100(4) \quad c = 14.4394(4) \)

\( \beta = 90.0399(4)^\circ \quad Z = 8 \)

X-ray Powder Pattern:  Darai-Pioz glacier, Tien-Shan Mountains, Tajikistan.

7.05 (100), 3.24 (96), 3.10 (69), 5.13 (53), 6.51 (42), 3.17 (34), 2.941 (27)

Chemistry:

\begin{align*}
\text{Nb}_2\text{O}_5 & \quad 0.39 \\
\text{SiO}_2 & \quad 58.84 \\
\text{ZrO}_2 & \quad 16.55 \\
\text{HfO}_2 & \quad 0.30 \\
\text{FeO} & \quad 0.01 \\
\text{Y}_2\text{O}_3 & \quad 3.05 \\
\text{Cs}_2\text{O} & \quad 2.58 \\
\text{K}_2\text{O} & \quad 0.95 \\
\text{Na}_2\text{O} & \quad 8.91 \\
\text{H}_2\text{O} & \quad [7.40] \\
\text{Total} & \quad 98.98
\end{align*}

Polymorphism & Series:  Dimorph of elpidite.

Occurrence:  In glacial moraine derived from an alkaline igneous complex.

Association:  Reedmergnerite, quartz, pectolite, zeravshanite, mendeleevite-(Ce), fluorite, leucosphenite, a pyrochlore-group mineral, neptunite, telyushenkoite, moskvinite-(Y), shibkovite.

Distribution:  From the Darai-Pioz glacier, upper reaches of the Darai-Pioz River, Alaisky mountain ridge, Tien-Shan Mountains, Tajikistan.

Name:  Honors Rustam Gumirovich Yusupov (b. 1935), a Uzbek mineralogist and curator at the Geological Museum, Tashkent, Uzbekistan.

Type Material:  A.E. Fersman Mineralogical Museum, Russian Academy of Sciences, Moscow, Russia (4543/1).