Virgilite \( \text{Li}_x\text{Al}_x\text{Si}_{3-x}\text{O}_6 \)

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Crystal Data: Hexagonal. Point Group: 622. Rarely as euhedral crystals, to 50 \( \mu \)m, displaying a hexagonal dipyramid and prism. As irregular rosette-shaped fibrous overgrowths on other minerals.


Optical Properties: Transparent. Color: Colorless. Optical Class: Uniaxial (-). \( n = 1.520 \)

Cell Data: Space Group: \( P6_22 \) or \( P6_422 \). \( a = 5.132(1) \) \( c = 5.454(1) \) \( Z = [1] \)

X-ray Powder Pattern: Macusani, Peru. 3.441 (100), 1.870 (25), 4.442 (13), 1.605 (9), 1.408 (9), 2.567 (6), 2.224 (6)

Chemistry:

\[
\begin{array}{c|c}
\text{SiO}_2 & 77.29 \\
\text{Al}_2\text{O}_3 & 16.57 \\
\text{FeO} & 0.64 \\
\text{Li}_2\text{O} & 4.93 \\
\text{Cl} & 0.0 \\
\text{P}_2\text{O}_5 & 0.57 \\
\hline
\text{Total} & 100.0
\end{array}
\]

(1) Macusani, Peru; by electron microprobe and laser spectrograph; traces of TiO\(_2\), MnO, MgO, CaO, Na\(_2\)O, K\(_2\)O, F; corresponds to \( \text{Li}_{0.61}(\text{Si}_{1.37}\text{Al}_{0.69}\text{Fe}_{0.02}\text{P}_{0.01})_{\sum=2.00}\text{Si}_6 \).

Occurrence: As inclusions in stream cobbles of peraluminous volcanic glass.

Association: Quartz, andalusite, sillimanite, potassic feldspar, biotite, spinel.

Distribution: From near Macusani, Puno Department, Peru.

Name: In honor of Professor Virgil Everett Barnes (1903—), University of Texas, Austin, Texas, USA, prominent worker on tektites, impactites, and other natural glasses.
