Kokchetavite  

\[ \text{KAISi}_3\text{O}_8 \]

**Crystal Data:** Hexagonal. \textit{Point Group: 6/m 2/m 2/m.} Crystals platy or prismatic, to 7 \( \mu \text{m} \), with well developed (001) steps and (100) planes.


**Optical Class:** Biaxial.

**Cell Data:** \textit{Space Group: P6/mcc.} \( a = 10.5757(3) \) \( c = 15.6404(6) \) \( Z = 8 \)

**X-ray Powder Pattern:** Kokchetav Massif, northern Kazakhstan. (selective area diffraction pattern) 7.82(001), 4.56(100), 3.93(101), 2.98(102), 2.63(110), 2.51(111), 2.26(103), 1.80(104), 1.72(210), 1.68(211)

**Chemistry:**

\[
\begin{array}{lrl}
\text{SiO}_2 & 64.6 \\
\text{Al}_2\text{O}_3 & 18.0 \\
\text{K}_2\text{O} & 15.5 \\
\text{Na}_2\text{O} & < 0.3 \\
\text{Total} & 100.1 \\
\end{array}
\]

(1) Kokchetav Massif, northern Kazakhstan; average of several EDS analyses, Raman spectroscopic analysis similar to sanidine, IR spectroscopy confirms absence of OH \text{ and H}_2\text{O; stated to be close to KAlSi}_3\text{O}_8.

**Polymorphism & Series:** A metastable polymorph of orthoclase, microcline and sanidine.

**Mineral Group:** Feldspar group.

**Occurrence:** As inclusions in clinopyroxene and garnet within ultrahigh-grade granitic and biotite gneiss (estimated 900-1000 °C and 5.8-6.5 GPa).

**Association:** Diopside, grossular-rich garnet, phengite mica, potassium feldspar, pyrrhotite, cristobalite, quartz, titanite, zircon, talc.

**Distribution:** From Kumdy-Kol, Kokchetav Massif, northern Kazakhstan.

**Name:** For the locality of the first specimens, the \textit{Kokchetav} Massif.

**Type Material:** National Museum of Natural Science, Taichung, (Taiwan) Republic of China (NMNS004438-P010220).

**References:**