Clinozoisite

\[ \text{Ca}_2\text{Al}_3(\text{Si}_4\text{O}_{12})(\text{Si}_2\text{O}_7)\text{O(OH)} \]

Crystal Data: Monoclinic. Point Group: 2/m. Crystals prismatic, typically elongated and striated || [010]; commonly coarse to fine granular; also fibrous. Twinning: Lamellar on {100}, uncommon.


Cell Data: Space Group: P2_1/m. \( a = 8.879(5) \quad b = 5.583(5) \quad c = 10.155(6) \) \( \beta = 115.50(5)^\circ \quad Z = 2 \)

X-ray Powder Pattern: Vernirovice, Czech Republic. (ICDD 21-128). 2.89 (100), 2.79 (90), 2.59 (70), 2.68 (60), 2.67 (60), 2.40 (60), 2.29 (60)

Chemistry:
\[
\begin{array}{cccc}
\text{SiO}_2 & 40.36 & 38.01 & \text{MgO} & 0.74 & 0.01 \\
\text{TiO}_2 & 0.09 & \text{trace} & \text{CaO} & 22.62 & 23.86 \\
\text{Al}_2\text{O}_3 & 30.67 & 31.71 & \text{H}_2\text{O}^+ & 3.50 & 1.83 \\
\text{Fe}_2\text{O}_3 & 0.61 & 4.68 & \text{H}_2\text{O}^- & 0.00 & 0.01 \\
\text{FeO} & 1.77 & 0.23 & \text{trace} & 100.36 & 100.34 \\
\text{MnO} & \text{trace} \\
\end{array}
\]

(1) Kälviä, Finland; corresponds to \((\text{Ca}_{1.86}\text{Fe}^{2+}_{0.11}\text{Mg}_{0.08})_{\Sigma=2.05}(\text{Al}_{2.78}\text{Fe}^{3+}_{0.04})_{\Sigma=2.82}\text{Si}_{3.10}\text{O}_{12.5}\) (Si_2.93Al_0.08)_{\Sigma=3.06}O_{12.5}(OH)_{0.94}.

(2) Camaderry Mountain, Ireland; corresponds to \((\text{Ca}_{1.96}\text{Fe}^{2+}_{0.02})_{\Sigma=1.98}(\text{Al}_{2.79}\text{Fe}^{3+}_{0.27})_{\Sigma=3.06}\) (Si_2.93Al_0.08)_{\Sigma=3.06}O_{12.5}(OH)_{0.94}.

Polymorphism & Series: Dimorphous with zoisite.

Mineral Group: Epidote group.

Occurrence: Typically in low- to medium-grade regionally metamorphosed igneous and sedimentary rocks, as well as in contact metamorphosed calcium-rich sediments; an alteration product of plagioclase feldspars (saussuritization).

Association: Amphiboles, plagioclase, quartz.

Distribution: A widespread mineral. Typical occurrences for good crystals include: at the Goslarwand, near Prägraten, Tirol, Austria. From Vernirovice, Czech Republic. At Kälviä, Finland. From Arendal, Norway. At Camaderry Mountain, Co. Wicklow, Ireland. From Amborompotsy, Madagascar. At Sittampundi, Madras, India. In the USA, from the Belvidere Mountain quarries, Lowell, Orleans Co., Vermont; in northern Spade Spring Canyon, Los Angeles Co., California; in the Nightingale district, Pershing Co., Nevada. In Mexico, from the Juarez district, Baja California, and at Alamos, Sonora. In Canada, from Timmins, Ontario.

Name: For its monoclinic crystallography and relation to zoisite.

Type Material: n.d.


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