Amstallite

\[ \text{CaAl(Si, Al)}_4 \text{O}_8 (\text{OH})_4 \cdot (\text{H}_2 \text{O}, \text{Cl}) \]

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Crystal Data: Monoclinic. Point Group: 2/m. As acicular prismatic crystals, to 1 cm, elongated and commonly striated || [001], with cross sections appearing rhombohedral or hexagonal.


Optical Properties: Transparent to translucent. Color: Colorless. Luster: Vitreous. Optical Class: Biaxial (+). Orientation: Z = b; Y \& c = 10°. Dispersion: r < v, weak. \( \alpha = 1.533 \beta = 1.534 \gamma = 1.538 \) 2V(meas.) = 57(2)° 2V(calc.) = 59°

Cell Data: Space Group: C2/c. \( a = 18.830(2) \quad b = 11.517(2) \quad c = 5.190(1) \beta = 100.86(1)^\circ \quad Z = 4 \)

X-ray Powder Pattern: Amstall, Austria. 9.75 (100), 3.603 (100), 3.816 (90), 5.43 (70), 4.714 (60), 3.175 (60), 4.069 (40)

Chemistry:

\[
\begin{array}{ccc}
\text{SiO}_2 & 49.41 \\
\text{Al}_2\text{O}_3 & 22.84 \\
\text{CaO} & 13.80 \\
\text{Cl} & 1.75 \\
\text{H}_2\text{O} & 12.40 \\
\text{O} \sim \text{Cl}_2 & 0.39 \\
\text{Total} & 99.81 \\
\end{array}
\]

(1) Amstall, Austria; by electron microprobe, corresponds to \( \text{Ca}_{0.98}\text{Al}_{1.78}\text{Si}_{3.26}\text{O}_{12.80}\text{Cl}_{0.20}\text{H}_{5.46} \).

Occurrence: In open fissures cutting pegmatitic schlieren, in hydrothermally altered graphite-bearing metamorphic rocks.

Association: Apatite, rutile, siderite, albite, laumontite, calcite, vivianite.

Distribution: In the Amstall graphite quarry, Amstall, Austria.

Name: For the type locality at Amstall, Austria.

Type Material: Institute of Mineralogy and Crystallography, Vienna University; Natural History Museum, Vienna, Austria.

References: (1) Quint, R. (1987) Description and crystal structure of amstallite, \( \text{CaAl(OH)}_2[\text{Al}_{0.8}\text{Si}_{3.2}\text{O}_8(\text{OH})_2] \cdot \left[(\text{H}_2\text{O})_{0.8}\text{Cl}_{0.2}\right] \), a new mineral from Amstall, Austria. Neues Jahrb. Mineral., Monatsh., 253–262. (2) (1988) Amer. Mineral., 73, 1492–1493 (abs. ref. 1).