Zdenekite

\[ \text{NaPbCu}_5(\text{AsO}_4)_4\text{Cl} \cdot 5\text{H}_2\text{O} \]

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Crystal Data: Tetragonal. Point Group: 422. Tabular crystals, to 0.1 mm, flattened on {001}, showing {001}, {100}, {110}, in spherical aggregates and crusts.


Optical Class: Uniaxial (–). Pleochroism: Strong; O = turquoise-blue; E = pale blue to light green. \( \omega = 1.770(5) \quad \epsilon = 1.710(5) \)

Cell Data: Space Group: \( P4_122 \) or \( P4_322 \). \( a = 10.066(1) \quad c = 39.39(4) \quad Z = 8 \)

X-ray Powder Pattern: Cap Garonne mine, France.

9.83 (100), 3.132 (90), 4.925 (60), 4.482 (50b), 2.515 (50), 2.772 (40), 1.778 (40), 1.778 (40)

Chemistry:

\[
\begin{array}{cc}
\text{As}_2\text{O}_5 & 36.66 \quad 37.40 \\
\text{CuO} & 32.97 \quad 32.36 \\
\text{PbO} & 16.79 \quad 18.16 \\
\text{CaO} & 0.62 \\
\text{Na}_2\text{O} & 2.92 \quad 2.52 \\
\text{Cl} & 3.54 \quad 2.88 \\
\text{H}_2\text{O} & 7.2 \quad 7.33 \\
-\text{O} &= -\text{Cl}_2 & 0.80 \quad 0.65 \\
\hline
\text{Total} & 99.90 \quad 100.00
\end{array}
\]

(1) Cap Garonne mine, France; by electron microprobe, average of 16 analyses, H\(_2\)O by TGA; corresponding to Na\(_{1.15}\)Ca\(_{0.13}\)Pb\(_{0.92}\)Cu\(_{5.09}\)(AsO\(_4\))\(_{3.90}\)Cl\(_{1.23}\)•4.91H\(_2\)O.

(2) NaPbCu\(_5\)(AsO\(_4\))\(_4\)Cl•5H\(_2\)O.

Occurrence: A rare post-mining mineral formed in the oxidized zone of a red-bed sandstone Pb–Cu deposit (Cap Garonne mine, France).

Association: Olivenite, geminite, antlerite, anglesite, covellite, tennantite, galena (Cap Garonne mine, France); mimetite, beudantite–segnitite (Broken Hill, Australia).

Distribution: From the Cap Garonne mine, near le Pradet, Var, France. At Broken Hill, New South Wales, Australia.

Name: Honoring Dr. Zdenek Johan (1935–), mineralogist and Director of Scientific Affairs, Bureau de Recherches Géologiques et Minières, Orléans, France.

Type Material: Natural History Museum, Geneva, Switzerland; Natural History Museum, Paris, France.