Ashburtonite \( \text{HPb}_4\text{Cu}_4\text{Si}_4\text{O}_{12}(\text{HCO}_3)_4(\text{OH})_4\text{Cl} \)

Crystal Data: Tetragonal. \textit{Point Group}: 4/\textit{m}. Prismatic along [001], to 0.4 mm, showing \{110\}, \{100\}, \{001\}, and \{301\}.

Physical Properties: \textit{Fracture}: Conchoidal. \textit{Tenacity}: Brittle. \textit{Hardness} = n.d. \(D(\text{meas.}) = >4.07\) \(D(\text{calc.}) = 4.69\)


Cell Data: \textit{Space Group}: \textit{I}4/m. \(a = 14.1852(8)\) \(c = 6.0759(8)\) \(Z = 2\)

X-ray Powder Pattern: Anticline prospect, Western Australia. 10.2 (100), 4.495 (100), 3.333 (100), 3.013 (90), 5.644 (70), 2.611 (50), 2.805 (30)

Chemistry:

\[
\begin{array}{ll}
\text{Chemistry:} & \\
\text{SiO}_2 & 14.07 \\
\text{CuO} & 18.66 \\
\text{PbO} & 52.17 \\
\text{Cl} & 2.28 \\
\text{H}_2\text{O} & 4.22 \\
\text{CO}_2 & 10.31 \\
\text{O} = \text{Cl}_2 & 0.51 \\
\text{Total} & [101.20] \\
\end{array}
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(1) Anticline prospect, Western Australia; by electron microprobe, average of four analyses, OH and CO\textsubscript{2} confirmed present by infrared spectroscopy, H\textsubscript{2}O and CO\textsubscript{2} calculated from stoichiometry; corresponds to Pb\textsubscript{3.99}Cu\textsubscript{4.01}HSi\textsubscript{4.00}O\textsubscript{12.03}(HCO\textsubscript{3})\textsubscript{4.00}(OH)\textsubscript{4.00}Cl\textsubscript{1.10}.

Occurrence: In a weathered shear zone cutting shales and graywackes, as an alteration of galena and probably chalcopyrite.

Association: Diaboleite, duftite, beudantite, caledonite, plattnerite, cerussite, malachite, brochantite.

Distribution: From the Anticline prospect, 11 km west-southwest of Ashburton Downs homestead, Capricorn Range, Western Australia.

Name: For its occurrence near the Ashburton Downs pastoral lease and homestead, Western Australia.

Type Material: Canadian Museum of Nature, Ottawa, Canada, 58391; Museum Victoria, Melbourne, Australia, M40712.