Bario-orthojoaquinite

\((\text{Ba, Sr})_4\text{Fe}^{2+}_2\text{Ti}_2\text{Si}_8\text{O}_{26}\cdot\text{H}_2\text{O}\)

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Crystal Data: Orthorhombic. Point Group: 2/m 2/m 2/m or mm2. As pseudotetragonal crystals, steep dipyramidal \{111\} and truncated by \{001\}, to 8 mm; pyramidal faces are curved and striated; as aggregates.

Physical Properties: Cleavage: \{001\}, good. Hardness = 5.5 D(meas.) = 3.96 D(calc.) = 3.96


Cell Data: Space Group: Ccmm, Cc2m, or Ccm2. \(a = 10.477(5)\) \(b = 9.599(1)\) \(c = 22.59(1)\) \(Z = [4]\)

X-ray Powder Pattern: Gem mine, California, USA. 2.997 (100), 2.953 (95), 2.824 (90), 5.64 (70), 2.935 (70), 4.30 (62), 3.203 (50)

Chemistry:

\[
\begin{array}{lcr}
\text{SiO}_2 & 35.15 \\
\text{TiO}_2 & 11.33 \\
\text{Al}_2\text{O}_3 & 0.57 \\
\text{RE}_2\text{O}_3 & 0.00 \\
\text{FeO} & 9.47 \\
\text{MnO} & 0.62 \\
\text{CaO} & 0.17 \\
\text{SrO} & 3.34 \\
\text{BaO} & 38.56 \\
\text{Na}_2\text{O} & 0.12 \\
\text{H}_2\text{O} & 1.3 \\
\hline
\text{Total} & 100.63
\end{array}
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(1) Gem mine, California, USA; by electron microprobe, corresponds to \((\text{Ba}_{3.44}\text{Sr}_{0.44}\text{Al}_{0.15}\text{Ca}_{0.04})\Sigma=4.07\left(\text{Fe}^{2+}_{1.80}\text{Mn}_{0.12}\text{Na}_{0.05}\right)\Sigma=1.97\left(\text{Ti}_{1.94}\text{Al}_{0.06}\right)\Sigma=2.00\) \(\text{Si}_{8.06}\text{O}_{26}\cdot0.93\text{H}_2\text{O}\).

Mineral Group: Joaquinite group.

Occurrence: In a block of highly fractured basalt subjected to high-pressure metamorphism and serpentinization.

Association: Benitoite, baotite, fresnoite, natrolite.

Distribution: At the Gem mine, San Benito Co., California, USA.

Name: For its BARIum content, ORTHOrhombic symmetry, and membership in the joaquinite group.

Type Material: University of California, Santa Barbara, California; Harvard University, Cambridge, Massachusetts, 119525; National Museum of Natural History, Washington, D.C., USA, 149428.


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