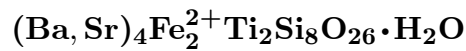


Bario-orthojoaquinite

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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

Optical Properties: Transparent to translucent. *Color:* Yellow-brown. *Streak:* Pale yellow. *Luster:* Vitreous.

Optical Class: Biaxial (+). *Pleochroism:* *X* = very pale yellow; *Y* = pale yellow; *Z* = yellow. *Orientation:* *X* = *a*; *Y* = *b*; *Z* = *c*. *Dispersion:* $r > v$, strong. *Absorption:* $Z \gg Y > X$.
 $\alpha = 1.735$ $\beta = 1.737$ $\gamma = 1.800$ $2V$ (meas.) = 10° – 15°

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:

	(1)
SiO ₂	35.15
TiO ₂	11.33
Al ₂ O ₃	0.57
RE ₂ O ₃	0.00
FeO	9.47
MnO	0.62
CaO	0.17
SrO	3.34
BaO	38.56
Na ₂ O	0.12
H ₂ O	1.3
Total	100.63

(1) Gem mine, California, USA; by electron microprobe, corresponds to
 $(\text{Ba}_{3.44}\text{Sr}_{0.44}\text{Al}_{0.15}\text{Ca}_{0.04})_{\Sigma=4.07}(\text{Fe}_{1.80}^{2+}\text{Mn}_{0.12}\text{Na}_{0.05})_{\Sigma=1.97}(\text{Ti}_{1.94}\text{Al}_{0.06})_{\Sigma=2.00}$
 $\text{Si}_{8.00}\text{O}_{26} \cdot 0.93\text{H}_2\text{O}$.

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.

References: (1) Wise, W.S. (1982) Strontiojoaquinite and bario-orthojoaquinite: two new members of the joaquinite group. *Amer. Mineral.*, 67, 809–816.

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