

Preisingerite

$\text{Bi}_3\text{O}(\text{AsO}_4)_2(\text{OH})$

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Crystal Data: Triclinic. *Point Group:* $\bar{1}$. Crystals are typically rounded, tabular {010}, rhomboidal in outline, displaying {100}, $\{\bar{1}11\}$, $\{\bar{2}10\}$, with several others, to 0.2 mm; generally in loose aggregates.

Physical Properties: *Cleavage:* One, indistinct. *Fracture:* Conchoidal. *Tenacity:* Brittle. Hardness = 3.5–4.5 D(meas.) = ~6 D(calc.) = 7.24

Optical Properties: Translucent. *Color:* White to grayish white; colorless in transmitted light. *Streak:* White. *Luster:* Subadamantine to adamantine.

Optical Class: Biaxial (+). $\alpha = [2.130]$ (calculated from reflectivities). $\beta = [2.16]$ $\gamma = [2.195]$ $2V(\text{meas.}) = \sim 90^\circ$

Cell Data: *Space Group:* $P\bar{1}$. $a = 9.993(3)$ $b = 7.404(3)$ $c = 6.937(3)$ $\alpha = 87.82(2)^\circ$ $\beta = 115.01(2)^\circ$ $\gamma = 111.07(2)^\circ$ $Z = 2$

X-ray Powder Pattern: San Francisco de los Andes, Argentina; very similar to petitjeanite and schumacherite.

3.281 (100), 3.263 (97), 3.194 (87), 3.091 (74), 3.016 (38), 4.524 (35), 1.967 (31)

Chemistry:

	(1)	(2)
P_2O_5	0.7	
As_2O_5	23.0	24.51
Bi_2O_3	75.8	74.53
PbO	0.5	
H_2O	1.1	0.96
Total	[101.1]	100.00

(1) San Francisco de los Andes, Argentina; by electron microprobe, elemental analysis here converted to oxides, H_2O by TGA. (2) $\text{Bi}_3\text{O}(\text{AsO}_4)_2(\text{OH})$.

Polymorphism & Series: Forms series with petitjeanite and schumacherite.

Occurrence: A rare secondary mineral in the oxidized zone of some arsenic-bearing hydrothermal mineral deposits.

Association: Rooseveltite, mixite, beudantite, bismuthite (Argentina); bismutostibiconite, atelestite, beyerite (Clara mine, Germany).

Distribution: From the San Francisco de los Andes and Cerro Negro de la Aguadita Bi–As–Cu deposits, San Juan Province, Argentina. At Tazna, Potosí, Bolivia. In Germany, from the Sauschwart mine, Schneeberg, and at Mühlleithen, Saxony; in the Black Forest, at the Clara mine, near Oberwolfach, from the Schmiedestollen, near Wittichen, in the Ödsbach Valley, near Oberkirch, and at Neubulach; from Reichenbach, near Bensheim, Hesse. In the Moldava fluorite mine, about 20 km northwest of Teplice, Krušné hory Mountains, and from near Smrkovec, Slavkovský Les Mountains, about 10 km north-northeast of Mariánské Lázně (Marienbad), Czech Republic. In the Mammoth mine, Tintic district, Juab Co., Utah, USA.

Name: To honor Anton Preisinger (1925–), Professor of Mineralogy, University of Technology, Vienna, Austria.

Type Material: Natural History Museum, Vienna, Austria, L7689.

References: (1) Bedlivy, D. and K. Mereiter (1982) Preisingerite, $\text{Bi}_3\text{O}(\text{OH})(\text{AsO}_4)_2$, a new species from San Juan Province, Argentina: its description and crystal structure. *Amer. Mineral.*, 67, 833–840. (2) Krause, W., K. Belendorff, and H.-J. Bernhardt (1993) Petitjeanite, $\text{Bi}_3\text{O}(\text{OH})(\text{PO}_4)_2$, a new mineral, and additional data for the corresponding arsenate and vanadate, preisingerite and schumacherite. *Neues Jahrb. Mineral., Monatsh.*, 487–503.

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