

Bismutoferrite**BiFe₂³⁺(SiO₄)₂(OH)**

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Crystal Data: Monoclinic. *Point Group:* *m*. Minutely crystalline, powdery, earthy, massive.**Physical Properties:** *Fracture:* Even to flat conchoidal when massive. *Tenacity:* Brittle. Hardness = n.d. D(meas.) = 4.47 D(calc.) = [5.09]**Optical Properties:** Semitransparent. *Color:* Yellow, green. *Streak:* Light green. *Optical Class:* Biaxial. $\alpha = 1.93$ $\beta = 1.97$ $\gamma = 2.01$ $2V(\text{meas.}) = \text{n.d.}$ **Cell Data:** *Space Group:* *Cm*. $a = 5.21$ $b = 9.02$ $c = 7.74$ $\beta = 100^\circ 40'$ $Z = 2$ **X-ray Powder Pattern:** Schneeberg, Germany; could be confused with chapmanite. 7.63 (100), 3.87 (100), 2.90 (70), 3.18 (50), 3.58 (35), 2.59 (35), 2.53 (25)

Chemistry:	(1)	(2)	(3)
SiO ₂	23.08	23.9	23.03
Al ₂ O ₃		0.3	
Fe ₂ O ₃	33.33	29.3	30.60
FeO		1.8	
Bi ₂ O ₃	43.26	42.5	44.64
As ₂ O ₃		0.08	
H ₂ O ⁺		1.8	1.73
Total	99.67	99.7	100.00

(1) Schneeberg, Germany. (2) Do.; corresponds to Bi_{0.92}(Fe_{1.86}³⁺Fe_{0.25}²⁺Al_{0.03})_{Σ=2.14}Si₂O₈(OH).(3) BiFe₂(SiO₄)₂(OH).**Occurrence:** Probably of hydrothermal origin, in veins cutting shale (Schneeberg, Germany).**Association:** Quartz, "chalcedony," bismuth, cobaltite, arsenopyrite, chlorargyrite (Schneeberg, Germany); quartz, bismuth, galena, silver ores (Johanngeorgenstadt, Germany); clinobisvanite (Lodi # 4 claim, California, USA).**Distribution:** In Germany, at Schneeberg, Johanngeorgenstadt, and Gersdorf, Saxony. From near Smrkovec, Slavkovský Les Mountains, about 10 km north-northeast of Mariánské Lázně, Czech Republic. In England, at the South Terras mine, St. Stephen-in-Brannel, and the Hingston Down quarry, Calstock, Cornwall, and at Buckbarrow Beck, Carney Fell, Cumbria. From the Lodi # 4 claim, Plumas Co., California, and in the Organ Mountains, Dona Ana Co., New Mexico, USA.**Name:** For BISMUTH and iron, (FERRum), in the composition.**References:** (1) Dana, E.S. (1892) Dana's system of mineralogy, (6th edition), 562. (2) Milton, C., J.M. Alexrod, and B. Ingram (1958) Bismutoferrite, chapmanite, and "hypochlorite". Amer. Mineral., 43, 656–670. (3) Zhukhlistov, A.P. and B.B. Zvyagin (1977) Determination of the crystal structures of chapmanite and bismuthoferrite [bismutoferrite] by high-voltage electron diffraction. Kristallografiya (Sov. Phys. Crystal.), 22, 731–738 (in Russian).