

Crystal Data: Tetragonal. *Point Group:* $4/m\ 2/m\ 2/m$. Crystals platy || {001}, to 0.5 mm.

Physical Properties: Hardness = 2–3 D(meas.) = n.d. D(calc.) = 6.25

Optical Properties: Semitransparent. *Color:* Yellow-orange to yellow-brown. *Streak:* Yellow. *Luster:* Adamantine.

Optical Class: Uniaxial (+). *Pleochroism:* *O* = bright yellow; *E* = brownish yellow. $\omega = > 2.0$
 $\epsilon = > 2.0$

Cell Data: *Space Group:* $I4_1/amd$. $a = 7.303(3)$ $c = 6.584(3)$ $Z = 4$

X-ray Powder Pattern: Hirschhorn, Germany.
3.656 (100), 2.739 (60), 4.85 (40), 1.878 (40), 2.918 (20), 2.280 (20), 2.583 (15)

Chemistry:	(1)	(2)	(3)
V ₂ O ₅	28.55	28.8	28.07
Bi ₂ O ₃	71.9	69.3	71.93
CaO	0.9	1.0	
Total	101.3	99.1	100.00

(1–2) Hirschhorn, Germany; by electron microprobe; the average corresponding to (Bi_{0.96}Ca_{0.05})_{Σ=1.01}VO₄. (3) BiVO₄.

Polymorphism & Series: Trimorphous with clinobisvanite and pucherite.

Occurrence: In rhyolitic tuffs, intercalated with carbonaceous matter and silicified wood.

Association: Bismite, mixite, carnotite, silver, chlorargyrite, kaolinite, hematite, goethite, barite, quartz.

Distribution: From Hirschhorn, near Kaiserlautern, Rhineland-Palatinate, Germany.

Name: In honor of Gerhard Dreyer, Assistant Professor, Johannes Gutenberg University, Mainz, Germany, who found the mineral.

Type Material: Johannes Gutenberg University, Mainz, Germany; National Museum of Natural History, Washington, D.C., USA, 159922.

References: (1) Dreyer, G. and E. Tillmanns (1981) Dreyerit: ein natürliches, tetragonales Wismutvanadat von Hirschhorn/Pfalz. Neues Jahrb. Mineral., Monatsh., 151–154 (in German with English abs.). (2) (1982) Amer. Mineral., 67, 622 (abs. ref. 1). (3) Hazen, R. and J.W.E. Mariathasan (1982) Bismuth vanadate: a high-pressure, high-temperature crystallographic study of the ferroelastic-paraelastic transition. Science, 216, 991–993.