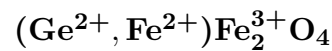


Brunogeierite



©2001-2005 Mineral Data Publishing, version 1

Crystal Data: Cubic. *Point Group:* $4/m\bar{3}2/m$. Very rare crystals, to 5 mm; usually as crusts, or as rims incrusting tennantite enclosing reinierite; as inclusions in sphalerite and magnetite.

Physical Properties: Hardness = 5 D(meas.) = n.d. D(calc.) = 5.51 Ferromagnetic.

Optical Properties: Opaque. *Color:* Gray, with brownish internal reflections in reflected light.

Optical Class: Isotropic.

R: (400) 15.5, (420) 15.0, (440) 14.5, (460) 14.1, (480) 13.8, (500) 13.6, (520) 13.4, (540) 13.3, (560) 13.2, (580) 13.1, (600) 13.0, (620) 13.0, (640) 12.9, (660) 12.8, (680) 12.8, (700) 12.8

Cell Data: *Space Group:* $Fd\bar{3}m$. $a = 8.409\text{--}8.416$ $Z = 8$

X-ray Powder Pattern: Tsumeb, Namibia.

2.540 (10), 1.484 (9), 1.615 (7), 2.972 (6), 1.095 (6), 1.720 (4), 1.283 (3)

Chemistry:	(1)	(2)	(3)	(4)
GeO ₂	37.0	40.5	42.13	35.69
Fe ₂ O ₃				64.31
FeO	63.8	60.7	57.87	
Total	100.8	101.2	100.00	100.00

(1) Tsumeb, Namibia; by electron microprobe, total Fe as FeO; corresponding to $(\text{Ge}_{0.87}\text{Fe}_{0.13}^{2+})_{\Sigma=1.00}\text{Fe}_2^{3+}\text{O}_4$. (2) Do.; total Fe as FeO; corresponding to $(\text{Ge}_{0.95}\text{Fe}_{0.05}^{2+})_{\Sigma=1.00}\text{Fe}_2^{3+}\text{O}_4$. (3) $\text{GeFe}_2^{3+}\text{O}_4$, with Fe reported as Fe^{2+} . (4) $\text{GeFe}_2^{3+}\text{O}_4$, with Fe reported as Fe^{3+} .

Mineral Group: Spinell group.

Occurrence: In the lower oxidation zone of a dolostone-hosted hydrothermal polymetallic ore deposit, at a depth of 930 meters (Tsumeb, Namibia).

Association: Tennantite, reinierite, zincian stottite (Tsumeb, Namibia); sphalerite, magnetite (France).

Distribution: From Tsumeb, Namibia. In France, from many deposits in the central Pyrénées, as at Caufkens, Ariège; Carboire, Couledoux, Estaing, and Pal Bidao, Haute-Garonne; and elsewhere.

Name: For Dr. Bruno H. Geier (1902–1987), formerly Chief Mineralogist, Tsumeb Corporation, Tsumeb, Namibia.

Type Material: n.d.

References: (1) Ottemann, J. and B. Nuber (1972) Brunogeierit, ein Germanium-Ferritspinell von Tsumeb. Neues Jahrb. Mineral., Monatsh., 263–267 (in German with English abs.). (2) (1973) Amer. Mineral., 58, 348 (abs. ref. 1). (3) Johan, Z., E. Oudin, and P. Picot (1983) Analogues germanifères et gallifères des silicates et oxydes dans les gisements de zinc des Pyrénées centrales, France; argutite et carboirite, deux nouvelles espèces minérales. Tscherma Mineral. Petrog. Mitt., 31, 97–119 (in French with English abs.).