

Crystal Data: Hexagonal. *Point Group:* $6/m\ 2/m\ 2/m$. Massive; as embedded grains.

Physical Properties: Hardness = < 6, much softer than trogtalite and hastite.
VHN = n.d. D(meas.) = n.d. D(calc.) = 7.70

Optical Properties: Opaque. *Color:* Similar to nickeline, but more intense violet in oil.
Anisotropism: Less anisotropic than nickeline.
R₁-R₂: n.d.

Cell Data: *Space Group:* $P6_3/mmc$. $a = 3.61$ $c = 5.28$ $Z = 2$

X-ray Powder Pattern: Steinbruch, Germany.
2.05 (100), 1.066 (100), 0.963 (100), 2.4 (50), 1.71 (50), 1.08 (50), 0.992 (50)

Chemistry: Composition established by analogy to synthetic material.

Mineral Group: Nickeline group.

Occurrence: In dolostone veinlets (Steinbruch, Germany).

Association: Clausthalite, nickeline, guanajuatite, hastite, trogtalite, bornhardtite, chalcopyrite, millerite, sphalerite, hematite.

Distribution: In Germany, in the Harz Mountains, from the Trogtal quarry, Steinbruch [TL], and at Rote Berg, St. Andreasberg; also from Hartenstein, Saxony. In the Pinky Fault uranium deposit, Saskatchewan, Canada. At Temple Mountain, Emery Co., Utah, USA.

Name: In honor of Professor Georg Frebold (1891-?) of Hannover, Germany.

Type Material: n.d.

References: (1) Ramdohr, P. and Schmitt, M. (1955) Vier neue natürliche kobaltselenide von Steinbruch Trogtal bei Lautenthal im Harz. Neues Jahrb. Mineral., Monatsh., 133-142 (in German). (2) (1956) Amer. Mineral., 41, 164-165 (abs. ref. 1). (3) Strunz, H. (1957) Mineralogische Tabellen (3rd edition), 98 (in German). (4) (1959) Amer. Mineral., 44, 907 (abs. ref. 3). (5) Goldschmidt Skr.Norske Vid.-Akad. Oslo, I: Mat. Naturv. Kl. 1926 (8), 45-?? (str - Strunz??)