

**Crystal Data:** Orthorhombic. *Point Group:*  $2/m\ 2/m\ 2/m$ . Crystals are elongated prisms, to 400  $\mu\text{m}$ , may be in rosettelike radiating groups or in veinlets.

**Physical Properties:** VHN = 1069, 1200 average (15 g load). Hardness = n.d.  
D(meas.) = n.d. D(calc.) = 5.17

**Optical Properties:** Opaque. *Color:* Reddish brown; in reflected light, gray with brownish tinge, with strong reddish brown internal reflections.

*Optical Class:* Biaxial.  $\alpha = \text{n.d.}$   $\beta = \text{n.d.}$   $\gamma = \text{n.d.}$   $2V(\text{meas.}) = \text{n.d.}$  *Anisotropism:* Medium to strong. *Birefractance:* Distinct, in oil.

$R_1$ – $R_2$ : 14.2–17.6

**Cell Data:** *Space Group:* [*Pbam*] (by analogy to ludwigite group).  $a = 9.213(6)$   
 $b = 12.229(7)$   $c = 3.001(2)$   $Z = 4$

**X-ray Powder Pattern:** Bon Accord, South Africa.

2.548 (100), 2.514 (100), 5.10 (50), 1.898 (50), 4.61 (40), 2.334 (35), 2.025 (35)

**Chemistry:**

	(1)
$\text{SiO}_2$	0.4
$\text{B}_2\text{O}_3$	[13.0]
$\text{Fe}_2\text{O}_3$	31.9
MnO	0.04
CoO	1.5
NiO	52.7
MgO	0.5
Total	[100.0]

(1) Bon Accord, South Africa; presumably by electron microprobe, average of nine analyses, total Fe as  $\text{Fe}^{3+}$ , B by difference, originally given as 13.1%, presence confirmed by wet analysis; corresponding to  $(\text{Ni}_{1.86}\text{Co}_{0.05}\text{Mg}_{0.03}\text{Si}_{0.02})_{\Sigma=1.96}\text{Fe}_{1.05}\text{B}_{0.99}\text{O}_5$ .

**Mineral Group:** Ludwigite group.

**Occurrence:** In a small tabular body of nickeliferous serpentinite, probably a contact deposit, along the junction of quartzite and an ultramafic intrusive; it appears to have formed at  $\sim 730^\circ\text{C}$  and  $< 2$  kbar during thermal metamorphism, possibly of a nickel-rich meteorite.

**Association:** Trevorite, liebenbergite, nepouite, nimite, bunsenite, gaspéite, violarite, millerite.

**Distribution:** Found three km west of the Scotia talc mine, Bon Accord area, Barberton, Transvaal, South Africa.

**Name:** For the locality at Bon Accord, South Africa.

**Type Material:** Royal Ontario Museum, Toronto, Canada, M33443; National Museum of Natural History, Washington, D.C., USA, 132463.

**References:** (1) De Waal, S.A., E.A. Viljoen, and L.C. Calk (1974) Nickel minerals from Barberton, South Africa: VII. Bonaccordite, the nickel analogue of ludwigite. *Trans. Geol. Soc. of South Africa*, 77, 375. (2) (1976) *Amer. Mineral.*, 61, 502 (abs. ref. 1).