Berdesinskiite $V_2^{3+}TiO_5$

Crystal Data: Monoclinic. *Point Group:* $2/m$ or m. As grains, rarely up to 70 μm, and as rims around schreyerite.

Physical Properties: Hardness = [6–6.5] (polishing hardness close to that of rutile). D(meas.) = n.d. D(calc.) = 4.536

Optical Properties: Opaque. *Color:* Black; reddish brown under reflected polarized light. *Luster:* Metallic.
Optical Class: Biaxial. *Bireflectance:* Weak.
R_1–R_2: (400) 16.6–17.1, (420) 17.1–17.5, (440) 17.4–18.0, (460) 17.9–18.4, (480) 18.3–18.9, (500) 18.8–19.4, (520) 19.2–19.8, (540) 19.5–20.3, (560) 19.8–20.8, (580) 20.0–21.1, (600) 20.3–21.3, (620) 20.4–21.4, (640) 20.5–21.5, (660) 20.6–21.6, (680) 20.4–21.6, (700) 20.2–21.5

Cell Data: *Space Group:* [$C2/c$ or Cc; $P2_1/c$; $P2/c$ or Pc] (by analogy to synthetic V_2TiO_5). $a = 10.11(1)$ $b = 5.084(4)$ $c = 7.03(1)$ $\beta = 111.46(6)°$ Z = 4

X-ray Powder Pattern: Near Lasamba Hill, Kenya; line intensities not given.
4.721, 4.492, 3.316, 2.895, 2.676, 2.543, 2.447

Chemistry:

	(1)	(2)
TiO_2	34.13	34.77
Al_2O_3	0.76	
V_2O_3	64.35	65.23
Cr_2O_3	1.39	
MnO	0.01	
Total	100.64	100.00

(1) Near Lasamba Hill, Kenya; by electron microprobe, average of five analyses; corresponding to $(V_{1.96}Cr_{0.05}Al_{0.03})_{\Sigma=2.04}Ti_{0.98}O_5$. (2) V_2TiO_5.

Occurrence: In strongly weathered gneiss with quartzite in a gem kornerupine deposit of Precambrian age.

Association: Schreyerite, rutile, kornerupine, diopside, epidote, graphite, quartz, biotite, tourmaline.

Distribution: From six km southeast of Lasamba Hill, Kwale district, south of Voi, Kenya.

Name: For Professor Waldemar Berdesinski (1911–1990), crystallographer, University of Heidelberg, Heidelberg, Germany.

Type Material: Universities of Bochum, Hamburg, and Heidelberg, Germany; National Museum of Natural History, Washington, D.C., USA, 147362.

References: (1) Bernhardt, H.-J., K. Schmetzer, and O. Medenbach (1983) Berdesinskiite, V_2TiO_5, a new mineral from Kenya and additional data for schreyerite, $V_2Ti_3O_9$. Neues Jahrb. Mineral., Monatsh., 110–118. (2) (1983) Amer. Mineral., 68, 1038 (abs. ref. 1).