Telluronevskite Bi_3TeSe_2

Crystal Data: Hexagonal. *Point Group*: $\bar{3}$ 2/*m*. As irregular grains and poorly shaped laths and prisms flattened on (0001), to 1 mm, and as massive aggregates to 2 mm.

Physical Properties: *Cleavage*: Perfect on {001}. *Tenacity*: Flexible as thin plates. *Fracture*: n.d. Deformation lamellae common. Hardness = n.d. Microhardness anisotropy observed. VHN = 62.9 ⊥ [0001]; 137 ∥ [0001] (10 g load). D(meas.) = 8.1(2) D(calc.) = 8.08

Optical Properties: Opaque. *Color*: Steel-gray, white with yellow tint in reflected light. *Streak*: Black. *Luster*: Metallic. *Anisotropism*: Moderate. *Bireflectance:* Noticeable in oil, yellowish white to gray. *Polarization*: Gray to bluish gray.
Optical Class: n.d.
R_1-R_2: (420) 45.5-42.5, (440) 46.7-44.7, (460) 47.8-45.9, (470) 48.5-46.6, (480) 49.2-46.9, (500) 50.4-48.1, (520) 50.5-48.5, (540) 51.0-48.4, (546) 51.1-48.5, (560) 51.6-49.4, (580) 51.8-49.4, (589) 51.9-49.5, (600) 52.0-49.7, (620) 52.6-50.2, (640) 52.7-50.4, (650) 52.8-50.5, (660) 52.9-50.5, (680) 53.1-50.6, (700) 53.2-50.8

Cell Data: *Space Group*: $P\bar{3}\,m1$. a = 4.264(6) c = 23.25(3) Z = 2

X-ray Powder Pattern: Vihorlat Mountains, eastern Slovakia, Slovak Republic.
3.12 (100), 2.13 (36), 2.28 (33), 4.66 (19), 1.355 (18), 1.935 (16), 3.32 (13)

Chemistry:

	(1)	(2)
Bi	68.84	68.7
Pb	0.42	
Se	15.41	17.3
Te	14.58	14.0
S	1.14	.
Total	100.39	100.0

(1) Vihorlat Mountains, eastern Slovakia, Slovak Republic; average electron microprobe analysis; corresponds to $(Bi_{2.92}Pb_{0.02})_{\Sigma=2.94}Te_{1.01}(Se_{1.73}S_{0.32})_{\Sigma=2.05}$. (2) Bi_3TeSe_2.

Mineral Group: Tsumoite subgroup of the tetradymite group.

Occurrence: In opal-quartz veinlets and as disseminated grains in 'secondary quartzite' that was formed by contact metamorphism or hydrothermal alteration of volcanic rocks.

Association: Quartz, opal.

Distribution: From the Vihorlat Mountains, near Košice, eastern Slovakia, Slovak Republic.

Name: Alludes to the chemical relationship to *nevskite*, through substitution of tellurium for selenium.

Type Material: Museum of Bohemian Paradise, Turnov, Czech Republic (593/99) and the Museum of Eastern Slovakia, Košice, Slovak Republic (G 10772).

References: (1) Řídkošil, T., R. Skála, Z. Johan, and V. Ŝrein (2001) Telluronevskite, Bi_3TeSe_2, a new mineral. Eur. J. Mineral., 13, 177-185. (2) (2001) Amer. Mineral., 86, 1537 (abs. ref. 1).