Telluronevskite Bi₃TeSe₂

Crystal Data: Hexagonal. *Point Group*: $\overline{3}$ 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 = $62.9 \pm [0001]$; $137 \parallel [0001]$ (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.

 $\begin{array}{l} R_1 - R_2 \colon (420) \ 45.5 - 42.5, (440) \ 46.7 - 44.7, (460) \ 47.8 - 45.9, (470) \ 48.5 - 46.6, (480) \ 49.2 - 46.9, \\ (500) \ 50.4 - 48.1, (520) \ 50.5 - 48.5, (540) \ 51.0 - 48.4, (546) \ 51.1 - 48.5, (560) \ 51.6 - 49.4, (580) \ 51.8 - 49.4, \\ (589) \ 51.9 - 49.5, (600) \ 52.0 - 49.7, (620) \ 52.6 - 50.2, (640) \ 52.7 - 50.4, (650) \ 52.8 - 50.5, (660) \ 52.9 - 50.5, \\ (680) \ 53.1 - 50.6, (700) \ 53.2 - 50.8 \end{array}$

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, Bi₃TeSe₂, a new mineral. Eur. J. Mineral., 13, 177-185. (2) (2001) Amer. Mineral., 86, 1537 (abs. ref. 1).