Weissbergite $TlSbS_2$

Crystal Data: Triclinic. *Point Group:* 1. As grains of irregular shape, up to 0.5 mm; also prismatic or tabular with striations parallel to the long dimension.

Physical Properties: *Cleavage:* One perfect, two excellent, one good. Hardness = 1.5 VHN = n.d. D(meas.) = 5.79 D(calc.) = 6.1

Optical Properties: Opaque. *Color:* Steel-gray; creamy white in reflected light. *Streak:* Dark gray. *Luster:* Bright metallic. *Pleochroism:* Weak. *Anisotropism:* Strong, blue-green, blue-black, orange-brown, gray.

R_1–R_2: (470) 36.0–38.4, (546) 35.0–36.8, (589) 34.5–35.8, (650) 32.1–33.8

Cell Data: *Space Group:* $P1$ based on morphology. $a = 11.8$ $b = 6.4$ $c = 6.1$ $\alpha = 109.9°$ $\beta = 81.8°$ $\gamma = 105.4°$ Z = 4

X-ray Powder Pattern: Synthetic; strong preferred orientation.
2.973 (100), 3.650 (8), 3.583 (7), 2.839 (7), 2.718 (6), 2.351 (6), 3.752 (5)

Chemistry:

	(1)	(2)
Tl	52.7	52.37
Sb	31.2	31.20
S	16.4	16.43
Total	100.2	100.00

(1) Carlin mine, Nevada, USA; by electron microprobe, average of four analyses. (2) $TlSbS_2$.

Occurrence: In late-stage hydrothermal veins that brecciate silicified dolomitic carbonate rocks. The assemblage appears to fill open space between breccia fragments and to have been formed during the boiling stage at the end of the hydrothermal episode.

Association: Stibnite, quartz.

Distribution: From the east ore zone, Carlin mine, 50 km northwest of Elko, Lynn district, Eureka Co., Nevada; in Lookout Pass, Toole Co., Utah, USA. At Alšar (Allchar), near Rošden, Macedonia.

Name: For Dr. Byron G. Weissberg, Chemistry Division, D.S.I.R., New Zealand.

Type Material: Department of Geology, Stanford University, Palo Alto, California, Epithermal Minerals Collection; National Museum of Natural History, Washington, D.C., USA, 144274.

References: (1) Dickson, F.W. and A.S. Radtke (1978) Weissbergite, $TlSbS_2$, a new mineral from the Carlin gold deposit, Nevada. Amer. Mineral., 63, 720–724.