Chovanite $Pb_{15-2x}Sb_{14+2x}S_{36}O_x$ (x ~ 0.2)

Crystal Data: Monoclinic. *Point Group*: 2/*m.* Irregular or short prismatic grains, to 100 μm, form random aggregates, to 1 cm, finely intergrown with other Pb-Sb sulfosalts.

Physical Properties: *Cleavage*: Good parallel [001]. *Fracture*: Sub-parallel perpendicular to [001]. *Tenacity*: Brittle. *Hardness* = 3 VHN = 213-238 (25 g load). D(meas.) = n.d. D(calc.) = 7.14

Optical Properties: Opaque. *Color*: Gray, white in reflected light. *Streak*: n.d. *Luster*: Metallic. *Bireflectance*: Distinct. *Pleochroism*: Weak, white with a yellowish green tint to white with a faint bluish tint. *Anisotropism*: Moderate to strong both in air and in oil, blue-gray to brown-gray. *Optical Class*: n.d.
R_1-R_2: (470) 43.6-37.7, (546) 43.0-36.7, (589) 41.3-35.4, (650) 39.2-34.0

Cell Data: *Space Group*: *C*2/*m*. a = 48.19(5) b = 4.110(4) c = 34.24(3) β = 106.059(15)°
Z = 4

X-ray Powder Pattern: Calculated pattern.
3.433 (100), 4.012 (39), 3.966 (39), 3.387 (31), 3.269 (29), 3.376 (27), 2.996 (26)

Chemistry:

	(1)	(2)
Pb	50.72	50.82
Sb	29.28	29.66
S	19.50	19.46
Bi	0.10	
Ag	0.07	
Cl	0.04	
O		0.06
Total	99.76	100.00

(1) Dúbrava deposit, The Low Tatra Mountains (Nízke Tatry), Slovakia; average of 18 electron microprobe analyses; corresponding to $Pb_{14.51}Ag_{0.04}(Sb_{14.26}Bi_{0.03})_{\Sigma=14.29}(S_{36.06}Se_{0.04}Cl_{0.07})_{\Sigma=36.16}$.
(2) $Pb_{14.55}Sb_{14.45}S_{36}O_{0.23}$.

Occurrence: In hydrothermal vein and stockwork antimony deposits cutting granites, mica schists or silicified mylonitized granitoids. It formed during the third (quartz-ankerite-sphalerite) of 5 stages of hydrothermal mineralization with a moderately high oxygen activity, replacing earlier sulfosalts.

Association: Boulangerite, robinsonite, dadsonite, scainiite.

Distribution: From the Dúbrava (the type deposit), Malé Železné, and Klačianka antimony deposits on the northern slopes of The Low Tatra Mountains (Nízke Tatry), Slovakia.

Name: Honors Professor Martin Chovan (b. 1946), Department of Mineralogy and Petrology, Comenius University, Bratislava, Slovakia, for his extensive studies of antimony mineralization in the Western Carpahian region.

Type Material: Department of Materials Engineering and Physics, University of Salzburg, Austria (#14995); in the mineralogical collections, Department of Mineralogy and Petrology, National Museum, Prague, Czech Republic (P1P 13/2009); and at the Department of Mineralogy and Petrology, Faculty of Natural Sciences, Comenius University, Bratislava, Slovakia (#7282).

References: (1) Topa, D., J. Sejkora, E. Makovicky, J. Pršek, D. Ozdín, H. Putz, H. Dittrich, and S. Karup-Møller (2012) Chovanite, $Pb_{15-2x}Sb_{14+2x}S_{36}O_x$ (x ~ 0.2), a new sulphosalt species from the Low Tatra Mountains, Western Carpathians, Slovakia. Eur. J. Mineral., 24(4), 727-740. (2) (2015) Amer. Mineral., 100, 1320-1321 (abs. ref. 1).