Tilkerodeite Pd_2HgSe_3

Crystal Data: Hexagonal. *Point Group*: $\bar{3}\ 2/m$. As euhedral inclusions in tiemannite or as extremely tabular or spindle-shaped crystals to 3 μm. Crystals are laminated and partially curved.

Physical Properties: *Cleavage*: Distinct basal cleavage and parting on {00*1}. *Tenacity*: Flexible (blade-like crystals). *Fracture*: n.d. Hardness = ~3 D(meas.) = n.d. D(calc.) = 9.67

Optical Properties: Opaque. *Color*: Black or gray, brownish gray to grayish white in reflected light. *Streak*: Black. *Luster*: Metallic.
Optical Class: *Anisotropism*: Weak, shades of greenish brown and gray-brown. Weakly bireflectant. *Pleochroism*: Weak, light brown to gray. Reflectance estimated at 45%-50%.

Cell Data: *Space Group*: $P\bar{3}\ m1$. $a = 7.325$ $c = 5.288$ $Z = 2$

X-ray Powder Pattern: Calculated pattern.
2.720 (100), 1.831 (37), 2.031 (34), 1.519 (19), 1.169 (15), 1.360 (10), 1.270 (10), 5.288 (9)

Chemistry:

	(1)	(2)
Se	32.68	36.43
Hg	26.33	30.85
Pt	20.62	
Pd	15.89	32.72
Pb	2.72	
Cu	0.66	
S	0.27	.
Total	99.17	100.00

(1) Eskaborn adit, Tilkerode, Harz Mountains, Germany; average electron microprobe analysis; corresponds to $(Pd_{1.08}Pt_{0.76}Pb_{0.09}Cu_{0.07})_{\Sigma=2.00}Hg_{0.95}(Se_{2.98}S_{0.07})_{\Sigma=3.05}$. (2) Pd_2HgSe_3.

Occurrence: In a dolomite-ankerite veinlet. Formed hydrothermally, possibly involving the alteration of tiemannite by low-temperature oxidizing fluids.

Association: Clausthalite, tiemannite, jacutingaite, stibiopalladinite, native gold.

Distribution: From the Eskaborn adit (60-m level, 5 m north of the blind shaft IV), Tilkerode, Harz Mountains, Germany.

Name: For the locality, *Tilkerode*, where the studied material was collected.

Type Material: Mineralogical Institute, Technische Universität Bergakademie, Freiberg, Germany, (MiSa84670).

References: (1) Ma, C., H.-J. Förster, and G. Grundmann (2020) Tilkerodeite, Pd_2HgSe_3, a new platinum-group mineral from Tilkerode, Harz Mountains, Germany. Minerals, 10, 687, 1-9.