**Crystal Data**: Monoclinic. *Point Group*: 2/m. As well-formed, flattened, acicular crystals to 1 cm in random or fan-shaped clusters, as irregular grains to  $100 \ \mu$ m.

**Physical Properties**: *Cleavage*: Perfect perpendicular and oblique to elongation. *Tenacity*: Brittle (aggregates) or elastic to flexible (acicular crystals). *Fracture*: n.d. Hardness =  $\sim$ 2 VHN = 55 (10 g load). D(meas.) = n.d. D(calc.) = 3.98

**Optical Properties**: Transparent to translucent. *Color*: Orange to yellowish red, light grayish white in reflected light with distinct orange-brown internal reflections. *Streak*: Very light yellowish brown. *Luster*: Vitreous to adamantine.

*Optical Class: Anisotropism:* Strong, dark brownish gray to reddish brown or brownish violet. Bireflectance and pleochroism were not observed due to internal reflections. R<sub>1</sub>-R<sub>2</sub>: (470) 27.8-28.7, (546) 25.0-26.2, (589) 25.2-26.9, (650) 25.6-28.1

**Cell Data**: Space Group:  $P2_1/c$ . a = 7.270(1) b = 10.197(2) c = 6.846(1)  $\beta = 105.34(3)^{\circ}$  Z = 4

**X-ray Powder Pattern**: Kateřina mine, Radvanice village, northern Bohemia, Czech Republic. 7.006 (100), 2.699 (69), 4.135 (49), 3.077 (47), 2.776 (38), 1.724 (35), 2.121 (31)

Chemistry:		(1)	(2)
	Sn	40.47	41.29
	Pb	0.29	
	Ge	22.73	25.25
	Fe	0.03	
	Bi	0.27	
	Sb	0.10	
	As	0.10	
	S	31.42	33.46
	Se	2.62	<u>.</u>
	Total	98.03	100.00

(1) Kateřina mine, Radvanice village, Bohemia, Czech Republic; average electron microprobe and Raman spectroscopic analyses; corresponds to  $Sn_{1.02}Ge_{0.94}(S_{2.93}Se_{0.10})_{\Sigma=3.03}$ . (2) SnGeS<sub>3</sub>.

Polymorphism & Series: Forms a solid solution series with PbGeS<sub>3</sub>.

**Occurrence**: On rock fragments and on crumbly black ash in the central part of a spontaneously burning coal mine dump. Formed under reducing conditions by direct crystallization from hot gasses (250-350 °C) containing Cl and F, at a depth of 30-60 cm under the surface of the dump.

**Association**: Greenockite, herzenbergite, unnamed GeS<sub>2</sub> and GeAsS (crystals); members of Bi-Sb, Bi<sub>2</sub>S<sub>3</sub>-Sb<sub>2</sub>S<sub>3</sub> and Bi<sub>2</sub>S<sub>3</sub>-Bi<sub>2</sub>Se<sub>3</sub> solid solutions, Bi<sub>3</sub>S<sub>2</sub>, Bi-sulfo/seleno/tellurides, tellurium, unnamed PbGeS<sub>3</sub>, Cd<sub>4</sub>GeS<sub>6</sub>, GeAsS, GeS<sub>2</sub>, and Sn<sub>5</sub>Sb<sub>3</sub>S<sub>7</sub>, greenockite, cadmoindite, herzenbergite, teallite, Sn- and/or Se-bearing galena (grains).

**Distribution**: From the dump of the abandoned Kateřina mine, Radvanice village, ~12 km east of Trutnov, northern Bohemia, Czech Republic.

Name: For the essential chemical elements: Sn (stannum), Ge (germanium) and S (sulphur).

**Type Material**: Department of Mineralogy and Petrology, National Museum, Prague, Czech Republic (P1P 8/2000).

**References**: (1) Sejkora, J., E. Makovicky, T. Balić-Žunić, and P. Berlepsch (2020) Stangersite, a new tin germanium sulfide, from the Kateřina mine, Radvanice near Trutnov, Czech Republic. J. Geosci., 65(3), 141-152.