

**Crystal Data:** Orthorhombic. *Point Group:* 2/m 2/m 2/m. As fine-grained aggregates to 0.5 cm. *Twinning:* On (101). On the structural level, by a twofold screw axis parallel to [101] with a shift of ¼ of the full [101] repetition period instead of ½ of the repetition period of the usual screw axis.

**Physical Properties:** *Cleavage:* Perfect on {010}. *Tenacity:* Brittle. *Fracture:* Uneven. Hardness = 2-2.5 VHN = 74-98, 84 average (10 g load). D(meas.) = n.d. D(calc.) = 4.173

**Optical Properties:** Translucent. *Color:* Bright orange; yellowish white in reflected light, at contact with stibnite light gray with a weak bluish tint. *Streak:* Orange. *Luster:* Greasy. *Optical Class:* Birefractance: Very weak. *Anisotropism:* Distinct, masked by strong, bright orange internal reflections.

R<sub>1</sub>-R<sub>2</sub>: (470) 29.8-27.0, (546) 27.4-26.1, (589) 25.9-24.5, (650) 23.9-22.4

**Cell Data:** *Space Group:* Pbcn. *a* = 20.1958(3) *b* = 11.5258(2) *c* = 20.1430(2) *Z* = 8

**X-Ray Diffraction Pattern:** Vorontsovskoe gold deposit, Sverdlovskaya Oblast, N. Urals, Russia. 5.755 (100), 2.878 (14), 3.030 (10), 2.901 (10), 2.821 (10), 3.705 (6), 2.850 (5)

Chemistry:	(1)	(2)
Tl	13.68	13.78
As	26.77	25.26
Sb	30.97	32.85
<u>S</u>	<u>28.02</u>	<u>28.11</u>
Total	99.44	100.00

(1) Vorontsovskoe gold deposit, Sverdlovskaya Oblast, Northern Urals, Russia; average electron microprobe analysis supplemented by Raman spectroscopy; corresponds to Tl<sub>0.99</sub>As<sub>5.29</sub>Sb<sub>3.77</sub>S<sub>12.95</sub>.  
(2) TlAs<sub>5</sub>Sb<sub>4</sub>S<sub>13</sub>.

**Occurrence:** By late stage, low temperature, hydrothermal processes in limestone breccias composed of calcite and dolomite cemented by orpiment, pyrite, realgar, stibnite, baryte, quartz.

**Association:** Bernardite, minerals of the chabournéite-dalnegroite and vorontsovite-ferrovorontsovite series, cinnabar, coloradoite, gold, greigite, hutchinsonite, parapierrite, routhierite.

**Distribution:** From the Vorontsovskoe gold deposit, ~13 km south of Krasnoturinsk, Sverdlovskaya Oblast, Northern Urals, Russia.

**Name:** Honors Yuri Vladimirovich *Gunger* (b. 1961), a mining engineer, surveyor, historian, and authority on the Northern Urals.

**Type Material:** A.E. Fersman Mineralogical Museum, Russian Academy of Sciences, Moscow, Russia (5518/1).

**References:** (1) Kasatkin, A.V., J. Plášil, E. Makovicky, N.V. Chukanov, R. Škoda, A.A. Agakhanov, and M.V. Tsyganko (2022) Gungerite, TlAs<sub>5</sub>Sb<sub>4</sub>S<sub>13</sub>, a new thallium sulfosalt with a complex structure containing covalent As-As bonds. *Amer. Mineral.*, 107(6), 1164-1173.