

Crystal Data: Cubic. *Point Group:* $\bar{4}3m$. As anhedral grains to 0.5 mm.

Physical Properties: *Cleavage:* None. *Fracture:* Uneven. *Tenacity:* Brittle. Hardness = ~3.5 VHN = 166-178, 172 average (10 g load). D(meas.) = n.d. D(calc.) = 5.14

Optical Properties: Opaque. *Color:* Black; light gray in reflected light. *Streak:* Black. *Luster:* Metallic.

Optical Class: Isotropic.

R: (400) 25.62, (420) 25.82, (440) 25.97, (460) 26.20, (470) 26.31, (480) 26.42, (500) 26.54, (520) 26.95, (540) 27.21, (546) 27.30, (560) 27.55, (580) 27.87, (589) 28.11, (600) 28.30, (620) 28.70, (640) 29.06, (650) 29.28, (660) 29.47, (680) 29.98, (700) 30.44

Cell Data: Space Group: $I\bar{4}3m$. $a = 10.2956(6)$ $Z = 2$

X-ray Powder Pattern: Vorontsovskoe gold deposit, Northern Urals, Russia. 2.970 (100), 4.198 (79), 2.749 (66), 1.818 (49), 1.550 (31), 2.572 (22), 1.879 (18)

Chemistry:	(1)	(2)
Hg	35.70	51.33
Fe	5.36	
Zn	1.26	
Cu	3.42	3.24
Ag	0.64	
Tl	11.53	10.42
Cs	0.35	
Pb	0.04	
As	15.98	15.34
Sb	2.35	
Te	0.41	
S	22.70	19.67
Se	0.02	
Total	99.76	100.00

(1) Vorontsovskoe gold deposit, Northern Urals, Russia; average of 10 electron microprobe analyses; corresponds to [(Hg_{3.02}Fe_{1.63}Zn_{0.33})_{Σ=4.98}(Cu_{0.91}Ag_{0.10})_{Σ=1.01}](Tl_{0.96}Cs_{0.04})_{Σ=1.00}(As_{3.62}Sb_{0.33}Te_{0.05})_{Σ=4.00}S_{12.01}. (2) (Hg₅Cu)TlAs₄S₁₂.

Occurrence: In mineralized limestone breccias (calcite-dolomite, up to 85% of volume) in the ores of the sulfide-carbonate type in a gold deposit of uncertain origin.

Association: Cinnabar, realgar, stibnite, pyrite, dolomite, calcite.

Distribution: At the Vorontsovskoe gold deposit, 0.5 km west of Vorontsovka, 13 km south of Krasnotur'insk, Sverdlovskaya Oblast', Northern Urals, Russia.

Name: Honors mining engineer Vladimir Vasilyevich *Vorontsov* (1842-later than 1908) for whom the city and mine are named where the new mineral was discovered.

Type Material: A.E. Fersman Mineralogical Museum, Russian Academy of Sciences, Moscow, Russia (4917/1).

References: (1) Kasatkin, A.V., F. Nestola, A.A. Agakhanov, R. Škoda, V.Y. Karpenko, M.V. Tsyganko, and J. Plášil (2018) Vorontsovite, (Hg₅Cu)_{Σ6}TlAs₄S₁₂, and ferrovorontsovite, (Fe₅Cu)_{Σ6}TlAs₄S₁₂: The Tl- and Tl-Fe-analogues of galkhaite from the Vorontsovskoe Gold Deposit, Northern Urals, Russia. *Minerals*, 8(5), 185. (2) (2020) *Amer. Mineral.*, 105, 1118-1119 (abs. ref. 1 and comment).