Gachingite $Au(Te_{1-x}Se_x)$ $0.2 \approx x \leq 0.5$

Crystal Data: Orthorhombic. *Point Group*: 2/*m* 2/*m* 2/*m*. As droplet-like grains to 10 μm in native gold (Au-Ag).

Physical Properties: *Cleavage*: n.d. *Tenacity*: Brittle. *Fracture*: n.d. Hardness = n.d. D(meas.) = n.d. D(calc.) = 10.47

Optical Properties: Opaque. *Color*: Gray with a bluish tint in reflected light. *Streak*: n.d. *Luster*: Metallic.
Optical Class: *Bireflectance*: Bluish to deep gray. *Anisotropy*: Strong, blue, dark blue to brown. R_1-R_2: (470) 39.9- 40.3, (546) 41.6-43.3, (589) 42.0-43.7, (650) 43.0-44.0

Cell Data: *Space Group: Cmce* [synthetic $Au_{1.00}(Te_{0.50}Se_{0.50})$]. a = 7.5379(12) b = 5.7415(10) c = 8.8985(13) Z = 8

X-Ray Diffraction Pattern: Synthetic $Au_{1.00}(Te_{0.50}Se_{0.50})$.
2.734 (100), 2.883 (99), 4.461 (65), 1.813 (63), 2.215 (51), 3.194 (36), 2.231 (33)

Chemistry:

	(1)
Au	62.40
Ag	0.57
Se	9.78
Te	27.33
S	0.01
Total	100.09

(1) Gaching deposit, Far-Eastern Region, Russia; average electron microprobe analysis; corresponds to $(Au_{0.96}Ag_{0.02})_{\Sigma=0.98}(Te_{0.65}Se_{0.37})_{\Sigma=1.02}$.

Occurrence: In an epithermal gold deposit of the high-sulfidation (HS) type in volcanic rocks.

Association: Gold (Au-Ag), calaverite, maletoyvayamite, watanabeite, Au-Sb oxides, quartz, alunite, native sulfur, kaolinite.

Distribution: From the Gaching deposit, Maletoyvayam ore field, southwestern Koryak Highland, central Kamchatka volcanic belt, Far-Eastern Region, Russia.

Name: For the *Gaching* ore deposit where the studied material was collected.

Type Material: Central Siberian Geological Museum, V.S. Sobolev Institute of Geology and Mineralogy, Siberian Branch of the Russian Academy of Science, Novosibirsk, Russia (V-10/1).

References: (1) Tolstykh, N.D., M. Tuhý, A. Vymazalová, F. Laufek, J. Plášil, and F. Košek (2022) Gachingite, $Au(Te_{1-x}Se_x)$ $0.2 \approx x \leq 0.5$, a new mineral from Maletoyvayam deposit, Kamchatka peninsula, Russia. Mineral. Mag., 86, 205-213.