

**Crystal Data:** Cubic. *Point Group:* 23. As grains, to 1 mm.

**Physical Properties:** *Fracture:* Uneven to conchoidal. *Tenacity:* Brittle. Hardness = 2.5–3  
D(meas.) = 8.64–8.82 D(calc.) = 8.691

**Optical Properties:** Semitransparent. *Color:* Pale brown to honey-yellow, darkening on exposure to light; in reflected light, pale brown internal reflections. *Streak:* Yellow-orange.

*Luster:* Vitreous to adamantine.

*Optical Class:* Isotropic.  $n = \text{High}$ .

R: (460) 17.6, (546) 16.9, (590) 16.2

**Cell Data:** *Space Group:*  $P2_13$ .  $a = 8.4013(2)$   $Z = 4$

**X-ray Powder Pattern:** Arzak deposit, Russia.

2.53 (10), 2.81 (7), 4.86 (6), 3.43 (6), 1.834 (6), 4.21 (5), 3.77 (5)

**Chemistry:**

	(1)	(2)	(3)
Hg	77.62	77.97	77.53
As	8.75	8.87	9.65
Cl	4.50	4.55	4.57
O	8.97	9.33	8.25
Total	99.84	100.72	100.00

(1) Arzak deposit, Russia; by electron microprobe, average of seven grains; corresponding to  $\text{Hg}_{3.08}\text{As}_{0.93}\text{O}_{4.48}\text{Cl}_{1.02}$ . (2) Khaydarkan deposit, Kyrgyzstan; by electron microprobe, average of three grains; corresponding to  $\text{Hg}_{3.03}\text{As}_{0.92}\text{O}_{4.54}\text{Cl}_{1.00}$ . (3)  $\text{Hg}_2^{1+}\text{Hg}^{2+}(\text{AsO}_4)\text{Cl}$ .

**Occurrence:** In the oxidation zone of hydrothermal mercury deposits.

**Association:** Cinnabar, calomel, eglestonite, corderoite, mercury (Arzak deposit, Russia); cinnabar, calomel, eglestonite, corderoite, mercury, livingstonite, montroydite, shakhovite, chursinite (Khaydarkan deposit, Kyrgyzstan).

**Distribution:** In the Arzak mercury deposit, Pii-Khem district, Tuva, and the Kelyan Sb–Hg deposit, Buryatia, Siberia, Russia. From the Khaydarkan mercury deposit, Fergana Valley, Alai Range, Kyrgyzstan.

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**Type Material:** Central Siberian Geological Museum, Novosibirsk, Russia, VI-18/1; Mining Institute, St. Petersburg, 1122/1; A.E. Fersman Mineralogical Museum, Academy of Sciences, Moscow, Russia, 81062.

**References:** (1) Vasil'ev, V.I. and Y.G. Lavrent'ev (1980) Kuznetsovite,  $\text{Hg}_6\text{As}_2\text{Cl}_2\text{O}_9$ , a new mercury mineral. *Doklady Acad. Nauk SSSR*, 255, 963–968 (in Russian). (2) (1981) *Amer. Mineral.*, 66, 1100 (abs. ref. 1). (3) Solov'eva, L.P., S.V. Tsybul'ya, V.A. Zabolotnyi, and N.A. Pal'chik (1991) Determination and refinement of the structure of the mineral kuznetsovite from X-ray powder diffraction data. *Kristallografiya (Sov. Phys. Crystal.)*, 36, 731–732.