## Kochkarite $PbBi_4Te_7$



**Crystal Data:** Cubic. *Point Group:* $4/m\ \overline{3}\ 2/m$, $\overline{4}3m$, or 432. Crystals are cubo-octahedral, to 100 $\mu$m; massive.

**Physical Properties:** *Tenacity:* Brittle. Hardness = 3.5–4 VHN = 220–267, 247 average (20 g load). D(meas.) = 13.0 D(calc.) = 13.1

**Optical Properties:** Opaque. *Color:* Tin-white on fresh fracture, quickly altering in moist air to brownish black; creamy white in reflected light. *Luster:* Metallic.
R: (400) — , (420) 59.0, (440) 61.4, (460) 63.8, (480) 66.8, (500) 69.4, (520) 71.2, (540) 72.1, (560) 72.8, (580) 73.6, (600) 74.0, (620) 74.6, (640) 75.3, (660) 76.0, (680) 76.9, (700) 77.8

**Cell Data:** *Space Group:* $Im3m$, $I432$, or $I\overline{4}3m$. Synthetic material is $I\overline{4}3m$.
$a$ = 9.414–9.418 Z = 4

**X-ray Powder Pattern:** Krokhalin deposit, Russia.
2.22 (100), 2.52 (42), 2.98 (25), 2.09 (25), 2.01 (25), 1.279 (25b), 1.524 (18b)

**Chemistry:**

| | (1) | (2) | (3) |
|---|---|---|---|
| Cu | 26.6 | 26.76 | 26.98 |
| Ag | | 2.19 | |
| Hg | 72.6 | 70.21 | 73.02 |
| Total | 99.2 | 99.16 | 100.00 |

(1) Krokhalin deposit, Russia; by electron microprobe, average of nine analyses; corresponding to $Cu_{6.97}Hg_{6.03}$. (2) Gould-Curry mine, Nevada, USA; by electron microprobe, silver considered to be a contaminent; then corresponding to $Cu_{7.10}Hg_{5.90}$. (3) $Cu_7Hg_6$.

**Polymorphism & Series:** Dimorphous with belendorffite.

**Occurrence:** In the heavy mineral fraction of concentrates (Krokhalin deposit, Russia).

**Association:** Copper, stibnite, berthierite, pyrite, arsenopyrite, quartz (Krokhalin deposit, Russia); moschellandsbergite, mercury (Mexico); moschellandsbergite (Gould-Curry mine, Nevada, USA); cinnabar, azurite, malachite (Marcelita, Chile).

**Distribution:** From the Krokhalin Au–Sb deposit, 60 km southeast of Yagodnoye, basin of the Kolyma River, Magadan region, Sakha, Russia [TL]. In the Gould-Curry mine, Comstock Lode, Virginia City, Storey Co., Nevada, USA. At an undefined locality in Mexico. From a prospect near Marcelita, about 70 km southeast of Copiapó, Atacama, Chile.

**Name:** For the locality near the Kolyma River, Russia.

**Type Material:** Institute of Mineralogy and Geochemistry of Rare Elements; A.E. Fersman Mineralogical Museum, Academy of Sciences, Moscow, Russia, 80178, vis176.

**References:** (1) Markova, E.A., N.M. Chernitsova, Y.S. Borodaev, L.S. Dubakina, and O.E. Yushko-Zakharova (1980) The new mineral kolymite, $Cu_7Hg_6$. Zap. Vses. Mineral. Obshch., 109, 206–211 (in Russian). (2) (1981) Amer. Mineral., 66, 218 (abs. ref. 1). (3) Cipriani, C. and G. Mazzetti (1989) Kolymite (copper amalgam): report of second and third occurrences. Eur. J. Mineral., 1, 719–720.