

**Crystal Data:** Hexagonal, pseudocubic. *Point Group:* 3. Rare crystals resemble trigonal pyramids, to 0.2 mm, which may be zoned with gruzdevite; as xenomorphic grains and granular aggregates.

**Physical Properties:** *Fracture:* Irregular to conchoidal. *Tenacity:* Brittle. *Hardness* = ~3.5 VHN = 300-346, 313 average (50 g load). *D(meas.)* = 5.5 *D(calc.)* = 5.420

**Optical Properties:** Opaque. *Color:* Gray-black; white in reflected light. *Streak:* Black. *Luster:* Metallic. *Anisotropism:* Weak, in shades of blue.

**Cell Data:** *Space Group:* R3. *a* = 13.7500(4) *c* = 9.3600(3) *Z* = 3

**X-ray Powder Pattern:** Gal-Khaya deposit, Russia. 3.10 (10), 1.903 (10), 1.621 (10), 2.69 (7), 1.236 (4), 1.345 (3), 4.04 (2)

Chemistry:	(1)	(2)	(3)
Cu	23.38	23.2	22.86
Zn		0.15	
Hg	32.54	35.4	36.09
As	18.20	18.9	17.97
Sb	2.55	0.41	
<u>S</u>	<u>23.80</u>	<u>23.6</u>	<u>23.08</u>
Total	100.47	101.66	100.00

(1) Aktash deposit, Russia; by electron microprobe, average of two analyses. (2) Gal-Khaya deposit, Russia; by electron microprobe. (3) Cu<sub>6</sub>Hg<sub>3</sub>As<sub>4</sub>S<sub>12</sub>.

**Polymorphism & Series:** Forms a series with gruzdevite; in the nowackiite isotypic series.

**Occurrence:** Uncommon, of hydrothermal origin in complex polymetallic As-Hg-bearing deposits.

**Association:** Stibnite, chalcostibite, mercurian tetrahedrite, tennantite, luzonite, enargite, cinnabar, chalcopyrite, pyrite, sphalerite, realgar, orpiment, dickite, quartz, calcite.

**Distribution:** In Russia, from the Aktash mercury deposit, Kosh-Agach district, Kurai Range, Altai Mountains [TL]; in the Gal-Khaya deposit, Sakha; at the Lukhumi arsenic deposit, central Caucasus Mountains; from the Vorontsovskoye gold deposit, Serov district, Northern Ural Mountains. At the Chauvai Sb-Hg deposit, Fergana Valley, Alai Range, southern Kyrgyzstan. In the Moctezuma (Bambolla) mine, 12 km south of Moctezuma, Sonora, Mexico. At the Getchell mine, Potosi district, Humbolt Co., Nevada, USA. In the Hemlo gold deposit, Thunder Bay district, Ontario, Canada. From the Jas Roux deposit, 10 km east of Chappelle-en-Valgaudemar, Hautes-Alpes, France. At the Sant'Olga level, Monte Arsiccio mine, Apuan Alps, Tuscany, Italy.

**Name:** For its occurrence at the *Aktash* deposit, Russia.

**Type Material:** Central Siberian Geological Museum, Novosibirsk, Russia, III-14/1; National School of Mines, Paris, France.

**References:** (1) Vasil'ev, V.I. (1968) New ore minerals of the mercury deposits of Gornyi Altai and their parageneses. In: Problems of the metallogeny of mercury. Izdat. "Nauka" Moscow, 111-129 (in Russian). (2) (1971) Amer. Mineral., 56, 358 (abs. ref. 1). (3) Gruzdev, V.S., N.M. Chernitsova, and N.G. Shumakove (1972) Aktashite, Cu<sub>6</sub>Hg<sub>3</sub>As<sub>4</sub>S<sub>12</sub>, new data. Doklady Acad. Nauk SSSR, 206, 694-697 (in Russian). (4) (1973) Amer. Mineral., 58, 562 (abs. ref. 3). (5) Biagioni, C., E. Bonaccorsi, Y. Moëlo, and P. Orlandi (2014) Mercury-arsenic sulfosalts from the Apuan Alps (Tuscany, Italy). III. Aktashite, Cu<sub>6</sub>Hg<sub>3</sub>As<sub>4</sub>S<sub>12</sub>, and laffittite, AgHgAsS<sub>3</sub>, from the Monte Arsiccio mine: occurrence and crystal structure. Periodico di Mineralogia, 83(1), 1-18. (6) Vasil'ev, V.I., N.V. Pervukhina, S.V. Borisov, S.A. Magarill, D.Yu. Naumov, and N.V. Kurat'eva (2010) - Aktashite Cu<sub>6</sub>Hg<sub>3</sub>As<sub>4</sub>S<sub>12</sub> from the Aktash deposit, Altai, Russia: refinement and crystal chemical analysis of the structure. Geology of Ore Deposits, 52, 656-661.