

Crystal Data: Monoclinic (perhaps triclinic). *Point Group:* 2/m, 2, or m. As complex intergrowths with lavrentievite, to 0.2 mm. *Twinning:* Noted.

Physical Properties: *Cleavage:* Perfect in two directions parallel to elongation. *Fracture:* Rough. *Tenacity:* Brittle. *Hardness* = 2.0–2.5 VHN = 85–90 (10 g load). D(meas.) = n.d. D(calc.) = 7.69

Optical Properties: Transparent. *Color:* Colorless to yellow, pale bog-brown, reddish brown, deepening on exposure to light; grayish to yellowish brown in thin section; gray in reflected light, with pale yellow to pale brown internal reflections. *Luster:* Vitreous to adamantine. *Streak:* Grayish yellow. *Optical Class:* Biaxial. *Pleochroism:* Weak. *Orientation:* Extinction parallel to cleavage. *Birefractance:* Very weak, grayish white to gray.

R₁–R₂: (546) 16.5–17.0, (590) 15.2–16.7, (620) 14.8–16.0, (656) 14.5–16.0

Cell Data: *Space Group:* P2/m, P2, or Pm. a = 8.99(4) b = 5.24(1) c = 18.45(8)
β = 92.28(15)° Z = 5

X-ray Powder Pattern: Arzak deposit, Russia; differs only by intensities from lavrentievite. 2.63 (10), 3.02 (6), 3.41 (5), 3.99 (4), 2.313 (4), 1.594 (4), 5.05 (3)

Chemistry:	(1)	(2)
Hg	76.74	77.02
S	7.80	8.21
Br	12.06	10.23
Cl	3.29	4.54
Total	99.89	100.00

(1) Arzak deposit, Russia; by electron microprobe, average of five grains; corresponding to Hg_{3.08}S_{1.96}(Br_{1.22}Cl_{0.75})_{Σ=1.97}. (2) Hg₃S₂(Br, Cl)₂ with Br:Cl = 1:1.

Polymorphism & Series: Forms a series with lavrentievite.

Occurrence: In the oxidized zone of a hydrothermal deposit.

Association: Lavrentievite, cinnabar, corderoite, quartz, kaolinite.

Distribution: From the Arzak deposit, Pii-Khem district, Uyuk Range, Tuva, Siberia, Russia [TL].

Name: For the occurrence in the Arzak deposit, Russia.

Type Material: Mining Institute, St. Petersburg, 1677/1; Central Siberian Geological Museum, Novosibirsk, Russia, VI-24/1.

References: (1) Vasil'ev, V.L., N.A. Pal'chik, and O.K. Grechishchev (1984) Lavrentievite and arzakite, new natural sulfahalogenides of mercury. *Geol. i Geofiz.*, 7, 54–63 (in Russian). (2) (1985) *Amer. Mineral.*, 70, 873–874 (abs. ref. 1). (3) (1984) *Chem. Abs.*, 101, 174794 (abs. ref. 1). (4) Vasil'ev, V.I., Y.G. Lavrent'ev, and N.A. Pal'chik (1986) New data on arzakite and lavrentievite. *Doklady Acad. Nauk SSSR*, 290, 948–951 (in Russian).