

Crystal Data: Tetragonal. *Point Group:* $\bar{4} 2m$. As equant grains, to 0.2 mm.

Physical Properties: *Cleavage:* None. Hardness = 4-4.5 VHN = 270-360, 310 average (10 g load). D(meas.) = n.d. D(calc.) = 4.72

Optical Properties: Opaque. *Color:* Steel-gray; cream with grayish tint in reflected light.

Streak: Black. *Luster:* Metallic.

Optical Class: Uniaxial. *Anisotropism:* Moderate, yellow tints.

R₁-R₂: (400) -, (420) 25.1-27.0, (440) 25.8-28.3, (460) 26.7-29.2, (480) 27.8-31.0, (500) 29.2-33.1, (520) 30.5-34.8, (540) 32.4-36.1, (560) 32.8-37.1, (580) 33.1-37.3, (600) 33.0-36.8, (620) 32.5-36.4, (640) 31.8-36.0, (660) 31.2-34.0, (680) 31.6-33.0, (700) -

Cell Data: Space Group: $I\bar{4} 2d$. $a = 5.4371(2)$ $c = 10.8479(9)$ $Z = 4$

X-ray Powder Pattern: Khachakchansky deposit, Russia.

3.15 (10), 1.910 (4), 2.445 (2), 1.692 (2), 2.340 (< 2), 3.43 (1), 2.824 (1)

Chemistry:	(1)	(2)	(3)
Ag	46.58	45.86	47.34
Hg	0.3		
Fe	24.08	24.97	24.51
<u>S</u>	<u>28.86</u>	<u>28.53</u>	<u>28.15</u>
Total	99.8	99.36	100.00

(1) Khachakchansky deposit, Russia; by electron microprobe, average of 22 analyses; corresponds to Ag_{0.98}Fe_{0.98}S_{2.04}. (2) Gies deposit, Montana, USA; average of 6 electron microprobe analyses, corresponds to Ag_{0.96}Fe_{1.01}S_{2.02}. (3) AgFeS₂.

Occurrence: In goethite pseudomorphs after magnesian siderite, in quartz-siderite veins (Russia); in an epithermal gold-silver telluride vein deposit (Gies deposit, Montana).

Association: Acanthite, stephanite, Ag-Hg amalgam, chalcocopyrite, tetrahedrite, galena, goethite (Russia); hessite, imiterite, proustite, tetrahedrite, tennantite, chalcocopyrite, pyrite (Gies deposit, Montana).

Distribution: From the Khachakchansky Ag-Pb deposit, near the Lena River, eastern Sakha, Russia [TL]. From the Gies gold-silver telluride deposit, Judith Mountains, Montana, USA.

Name: For its occurrence near the *Lena* River, Russia.

Type Material: Geological Museum, Yakutsk Scientific Center, Academy of Sciences, Yakutsk, Russia.

References: (1) Amuzinsky, V.A., Y.Y. Zhadov, N.V. Zayakina, and N.V. Leskova (1995) Lenaite AgFeS₂ - a new mineral species. *Zap. Vses. Mineral. Obshch.*, 124(5), 85-91 (in Russian with English abs.). (2) (1996) *Amer. Mineral.*, 81, 1283 (abs. ref. 1). (3) Bindi, L., P.G. Spry, and G. Pratesi (2006) Lenaite from the Gies gold-silver telluride deposit, Judith Mountains, Montana, USA: occurrence, composition, and crystal structure. *Can. Mineral.*, 44, 207-212. (4) (2006) *Amer. Mineral.*, 91(11), 1952-1953 (abs. ref. 3).