

**Crystal Data:** Orthorhombic. *Point Group:* n.d. Massive (?).

**Physical Properties:** *Cleavage:* One perfect, two imperfect. Hardness = n.d. VHN = 42–66 (25 g load). D(meas.) = n.d. D(calc.) = n.d.

**Optical Properties:** Opaque. *Color:* Pale purplish in reflected light. *Pleochroism:* Very slight in oil. *Anisotropism:* Very weak, pale pink to gray.

R<sub>1</sub>–R<sub>2</sub>: (400) 56.4–58.1, (420) 56.0–57.7, (440) 55.6–57.3, (460) 55.2–56.9, (480) 54.6–56.3, (500) 53.8–55.5, (520) 53.2–54.9, (540) 53.0–54.6, (560) 53.4–54.7, (580) 54.0–54.9, (600) 54.6–55.1, (620) 55.0–55.5, (640) 55.3–55.6, (660) 55.3–55.8, (680) 55.3–55.8, (700) 55.4–55.8

**Cell Data:** *Space Group:* n.d. Z = n.d.

**X-ray Powder Pattern:** Zod deposit, Armenia.

3.09 (100), 3.21 (80), 2.21 (50), 2.33 (30), 2.15 (30), 1.82 (30), 1.61 (20)

**Chemistry:**

	(1)	(2)	(3)
Ag	17.7	18.0	18.86
Cu	0.1		
Bi	38.8	36.6	36.53
Te	45.0	45.2	44.61
Total	101.6	99.8	100.00

(1) Campbell mine, Arizona, USA; by electron microprobe. (2) Ashley deposit, Ontario, Canada; by electron microprobe. (3) AgBiTe<sub>2</sub>.

**Occurrence:** As complex intergrowths with other tellurides in gold ores.

**Association:** Tellurobismuthite, hessite, altaite, calaverite, melonite, petzite.

**Distribution:** From the Zod deposit, 14 km east of Vardenis, Armenia. In the Zhana-Tyube Au–Te deposit, northern Kazakhstan. From the Kochbulak gold deposit, Chatkal-Kuramin Mountains, eastern Uzbekistan. In the Campbell mine, Bisbee, Cochise Co., Arizona, and the Golden Fleece mine, Lake City district, Hinsdale Co., Colorado, USA. From the Ashley deposit, Bannockburn Township, Ontario, Canada. At the Yokozuru mine, north Kyushu, Japan. In the Champion Reef mine, Kolar Gold Fields, Karnataka, India. From Kambalda, 56 km south of Kalgoorlie, Western Australia. At Glava, Värmland, Sweden. From the Ivigtut cryolite deposit, southwestern Greenland.

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**References:** (1) Bezmertnaya, M.S. and L.N. Soboleva (1965) Volynskite, a new telluride of bismuth and silver. *Akad. Nauk SSSR, Eksperimental'no Metod. Issled. Rudnykh Mineralov*, 129–141. (2) (1966) *Amer. Mineral.*, 51, 531 (abs. ref. 1). (3) Bezmertnaya, M.S. and L.N. Soboleva (1963) A new telluride of bismuth and silver, established by the newest micromethods. *Trudy Inst. Mineralog., Geokhim., Kristallokhim Redkikh. Elementov*, 18, 70–84 (in Russian). (4) (1964) *Amer. Mineral.*, 49, 818 (abs. ref. 3). (5) Harris, D.C., W.D. Sinclair, and R.I. Thorpe (1983) Telluride minerals from the Ashley deposit, Bannockburn Township, Ontario. *Can. Mineral.*, 21, 137–143.

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