

**Crystal Data:** Hexagonal. *Point Group:*  $\bar{3} 2/m, 3m$ , or  $32$ . Massive, presumably.

**Physical Properties:** *Cleavage:* Perfect. *Tenacity:* Brittle. *Hardness:* = Soft. VHN = 60.9–64.6 D(meas.) = n.d. D(calc.) = 7.88

**Optical Properties:** Opaque. *Color:* Silver-white. *Luster:* Metallic. *Pleochroism:* Noticeable in air, from creamy to grayish white. *Anisotropism:* Moderate.

R<sub>1</sub>–R<sub>2</sub>: (460) 55.5–51.4, (540) 57.7–52.5, (580) 57.8–52.4, (660) 56.9–51.6

**Cell Data:** *Space Group:*  $P\bar{3}m, P3m1, P31m$ , or  $P321$ .  $a = 4.2477(24)$   $c = 23.075(22)$   
Z = 3

**X-ray Powder Pattern:** Ingoda deposit, Russia or Brandy Gill, England.

3.10 (10), 2.27 (5), 1.647 (5), 2.13 (4), 1.929 (3), 1.254 (3), 1.224 (3)

**Chemistry:**

	(1)	(2)
Bi	73.3	72.36
Pb	0.6	
Te	19.3	22.09
Se	0.1	
S	6.3	5.55
Total	99.6	100.00

(1) Ingoda deposit, Russia or Brandy Gill, England; by electron microprobe, corresponds to Bi<sub>2.00</sub>Pb<sub>0.02</sub>(S<sub>1.12</sub>Te<sub>0.86</sub>Se<sub>0.01</sub>)<sub>Σ=1.99</sub>. (2) Bi<sub>2</sub>(S, Te) with S:Te = 1:1.

**Occurrence:** In feldspar-quartz veins and greisen (Ingoda deposit, Russia).

**Association:** Bismuthinite, joséite, tetradymite (Ingoda deposit, Russia); gold, bismuthinite, baksanite, joséite-A (Tyrnyauz deposit, Russia).

**Distribution:** In Russia, from the Verkhne-Ingodinskoye (Ingoda) tin deposit, near the source of the Ingoda River, central Transbaikal [TL]; and otherwise unspecified localities in Kamchatka and the Southern Ural Mountains; in the Tyrnyauz W–Mo deposit, left bank of the Baksan River Valley, northern Caucasus Mountains. At Brandy Gill, Cumbria, England [TL]. From Băița (Rézbánya), Romania. At the Bluebird mine, Little Dragoon Mountains, Cochise Co., Arizona, USA.

**Name:** For the Ingoda deposit, Russia.

**Type Material:** A.E. Fersman Mineralogical Museum, Academy of Sciences, Moscow, Russia, vis1803.

**References:** (1) Zav'yalov, E.N. and V.D. Begizov (1981) The new bismuth mineral ingodite, Bi<sub>2</sub>TeS. Zap. Vses. Mineral. Obshch., 110, 594–600 (in Russian). (2) Zav'yalov, E.N. and V.D. Begizov (1981) Once again on the problem of grünlingite. Zap. Vses. Mineral. Obshch., 110, 633–635 (in Russian). (3) (1982) Amer. Mineral., 67, 855 (abs. refs. 1 and 2). (4) Zav'yalov, E.N., V.D. Begizov, and V.Y. Tedchuk (1984) Additional data on the chemical composition of ingodite. Zap. Vses. Mineral. Obshch., 113, 31–35 (in Russian). (5) Bayliss, P. (1991) Crystal chemistry and crystallography of some minerals in the tetradymite group. Amer. Mineral., 257–265.