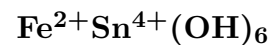


# Natanite



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**Crystal Data:** Cubic. *Point Group:*  $4/m\bar{3}2/m$ . Crystals, to 3 mm, in irregular aggregates; massive.

**Physical Properties:** Hardness = 4.7 VHN = 315 D(meas.) = n.d. D(calc.) = 4.035

**Optical Properties:** Semitransparent. *Color:* Greenish brown; dark gray in reflected light. *Luster:* Vitreous.

*Optical Class:* Isotropic.  $n = 1.755$

**Cell Data:** *Space Group:*  $Pn\bar{3}m$ .  $a = 7.69(1)$   $Z = 4$

**X-ray Powder Pattern:** Mushiston deposit, Tajikistan.

1.710 (10), 3.729 (9), 1.563 (7.5), 2.709 (7), 2.221 (5), 1.031 (4), 1.920 (3)

**Chemistry:**

	(1)	(2)
Sn	43.6	42.92
Fe	19.8	20.19
OH	36.3	36.89
Total	99.7	100.00

(1) Mushiston deposit, Tajikistan; by electron microprobe, average of three analyses; corresponding to  $\text{Fe}_{0.99}\text{Sn}_{1.03}(\text{OH})_{5.98}$ . (2)  $\text{FeSn}(\text{OH})_6$ .

**Mineral Group:** Schoenfliesite group.

**Occurrence:** Formed by oxidation of earlier tin sulfides in tin deposits.

**Association:** Stannite, vismirnovite, malachite, azurite, goethite (Mushiston deposit, Tajikistan); hocartite (Chat-Karagai deposit, Russia); nevkite, wolframite, cassiterite, laitakarite, guanajuatite (Nevskoye deposit, Russia); ilvaite, fluorite, jeanbandyite, pyrrhotite, siderite, quartz (Santa Eulalia, Mexico).

**Distribution:** In the Trudov tin deposit, Sarydzhas Range, near Inyl'chek, and in the Chat-Karagai tin deposit, Tallas Alatan, Kyrgyzstan. From the Mushiston tin deposit, Kaznok Valley, Zeravshan Range, Tajikistan. In the Nevskoye W-Sn deposit, 25 km northwest of Omsukchan, Magadan region, Russia. In the El Potosi and San Antonio mines, Santa Eulalia, Chihuahua, Mexico. From Llallagua, Bolivia.

**Name:** Honors Professor Natan (Antolii) Il'ich Ginzburg (1917–1984), mineralogist and geologist, All-Union Research Institute of Mineral Resources, Moscow, Russia, student of oxidized tin deposits.

**Type Material:** Mining Institute, St. Petersburg, 1988/1; A.E. Fersman Mineralogical Museum, Academy of Sciences, Moscow, Russia, 81651.

**References:** (1) Marshukova, N.K., A.B. Palovskii, G.A. Sidorenko, and N.I. Chistyakova (1981) Vismirnovite,  $\text{ZnSn}(\text{OH})_6$ , and natanite,  $\text{FeSn}(\text{OH})_6$ , new tin minerals. *Zap. Vses. Mineral. Obsch.*, 110, 492–500 (in Russian). (2) (1982) *Amer. Mineral.*, 67, 1077 (abs. ref. 1). (3) (1982) *Mineral. Abs.*, 33, 170 (abs. ref. 1).