

Crystal Data: Orthorhombic. *Point Group:* $2/m\ 2/m\ 2/m$ or $mm2$. As tabular crystals, to 0.3 mm across, with prominent {010}, {100}, {001}, {011}, commonly with curved faces. *Twinning:* On {010}, forming “elbow twins”, which may be multiple.

Physical Properties: *Cleavage:* Perfect on {010}, distinct on {100}, {001}, less distinct on {110}. *Fracture:* Steplike or uneven. *Tenacity:* Brittle. Hardness = n.d. VHN = 169–175 (10 to 20 g load). D(meas.) = n.d. D(calc.) = 7.57

Optical Properties: Opaque. *Color:* Steel-gray with yellow tint; in polished section, pale greenish yellow. *Luster:* Metallic. *Pleochroism:* Distinct; yellowish with green tint. *Anisotropism:* Strong. *Birefractance:* Distinct.

R_1 – R_2 : (400) 37.0–44.0, (420) 37.9–44.6, (440) 39.1–45.0, (460) 40.4–45.3, (480) 41.5–45.5, (500) 42.2–45.6, (520) 42.8–38.6, (540) 42.9–45.3, (560) 42.8–45.2, (580) 42.4–45.0, (600) 41.8–44.8, (620) 41.2–44.7, (640) 40.6–44.5, (660) 40.1–44.4, (680) 39.8–44.0, (700) 39.7–43.7

Cell Data: *Space Group:* $Amam$, $Amam$, or $Ama2_1$. $a = 5.852$ $b = 15.876$ $c = 3.756$
Z = 4

X-ray Powder Pattern: Yanshan Mountains, China.
2.93 (10), 3.29 (6), 7.95 (5), 1.63 (5), 1.006 (5), 0.9299 (5), 2.72 (4)

Chemistry:	(1)	(2)	(4)
Cu	15.68	15.57	15.98
Pt	49.73	50.64	49.06
As	18.30	17.74	18.84
S	16.31	16.43	16.12
Total	100.02	100.38	100.00

(1) China; by electron microprobe, corresponds to $Cu_{0.97}Pt_{1.00}As_{0.96}S_{2.00}$. (2) Do.; by electron microprobe, corresponds to $Cu_{0.96}Pt_{1.01}As_{0.92}S_{2.00}$. (3) Do.; by electron microprobe, average of three analyses, not given, stated to correspond to $Cu_{0.96}(Pt_{0.96}Rh_{0.01})_{\Sigma=0.97}As_{1.08}S_{2.00}$. (4) $CuPtAsS_2$.

Occurrence: A replacement of bornite in contact metasomatic platinum-bearing Co–Cu sulfide mineralization in peridotite-pyroxenite at the contact with anorthosite or granite-gneiss.

Association: Bornite, chalcopyrite, carrollite, pyrite, tetrahedrite, galena, molybdenite; minor sperrylite, cooperite, moncheite, cobaltian malanite, yixunite, damiaoite.

Distribution: In China, from Sandao and Tiema villages [TL] and near Damiao village and the Yixun River, about 270 km north of Beijing, Yanshan Mountains, Hebei Province.

Name: From the last syllables of its two Chinese localities, SanDAO and TieMA villages.

Type Material: n.d.

References: (1) Yu Tsu-Hsiang [Yu Zuxiang], Lin Shu-Jen, Chao Pao, Fang Ching-Sung, and Huang Chi-Shun (1974) A preliminary study of some new minerals of the platinum group and another associated new one in platinum-bearing intrusions in a region of China. *Acta Geol. Sinica*, 2, 202–218 (in Chinese with English abs.). (2) (1976) *Amer. Mineral.*, 61, 184 (abs. ref. 1). (3) Yu Zuxiang, Ding Kuishou and Zhou Jianxiong (1978) Daomanite, a new platinum mineral. *Acta Geol. Sinica*, 4, 320–327 (in Chinese with English abs.). [Yu Zuxiang formerly Yu Tsu-Hsiang]. (4) (1980) *Amer. Mineral.*, 65, 408 (abs. ref. 3). (5) Yu Zuxiang (1986) Some new minerals from platinum-bearing rocks in Yanshan and Tibet regions, China. *Bull. Inst. Geol., Chinese Acad. Geol. Sci.*, 15, 49–57 (in Chinese with English abs.). (6) Yu Zuxiang (2001) New data for daomanite. *Acta Geol. Sinica*, 75(3), 396–399 (in Chinese with English abs.).

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