

Crystal Data: Orthorhombic, pseudocubic. *Point Group:* *mm*2. Crystals, to 1 cm, with combinations of pseudo-octahedron and dodecahedron; also botryoidal with drusy surface; as small inclusions. *Twinning:* Commonly on {111}, as pseudospinel law twins, or repeated interpenetration twins of pseudododecahedra.

Physical Properties: *Fracture:* Conchoidal to uneven. *Tenacity:* Brittle. Hardness = 2.5 VHN = 90.7–171 (25 g load). D(meas.) = 6.2–6.3 D(calc.) = 6.311

Optical Properties: Opaque. *Color:* Steel-gray with reddish tinge, tarnishes black with blue to purple tint; pale gray with violet tint in reflected light. *Streak:* Gray-black, somewhat shining. *Luster:* Metallic.

R: (400) 33.0, (420) 30.8, (440) 28.9, (460) 28.0, (480) 27.2, (500) 26.5, (520) 25.9, (540) 25.5, (560) 25.2, (580) 25.1, (600) 24.9, (620) 24.9, (640) 24.8, (660) 24.8, (680) 24.8, (700) 24.9

Cell Data: *Space Group:* *Pna*2₁ or *Pnam* (synthetic). *a* = 15.298(2) *b* = 7.548(1) *c* = 10.699(1) *Z* = 4

X-ray Powder Pattern: Synthetic.

3.114 (100), 3.085 (90), 1.8960 (90), 2.727 (70), 1.9129 (70), 3.252 (55), 3.232 (55)

Chemistry:	(1)	(2)	(3)	(1)	(2)	(3)
Ag	74.10	65.12	73.49	Ge	1.82	
Fe	0.21			Te	8.69	
Sn	6.94	10.57	10.14	S	16.22	16.37
				Total	99.29	100.00

(1) Aullagas, Bolivia. (2) Revelstoke, Canada; by electron microprobe. (3) Ag₈SnS₆.

Polymorphism & Series: Forms a series with argyrodite; stable below 172 °C.

Occurrence: In polymetallic veins, formed very late in the paragenetic sequence.

Association: Argyrodite, pyrrhotite, stephanite, acanthite, polybasite, freibergite, stannite, stannoidite, cassiterite, arsenopyrite, jordanite, marcasite, pyrrhotite, sphalerite, galena.

Distribution: In Bolivia, exceptional crystals from the Gallofa vein, Aullagas, near Colquechaca, and at the Guadalupe mine, Chocaya, Potosí. From the Pirquitas deposit, Riconada Department, Jujuy Province, Argentina. In Canada, from about 33 km northeast of Revelstoke, British Columbia. At the Campbell mine, Bisbee, Cochise Co., Arizona, and the Leadville district, Lake Co., Colorado, USA. In the Himmelsfürst mine, Erbisdorf, near Freiberg, Saxony, Germany. From Rejská, near Kutná Hora, and Příbram, Czech Republic. In the Ikuno and Omidani mines, Hyogo Prefecture, and the Ashio mine, Tochigi Prefecture, Japan. At Shuiji, Jianyang Co., Fujian Province, China. From the Karamken Au–Ag deposit, Okhotsk district, and at the Belukhinsk tungsten deposit, eastern Transbaikalia, Russia. Other minor occurrences are known.

Name: Honoring Frederick Alexander Canfield (1849–1926), American mining engineer and mineral collector of Dover, New Jersey, USA.

References: (1) Palache, C., H. Berman, and C. Frondel (1944) Dana's system of mineralogy, (7th edition), v. I, 356–358. (2) Harris, D.C. and D.R. Owens (1971) A tellurium-bearing canfieldite, from Revelstoke, B.C. *Can. Mineral.*, 10, 895–898. (3) Wang, N. (1978) New data for Ag₈SnS₆ (canfieldite) and Ag₈GeS₆ (argyrodite). *Neues Jahrb. Mineral., Monatsh.*, 269–272. (4) Soeda, A., M. Watanabe, K. Hoshino, and K. Nakashima (1984) Mineralogy of tellurium-bearing canfieldite from the Tsumo mine, SW Japan and its implications for ore genesis. *Neues Jahrb. Mineral., Abh.*, 150, 11–23. (5) Sugaki, A., A. Kitakaze, and H. Kitazawa (1985) Synthesized tin and tin-sulfide minerals; Synthetic sulfide minerals (XIII). *Sci. Rep., Tohoku Univ., Ser. 3*, 16, 199–211 (in English). (6) Criddle, A.J. and C.J. Stanley, Eds. (1993) Quantitative data file for ore minerals, 3rd ed. Chapman & Hall, London, 71.

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