

**Crystal Data:** Tetragonal. *Point Group:* 4/m 2/m 2/m. As irregular grains, to 0.1 mm; as lamellae.

**Physical Properties:** *Cleavage:* None. *Fracture:* Uneven. *Tenacity:* Brittle. Hardness = n.d. VHN = 145 (50 g load). *D(meas.)* = n.d. *D(calc.)* = 4.71

**Optical Properties:** Opaque. *Color:* Reddish yellow; creamy white with reddish tint in reflected light. *Streak:* n.d. *Luster:* Metallic. Tarnishes brownish gray on exposure to air.

*Optical Class:* n.d. *Anisotropism:* Weak, dark to light gray.

*R<sub>1</sub>-R<sub>2</sub>:* (436) 25.6–31.9, (497) 29.9–36.1, (543) 33.2–39.1, (586) 36.1–41.5, (648) 39.3–44.3

**Cell Data:** *Space Group:* *P*4<sub>2</sub>/*mnm*. *a* = 10.566(5) *c* = 9.749(8) *Z* = 4

**X-ray Powder Pattern:** Horoman massif, Samanicho, Samani-gun, Hokkaido, Japan.

2.072 (100), 1.793 (85), 1.804 (83), 3.061 (74), 1.954 (42), 1.962 (38), 2.641 (33)

**Chemistry:**

|          | (1)          |
|----------|--------------|
| Cu       | 6.99         |
| Fe       | 43.27        |
| Ni       | 16.10        |
| Co       | 0.17         |
| <u>S</u> | <u>33.04</u> |
| Total    | 99.57        |

(1) Horoman massif, Hokkaido, Japan; average of 8 electron microprobe analyses, corresponding to Cu<sub>0.85</sub>(Fe<sub>6.01</sub>Ni<sub>2.13</sub>Co<sub>0.02</sub>)<sub>Σ=8.16</sub>S<sub>7.99</sub>.

**Occurrence:** An intergranular exsolved phase in sulfide aggregates in lherzolite in a peridotite massif.

**Association:** Bornite, talnakhite, copper, (Fe,Ni,Co,Cu)<sub>9</sub>S<sub>8</sub>, Cu<sub>2</sub>(Fe,Ni)<sub>7</sub>S<sub>8</sub>.

**Distribution:** Horoman peridotite massif, Samanicho, Samani-gun, Hokkaido, Japan.

**Name:** Honors emeritus professor Asahiko Sugaki (b 1923), Tohoku University, Sendai, Japan, for his studies on sulfide phase equilibria.

**Type Material:** Tohoku University Museum, Sendai, Japan.

**References:** (1) Kitakaze, A. (2008) Sugakiite, Cu(Fe,Ni)<sub>8</sub>S<sub>8</sub>, A new mineral species from Hokkaido, Japan. *Can. Mineral.*, 46, 263–267. (2) (2008) *Amer. Mineral.*, 93, 1944 (abs. ref. 1).