Horomanite $(Fe,Ni,Co,Cu)_9S_8$

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

Physical Properties: *Cleavage*: Pronounced. *Fracture*: Uneven. *Tenacity*: Brittle. Hardness = 3 VHN = 135 (50 g load). D(meas.) = n.d. D(calc.) = 6.44

Optical Properties: Opaque. *Color*: White with a yellowish tint macroscopically and in reflected light. *Streak*: n.d. *Luster*: Metallic.
Optical Class: n.d. *Pleochroism*: Very weak, white with a yellowish tint to white.
Anisotropism: Weak, dark-gray to slightly light-gray.
R_1-R_2: (436) 34.7-37.8, (497) 40.0-43.2, (543) 43.2-46.4, (586) 45.4-48.5, (648) 47.8-50.7

Cell Data: *Space Group*: *P*4/*mmm*. *a* = 8.707(1) *c* = 10.436(6) *Z* = 4

X-ray Powder Pattern: Horoman massif, Samani-cho, Samani-gun, Hokkaido, Japan.
3.080 (100), 1.825 (60), 1.805 (54), 1.947 (51), 2.955 (32), 1.984 (25), 6.16 (10)

Chemistry:

	(1)
Cu	0.43
Fe	41.82
Ni	23.76
Co	0.52
S	33.29
Total	99.82

(1) Horoman massif, Samani-cho, Samani-gun, Hokkaido, Japan; average of 15 electron microprobe analyses, corresponding to $(Fe_{5.77}Ni_{3.12}Co_{0.07}Cu_{0.05})_{\Sigma=9.01}S_8$.

Occurrence: Filling space between silicate minerals in lherzolites of a peridotite massif.

Association: Samaniite and sugakiite as intergrowths; bornite, talnakhite, copper, troilite, heazlewoodite, pentlandite, magnetite, olivine, clino- and orthopyroxenes.

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

Name: For the ultramafic massif (*Horoman)* from which the first specimens were collected.

Type Material: Tohoku University Museum, Japan.

References: (1) Kitakaze, A., H. Itoh, and R. Komatsu (2011) Horomanite, $(Fe,Ni,Co,Cu)_9S_8$, and samaniite, $Cu_2(Fe,Ni)_7S_8$, new mineral species from the Horoman peridotite massif, Hokkaido, Japan. Journal of Mineralogical and Petrological Sciences, 106, 204-210. (2) (2014) Amer. Mineral., 99, 552-553 (abs. ref. 1).