Thalfenisite $Tl_6(Fe,Ni,Cu)_{25}S_{26}Cl$

Crystal Data: Cubic. *Point Group:* n.d. As grains, to 5 μm, in aggregates.

Physical Properties: *Tenacity:* Brittle. Hardness = n.d. VHN = 130–164 (10 g load). D(meas.) = n.d. D(calc.) = 5.26

Optical Properties: Opaque. *Color:* Brown in reflected light, dark brown in oil.
R: (400) 24.2, (440) 23.6, (480) 23.6, (520) 24.3, (560) 25.6, (600) 27.3, (640) 28.7, (700) 30.3

Cell Data: *Space Group:* n.d. $a = 10.29(2)$ $Z = 1$

X-ray Powder Pattern: Oktyabr mine, Russia.
2.96 (10), 3.42 (9), 3.24 (7), 1.810 (7), 2.35 (6), 4.16 (5), 1.965 (4)

Chemistry:

	(1)	(2)
Tl	33.4	26.1
K	0.03	1.51
Fe	29.4	31.1
Ni	10.3	10.1
Cu	1.74	2.11
S	24.8	26.1
Cl	0.84	1.01
Total	100.51	98.03

(1) Oktyabr mine, Russia; by electron microprobe, average of 15 grains of 2 samples; corresponding to $(Tl_{5.58}K_{0.03})_{\Sigma=5.61}(Fe_{17.96}Ni_{5.99}Cu_{0.93})_{\Sigma=24.88}S_{26.39}Cl_{0.81}$. (2) Do.; by electron microprobe, the border zone of a zoned grain; corresponding to $(Tl_{4.15}K_{1.52})_{\Sigma=5.67}(Fe_{18.01}Ni_{5.51}Cu_{1.07})_{\Sigma=24.59}S_{26.33}Cl_{0.92}$.

Occurrence: In pentlandite-galena-chalcopyrite ores, localized at the contact of chalcopyrite and galena and included in pentlandite.

Association: Pentlandite, galena, chalcopyrite.

Distribution: From the Oktyabr mine, Talnakh area, Noril'sk region, western Siberia, Russia [TL].

Name: For the principal constituents, THALlium, FErrum for *iron*, NI for *nickel*, and Sulfur.

Type Material: Mining Institute, St. Petersburg, Russia, 1128/1.

References: (1) Rudashevskii, N.S., A.M. Karpenov, G.S. Shipova, N.N. Shishkin, and V.A. Ryabkin (1979) Thalfenisite, the thallium analog of djerfisherite. Zap. Vses. Mineral. Obshch., 108, 696–701 (in Russian). (2) (1981) Amer. Mineral., 66, 219 (abs. ref. 1).