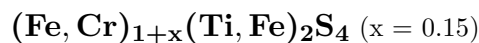


Heideite



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Crystal Data: Monoclinic, probable. *Point Group:* $2/m$. As minute anhedral grains, to 100 μm .

Physical Properties: Hardness = 3.5–4.5 VHN = n.d. D(meas.) = 3.942 (synthetic)
D(calc.) = 4.10 (synthetic)

Optical Properties: Opaque. *Color:* In polished section, creamy white.

Pleochroism: Moderately strong, from purple-gray to cream-gray.

R_1 – R_2 : n.d.

Cell Data: *Space Group:* $I2/m$. $a = 5.97$ $b = 3.42$ $c = 11.4$ $\beta = 90.2^\circ$ $Z = 2$

X-ray Powder Pattern: Synthetic heideite.

2.068 (100), 2.644 (90), 1.719 (50), 2.975 (15), 1.445 (10), 1.051 (5), 1.010 (5)

Chemistry:

	(1)	(2)
Ti	28.5	29.5
Fe	25.1	25.1
Cr	2.9	
S	44.9	45.2
Total	101.4	99.8

(1) Bustee meteorite; by electron microprobe, average of analyses of five grains, corresponding to $(\text{Fe}_{0.99}^{2+}\text{Cr}_{0.16}^{2+})_{\Sigma=1.15}(\text{Ti}_{1.70}^{3+}\text{Fe}_{0.30}^{2+})_{\Sigma=2.00}\text{S}_{4.00}$. (2) Synthetic heideite.

Occurrence: As minute anhedral grains (Bustee meteorite).

Association: Titanian troilite, ferroan alabandite, daubr elite, oldhamite, osbornite, niningerite, forsterite, iron (Bustee meteorite).

Distribution: From the Bustee enstatite achondrite meteorite [TL]. In the Kaidun [??type??ck??] meteorite.

Name: Honors Professor Fritz Heide (1891–1973), meteoriticist of Jena, Germany.

Type Material: n.d. [??where is Bustee??ASU provided samples to NM Inst??]

References: (1) Keil, K. and R. Brett (1974) Heideite, $(\text{Fe, Cr})_{1+x}(\text{Ti, Fe})_2\text{S}_4$, a new mineral in the Bustee enstatite achondrite. *Amer. Mineral.*, 59, 465–470. (2) Plovnick, R.H., M. Vlasse, and A. Wold (1968) Preparation and structural properties of some ternary chalcogenides of titanium. *Inorg. Chem.*, 7, 127–129.