

Keilite**(Fe²⁺, Mg)S**

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Crystal Data: Cubic. *Point Group:* $4/m\bar{3}2/m$. Granular, to several hundred μm .**Physical Properties:** Hardness = n.d. D(meas.) = n.d. D(calc.) = 3.59–3.67**Optical Properties:** Opaque. *Color:* Gray.*Optical Class:* Isotropic.

R: (400) 27.0, (420) 27.1, (440) 27.6, (460) 27.2, (480) 27.1, (500) 26.6, (520) 26.6, (540) 26.6, (560) 26.5, (580) 26.7, (600) 25.9, (620) 26.2, (640) 26.1, (660) 25.9, (680) 26.0, (700) 25.9

Cell Data: *Space Group:* $Fm\bar{3}m$ (by analogy to synthetic MgS). $a = 5.17\text{--}5.18$ $Z = 4$ **X-ray Powder Pattern:** Abee meteorite.

2.584 (vs), 1.829 (s)

Chemistry:

	(1)	(2)
Fe	40.14	38.71
Mg	10.05	16.84
Mn	3.37	
Ca	1.98	
Cr	1.91	
Zn	0.24	
Ti	0.06	
Ni	0.01	
S	41.39	44.45
Total	99.15	100.00

(1) Abee meteorite; by electron microprobe, corresponding to $(\text{Fe}_{0.56}\text{Mg}_{0.32}\text{Mn}_{0.05}\text{Ca}_{0.04}\text{Cr}_{0.03})_{\Sigma=1.00}\text{S}_{1.00}$. (2) (Fe, Mg)S with Fe:Mg = 1:1.**Mineral Group:** Galena group.**Occurrence:** An accessory mineral in enstatite chondrite meteorites.**Association:** Niningerite, enstatite, kamacite, troilite.**Distribution:** From the Abee [TL], Adhi-Kot, Saint-Sauveur, LEW 88180, RKP A80259, LEW 87119, LEW 88714, Y-791790, Y-791811, Y-86760, Y8404 meteorites.**Name:** In honor of Dr. Klaus Keil (1934–), Hawaii Institute of Geophysics and Planetology, University of Hawaii, Honolulu, Hawaii, USA, for his research on chondritic meteorites.**Type Material:** University of Hawaii, Honolulu, Hawaii, USA, 13.**References:** (1) Shimizu, M., H. Yoshida, and J.A. Mandarino (2002) The new mineral species keilite, (Fe, Mg)S, the iron-dominant analog of niningerite. *Can. Mineral.*, 40, 1687–1692. (2) (??) *Amer. Mineral.*, ??, ?? (abs. ref. 1).