

**Crystal Data:** Isometric. *Point Group:*  $4/m\bar{3}2/m$ . As part of an irregular 0.035 mm diameter grain.

**Physical Properties:** *Cleavage:* n.d.. *Fracture:* n.d. *Tenacity:* n.d.  
Hardness = n.d. D(meas.) = n.d. D(calc.) = 6.83

**Optical Properties:** Opaque. *Color:* Yellowish white in reflected light. *Streak:* n.d.  
*Luster:* Metallic.  
R: (470) 47.1, (546) 48.8, (589) 50.0, (650) 50.9  
*Optical Class:* Isotropic.

**Cell Data:** *Space Group:*  $Pm\bar{3}m$ .  $a = 2.831(4)$   $Z = 1$

**X-ray Powder Pattern:** Lunar meteorite Dhofar 280.  
2.831 (n.d.), 2.000 (n.d.), 1.631 (n.d.), 1.415 (n.d.), 1.267 (n.d.), 1.157 (n.d.), 1.000 (n.d.)

<b>Chemistry:</b>	(1)
Fe	75.3
Si	18.4
Co	0.12
Ni	3.14
P	1.85
Cr	0.37
Total	99.2

(1) Lunar meteorite Dhofar 280; average of 5 electron microprobe analyses, corresponding to  $(\text{Fe}_{1.27}\text{Ni}_{0.05}\text{Cr}_{0.01})_{\Sigma=1.33}(\text{Si}_{0.62}\text{P}_{0.06})_{\Sigma=0.68}$ .

**Occurrence:** In a highland regolith breccia clast in the lunar meteorite Dhofar 280, formed by impact-induced, vapor-phase deposition under extreme reducing conditions in lunar soil.

**Association:** FeSi (fersilicite and ferdasilicite), vitrified plagioclase (“maskelynite”), FeNi.

**Distribution:** Lunar meteorite Dhofar 280 collected in Dhofar Province (Al Janubiyah Province), Oman.

**Name:** Honors Bruce Hapke (emeritus, University of Pittsburgh), who first predicted the presence of vapor-deposited elemental Fe as coatings on lunar soil grains.

**Type Material:** n.d.

**References:** (1) Anand, M., L.A. Taylor, M.A. Nazarov, J. Shu, H.-K. Mao, and R.J. Hemley (2004) Space weathering on airless planetary bodies: Clues from the lunar mineral hapkeite. *Proc. Nat. Acad. Sci.*, 101, 6847-6851. (2) (2005) *Amer. Mineral.*, 90, 518-519 (abs. ref. 1).