

**Crystal Data:** Hexagonal. *Point Group:*  $6/m\ 2/m\ 2/m$ . Massive, granular; nodular.

**Physical Properties:** Hardness = 3.5–4.5 VHN = 250(3) D(meas.) = 4.67–4.79  
D(calc.) = 4.85

**Optical Properties:** Opaque. *Color:* Pale grayish brown, tarnishes rapidly on exposure.  
*Streak:* Dark grayish brown. *Luster:* Metallic. *Anisotropism:* Strong.

$R_1$ – $R_2$ : (400) 24.3–28.4, (420) 24.9–29.6, (440) 25.8–30.9, (460) 27.1–32.6, (480) 28.4–34.0, (500) 29.9–35.5, (520) 31.3–36.7, (540) 32.7–37.9, (560) 34.2–39.0, (580) 35.5–40.0, (600) 36.9–41.0, (620) 38.1–41.7, (640) 39.2–42.4, (660) 40.2–43.1, (680) 41.1–43.5, (700) 42.0–44.0

**Cell Data:** *Space Group:*  $P6_3/mmc$ .  $a = 5.958$   $c = 11.74$   $Z = 12$

**X-ray Powder Pattern:** Del Norte Co., California, USA.

2.09 (100), 2.66 (60), 1.719 (50), 2.98 (40), 1.331 (40), 1.119 (40), 1.923 (30)

Chemistry:	(1)	(2)	(3)
Fe	62.70	63.0	63.53
S	35.40	35.0	36.47
Total	98.10	98.0	100.00

(1) Del Norte Co., California, USA. (2) Cranbourne meteorite. (3) FeS.

**Occurrence:** In serpentine (Del Norte Co., California, USA); with Fe–Cu–Ni sulfides in a layered ultramafic intrusive (Sally Malay deposit, Australia); and as nodules in meteorites.

**Association:** Pyrrhotite, pentlandite, mackinawite, cubanite, valleriite, chalcopyrite, pyrite (Wannaway deposit, Australia); daubréelite, chromite, sphalerite, graphite, various phosphates and silicates (meteorites).

**Distribution:** From the Alta mine, Del Norte Co., California, USA. In the Wannaway Fe–Ni–Cu deposit, and at the Sally Malay Cu–Ni deposit, 120 km north of Halls Creek, Western Australia. In the Panzihua-Xichang district, Sichuan Province, China. From Disco Island and the Ilímaussaq intrusion, southern Greenland. At Nordfjellmark, Norway. In many meteorites and some lunar rocks.

**Name:** In honor of Dominico Troili (1722–1792), Italian Jesuit, who described, in 1766, a meteorite which fell in Albareto, near Modena, Italy, which contained the species.

**References:** (1) Palache, C., H. Berman, and C. Frondel (1944) Dana's system of mineralogy, (7th edition), v. I, 231–234. (2) King, H.E. and C.T. Pruitt (1982) *Acta Cryst.*, 38, 1877–???. (3) Buchwald, V.F. (1977) The mineralogy of iron meteorites. *Phil. Trans. Royal Soc. London*, A. 286, 453–491. (4) Berry, L.G. and R.M. Thompson (1962) X-ray powder data for the ore minerals. *Geol. Soc. Amer. Mem.* 85, 61. (5) Ramdohr, P. (1969) The ore minerals and their intergrowths, (3rd edition), 582–601. (6) Criddle, A.J. and C.J. Stanley, Eds. (1993) Quantitative data file for ore minerals, 3rd ed. Chapman & Hall, London, 583.