Crystal Data: Tetragonal. *Point Group*: 4/*m* 2/*m* 2/*m*. As irregular crystals, to 100 μm, as grains, and in rims around taenite. As prismatic crystals elongated along [001] with trapezoidal cross section (terrestrial).

Physical Properties: Hardness = n.d. VHN = 170-200 (25 g load). D = 8.28

Optical Properties: Opaque. *Color*: Creamy in reflected light. *Luster*: Metallic. *Anisotropism*: Distinct on well-polished surfaces, bluish green to brownish orange (oil immersion). R_1-R_2: n.d.

Cell Data: *Space Group*: *P*4/*mmm*. a = 2.533(2) c = 3.582(2) Z = 1

X-ray Powder Pattern: Linville Ni-rich ataxite meteorite.
3.40 (100), 2.879 (80), 2.526 (80), 4.239 (60), 2.279 (10), 2.187 (10), 2.070 (10)

Chemistry:	(1)	(2)	(3)
Fe	49.00	48.75	37.02
Ni	51.00	51.25	50.49
Cu	0.20		3.19
Co	0.08		8.20
P	< 0.01		.
Total	100.28	100.00	99.10

(1) By electron microprobe, average of analyses from 18 meteorites. (2) FeNi. (3) Pokphur magnetite body, Indo-Myanmar ranges, northeast India; average of 3 electron microprobe analyses, total includes 0.01% Ag, 0.10% Cd, 0.03% In, 0.03% Au and 0.12% Mn.

Occurrence: In slowly cooled meteorites, by the ordering of Fe and Ni atoms in taenite. It is most abundant in mesosiderites and chondrites. In a serpentinized, ophiolite-hosted, Ni-bearing magnetite body formed by hydrothermal alteration of ferromagnesian minerals of the olivine and pyroxene groups (terrestrial).

Association: Kamacite, troilite, taenite (meteorites); chamosite, magnetite, chromite, Cr-Al spinel (terrestrial).

Distribution: Widely distributed in chondrite, mesosiderite, iron, and pallas types of meteorites. From the Pokphur magnetite body, north-eastern most part of the Nagaland-Manipur ophiolite belt, Indo-Myanmar ranges, northeast India.

Name: In allusion to the symmetry of the mineral, and the genetic link to *taenite*.

Type Material: National Museum of Natural History, Washington, D.C., USA (meteorite collection 1025).

References: (1) Clark, R.S., Jr. and E.R.D. Scott (1980) Tetrataenite - ordered FeNi, a new mineral in meteorites. Amer. Mineral., 65, 624-630. (2) Ramsden, A.R. and E.N. Cameron (1966) Kamacite and taenite superstructures and a metastable tetragonal phase in iron meteorites. Amer. Mineral., 51, 37-55. (3) Albertson, J.F., G.B. Jensen, and J.M. Knudsen (1978) Structure of taenite in two iron meteorites. Nature, 273, 453-454. (4) Rubin, A.E. (1994) Euhedral tetrataenite in the Jelica meteorite. Mineral. Mag., 58, 215-221. (5) Nayak, B. and F.M. Meyer (2015) Tetrataenite in terrestrial rocks. Amer. Mineral., 100, 209-214.