Steinhardtite (Al,Ni,Fe)

Crystal Data: Cubic. *Point Group*: 4/*m* $\bar{3}$ 2/*m*. As angular to tabular grains, to 10 μm.

Physical Properties: *Cleavage*: n.d. *Fracture*: n.d. *Tenacity*: n.d. Hardness = n.d. D(meas.) = n.d. D(calc.) = 5.52

Optical Properties: Opaque. *Color*: n.d. *Streak*: n.d. *Luster*: Metallic.
Optical Class: n.d.

Cell Data: *Space Group*: *Im*$\bar{3}$ *m*. *a* = 3.0214(8) Z = 2

X-ray Powder Pattern: Khatyrka CV3 carbonaceous chondrite.
2.1355 (100), 0.8071 (30), 1.2329 (25), 1.5100 (15), 0.9550 (10)

Chemistry:	(1)
Al	22.41
Ni	40.90
Fe	36.23
Total	99.54

(1) Khatyrka CV3 carbonaceous chondrite; average of 9 electron microprobe analyses; corresponds to $Al_{0.38}Ni_{0.32}Fe_{0.30}$.

Occurrence: In a carbonaceous chondrite meteorite, likely formed by shock metamorphism.

Association: Trevorite, ahrensite, coesite, stishovite.

Distribution: From the Khatyrka CV3 carbonaceous chondrite.

Name: Honors Professor Paul J. Steinhardt, Department of Physics, Princeton University, for his dedication to the study of the mineralogy of the Khatyrka meteorite and his pioneering contribution to the theoretical development of quasiperiodic structures.

Type Material: Mineralogy collection, Natural History Museum, University of Florence, Italy (3142/I).

References: (1) Bindi, L., N. Yao, C. Lin, L.S. Hollister, G.J. MacPherson, G.R. Poirier, C.L. Andronicos, V.V. Distler, M.P. Eddy, A. Kostin, V. Kryachko, W.M. Steinhardt, and M. Yudovskaya (2014) Steinhardtite, a new body-centered-cubic allotropic form of aluminum from the Khatyrka CV3 carbonaceous chondrite. Amer. Mineral., 99, 2433-2436.