

Crystal Data: Hexagonal. *Point Group:* $\bar{3}2/m$. As anhedral grains, to 1 mm.

Twinning: The lamellar twinning observed may be the result of pressure-induced deformation.

Physical Properties: Hardness = Very soft. VHN = 17–45 (15 g load) (synthetic).
D(meas.) = 3.21 (synthetic). D(calc.) = [3.23]

Optical Properties: Opaque. *Color:* Yellow-gray to pale gray in reflected light.

Luster: Metallic. *Pleochroism:* Distinct, pale yellow to gray in air, pale yellow with a greenish tint to gray in oil.

R₁–R₂: (400) 19.3–26.7, (420) 20.1–26.2, (440) 21.9–26.3, (460) 21.5–27.4, (480) 21.7–30.0, (500) 22.0–31.6, (520) 22.0–32.3, (540) 21.8–32.8, (560) 21.7–33.0, (580) 21.3–32.5, (600) 20.8–32.2, (620) 20.5–31.4, (640) 20.5–30.7, (660) 20.1–29.4, (680) 18.1–26.7, (700) 18.0–28.8

Cell Data: *Space Group:* $R\bar{3}m$. $a = 3.55$ $c = 19.5$ $Z = 3$

X-ray Powder Pattern: Norton County meteorite.

2.60 (100), 2.07 (80), 1.910 (80), 1.779 (80), 6.49 (70), 1.465 (60), 1.134 (60)

Chemistry:

	(1)	(2)	(3)
Na	15.7	15.5	16.53
Cr	37.4	37.6	37.38
Fe		0.86	
Zn		0.0	
Ca		0.13	
Mg		0.10	
Mn	0.08	0.10	
Ti	0.18	0.0	
S	46.3	46.0	46.09
Total	99.66	100.29	100.00

(1) Norton County meteorite; by electron microprobe. (2) Qingzhen meteorite; by electron microprobe, average of three analyses. (3) NaCrS₂.

Occurrence: As inclusions in enstatite crystals and in the brecciated matrix of a meteorite (Norton County meteorite); between coarse pyroxene grains in chondrules in a meteorite (Qingzhen meteorite).

Association: Enstatite, cronusite, daubréelite, titanite, ferromagnesian alabandite, oldhamite, kamacite, perryite, schollhornite (Norton County meteorite); troilite, kamacite, oldhamite (Qingzhen meteorite).

Distribution: Found in the Norton County enstatite achondrite [TL] and the Qingzhen enstatite chondrite meteorites.

Name: To honor Dr. Caswell Silver (1916–), American geologist associated with the University of New Mexico, Institute of Meteoritics, Albuquerque, New Mexico, USA.

Type Material: n.d.

References: (1) Okada, A. and K. Keil (1982) Caswellsilverite, NaCrS₂: a new mineral in the Norton County enstatite achondrite. *Amer. Mineral.*, 67, 132–136. (2) Grossman, J.N., A.E. Rubin, E.R. Rambaldi, R.S. Rajan, and J.T. Wasson (1985) Chondrules in the Qingzhen type-3 enstatite chondrite: possible precursor components and comparison to ordinary chondrite chondrules. *Geochim. Cosmochim. Acta*, 49, 1781–1795. (3) Rüdorff, W. and K. Stegemann (1943) Kristallstruktur und magnetisches Verhalten der Alkalithiochromite. *Z. Anorg. Allg. Chem.*, 251, 376–395 (in German).

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