Crystal Data: Orthorhombic. *Point Group:* $2/m\ 2/m\ 2/m$. Crystals prismatic [010], also with prominent {101} and {310}; commonly massive with a radiated fibrous structure. *Twinning:* As fivelings with {011} as twin plane; also forming cruciform penetration twins, as with arsenopyrite, with twin plane {101}.

Physical Properties: *Cleavage:* Distinct on {100}. *Fracture:* Uneven to conchoidal. *Tenacity:* Brittle. Hardness = 4.5–5 VHN = 792–882 (100 g load). D(meas.) = 7.2 D(calc.) = 7.471

Optical Properties: Opaque. *Color:* Tin-white, readily tarnishes to dark gray; in polished section, white. *Streak:* Grayish black. *Luster:* Metallic. *Pleochroism:* Weak. *Anisotropism:* Strong.

R_1–R_2: (400) 55.8–52.6, (420) 55.8–53.0, (440) 55.8–53.4, (460) 55.6–53.8, (480) 55.2–54.1, (500) 54.7–54.3, (520) 54.2–54.4, (540) 53.5–54.5, (560) 52.8–54.5, (580) 52.2–54.5, (600) 51.8–54.4, (620) 51.3–54.3, (640) 51.0–54.2, (660) 50.7–54.1, (680) 50.5–53.9, (700) 50.3–53.8

Cell Data: *Space Group: Pnnm.* $a = 5.173$ $b = 5.954$ $c = 2.999$ $Z = 2$

X-ray Powder Pattern: Cobalt, Canada. (JCPDS 23-88).
2.379 (100), 2.572 (80), 2.597 (55), 1.862 (45), 1.849 (20), 1.650 (20), 1.636 (20)

Chemistry:

	(1)	(2)	(3)
Co	18.58	12.99	28.23
Fe	9.51	15.28	
Ni	0.00	0.20	
Cu	0.62	0.33	
As	70.36	71.13	71.77
S	0.90	0.68	
Total	99.97	100.61	100.00

(1) Schneeberg, Germany. (2) Nordmarken, Sweden. (3) $CoAs_2$.

Polymorphism & Series: Dimorphous with clinosafflorite.

Occurrence: In hydrothermal veins of moderate temperature and pressure.

Association: Skutterudite, rammelsbergite, nickeline, silver, bismuth, löllingite.

Distribution: In the USA, from the Quartzburg district, Grant Co., Oregon. At Cobalt and South Lorrain, Ontario; and at Great Bear Lake, Saskatchewan, Canada. In Germany, at Schneeberg and Annaberg, Saxony; Bieber and Mackenheim, Hesse; St. Andreasberg, in the Harz Mountains; and at Wittichen, Black Forest. From Sweden, at Tunaberg, Södermanland; and at Nordmark, Wermland. From Burguillos de Cerro, Badajoz Province, Spain. At Sarrabus and Gonnosfanadiga, Sardinia, Italy. In Australia, at Broken Hill, New South Wales. A number of other less prominent localities are known.

Name: From *safflower*, in allusion to its use as a pigment.

References: (1) Palache, C., H. Berman, and C. Frondel (1944) Dana's system of mineralogy, (7th edition), v. I, 307–309. (2) Radcliffe, D. and L.G. Berry (1968) The safflorite–loellingite solid solution series. Amer. Mineral., 53, 1856–1881.