Stützite $\mathbf{Ag_{5-x}Te_3}$ (x = 0.24 to 0.36)

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Crystal Data: Hexagonal. *Point Group:* $6/m\ 2/m\ 2/m$. The only crystal known is the type, 2 cm, hexagonal, equant, and highly modified, with 14 forms; commonly massive, compact, granular.

Physical Properties: *Fracture:* Subconchoidal. *Tenacity:* Brittle. Hardness = 3.5 VHN = 73–90 (25 g load). D(meas.) = 8.00 D(calc.) = 8.18

Optical Properties: Opaque. *Color:* Dark lead-gray, tarnishes rapidly to a dark bronze to iridescence; in polished section, pale gray. *Luster:* Metallic. *Anisotropism:* Moderate, in gray reddish brown-blue.
R_1–R_2: (400) 41.2–42.9, (420) 41.2–42.5, (440) 41.2–42.0, (460) 41.2–41.6, (480) 41.2–41.3, (500) 41.1–41.1, (520) 41.0–40.8, (540) 40.8–40.4, (560) 40.7–40.0, (580) 40.6–39.5, (600) 40.6–39.0, (620) 40.6–38.7, (640) 40.7–38.3, (660) 40.8–37.9, (680) 40.9–37.4, (700) 41.1–37.0

Cell Data: *Space Group:* $C6/mmm$. $a = 13.38$ $c = 8.45$ $Z = 7$

X-ray Powder Pattern: May Day mine, Colorado, USA.
2.16 (100b), 2.55 (80b), 3.03 (70), 2.62 (70), 3.56 (60), 3.52 (60), 2.11 (60)

Chemistry:

	(1)	(2)	(3)
Ag	57.1	59.8	58.49
Cu		0.1	
Te	42.6	39.2	41.51
Total	99.7	99.1	100.00

(1) Red Cloud mine, Colorado, USA; by electron microprobe, corresponding to $Ag_{4.76}Te_{3.00}$.
(2) Bisbee, Arizona, USA; by electron microprobe, correspnding to $(Ag_{5.41}Cu_{0.02})_{\Sigma=5.43}Te_{3.00}$.
(3) Ag_5Te_3.

Occurrence: As replacement masses in hydrothermal deposits associated with other tellurides and sulfides.

Association: Sylvanite, hessite, altaite, petzite, empressite, tellurium, gold, galena, sphalerite, colusite, tetrahedrite–tennantite, pyrite.

Distribution: A museum specimen, probably from Săcărîmb (Nagyág), Romania [TL]. At Kremnica (Kremnitz) and Byšta, Slovakia. From Glava, Värmland, Sweden. In the Kochbulak gold deposit, Chatkal-Kuramin Mountains, eastern Uzbekistan. On Temagami Island, Lake Temagami, Ontario; and at Lindquist Lake, Quebec, Canada. In the USA, in Colorado, at the May Day mine, La Plata district, La Plata Co.; from the Golden Fleece mines, Lake City, Hinsdale Co.; at the Empress Josephine mine, Bonanza district, Saguache Co.; from Buckeye Gulch, near Leadville, Lake Co.; and at the Red Cloud and other mines, Jamestown and Gold Hill districts, Boulder Co. In the Mayflower mine, Tobacco Root Mountains, Madison Co., Montana; from the Campbell mine, Bisbee, Cochise Co., Arizona. At the Moctezuma (Bambolla) mine, 12 km south of Moctezuma, Sonora, Mexico. In the Kawazu mine, Shizuoka Prefecture, Japan.

Name: To honor Andreas Xavier Stütz (1747–1806), mineralogist of Vienna, Austria.

Type Material: Vienna University, Vienna, Austria, 5808; Harvard University, Cambridge, Massachusetts, USA, 108098.

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