

Stützite

Ag_{5-x}Te₃ (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.

R₁–R₂: (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, corresponding to (Ag_{5.41}Cu_{0.02})_{Σ=5.43}Te_{3.00}.

(3) Ag₅Te₃.

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.

References: (1) Thompson, R.M., M.A. Peacock, J.F. Rowland, and L.G. Berry (1951) Empressite and “stuetzite”. *Amer. Mineral.*, 36, 458–469. (2) Honea, R. (1964) Empressite and stuetzite redefined. *Amer. Mineral.*, 49, 325–338. (3) Cabri, L.J. (1965) Discussion of “empressite and stuetzite redefined” by R.M. Honea. *Amer. Mineral.*, 50, 795–801. (4) Stumpfl, E.F. and J. Rucklidge (1968) New data on natural phases in the system Ag–Te. *Amer. Mineral.*, 53, 1513–1522. (5) Criddle, A.J. and C.J. Stanley, Eds. (1993) Quantitative data file for ore minerals, 3rd ed. Chapman & Hall, London, 540.

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