

Crystal Data: Orthorhombic. *Point Group:* *mm*2. Crystals typically short prismatic and striated || [001], to 1 cm.

Physical Properties: *Cleavage:* Perfect on {001}. *Fracture:* Subconchoidal to uneven. *Tenacity:* Brittle. *Hardness* = 2–3 VHN = 138–192 (100 g load). D(meas.) = 8.62 D(calc.) = 8.86

Optical Properties: Opaque. *Color:* Silver-white to pale brass-yellow (tarnish ?); in polished section, creamy white. *Luster:* Very high metallic. *Pleochroism:* Weak. *Anisotropism:* Strong, to dark brown.

R₁–R₂: (400) 44.4–50.3, (420) 46.8–52.5, (440) 49.1–54.6, (460) 51.1–56.4, (480) 52.6–57.7, (500) 53.7–58.7, (520) 56.4–59.4, (540) 55.1–59.9, (560) 55.6–60.3, (580) 56.0–60.6, (600) 56.4–60.7, (620) 56.7–60.8, (640) 57.0–60.9, (660) 57.2–60.9, (680) 57.3–60.9, (700) 57.4–60.8

Cell Data: *Space Group:* *Pma*2. *a* = 16.58(1) *b* = 8.849(5) *c* = 4.464(3) *Z* = 8

X-ray Powder Pattern: Cripple Creek, Colorado, USA. 3.03 (10), 2.11 (7), 2.94 (6), 2.23 (5), 2.07 (4), 1.78 (4), 1.69 (4)

Chemistry:	(1)	(2)	(3)	(4)
Au	43.86	36.19	34.77	43.56
Ag	0.46	4.87	5.87	
Fe		0.05		
Te	55.68	58.50	58.60	56.44
insol.		0.09	1.58	
Total	100.00	99.70	100.82	100.00

(1) Cripple Creek, Colorado, USA; corresponds to (Au_{1.02}Ag_{0.02})_{Σ=1.04}Te_{2.00}. (2) Moose mine, Cripple Creek, Colorado, USA; Fe is from pyrite; corresponds to (Au_{0.80}Ag_{0.20})_{Σ=1.00}Te_{2.00}. (3) Săcărîmb, Romania; corresponds to (Au_{0.77}Ag_{0.24})_{Σ=1.01}Te_{2.00}. (4) AuTe₂.

Polymorphism & Series: Dimorphous with calaverite.

Occurrence: In hydrothermal veins with other tellurides.

Association: Calaverite, coloradoite, sylvanite, krennerite, petzite, hessite, tellurium, gold, pyrite, quartz.

Distribution: In Romania, from Săcărîmb (Nagyág) [TL] and Fața Băii (Facebánya). In the Konstantin-Ovkoye gold deposit, Krasnoyarskii region, and the Bereznyakov gold deposit, Southern Ural Mountains, Russia. From the Zhana-Tyube Au–Te deposit, northern Kazakhstan. In the USA, in Colorado, at several mines in Cripple Creek, Teller Co.; the Smoky Hill mine, Boulder Co.; the Central City district, Gilpin Co., and several other minor localities; in the Campbell mine, Bisbee, and at Tombstone, Cochise Co., Arizona; from the Golden Sunlight mine, near Whitehall, Jefferson Co., Montana. In Canada, at the Bencourt mine, Louvricourt, Quebec. At Kalgoorlie and Mulgabbie, Western Australia. From the Emperor mine, Vatukoula, and in the Tuvatu Au–Ag–Te deposit, Viti Levu, Fiji Islands. In the Date mine, Hokkaido, and at the Susaki mine, Shizuoka Prefecture, Japan.

Name: For József A. Krenner (1839–1920), Hungarian mineralogist who first noted the species.

References: (1) Palache, C., H. Berman, and C. Frondel (1944) Dana's system of mineralogy, (7th edition), v. I, 333–335. (2) Tunell, G. and K.J. Murata (1950) The atomic arrangement and chemical composition of krennerite. *Amer. Mineral.*, 35, 959–984. (3) Pertlik, F. (1984) Crystal chemistry of natural tellurides. II: Redetermination of the crystal structure of krennerite, (Au_{1-x}Ag_x)Te₂ with x ~0.2. *Tschermaks Mineral. Petrog. Mitt.*, 33, 253–262. (4) Van Tendeloo, G., S. Amelinckx, and P. Gregoriades (1984) Electron microscopic studies of modulated structures in (Au, Ag)Te₂. III. Krennerite. *J. Solid State Chem.*, 53, 281–289. (5) Ramdohr, P. (1969) The ore minerals and their intergrowths, (3rd edition), 427–428. (6) Criddle, A.J. and C.J. Stanley, Eds. (1993) Quantitative data file for ore minerals, 3rd ed. Chapman & Hall, London, 301.

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise without the prior written permission of Mineral Data Publishing.