

Quadratite

Ag(Cd, Pb)(As, Sb)S₃

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Crystal Data: Monoclinic. *Point Group:* 2/m. As pseudo-hexagonal plates, to 2 mm, pseudomorphic after an unknown mineral, consisting of fibers intimately mixed with pyrite.

Physical Properties: Hardness = n.d. VHN = n.d. D(meas.) = 5.66 (synthetic). D(calc.) = 5.70

Optical Properties: Opaque. *Color:* Brilliant bronze; in polished section, creamy grayish white perpendicular to the fibers, and rose colored parallel. *Luster:* Metallic. *Pleochroism:* Strong, pale gray to rose. *Anisotropism:* Strong, with orange dominant.

R₁-R₂: (400) 26.3-28.0, (420) 26.1-30.4, (440) 26.0-31.6, (460) 25.9-29.9, (480) 26.1-30.0, (500) 26.4-29.3, (520) 26.8-29.9, (540) 27.1-31.6, (560) 27.5-33.2, (580) 27.7-34.5, (600) 27.9-35.0, (620) 27.9-35.3, (640) 28.1-36.0, (660) 28.3-37.0, (680) 28.5-38.0, (700) 28.6-38.7

Cell Data: *Space Group:* I2/m (synthetic). a = 6.826(3) b = 10.509(5) c = 5.308(5)
β = 98.57° Z = 4

X-ray Powder Pattern: Alšar, Macedonia.

2.89 (FFF), 4.17 (F), 3.35 (F), 2.64 (mF), 2.35 (mf), 4.70 (f), 6.03 (fff)

Chemistry:

	(1)	(2)	(3)
Tl	62.50	61.30	63.01
Fe	17.10	19.73	17.22
S	19.50	20.20	19.77
Total	99.10	101.23	100.00

(1) Alšar, Macedonia; by electron microprobe, corresponding to Tl_{1.00}Fe_{1.00}S_{2.00}. (2) Do.; by electron microprobe, average of three analyses; corresponding to Tl_{0.94}Fe_{1.10}S_{1.96}. (3) TlFeS₂.

Occurrence: Formed in a hydrothermal deposit (Alšar, Macedonia).

Association: Pyrite, lorandite, orpiment, realgar, vrbaita (Alšar, Macedonia).

Distribution: From Alšar (Allchar), near Rošden, Macedonia [TL]. In the USA, at the Mercur gold deposit, Tooele Co., Utah. From the Lanmuchang Hg-Tl deposit, Guizhou Province, China.

Name: In honor of Professor Eugène Raguin (1900-?), French mining geologist, National School of Mines, Paris, France.

Type Material: National School of Mines, Paris, France.

References: (1) Laurent, Y., P. Picot, R. Pierrot, and T. Ivanov (1969) La raguinite, TlFeS₂, une nouvelle espèce minérale et le problème de l'allcharite. Bull. Soc. fr. Minéral., 92, 38-48 (in French with English abs.). (2) (1969) Amer. Mineral., 54, 1495 (abs. ref. 1). (3) Johan, Z., P. Picot, and R. Pierrot (1969) Nouvelles données sur la raguinite. Bull. Soc. fr. Minéral., 92, 237 (in French). (4) (1969) Amer. Mineral., 54, 1741 (abs. ref. 3). (5) Zabel, M. and K.-J. Range (1979) Ternäre Phasen im System Eisen-Thallium-Schwefel. Z. Naturf. B. Anorg. Chem., Organ. Chem., 34, 1-6 (in German with English abs.). (6) Criddle, A.J. and C.J. Stanley, Eds. (1993) Quantitative data file for ore minerals, 3rd ed. Chapman & Hall, London, 472.