

Ourayite

Ag₃Pb₄Bi₅S₁₃(?)

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Crystal Data: Orthorhombic. *Point Group:* $2/m\ 2/m\ 2/m$ or $mm2$. As irregular laths, to < 0.1 mm.

Physical Properties: Hardness = n.d. VHN = n.d. D(meas.) = n.d. D(calc.) = [7.18]

Optical Properties: Opaque. *Color:* In polished section, galena-white. *Pleochroism:* Weak in oil. *Anisotropism:* Distinct to strong, pale gray to bluish black.

R₁–R₂: n.d.

Cell Data: *Space Group:* $Bbmm$ or $Bb2_1m$. $a = 13.457(1)$ $b = 44.042(4)$ $c = 4.100(10)$
Z = 4

X-ray Powder Pattern: Old Lout mine, Colorado, USA.

3.43 (100), 2.96 (90), 2.09 (90), 2.04 (70), 1.79 (70), 3.33 (60), 2.85 (60)

Chemistry:

	(1)	(2)
Ag	12.5	12.38
Cu	0.5	
Pb	29.5	31.70
Bi	41.4	39.97
Sb	0.2	
S	16.0	15.95
Total	100.1	100.00

(1) Old Lout mine, Colorado, USA; by electron microprobe, corresponding to Ag_{3.02}Cu_{0.20}Pb_{3.71}Bi_{5.16}Sb_{0.04}S_{13.00}. (2) Ag₃Pb₄Bi₅S₁₃.

Occurrence: In a hydrothermal sulfide vein (Old Lout mine, Colorado, USA); with topaz and fluorite in a cryolite body (Ivigtut, Greenland); with base-metal sulfides in diopside tactite (Pitiquito, Mexico).

Association: Galena, matildite (Old Lout mine, Colorado, USA); berryite, aikinite, galena, matildite, pyrite, bismuth, gold (Ivigtut, Greenland); sphalerite, galena, chalcopyrite (Pitiquito, Mexico).

Distribution: In the USA, in Colorado, near Ouray, San Juan Co., from the Old Lout mine [TL], in the Alaska mine, Poughkeepsie Gulch; in the Wombat mine, Montezuma district, Summit Co.; and from the Comstock mine, La Plata Co.; at South Mountain, Owyhee Co., Idaho. From a tungsten prospect, 40 km south of Pitiquito, Sonora, Mexico. At the Ivigtut cryolite deposit, southwestern Greenland.

Name: For Ouray, Colorado, USA, near where the mineral was first discovered.

Type Material: Royal Ontario Museum, Toronto, Canada, M4100.

References: (1) Karup-Møller, S. (1977) Mineralogy of some Ag-(Cu)-Pb-Bi sulfide associations. Bull. Geol. Soc. Denmark, 26, 41–68. (2) Makovicky, E. and S. Karup-Møller (1977) Chemistry and crystallography of the lillianite homologous series. Neues Jahrb. Mineral., Abh., 131, 56–82. (3) (1979) Amer. Mineral., 64, 243–244 (abs. refs. 1 and 2). (4) Makovicky, E. and S. Karup-Møller (1984) Ourayite from Ivigtut, Greenland. Can. Mineral., 22, 565–575.