Debattistiite $Ag_9Hg_{0.5}As_6S_{12}Te_2$

Crystal Data: Triclinic. *Point Group*: $\bar{1}$. As tabular well-formed crystals, to 150 μm.

Physical Properties: *Cleavage*: None. *Fracture*: Uneven. *Tenacity*: Brittle.
Hardness = 2-2.5 VHN = 65-94 (25 g load). D(meas.) = n.d. D(calc.) = 5.647

Optical Properties: Opaque. *Color*: Black; dark gray in reflected light. *Streak*: Gray.
Luster: Metallic. *Pleochroism*: Weak, dark gray to greenish gray. *Anisotropism*: Strong, brownish to bluish.
Optical Class: n.d.
R_1-R_2: (471.1) 27.2-34.5, (548.3) 25.5-31.0, (586.6) 22.9-28.4, (652.3) 20.1-25.2

Cell Data: *Space Group*: $P\bar{1}$. a = 7.832(5) b = 8.606(4) c = 10.755(5) α = 95.563(9)° β = 95.880(5)° γ = 116.79(4)° Z = 1

X-ray Powder Pattern: Lengenbach quarry, Valais, Switzerland.
2.733 (100), 2.742 (95), 10.56 (62), 3.301 (47), 2.991 (40), 2.640 (31), 1.920 (26)

Chemistry:	(1)	(2)
Ag	44.88	44.93
Hg	4.49	4.64
As	20.77	20.81
S	17.72	17.81
Te	11.82	11.81
Total	99.68	100.00

(1) Lengenbach quarry, Valais, Switzerland; average of 9 electron microprobe analyses, corresponding to $Ag_{9.01}Hg_{0.49}As_{6.01}S_{11.98}Te_{2.01}$. (2) $Ag_9Hg_{0.5}As_6S_{12}Te_2$.

Occurrence: A rare hydrothermal mineral in dolomitic marble.

Association: Realgar, rutile, trechmannite, hutchinsonite.

Distribution: Lengenbach quarry (zone 1), Binn Valley, Valais, Switzerland.

Name: Honors Luca De Battisti (b.1958), a systematic mineralogist and expert on the minerals of Lengenbach quarry who collected the specimens of debattistiite.

Type Material: Museum of Mineralogy, Department of Geosciences, University of Padova, Italy (MMP M10680).

References: (1) Guastoni, A., L. Bindi, and F. Nestola (2012) Debattistiite, $Ag_9Hg_{0.5}As_6S_{12}Te_2$, a new Te-bearing sulfosalt from Lengenbach quarry, Binn valley, Switzerland: description and crystal structure. Mineral. Mag., 76(3), 743-750. (2) (2015) Amer. Mineral., 100, 1649 (abs. ref. 1).