

Crystal Data: Triclinic. *Point Group:* $\bar{1}$. Crystals are pseudohexagonal, prismatic to platy on (001), to 0.4 mm; as aggregates to 1 mm. Crystals show {001} dominant and are striated parallel to [100]. *Twinning:* On (100).

Physical Properties: *Cleavage:* Perfect on {001}. *Fracture:* Uneven to conchoidal. *Tenacity:* n.d. *Hardness* = 1.5-2 VHN = 18 (10 g load). D(meas.) = n.d. D(calc.) = 5.41

Optical Properties: Opaque. *Color:* Gray to black, white with red internal reflections in reflected light. *Streak:* Blackish red. *Luster:* Metallic. *Optical Class:* n.d. *Reflection anisotropism:* Weak. *R* = (470) 30.53, (546) 29.10, (589) 27.94, (650) 26.35

Cell Data: *Space Group:* $P\bar{1}$. *a* = 12.138(3) *b* = 12.196(3) *c* = 15.944(4) α = 78.537(5)° β = 84.715(4)° γ = 60.470(4)° *Z* = 6

X-ray Powder Pattern: Lengenbach, Binntal, Canton Valais, Switzerland. 15.631 (100), 3.143 (90), 3.531 (80), 2.911 (70), 2.978 (60), 2.520 (60), 3.263 (50)

Chemistry:	(1)
Tl	37.30
Ag	8.47
Cu	12.60
As	18.90
Sb	1.79
<u>S</u>	<u>20.64</u>
Total	99.70

(1) Lengenbach, Binntal, Switzerland; average of 11 electron microprobe analyses supplemented by IR spectroscopy, corresponds to Tl_{1.98}(Ag_{0.85}Cu_{2.16}) $\Sigma=3.01$ (As_{2.74}Sb_{0.16}) $\Sigma=2.90$ S₇.

Occurrence: A late-stage mineral in vugs in a hydrothermally-altered dolomitic marble.

Association: Hutchinsonite, hatchite, edenharterite, trechmannite, tennantite, realgar, rathite.

Distribution: From Lengenbach, Binntal, Canton Valais, Switzerland.

Name: Honors Walter Gabriel (b. 1943) of Basel, Switzerland, a mineral photographer and expert on Lengenbach minerals.

Type Material: Natural History Museum and the Institute of Mineralogy, University of Basel, Switzerland (S113).

References: (1) Graeser, S., D. Topa, T. Balić-Žunić, and E. Makovicky (2006) Gabrielite, Tl₂AgCu₂As₃S₇, a new species of thallium sulfosalt from Lengenbach, Binntal, Switzerland. *Can. Mineral.*, 44, 135-140. (2) Balić-Žunić, T., E. Makovicky, L. Karanović, D. Poleti, and S. Graeser (2006) The crystal structure of gabrielite, Tl₂AgCu₂As₃S₇, a new species of thallium sulfosalt from Lengenbach, Switzerland. *Can. Mineral.*, 44, 141-158. (3) (2006) *Amer. Mineral.*, 91, 1946 (abs. refs. 1 & 2).