Meerschautite $(Ag,Cu)_{5.5}Pb_{42.4}(Sb,As)_{45.1}S_{112}O_{0.8}$

Crystal Data: Monoclinic. *Point Group*: 2/*m*. As prismatic crystals striated parallel to the elongation [100], to 2 mm.

Physical Properties: *Cleavage*: Perfect parallel [100]. *Fracture:* Conchoidal. *Tenacity*: Brittle. Hardness = n.d. D(meas.) = n.d. D(calc.) = 5.908-5.924

Optical Properties: Opaque. *Color*: Lead-gray to black; white in reflected light. *Streak*: Black. *Luster*: Metallic.
Optical Class: n.d. *Anisotropism*: Distinct, gray to dark gray with brownish and greenish shades. R_1-R_2: (470) 39.7-41.4, (546) 38.3-39.9, (589) 37.4-39.0, (650) 35.8-37.2

Cell Data: Space Group: $P2_1$. a = 8.2393(1) b = 43.6015(13) c = 28.3688(8) β = 94.128(2)° Z = 2

X-ray Powder Pattern: Pizzone stope, Pollone mine, Apuan Alps, Tuscany, Italy.
3.334 (vs), 3.663 (s), 3.244 (s), 2.072 (ms), 3.762 (m), 3.016 (m), 2.968 (m)

Chemistry:	(1)	(2)
Cu	0.22	0.22
Ag	3.15	3.04
Tl	0.07	0.13
Pb	48.54	48.53
Sb	25.41	25.40
As	2.82	2.93
Bi	n.d.	0.06
S	19.74	19.82
Se	0.14	0.13
Cl	0.03	0.05
Total	100.12	100.31

(1) Pizzone stope, Pollone mine, Apuan Alps, Tuscany, Italy; average of 3 electron microprobe analyses; corresponds to $(Ag_{5.29}Cu_{0.63})_{\Sigma=5.92}(Pb_{42.43}Tl_{0.06})_{\Sigma=42.49}(Sb_{37.80}As_{6.82})_{\Sigma=44.62}(S_{111.53}Se_{0.32}Cl_{0.15})_{\Sigma=112}$. (2) Pizzone stope, Pollone mine, Apuan Alps, Tuscany, Italy; average of 3 electron microprobe analyses; corresponds to $(Ag_{5.08}Cu_{0.62})_{\Sigma=5.70}(Pb_{42.22}Tl_{0.12})_{\Sigma=42.34}(Sb_{37.61}As_{7.07}Bi_{0.05})_{\Sigma=44.73}(S_{111.45}Se_{0.30}Cl_{0.25})_{\Sigma=12}$. Presence of oxygen suggested by structural analysis.

Occurrence: Formed in a hydrothermal Pb-Zn-Ag deposit.

Association: Barite, boulangerite, pyrite, quartz, sphalerite.

Distribution: From the Pizzone stope, Pollone mine, near Valdicastello Carducci, Apuan Alps, Tuscany, Italy.

Name: Honors Alain Meerschaut (b. 1945), former Research Director at the Centre national de la recherché scientifique (CNRS), chemist-crystallographer at the Institut des Matériaux Jean Rouxel, Nantes, France, for his contributions to the definition and crystal structural analysis of new lead-antimony sulfosalts from the hydrothermal ores of the Apuan Alps.

Type Material: Natural History Museum, University of Pisa, Italy (19649), the Mineralogy Museum, MINES Paris Tech, Paris, France (63264) and the Natural History Museum, London, England (2015,2).

References: (1) Biagioni, C., Y. Moëlo, P. Orlandi, and C.J. Stanley (2016) Lead-antimony sulfosalts from Tuscany (Italy). XVII. Meerschautite, $(Ag,Cu)_{5.5}Pb_{42.4}(Sb,As)_{45.1}S_{112}O_{0.8}$, a new expanded derivative of owyheeite from the Pollone mine, Valdicastello Carducci: occurrence and crystal structure. Mineral. Mag., 80(4), 675-690. (2) (2017) Amer. Mineral., 102, 469 (abs. ref. 1).