

Bobmeyerite**Pb₄(Al₃Cu)(Si₄O₁₂)(S_{0.5}Si_{0.5}O₄)(OH)₇Cl(H₂O)₃**

Crystal Data: Orthorhombic. *Point Group:* 2/m 2/m 2/m. As tapered acicular crystals to 300 μm , elongated on [001] that in jumbled aggregates resemble “woolly caterpillars”.

Physical Properties: *Cleavage:* None. *Fracture:* n.d. *Tenacity:* Brittle. Hardness = n.d. D(meas.) = n.d. D(calc.) = 4.381

Optical Properties: Transparent to translucent. *Color:* Colorless to white or cream-colored.

Streak: White. *Luster:* Vitreous.

Optical Class: Biaxial (-). $\alpha = 1.759(2)$ $\beta \approx \gamma = 1.756(2)$ [Published indices do not match the optical sign or standard convention.] $2V = \text{n.d.}$ *Orientation:* $X = c$, Y or $Z = a$ or b .

Cell Data: *Space Group:* Pnnm. $a = 13.969(9)$ $b = 14.243(10)$ $c = 5.893(4)$ $Z = 2$

X-ray Powder Pattern: Mammoth-St. Anthony mine, Tiger, Pinal County, Arizona, USA. 2.549 (100), 2.9656 (88), 3.278 (77), 5.474 (54), 4.333 (43), 1.873 (39), 10.051 (35)

Chemistry:	(1)	(2)
CaO	0.14	
PbO	54.83	56.50
CuO	4.94	5.03
Al ₂ O ₃	10.02	9.68
SiO ₂	17.09	17.11
SO ₃	3.00	2.53
Cr ₂ O ₃	0.85	
F	0.64	
Cl	2.41	2.24
H ₂ O	[6.89]	7.41
-O = F, Cl	0.81	0.51
Total	100.00	99.99

(1) Mammoth-St. Anthony mine, Tiger, Pinal County, Arizona, USA; average of 5 normalized electron microprobe analyses, absence of CO₃ and presence of OH and H₂O confirmed by FTIR spectroscopy, H₂O from structure analysis; corresponding to Pb_{3.80}Ca_{0.04}Al_{3.04}Cu²⁺_{0.96}Cr³⁺_{0.13}Si_{4.40}S_{0.58}O_{24.43}Cl_{1.05}F_{0.52}H_{11.83}. (2) Pb₄(Al₃Cu)(Si₄O₁₂)(S_{0.5}Si_{0.5}O₄)(OH)₇Cl(H₂O)₃

Occurrence: A secondary mineral in the oxidized zone of a polymetallic sulfide deposit.

Association: Atacamite, caledonite, cerussite, connellite, diaboite, fluorite, georgerobinsonite, hematite, leadhillite, matlockite, murdochite, phosgenite, pinalite, quartz, wulfenite, yedlinite.

Distribution: Mammoth-St. Anthony mine, Tiger, Pinal County, Arizona, USA.

Name: Honors Robert (Bob) Owen Meyer (b.1956) of Maple Valley, Washington, USA, who collected the specimens used in this study.

Type Material: Mineral Sciences Department, Natural History Museum of Los Angeles County, Los Angeles, California, USA. (63824-63826).

References: (1) Kampf, A.R., J.J. Pluth, Y.-S. Chen, A.C. Roberts, and R.M. Housley (2013) Bobmeyerite, a new mineral from Tiger, Arizona, USA, structurally related to cerchiaraita and ashburtonite. *Mineral. Mag.*, 77(1), 81-91. (2) (2015) *Amer. Mineral.*, 100, 2352-2353 (abs. ref. 1).