Bobmeyerite $Pb_4(Al_3Cu)(Si_4O_{12})(S_{0.5}Si_{0.5}O_4)(OH)_7Cl(H_2O)_3$

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 = *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_2O_3	10.02	9.68
SiO_2	17.09	17.11
SO_3	3.00	2.53
Cr_2O_3	0.85	
F	0.64	
Cl	2.41	2.24
H_2O	[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 CO_3 and presence of OH and H_2O confirmed by FTIR spectroscopy, H_2O from structure analysis; corresponding to $Pb_{3.80}Ca_{0.04}Al_{3.04}Cu^{2+}_{0.96}Cr^{3+}_{0.13}Si_{4.40}S_{0.58}O_{24.43}Cl_{1.05}F_{0.52}H_{11.83}$. (2) $Pb_4(Al_3Cu)(Si_4O_{12})(S_{0.5}Si_{0.5}O_4)(OH)_7Cl(H_2O)_3$

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

Association: Atacamite, caledonite, cerussite, connellite, diaboleite, 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 cerchiaraite and ashburtonite. Mineral. Mag., 77(1), 81-91. (2) (2015) Amer. Mineral., 100, 2352-2353 (abs. ref. 1).