

Crystal Data: Monoclinic. *Point Group:* $2/m$. As matted nests of randomly scattered fibers, elongate along [001] to 1 mm, with length:width >100:1.

Physical Properties: *Cleavage:* None. *Fracture:* Irregular. *Tenacity:* Flexible. Hardness = n.d. $D(\text{meas.}) = \text{n.d.}$ $D(\text{calc.}) = 6.40$

Optical Properties: Transparent. *Color:* Colorless to white. *Streak:* White to cream. *Luster:* Vitreous.

Optical Class: Biaxial (+). $n = >1.80$ $2V(\text{meas.}) = \sim 60^\circ$ Parallel extinction, length slow. *Orientation:* $Z \approx c$. *Dispersion:* Distinct, $r < v$.

Cell Data: *Space Group:* $C2/c$. $a = 17.007(7)$ $b = 9.070(4)$ $c = 7.013(5)$ $\beta = 101.30(5)^\circ$ $Z = 4$

X-ray Powder Pattern: Funderburk prospect, Pike County, Arkansas, USA. 8.326 (100), 2.979 (80), 2.784 (80), 2.660 (75), 4.739 (50), 2.952 (50), 1.755 (50)

Chemistry:	(1)	(2)
Hg ₂ O	78.28	81.41
Al ₂ O ₃	5.02	4.97
P ₂ O ₅	11.39	12.05
<u>H₂O</u>	<u>[1.63]</u>	<u>1.56</u>
Total	96.32	99.99

(1) Funderburk prospect, Pike County, Arkansas, USA; average electron microprobe analysis supplemented by FTIR spectroscopy, H₂O calculated from structure; corresponds to $\text{Hg}^{1+}_{4.00}\text{Al}_{1.05}\text{P}_{1.71}\text{O}_{8.74}\text{H}_{1.78}$. (2) $\text{Hg}^{1+}_{4.00}\text{Al}_{1.74}(\text{PO}_4)_{1.74}(\text{OH})_{1.78}$.

Occurrence: A weathering product filling fractures in a cinnabar and fluorapatite-bearing sandstone.

Association: Quartz, goethite, dickite, cinnabar.

Distribution: From dumps at the Funderburk prospect, on a ridge north of Cowhide Cove road, in the Cowhide Cove Recreation area, ~13 km north of Murfreesboro, Pike County, Arkansas, USA.

Name: Honors Arthur Edward *Smith* (1935-2009) of Houston, Texas, petroleum geologist, mineral collector, micromounter and expert on the mineral localities of Texas and Arkansas, who collected the holotype specimen.

Type Material: National Mineral Collection, Geological Survey of Canada, Ottawa, Ontario (NMCC68092).

References: (1) Roberts, A.C., M.A. Cooper, F.C. Hawthorne, R.A. Gault, J.D. Grice, and A.J. Nikischer (2003) Artsmithite, a new Hg¹⁺-Al phosphate-hydroxide from the Funderburk prospect, Pike County, Arkansas, U.S.A. *Can. Mineral.*, 41, 721-725. (2) (2004) *Amer. Mineral.*, 89(1), 249 (abs. ref. 1).