

Mansfieldite

AlAsO₄•2H₂O

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Crystal Data: Orthorhombic. *Point Group:* 2/m 2/m 2/m. Rarely in pseudo-octahedral crystals, to 2 mm; commonly as crusts, and porous to cellular masses with spherulitic structure.

Physical Properties: Hardness = 3.5 D(meas.) = 3.03 D(calc.) = [3.08]

Optical Properties: Semitransparent. *Color:* White to pale gray, light green to bluish green. *Luster:* Vitreous.

Optical Class: Biaxial (+). *Orientation:* X = a; Y = c; Z = b. *Dispersion:* r > v; strong. α = 1.622 β = 1.624 γ = 1.642 2V(meas.) = ~30°

Cell Data: *Space Group:* [Pcab] (by analogy to scorodite). a = 10.08 b = 9.76 c = 8.72 Z = 8

X-ray Powder Pattern: Hobart Butte, Oregon, USA.

5.45 (vvs), 4.36 (vvs), 3.09 (vs), 2.98 (s), 2.52 (s), 3.97 (ms), 1.627 (ms)

Chemistry:

	(1)	(2)
P ₂ O ₅	0.59	
As ₂ O ₅	56.43	56.91
Sb ₂ O ₅	0.12	
TiO ₂	0.91	
Al ₂ O ₃	23.30	25.25
Fe ₂ O ₃	0.88	
H ₂ O ⁺	17.77	17.84
Total	[100.00]	100.00

(1) Hobart Butte, Oregon, US; recalculated to 100% after removal of quartz, kaolinite impurities 30.68%. (2) AlAsO₄•2H₂O.

Polymorphism & Series: Forms a series with scorodite.

Mineral Group: Variscite group.

Occurrence: A hydrothermal product in altered and mineralized andesitic pyroclastic rocks (Hobart Butte, Oregon, USA).

Association: Kaolinite, quartz, scorodite, realgar, stibnite (Hobart Butte, Oregon, USA).

Distribution: From Hobart Butte, about 22 km south of Cottage Grove, Lane Co., Oregon, USA. Found in the Sara Alicia mine, near Alamos, Sonora, Mexico. At Neubulach, Black Forest, and Puderbach, Westerwald, Germany. Crystallized from the Cap Garonne mine, near le Pradet, Var, France. In the Penberthy Croft mine, St. Hilary, Cornwall, England. At Djebel Debar, northeast of Hammam Meskhoutine, Qacentina (Constantine), Algeria. On Mt. Cobalt, 110 km south of Cloncurry, Queensland, Australia. In the Bota-Burum uranium deposit, 15 km southwest of Alakol Lake, Chu-Ili Mountains, southwestern Balkhash district, Kazakhstan.

Name: Honors Dr. George Rogers Mansfield (1875–1947), U.S. Geological Survey.

Type Material: National Museum of Natural History, Washington, D.C., USA, 106565, 117722.

References: (1) Palache, C., H. Berman, and C. Frondel (1951) Dana's system of mineralogy, (7th edition), v. II, 763–767. (2) Walenta, K. (1963) Mansfieldit von Neubulach im württembergischen Schwarzwald. Neues Jahrb. Mineral., Monatsh., 79–87 (in German with English abs.). (3) Allen, V.T., J.J. Fahey, and J.M. Axelrod (1948) Mansfieldite, a new arsenate, the aluminum analogue of scorodite, and the mansfieldite-scorodite series. Amer. Mineral., 33, 122–134.

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