

Selenopolybasite

Crystal Data: Hexagonal. *Point Group:* 3m. As subhedral to anhedral grains, to 400 μm .

Physical Properties: *Cleavage:* None detected. *Tenacity:* Brittle.
Hardness = 3-3.5 VHN = 125-141 (100 g load). D(meas.) = n.d. D(calc.) = 6.548

Optical Properties: Opaque. *Color:* Light gray in reflected light. *Streak:* Black.
Luster: Metallic. *Birefractance:* Weak to moderate. Anisotropic. *Pleochroism:* Weak; gray to violet-blue gray.

Optical Class: n.d.

(R_{\min} - R_{\max}): (471.1) 32.8-34.1, (548.3) 31.0-32.9, (586.6) 30.2-31.8, (652.3) 29.3-30

Cell Data: *Space Group:* P3m1. $a = 7.5950(4)$ $c = 12.0731(6)$ $Z = 1$

X-ray Powder Pattern: De Lamar Mine, Idaho, USA.

2.8880 (100), 3.0183 (84), 3.1731 (48), 2.8880 (48), 2.3629 (34), 1.8987 (31), 2.2237 (28)

Chemistry:	(1)
Ag	66.17
Cu	3.19
Bi	0.09
Pb	0.09
Zn	0.03
Fe	0.07
Sb	9.47
As	0.60
S	11.36
Se	8.42
Total	99.49

(1) De Lamar Mine, Idaho, USA; average of 10 electron microprobe analyses, corresponding to $[(\text{Ag}_{5.67}\text{Cu}_{0.20}\text{Bi}_{0.01}\text{Pb}_{0.01}\text{Zn}_{0.01}\text{Fe}_{0.03})_{\Sigma=5.93}(\text{Sb}_{1.86}\text{As}_{0.19})_{\Sigma=2.05}(\text{S}_{6.68}\text{Se}_{0.34})_{\Sigma=7.02}][\text{Ag}_9\text{Cu}(\text{S}_{1.79}\text{Se}_{0.21})_{\Sigma=2.00}\text{Se}_2]$.

Mineral Group: Member of the pearceite-polybasite group.

Occurrence: In silicious veins through rhyolite porphyry altered at shallow depth by heated brines.

Association: Naumannite, covellite, pyrite, calcite.

Distribution: In a museum sample collected at the De Lamar Mine, Owyhee County, Idaho, USA.

Name: The selenium dominant analogue of *polybasite*.

Type Material: Mineral Collection, Natural History Museum, University of Florence, Italy (2453/I).

References: (1) Bindi, L., M. Evain, and S. Menchetti (2007) Selenopolybasite, $[(\text{Ag}, \text{Cu})_6(\text{Sb}, \text{As})_2(\text{S}, \text{Se})_7][\text{Ag}_9\text{Cu}(\text{S}, \text{Se})_2\text{Se}_2]$, a new member of the pearceite-polybasite group from the De Lamar Mine, Owyhee County, Idaho, USA. *Can. Mineral.*, 45, 1525-1528. (2) (2008) *Amer. Mineral.*, 93, 1689 (abs. ref. 1).