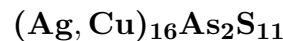


**Pearceite**

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**Crystal Data:** Monoclinic. *Point Group:* 2/m. As short, tabular pseudo-hexagonal prisms with bevelled edges, showing triangular striations on {001}; as rosettes of such crystals, to 3 cm.

**Physical Properties:** *Fracture:* Conchoidal to irregular. Hardness = 3 VHN = 130–142 (100 g load). D(meas.) = 6.15(2) D(calc.) = 6.07

**Optical Properties:** Opaque, translucent in very thin fragments. *Color:* Dull black; in polished section, white, with very dark red internal reflections. *Streak:* Black. *Luster:* Metallic. *Pleochroism:* Very weak in air, fair in oil. *Anisotropism:* Moderate, typically dark violet. R<sub>1</sub>–R<sub>2</sub>: (400) 34.8–34.3, (420) 34.2–34.2, (440) 33.4–34.1, (460) 32.5–33.8, (480) 31.5–33.2, (500) 30.6–32.8, (520) 29.8–32.5, (540) 29.3–32.3, (560) 29.0–32.0, (580) 29.0–31.7, (600) 29.1–31.2, (620) 29.1–30.7, (640) 28.9–30.2, (660) 28.6–29.8, (680) 28.0–29.3, (700) 27.4–29.1.

**Cell Data:** *Space Group:* C2/m. a = 12.64 b = 7.29 c = 11.90 β = 90.0° Z = 2

**X-ray Powder Pattern:** Aspen, Colorado, USA.

2.97 (100), 2.80 (90), 2.47 (60), 2.30 (60), 1.827 (60), 2.34 (50), 1.992 (50)

<b>Chemistry:</b>	(1)	(2)	(3)		(1)	(2)	(3)
Ag	56.90	63.54	77.46	As	7.01	7.29	6.72
Cu	14.85	10.70		Sb	0.30	0.43	
Zn	2.81			S	18.13	17.07	15.82
Fe		0.60		Total	100.00	99.63	100.00

(1) Molly Gibson mine, Colorado, USA; recalculated to 100% after deducting 12.81% impurities; then corresponds to (Ag<sub>10.44</sub>Cu<sub>4.62</sub>Zn<sub>0.85</sub>)<sub>Σ=15.91</sub>(As<sub>1.85</sub>Sb<sub>0.05</sub>)<sub>Σ=1.90</sub>S<sub>11.19</sub>. (2) Arqueros, Chile; corresponds to (Ag<sub>12.19</sub>Cu<sub>3.48</sub>Fe<sub>0.22</sub>)<sub>Σ=15.89</sub>(As<sub>2.01</sub>Sb<sub>0.07</sub>)<sub>Σ=2.08</sub>S<sub>11.02</sub>. (3) Ag<sub>16</sub>As<sub>2</sub>S<sub>11</sub>.

**Polymorphism & Series:** Forms a series with polybasite.

**Occurrence:** In hydrothermal deposits formed at low to medium temperatures.

**Association:** Acanthite, silver, proustite, quartz, barite, calcite.

**Distribution:** In the USA, in Montana, large crystals from the Drumlummon mine, Marysville, Lewis and Clark Co. [TL]; at Neihart, Cascade Co.; and from about 13 km north of Niarada, in the Flathead mine, Flathead Co.; in Colorado, at the Molly Gibson mine, Aspen, Pitkin Co., and from Rico, Dolores Co.; in Utah, in the Tintic district, Juab Co., at Eureka and elsewhere; in the Lakeview district, Bonner Co., Idaho; at the Ophir mine, Comstock district, Storey Co., Nevada. In Canada, from the Morrison mine, and in the Ross mine, Holtyre, Ontario, and at the Husky mine, Yukon Territory. In Mexico, from the Veta Rica mine, Sierra Mojada, Coahuila, and as large crystals in the Reyes mine, Guanajuato. From Arqueros, Coquimbo, Chile. At Banská Štiavnica (Schemnitz), Slovakia. From the Clara mine, near Oberwolfach, Black Forest, Germany. In Spain, from Francoli, Tarragona Province. In Italy, at Boarezzo, Lombardy. In the Sark's Hope mine, Sark, Channel Islands. From Seikoshi, Shizuoka Prefecture, Japan. Additional minor localities are known.

**Name:** For Dr. Richard Pearce (1837–1927), Cornish–American chemist and metallurgist, Denver, Colorado, USA.

**Type Material:** Yale University, New Haven, Connecticut, 3.4270, 3.4292, 3.4293; The Natural History Museum, London, England, 84843.

**References:** (1) Palache, C., H. Berman, and C. Frondel (1944) Dana's system of mineralogy, (7th edition), v. I, 353–355. (2) Peacock, M.A. and L.G. Berry (1947) Studies of mineral sulfo-salts: XIII—polybasite and pearceite. *Mineral. Mag.*, 28, 1–13. (3) Frondel, C. (1963) Isodimorphism of the polybasite and pearceite series. *Amer. Mineral.*, 48, 565–572. (4) Hall, H.T. (1967) The pearceite and polybasite series. *Amer. Mineral.*, 52, 1311–1321. (5) Criddle, A.J. and C.J. Stanley, Eds. (1993) Quantitative data file for ore minerals, 3rd ed. Chapman & Hall, London, 420.

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