

Crystal Data: Orthorhombic. *Point Group:* 2/m 2/m 2/m. As blades, to 0.1 mm, flattened on {100}, somewhat elongated along [010] and displaying {100}, {101} and {011}; in sub-parallel aggregates.

Physical Properties: *Cleavage:* None observed; imperfect on {101} (by analogy to carminite). *Fracture:* Irregular. *Tenacity:* Brittle. *Hardness* = ~ 3.5 *D(meas.)* = n.d. *D(calc.)* = 5.180

Optical Properties: Transparent. *Color:* Deep red with a slight purplish cast. *Streak:* Light purplish orange. *Luster:* Adamantine.

Optical Class: Biaxial (+). *n* = [2.026 by Gladstone-Dale calculation.] *α(calc.)* = [2.02] *β(calc.)* = [2.026] *γ(calc.)* = [2.032] *2V(calc.)* = 85.5(5)° *Orientation:* *X* = *b*; *Y* = *a*; *Z* = *c*. *Pleochroism:* *X* = light orange, *Y* = light yellow, *Z* = red brown. *Absorption:* *Y* < *X* < *Z*.

Cell Data: *Space Group:* Cccm. *a* = 16.2535(13) *b* = 7.4724(4) *c* = 12.1533(9) *Z* = 8

X-ray Powder Pattern: Silver Coin mine, Valmy, Humboldt County, Nevada, USA. 3.190 (100), 2.502 (77), 3.485 (64), 2.902 (54), 2.268 (54), 4.53 (45), 5.86 (42)

Chemistry:	(1)	(2)
PbO	40.69	41.12
CaO	0.60	
ZnO	0.72	
CuO	0.13	
Fe ₂ O ₃	23.36	29.42
Al ₂ O ₃	0.34	
V ₂ O ₅	0.70	
As ₂ O ₅	12.05	
P ₂ O ₅	16.03	26.15
SO ₃	0.33	
H ₂ O	[3.64]	3.32
Total	98.59	100.00

(1) Silver Coin mine, Valmy, Humboldt County, Nevada, USA; average of 22 electron microprobe analyses, H₂O calculated; corresponds to $(\text{Pb}_{1.06}\text{Ca}_{0.06})_{\Sigma=1.12}(\text{Fe}_{1.71}\text{Zn}_{0.05}\text{Al}_{0.04}\text{Cu}_{0.01})_{\Sigma=1.81}(\text{P}_{1.32}\text{As}_{0.61}\text{V}_{0.05}\text{S}_{0.02})_{\Sigma=2.00}\text{O}_8[(\text{OH})_{1.64}(\text{H}_2\text{O})_{0.36}]_{\Sigma=2.00}$. (2) $\text{PbFe}^{3+}_2(\text{PO}_4)_2(\text{OH})_2$.

Occurrence: A low-temperature, secondary, oxidation-zone mineral.

Association: Fluorwavellite, goethite, hematite, hentschelite, plumbogummite, variscite, quartz.

Distribution: From the Phosphate stope, Silver Coin mine, Valmy, Iron Point district, Humboldt County, Nevada, USA.

Name: Alludes to the mineral's deep red (crimson) color and the fact that it is the phosphate analogue of carminite, a mineral with a very similar deep red color and whose name is also based upon its color (carmine).

Type Material: Natural History Museum of Los Angeles County, Los Angeles, California, USA (65558).

References: (1) Kampf, A.R., P.M. Adams, S.J. Mills, and B.P. Nash (2016) Crimsonite, $\text{PbFe}^{3+}_2(\text{PO}_4)_2(\text{OH})_2$, the phosphate analogue of carminite from the Silver Coin mine, Valmy, Nevada, USA. *Mineral. Mag.*, 80(6), 925-935. (2) (2017) *Amer. Mineral.*, 102, 694-695 (abs. ref. 1).