Phoenicochroite $Pb_2O(CrO_4)$

Crystal Data: Monoclinic. *Point Group:* $2/m$. Imperfect crystals, tabular on {100} or {$\overline{2}$01}, elongated along [010] or [001], showing {010}, {100}, {110}, {$\overline{2}$01}, {$\overline{2}$11}, {310}, to 1 cm; may be in reticulated intergrowths, thin coatings, and massive.

Physical Properties: *Cleavage:* Perfect on {$\overline{2}$01}; poor on {001}, {010}, {011}. *Tenacity:* Sectile. Hardness = 2.5–3.5 D(meas.) = 7.01 D(calc.) = 7.075

Optical Properties: Translucent, transparent on thin edges. *Color:* Dark cochineal-red to hyacinth-red, lemon-yellow on exposure; red-orange, orange, yellow-orange in transmitted light. *Streak:* Brick-red to yellowish orange. *Luster:* Adamantine to resinous, glistening. *Optical Class:* Biaxial (+). *Pleochroism:* Weak. *Orientation:* $X = b$; $Y \wedge c = -2°$; $Z \wedge c = 88°$. *Dispersion:* $r > v$, , moderately strong to strong. *Absorption:* $X < Y < Z$. $\alpha = 2.34$–2.38 $\beta = 2.38$–2.44 $\gamma = 2.65$ 2V(meas.) = 58° 2V(calc.) = 60°

Cell Data: *Space Group:* $C2/m$. $a = 14.001(7)$ $b = 5.675(3)$ $c = 7.137(5)$ $\beta = 115.22°$ Z = 4

X-ray Powder Pattern: Beresovsk, Russia.
3.39 (10), 2.989 (10), 3.60 (7), 6.40 (4), 3.26 (4), 4.42 (3), 2.840 (3)

Chemistry:

	(1)	(2)
CrO_3	80.88	81.70
PbO	18.08	18.30
Total	98.96	100.00

(1) Potter-Kramer mine, Arizona, USA; by AA. (2) $Pb_2O(CrO_4)$.

Occurrence: A rare secondary mineral in the oxidized zone of chromium-bearing hydrothermal lead deposits.

Association: Crocoite, vauquelinite, fornacite, hemihedrite, iranite, pyromorphite, mimetite, cerussite, leadhillite, galena, calcite, fluorite, quartz.

Distribution: From the Preobrazhensky mine, Beresovsk district, near Yekaterinburg (Sverdlovsk), Middle Ural Mountains, Russia. In the Hopeful vein, near Leadhills, Lanarkshire, Scotland. At the Adelaide Proprietary mine, Dundas, Tasmania, Australia. From the Santa Ana mine, Sierra Gorda district, southwest of Calama, Antofagasta, Chile. In the USA, in Arizona, from south of Wickenburg, at the Pack Rat and Potter-Kramer claims, the Moon Anchor mine, and near the Purple Pansy mine; northeast of Wickenburg, along Amazon Wash, near its confluence with the Hassayampa River, all in Maricopa Co.; in the Florence Lead-Silver mine, Tortilla Mountains, Pinal Co. In Nevada, from about 14 km northwest of Nelson, El Dorado district, Clark Co., and at the Silver Dollar claim, north of Columbus, Candelaria Hills, Esmeralda Co. From the Seh-Changi mine, near Neyband, Khorassan, and in the Tchah Khuni mine, Anarak district, Iran. At the Argent Pb–Zn mines, about 100 km east of Johannesburg, Transvaal, South Africa.

Name: From the Greek for *deep red* and *color*, in allusion to its typical color.

References: (1) Palache, C., H. Berman, and C. Frondel (1951) Dana's system of mineralogy, (7th edition), v. II, 649–650. (2) Williams, S.A., W.J. McLean, and J.W. Anthony (1970) A study of phoenicochroite – its structure and properties. Amer. Mineral., 55, 784–792.