

Crystal Data: Orthorhombic. *Point Group:* $2/m\ 2/m\ 2/m$. As crystals, to 30 μm .

Physical Properties: *Cleavage:* [$\{100\}$, perfect; $\{010\}$, imperfect] (forms by analogy to columbite). Hardness = n.d. $D(\text{meas.}) = \text{n.d.}$ $D(\text{calc.}) = 9.867$

Optical Properties: Translucent in thin flakes. *Color:* Dark reddish brown, clove-brown, red on thin edges; in reflected light, gray-white with reddish brown internal reflections. *Streak:* Dark brown. *Luster:* Submetallic.

Optical Class: Biaxial. *Anisotropism:* Weak; pale blue. *Bireflectance:* Very weak; gray-white to bluish gray.

R_1 – R_2 : (546) 17.9–18.8, (589) 17.0–17.9

Cell Data: *Space Group:* $Pbcn$. $a = 4.971(2)$ $b = 5.956(2)$ $c = 5.438(2)$ $Z = 4$

X-ray Powder Pattern: Sunshine #1 mine, New Mexico, USA.

3.117 (100), 1.840 (80), 2.722 (50), 1.527 (50), 3.816 (40), 1.635 (40), 3.497 (30)

Chemistry: (1) Sunshine #1 mine, New Mexico, USA; by electron microprobe, average of ten analyses gave PbO 98.2%; the remainder is probably (OH)¹⁻ to balance Pb²⁺ replacing Pb⁴⁺ in the structure.

Polymorphism & Series: Dimorphous with plattnerite.

Occurrence: In the oxidized zone of hydrothermal lead-bearing ore deposits.

Association: Murdochite, plattnerite, fluorite, quartz (Sunshine #1 mine, New Mexico, USA); plattnerite, rosasite, “limonite” (Mapimí, Mexico).

Distribution: In the Sunshine #1 and Mex-Tex mines, near Bingham, Hansonburg district, Socorro Co., New Mexico, and at the Grand Deposit mine, Muncy Creek district, White Pine Co., Nevada, USA. From the Ojuela mine, Mapimí, Durango, Mexico.

Name: From *scrutiny*, in allusion to the close examination necessary to recognize and characterize the species.

Type Material: National Museum of Natural History, Washington, D.C., USA, 165479.

References: (1) Taggart, J.E., Jr., E.E. Foord, A. Rosenzweig, and T. Hanson (1988) Scrutinyite, natural occurrences of α PbO₂ from Bingham, New Mexico, U.S.A., and Mapimi, Mexico. *Can. Mineral.*, 26, 905–910. (2) (1990) *Amer. Mineral.*, 75, 709–710 (abs. ref. 1). (3) Zaslavskij, A.I. and S.S. Tolkačev (1952) [The structure of α modification of lead dioxide.] *Ž. Fiz. Khim.*, SSSR, 26, 743–752. (4) (1952) *Structure Reports*, 16, 224–225 (abs. ref. 3).