

**Crystal Data:** Orthorhombic. *Point Group:*  $2/m\ 2/m\ 2/m$ . Rare in euhedral crystals; may be fibrous, to 5 mm; commonly in dendrites, stalactitic forms, and mealy crusts. *Twinning:* On  $\{101\}$ , common.

**Physical Properties:** *Cleavage:*  $\{100\}$ , good. *Fracture:* Uneven. *Tenacity:* Slightly sectile. Hardness = 2–2.5  $D(\text{meas.}) = 1.768$   $D(\text{calc.}) = 1.769$  Soluble in  $\text{H}_2\text{O}$ , taste sharp and bitter; slightly hygroscopic.

**Optical Properties:** Transparent to translucent. *Color:* Colorless, white, may be tinged gray, yellowish gray, lemon-yellow; colorless in transmitted light. *Luster:* Vitreous to dull. *Optical Class:* Biaxial (+). *Orientation:*  $X = c$ ;  $Y = b$ ;  $Z = a$ . *Dispersion:*  $r > v$ , weak.  $\alpha = 1.521$   $\beta = 1.523$   $\gamma = 1.539$   $2V(\text{meas.}) = 52^\circ$

**Cell Data:** *Space Group:*  $Pnma$  (synthetic).  $a = 7.782$   $b = 5.993$   $c = 10.636$   $Z = 4$

**X-ray Powder Pattern:** Synthetic.

4.33 (100), 4.39 (65), 3.055 (55), 3.890 (35), 5.22 (30), 3.139 (30), 3.122 (25)

**Chemistry:** (1) Natural material has never been analyzed; identification depends on correspondence of X-ray powder pattern and optical data with that of synthetic material.

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

**Occurrence:** A sublimation product in fumaroles and solfataras; formed by burning coal seams.

**Association:** Sal ammoniac, tschermigite, sylvite, halite, sassolite, boussingaultite, gypsum, sulfur, cinnabar.

**Distribution:** In Italy, on Vesuvius, Campania, and Etna, Sicily. In Russia, from volcanoes on the Kamchatka Peninsula. On Nyamuragira [Nyamlagira] volcano, Kivu Province, Congo. At The Geysers, Sonoma Co., California, USA. In Germany, from the Clara mine, near Oberwolfach, Black Forest, and on the dump of the Paul-Berndt mine, Freital, Saxony. From burning coal dumps at all of the following: Commentry, Allier, France. From Bradley, Staffordshire, England. At Arniston, Midlothian, Scotland. From Kladno and Radvanice, Czech Republic. Found near Ravat, Tien-Shan Mountains, Tajikistan. From near Chervonograd, Ukraine. In the USA, from Kehley's Run mine, near Shenandoah, Schuylkill Co., and Glen Lyon, Luzerne Co., Pennsylvania; at Bitter Creek, near Wamsutter, Sweetwater Co., Wyoming.

**Name:** Honoring Paolo Mascagni (1755–1815), Professor of Anatomy, University of Siena, Siena, Italy, who provided the original description.

**References:** (1) Palache, C., H. Berman, and C. Frondel (1951) Dana's system of mineralogy, (7th edition), v. II, 398–399. (2) (1960) NBS Circ. 539, 9, 8.