

Crystal Data: Monoclinic. *Point Group:* 2/m. As prismatic crystals, to 0.5 mm, striated parallel to elongation.

Physical Properties: *Cleavage:* n.d. *Fracture:* Conchoidal. *Tenacity:* Brittle. Hardness = 2.5-3 VHN = 61 (10 g load). D(meas.) = n.d. D(calc.) = 5.56

Optical Properties: Opaque. *Color:* Black; dark gray in reflected light, with weak deep-red internal reflections. *Streak:* Black. *Luster:* Metallic.

Optical Class: n.d. *Pleochroism:* Moderate, light gray to slightly greenish gray.

Anisotropism: Grayish to light blue.

R₁-R₂: (471.1) 35.8-40.8, (548.3) 33.7-39.0, (586.6) 32.7-37.6, (652.3) 30.4-35.1

Cell Data: *Space Group:* P2₁/c. *a* = 8.4909(3) *b* = 8.0227(3) *c* = 25.3957(9)
β = 100.382(2)° Z = 2

X-ray Powder Pattern: Pollone mine, near Valdicastello Carducci, Apuan Alps, Tuscany, Italy. 2.753 (vs), 3.689 (s), 3.416 (s), 3.125 (s), 2.989 (s), 2.894 (s), 2.250 (s)

Chemistry:	(1)
Ag	3.55
Tl	0.13
Pb	41.90
Sb	17.79
As	12.41
<u>S</u>	<u>22.10</u>
Total	97.87

(1) Pollone mine, near Valdicastello Carducci, Apuan Alps, Tuscany, Italy; average of 6 electron microprobe analyses; corresponding to Ag_{0.96}Tl_{0.02}Pb_{5.91}As_{4.84}Sb_{4.27}S_{20.14}.

Occurrence: In a barite-pyrite-(Pb-Ag-Zn) vein deposit in a metavolcanic-metasedimentary sequence metamorphosed to greenschist facies.

Association: Barite, pyrite, sterryite, sphalerite, twinnite.

Distribution: From the Pollone mine, near Valdicastello Carducci, Apuan Alps, Tuscany, Italy.

Name: For the town, Valdicastello *Carducci*, near the mine that produced the first specimens.

Type Material: The Natural History Museum, University of Pisa, Pisa, Italy (19646).

References: (1) Biagioni, C., P. Orlandi, Y. Moëlo, and L. Bindi (2014) Lead-antimony sulfosalts from Tuscany (Italy). XVI. Carducciite, (AgSb)Pb₆(As,Sb)₈S₂₀, a new Sb-rich derivative of rathite from the Pollone mine, Valdicastello Carducci: occurrence and crystal structure. *Mineral. Mag.*, 78(7), 1775-1793. (2) (2016) *Amer. Mineral.*, 101, 1490 (abs. ref. 1).