

Crystal Data: Monoclinic (MDO₂ polytype). *Point Group:* 2/m. Slender striated prismatic to acicular crystals, to 1.0 cm, elongated along [010], sometimes bent and grouped in irregular aggregates. *Twinning:* On {001}, universal.

Physical Properties: *Cleavage:* Perfect on {001}, near micaceous. Hardness = n.d. D(meas.) = n.d. D(calc.) = 7.02

Optical Properties: Opaque. *Color:* Gray-black, metallic gray to steel gray; creamy white in reflected light. *Luster:* Metallic.

Optical Class: Biaxial. *Anisotropism:* Distinct; bluish gray to yellowish gray. *Birefractance:* Low. R₁-R₂: (400) 33.9-36.1, (420) 34.4-36.6, (440) 35.1-37.2, (460) 35.6-37.7, (480) 35.9-38.0, (500) 35.9-38.0, (520) 35.5-37.6, (540) 35.4-37.5, (560) 35.3-37.4, (580) 35.2-37.3, (600) 34.7-36.8, (620) 34.2-36.2, (640) 33.9-35.9, (660) 33.8-35.7, (680) 33.8-35.6, (700) 33.9-35

Cell Data: *Space Group:* C2/m (MDO₂ polytype). *a* = 14.1690(16) *b* = 4.0508(4) *c* = 13.9751(14) *β* = 118.292(6)° *Z* = 4

X-ray Powder Pattern: Levigliani mine, Italy.

3.05 (s), 2.914 (ms), 2.865 (ms), 3.86 (m), 3.55 (m), 2.644 (m), 1.913 (m)

| Chemistry: | (1) | (2) | (3) | (4) |
|------------|-------------|--------------|--------------|--------------|
| Hg | 25.4 | 26.70 | 30.41 | 26.86 |
| Cu | | 0.01 | 0.18 | |
| Bi | 57.6 | 54.67 | 35.56 | 55.97 |
| Sb | | | 13.81 | |
| <u>S</u> | <u>17.4</u> | <u>17.66</u> | <u>18.68</u> | <u>17.17</u> |
| Total | 100.4 | 99.04 | 99.65 | 100.00 |

(1) Levigliani mine, Italy; average electron microprobe analysis; corresponds to Hg_{0.94}Bi_{2.04}S_{4.00}.

(2) Rudňany deposit, Slovakia; average electron microprobe analysis; corresponding to Hg_{0.985}Cu_{0.002}Bi_{1.936}S_{4.077}. (3) Do.; corresponds to Hg_{1.035}Cu_{0.019}(Bi_{1.194}Sb_{0.774})S_{3.977}. (4) HgBi₂S₄.

Mineral Group: Pavonite homologous series.

Occurrence: Very rare, in quartz-carbonate veins in mercury deposit, probably formed during retrograde metamorphism.

Association: Cinnabar, mercurian sphalerite, mercury, pyrite (Italy); cinnabar, tetrahedrite, chalcopyrite, arsenopyrite, siderite, baryte (Slovakia).

Distribution: From the Levigliani mercury mine, near Levigliani, Tuscany, Italy [TL]. From the Droždiak vein, Rudňany deposit, ~11 km southeast of Spišská Nová Ves, northern part of Gemeric Superunit, Spišsko-gemerské, Rudohorie Mts., Slovakia.

Name: For the GRUppo MIneralógico e Paleontológico LUCchese, a group of amateur mineralogists who provided the specimens for study.

Type Material: Museum of Natural History, University of Pisa, Pisa, Italy (4262).

References: (1) Orlandi, P., A. Dini, and F. Olmi (1998) Grumiplucite, a new mercury-bismuth sulfosalt species from the Levigliani mine, Apuan Alps, Tuscany, Italy. *Can. Mineral.*, 36(5), 1321-1326. (2) (1999) *Amer. Mineral.*, 84, 1465 (abs. ref. 1). (3) Mumme, W.G. and J.A. Watts (1980) HgBi₂S₄: crystal structure and relationship with the pavonite homologous series. *Acta Cryst.*, 36, 1300-1304. (4) Števkó, M., J. Sejkora, and D. Peterec (2015) Grumiplucite from the Rudňany deposit, Slovakia: a second world-occurrence and new data. *J. Geosci.*, 60, 269-281. (5) Merlino, S., C. Biagioni, and P. Orlandi (2013) The crystal structure of grumiplucite: its OD character and structural relationships. *Rendiconti Lincei*, 24, 47-52.