## Oscarkempffite $Ag_{10}Pb_4(Sb_{17}Bi_9)_{\Sigma=26}S_{48}$

**Crystal Data**: Orthorhombic. *Point Group*: 2/*m* 2/*m* 2/*m*. As irregular grains to several mm.

**Physical Properties**: *Cleavage*: None. *Fracture*: Irregular. *Tenacity*: Brittle.
Hardness = 3-3.5 VHN = 200 (50 g load). D(meas.) = n.d. D(calc.) = 5.8

**Optical Properties**: Opaque. *Color*: Grayish black; grayish white in reflected light.
*Streak*: Dark gray. *Luster*: Metallic.
*Optical Class*: n.d. *Pleochroism:* Distinct, white to dark gray. *Anisotropism*: Distinct, gray tones.
$R_1$-$R_2$: (470) 39.93-42.6 (24.1-39.9)$_{oil}$, (546) 38.6-41.7 (22.6-38.6)$_{oil}$, (589) 38.1-41.2 (22.1-38.1)$_{oil}$, (650) 37.3-40.6 (21.4-37.3)$_{oil}$

**Cell Data**: *Space Group*: *Pnca*. *a* = 13.199(2) *b* = 19.332(3) *c* = 8.249(1) Z = 1

**X-ray Powder Pattern**: Colorada vein, Animas mine, Chocaya Province, Bolivia.
3.34 (100), 2.881 (86), 3.37 (70), 2.982 (55), 3.66 (35), 2.062 (31), 2.733 (29)

| **Chemistry**: | (1) | (2) |
|---|---|---|
| Cu | 0.24 | |
| Ag | 14.50 | 14.58 |
| Pb | 11.16 | 11.20 |
| Sb | 28.72 | 27.98 |
| Bi | 24.56 | 25.43 |
| S | 20.87 | 20.81 |
| Total | 100.05 | 100.00 |

(1) Colorada vein, Animas mine, Chocaya Province, Bolivia; average of 4 electron microprobe analyses; corresponds to $Cu_{0.24}Ag_{9.92}Pb_{4.00}Sb_{17.36}Bi_{8.64}S_{47.84.}$ (2) $Ag_{10}Pb_4Sb_{17}Bi_9S_{48}$.

**Polymorphism & Series**: Lillianite homologous series with N = 4.

**Occurrence**: In a hydrothermal Ag-Sn vein deposit in strongly-altered dacitic volcanic rocks.

**Association**: Aramayoite, stannite, miargyrite, pyrargyrite, tetrahedrite.

**Distribution**: From the Colorada vein, Animas mine, Chocaya Province, Department of Potosi, Bolivia.

**Name**: Honors Oscar Kempff Bacigalupo (b.1948), Bolivian mineralogist and economic geologist, who discovered several large mineral deposits in Bolivia (e.g., the deposit of Don Mario).

**Type Material**: Natural History Museum, Vienna, Austria (N 9593) and the Natural History Museum, London, England (BM 20, 3).

**References**: (1) Topa, D., W.H. Paar, E. Makovicky, C.J. Stanley, and A.C. Roberts (2016) Oscarkempffite, $Ag_{10}Pb_4(Sb_{17}Bi_9)_{\Sigma26}S_{48}$, a new Sb-Bi member of the lillianite homologous series. Mineral. Mag., 80(5), 809-817. (2) (2017) Amer. Mineral., 102, 697 (abs. ref. 1).