## Hansblockite $(Cu,Hg)(Bi,Pb)Se_2$

**Crystal Data**: Monoclinic. *Point Group*: 2/*m*. As subhedral to anhedral grains to 200 $\mu$m, or as lath-shaped, thin plates, to 100 $\mu$m, intergrown with other phases.

**Physical Properties**: *Cleavage*: None. *Tenacity*: Brittle. *Fracture*: Irregular. Hardness = 2-2.5 VHN = 37-50 42 average (20 g load). D(meas.) = n.d. D(calc.) = 8.26

**Optical Properties**: Opaque. *Color*: Black, cream to light grey in reflected light. *Streak*: Black. *Luster*: Metallic. *Bireflectance*: Slight. *Pleochroism*: Slight, from grayish cream to cream. *Anisotropism*: Weak, khaki to pale blue.
*Optical Class*: n.d.
$R_1$-$R_2$: (400) 46.7-46.9, (420) 46.9-47.1, (440) 47.1-47.4, (460) 47.3-47.9, (470) 47.3-48.1, (480) 47.4-48.4, (500) 47.4-48.7, (520) 47.4-48.9, (540) 47.4-49.0, (546) 47.4-49.0, (560) 47.3-49.0, (580) 47.2-49.0, (589) 47.1-49.0, (600) 47.0-48.9, (620) 46.9-48.8, (640) 46.7-48.6, (650) 46.6-48.5, (660) 46.5-48.4, (680) 46.4-48.2, (700) 46.3-48.0

**Cell Data**: *Space Group*: $P2_1/c$. $a$ = 6.853(1) $b$ = 7.635(1) $c$ = 7.264(1) $\beta$ = 97.68(1)° Z = 4

**X-ray Powder Pattern**: El Dragón mine, Department of Potosí, Bolivia.
2.986 (100), 3.97 (90), 2.620 (60), 2.808 (50), 3.100 (40), 2.290 (35), 2.385 (30)

**Chemistry**:

| | (1) |
|---|---|
| Cu | 9.31 |
| Ag | 0.73 |
| Hg | 11.43 |
| Pb | 13.55 |
| Co | 0.03 |
| Ni | 0.17 |
| Bi | 31.17 |
| Se | 34.00 |
| Total | 100.39 |

(1) El Dragón mine, Province of Antonio Quijarro, Department of Potosí, Bolivia; average of 5 electron microprobe analyses; corresponds to $(Cu_{0.68}Hg_{0.27}Ag_{0.03}Ni_{0.01})_{\Sigma=0.99}(Bi_{0.69}Pb_{0.31})_{\Sigma=1.00}Se_{2.01}$.

**Polymorphism & Series**: Polymorphous with grundmannite.

**Occurrence**: In a vein cutting interbedded pyritiferous black shales and hematite-bearing siltstones.

**Association**: Watkinsonite, clausthalite, eldragónite, krut'aite-penroseite solid solution, eskebornite, klockmannite, umangite, petrovicite, grundmannite, gold.

**Distribution**: From the El Dragón mine, Province of Antonio Quijarro, Department of Potosí, Bolivia.

**Name**: Honors Hans Block (1881-1953), for his contributions to fostering Bolivian mining.

**Type Material**: Natural History Museum, London, England (BM 2015, 136) and the Mineralogical State Collection, Munich, Germany ('Reich der Kristalle') (MSM 73573).

**References**: (1) Förster, H.-J., L. Bindi, C.J. Stanley, and G. Grundmann (2017) Hansblockite, $(Cu,Hg)(Bi,Pb)Se_2$, the monoclinic polymorph of grundmannite: a new mineral from the Se mineralization at El Dragón (Bolivia). Mineral. Mag., 81(3), 629-640. (2) (2018) Amer. Mineral., 103, 832 (abs. ref. 1).