Eldragónite $Cu_6BiSe_4(Se_2)$

Crystal Data: Orthorhombic. *Point Group*: 2/*m* 2/*m* 2/*m*. As irregular grains and polycrystalline aggregates to 100 mm.

Physical Properties: *Cleavage*: None. *Fracture*: Conchoidal to uneven. *Tenacity*: Brittle. Hardness = 3.5 VHN = 225 (15 g load). D(meas.) = n.d. D(calc.) = 6.76

Optical Properties: Opaque. *Color*: Brownish to light maroon. *Streak*: Brownish black. *Luster*: Metallic.
Optical Class: n.d. *Pleochroism:* Distinct, light grayish brown to cream. *Anisotropism:* Strong, orange to blue-black, with undulose extinction.
R_1-R_2: (470) 32.5-34.5 $(17.7\text{-}19.7)_{oil}$, (546) 32.95-36.3 $(18.0\text{-}21.4)_{oil}$, (589) 33.3-36.8 $(18.3\text{-}21.6)_{oil}$, (650) 34.0-36.9 $(19.1\text{-}21.7)_{oil}$

Cell Data: *Space Group*: *Pmcn*. *a* = 4.0341(4) *b* = 27.056(3) *c* = 9.5559(9) Z = 4

X-ray Powder Pattern: El Dragón mine, Quijarro Province, Department of Potosí, Bolivia.
3.579 (100), 3.075 (84), 3.180 (77), 1.920 (76), 3.065 (75), 6.547 (58), 3.165 (56)

Chemistry:

	(1)	(2)
Cu	35.9	35.84
Fe	1.25	
Ni	0.35	
Bi	20.3	19.64
Se	42.5	44.52
Total	100.3	100.00

(1) El Dragón mine, Quijarro Province, Department of Potosí, Bolivia; average of 24 electron microprobe analyses; corresponding to $(Cu_{5.98}Fe_{0.24}Ni_{0.06})_{\Sigma=6.28}Bi_{1.03}Se_{5.70}$. (2) $Cu_6BiSe_4(Se_2)$.

Occurrence: Forms inclusions in compositionally zoned krut'aite masses, in a low-temperature hydrothermal vein-type deposit.

Association: Krut'aite, clausthalite, klockmannite, umangite, tiemannite, watkinsonite, petrovicite.

Distribution: At the El Dragón mine, Quijarro Province, Department of Potosí, Bolivia.

Name: For the locality that provided the first specimens.

Type Material: Canadian Museum of Nature, Ottawa, Canada (CMNMC 86154) and the Department of Materials Engineering and Physics, University of Salzburg, Austria (M17.001, M17.002, and M17.003).

References: (1) Paar, W.H., M.A. Cooper, Y. Moëlo, C.J. Stanley, H. Putz, D. Topa, A.C. Roberts, J. Stirling, J.G. Raith, and R. Rowe (2012) Eldragónite, $Cu_6BiSe_4(Se_2)$, a new mineral species from the El Dragón mine, Potosí, Bolivia, and its crystal structure. Can. Mineral., 50, 281-294.
(2) (2014) Amer. Mineral., 99, 1513 (abs. ref. 1).