Idrialite $C_{22}H_{14}$

Crystal Data: Orthorhombic. *Point Group*: n.d. Small irregular square or six-sided crystals; tabular crystals are precipitated from a chloroform extraction of cinnabar ore.

Physical Properties: *Cleavage*: {001}, perfect; {100}, poor. *Fracture*: Conchoidal. Hardness = 1-1.5 D(meas.) = 1.22-1.236 D(calc.) = 1.286 M.P. 319 °C; fluoresces pale blue or bright green under UV.

Optical Properties: Semitransparent. *Color*: Pale brown to pale greenish yellow. *Luster*: Vitreous to adamantine.
Optical Class: Biaxial (+). $\alpha = 1.557$ $\beta = 1.734$ $\gamma = 2.07$ 2V(meas.) = 84° *Pleochroism*: *X* = pale yellow; *Y* = *Z* = yellow. *Orientation*: *X* = *b*; *Y* = *a*, *Z* = *c*. *Dispersion*: *r* > *v*, weak.

Cell Data: *Space Group*: n.d. $a = 8.07$ $b = 6.42$ $c = 27.75$ Z = 4

X-ray Powder Pattern: Idrija mine, Slovenia.
4.94 (100), 3.40 (80), 4.04 (60), 2.48 (30), 7.08 (20), 4.43 (20), 2.06 (20)

Chemistry: (1) Identification depends on correspondence of X-ray powder patterns and other data with that of synthetic material (dimethylbenzphenanthrene).

Occurrence: Probably formed by pyrolysis of organic material near hot springs or by hydrothermal fluids.

Association: Cinnabar, pyrite, gypsum, quartz, "clay" (Idrija mine, Slovenia); metacinnabar, realgar, "opal" (Skaggs Springs, California, USA).

Distribution: From the Idrija (Idria) mercury mine, 38 km west of Ljubljana, northwestern Slovenia. In the USA, in California, at Skaggs Springs, Sonoma Co.; from the Great Western, Mirabel, Helen, and Research mines, Lake Co.; in the Knoxville mine, Napa Co.

Name: For the Idrija (*Idria*) mine, Slovenia, from which the first specimens were collected.

Type Material: n.d.

References: (1) Dana, E.S. (1892) Dana's system of mineralogy, (6th edition), 1013. (2) Strunz, H. and B. Contag (1965) Evenkit, Flagstaffit, Idrialin und Reficit. Neues Jahrb. Mineral., Monatsh., 19-25 (in German). (3) Blumer, M. (1975) Curtisite, idrialite, and pendletonite, polycyclic aromatic hydrocarbon minerals: their composition and origin. Chem. Geol., 16, 245-256. (4) Echigo, T., M. Kimata, T. Maruoka, M. Shimizu, and N. Nishida (2009) The crystal structure, origin, and formation of idrialite ($C_{22}H_{14}$): Inferences from the microbeam and bulk analyses. Amer. Mineral., 94, 1325-1332.