

**Crystal Data:** Cubic. *Point Group:* 23. As irregular grains, to 25  $\mu\text{m}$ .

**Physical Properties:** *Cleavage:* None. *Fracture:* Uneven. *Tenacity:* Brittle.  
Hardness = 4.5 VHN = 465 (100 g load). D(meas.) = n.d. D(calc.) = 8.09

**Optical Properties:** Opaque. *Color:* Silvery gray; white in reflected light. *Streak:* Gray.  
*Luster:* Metallic.

*Optical Class:* Isotropic. *Birefractance:* Weak to distinct. *Anisotropism:* Strong.  
R: (470) 48.6, (546) 47.5, (589) 47.7, (650) 49.0

**Cell Data:** *Space Group:*  $P2_13$ .  $a = 6.3181(5)$   $Z = 4$  (for synthetic PdSbSe)

**X-ray Powder Pattern:** (calculated from the structure of synthetic PdSbSe)  
2.825 (100), 1.9047 (98), 2.579 (81), 3.159 (53), 2.234 (32), 1.7521 (27), 1.6883 (25)

<b>Chemistry:</b>	(1)
Pd	34.17
Cu	0.78
Ag	0.35
Sb	38.03
Se	26.38
Total	99.71

(1) Předbořice, Czech Republic; average of 5 electron microprobe analyses, corresponding to  $\text{Pd}_{0.98}\text{Cu}_{0.04}\text{Ag}_{0.01}\text{Sb}_{0.95}\text{Se}_{1.02}$ .

**Mineral Group:** Ullmanite subgroup of the gersdorffite group.

**Occurrence:** A low-temperature mineral in fractures in selenium-rich uraninite in calcite veins.

**Association:** Embedded in eucairite and tiemannite, associated with bornite, selenian digenite, chrisstanleyite, fischesserite, gold, silver-rich hakite, tyrrellite, clausenthalite, chaméanite, uraninite.

**Distribution:** In a polished section attributed to Předbořice, Czech Republic, purchased from a mineral dealer.

**Name:** Honors Milota Makovicky (b. 1941), Geological Institute, University of Copenhagen, for her outstanding investigations of sulfide and sulfarsenide systems with platinum-group elements.

**Type Material:** Department of Geography, Geology and Mineralogy, Division of Mineralogy and Material Sciences (Mineralogical Museum), Salzburg, Austria (14935).

**References:** (1) Paar, W.H., D. Topa, E. Makovicky, and F.J. Culetto (2005) Milotaite, PdSbSe, a new palladium mineral species from Předbořice, Czech Republic. *Can. Min.*, 43, 689-694.  
(2) (2005) *Amer. Mineral.*, 90, 1947 (abs. ref. 1).