

**Rudabányaite****(Ag<sub>2</sub>Hg<sub>2</sub>)(AsO<sub>4</sub>)Cl**

**Crystal Data:** Cubic. *Point Group:*  $\bar{4} 3m$ . As crystals to 0.6 mm and aggregates of a few millimeters across. Occasionally crystals show {110} and {100}.

**Physical Properties:** *Cleavage:* None. *Tenacity:* Brittle. *Fracture:* Uneven. Hardness = 3-4  
D(meas.) = n.d. D(calc.) = 8.04

**Optical Properties:** Transparent. *Color:* Bright yellowish orange to brownish yellow; turns slowly to dark brown or dark olive green in natural light. *Streak:* Lemon yellow. *Luster:* Adamantine.  
*Optical Class:* Isotropic.  $n(\text{calc.}) = 2.33$  *Dispersion:* Weak. Nonpleochroic.

**Cell Data:** *Space Group:*  $F\bar{4} 3c$ .  $a = 17.360(3)$   $Z = 32$

**X-Ray Diffraction Pattern:** Adolf mine, Rudabánya deposit, near Rudabánya, northeast Hungary. 2.931 (s), 2.611 (s), 5.00 (m), 2.001 (m), 4.33 (mw), 2.255 (mw), 1.734 (mw)

<b>Chemistry:</b>	(1)	(2)
Ag <sub>2</sub> O	29.39	29.29
Hg <sub>2</sub> O	52.62	52.72
As <sub>2</sub> O <sub>5</sub>	13.69	14.52
Cl	4.62	4.48
SO <sub>3</sub>	0.19	
<u>-O = Cl<sub>2</sub></u>	<u>1.04</u>	<u>1.01</u>
Total	99.47	100.00

(1) Adolf mine, Rudabánya deposit, near Rudabánya, northeast Hungary; average electron microprobe analysis supplemented by micro-Raman spectroscopy; corresponds to (Ag<sub>2.06</sub>Hg<sub>2.05</sub>)<sub>Σ=4.11</sub>[(As<sub>0.97</sub>S<sub>0.02</sub>)<sub>Σ=0.99</sub>O<sub>4</sub>]Cl<sub>1.06</sub>. (2) (Ag<sub>2</sub>Hg<sub>2</sub>)(AsO<sub>4</sub>)Cl.

**Occurrence:** A secondary mineral in cavities of siliceous sphaerosiderite and limonite rocks formed by reaction of Ag-, Hg- and As-bearing sulfides or Ag amalgams with chlorine-bearing solutions.

**Association:** Chlorargyrite, bromargyrite, iodargyrite, perroudite, capgaronnite, iltisite.

**Distribution:** From the Adolf mine area, Rudabánya ore deposit, near Rudabánya town, ~35 km north of Miskolc, northeast Hungary.

**Name:** For its type locality near *Rudabánya*, Hungary.

**Type Material:** Mineral collection of the Herman Ottó Museum, Miskolc, Hungary (2016.351).

**References:** (1) Effenberger, H., S. Szakáll, B. Fehér, T. Váczi, and N. Zajzon (2019) Rudabányaite, a new mineral with a [Ag<sub>2</sub>Hg<sub>2</sub>]<sup>4+</sup> cluster cation from the Rudabánya ore deposit (Hungary). *Eur. J. Mineral.*, 31(3), 537-547. (2) (2021) *Amer. Mineral.*, 106, 1542-1543 (abs. ref. 1).