

Hakite

(Cu, Hg)₁₂Sb₄(Se, S)₁₃

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Crystal Data: Cubic. *Point Group:* $\bar{4}3m$. As anhedral grains, to 0.3 mm.

Physical Properties: Hardness = n.d. VHN = 306 (40 g load). D(meas.) = n.d.
D(calc.) = 6.3

Optical Properties: Opaque. *Color:* Gray-brown; in polished section, creamy white to clear brown. *Luster:* Metallic.

R: (400) —, (420) 32.8, (440) 33.8, (460) 34.0, (480) 34.0, (500) 33.7, (520) 33.2, (540) 33.0, (560) 33.1, (580) 33.2, (600) 33.5, (620) 33.9, (640) 33.6, (660) —, (680) —, (700) —

Cell Data: *Space Group:* $I\bar{4}3m$ (probable). $a = 10.83$ $Z = 8$

X-ray Powder Pattern: Předbořice, Czech Republic.

3.140 (100), 1.925 (90), 1.639 (80), 2.910 (70), 1.985 (70), 2.568 (60), 1.764 (60)

Chemistry:

	(1)	(2)
Cu	26.6	26.6
Hg	15.3	14.3
Sb	15.5	19.1
As	3.2	0.7
Se	34.0	38.5
S	3.5	
Total	98.1	99.2

(1) Předbořice, Czech Republic; by electron microprobe, corresponding to $(\text{Cu}_{10.78}\text{Hg}_{1.84})_{\Sigma=12.62}(\text{Sb}_{3.06}\text{As}_{1.03})_{\Sigma=4.09}(\text{Se}_{10.37}\text{S}_{2.63})_{\Sigma=13.00}$. (2) Do.; corresponding to $(\text{Cu}_{10.61}\text{Hg}_{1.81})_{\Sigma=12.42}(\text{Sb}_{3.98}\text{As}_{0.24})_{\Sigma=4.22}\text{Se}_{12.36}$.

Mineral Group: Tetrahedrite group.

Occurrence: In epithermal calcite veins.

Association: Berzelianite, clausthalite, umangite, chalcopyrite, pyrite, uraninite, hematite, goethite, gold.

Distribution: In the Czech Republic, from the Předbořice uranium deposit, near Krásna Hora [TL], at Bukov, near Tisnova; and in the Petrovice uranium deposit, near Žďár. At the Niederschlema-Alberoda uranium deposit, Saxony, Germany. From the Moctezuma (Bambolla) mine, 12 km south of Moctezuma, Sonora, Mexico. At Tuminico, Sierra de Cacho, La Rioja Province, Argentina.

Name: In honor of Jaroslav Hak (1931–), Czech mineralogist, Institute of Ore Research, Kutná Hora, Czech Republic.

Type Material: Charles University, Prague, Czech Republic; National School of Mines, Paris, France.

References: (1) Johan, Z. and M. Kvaček (1971) La hakite, un nouveau minéral du groupe de la tétraédrite. Bull. Soc. fr. Minéral., 94, 45–48 (in French with English abs.). (2) (1972) Amer. Mineral., 57, 1553 (abs. ref. 1).