

**Zinc-zippeite****Zn<sub>2</sub>(UO<sub>2</sub>)<sub>6</sub>(SO<sub>4</sub>)<sub>3</sub>(OH)<sub>10</sub>•16H<sub>2</sub>O**

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**Crystal Data:** Monoclinic (probable). *Point Group:* n.d. Minute curved crystals and in coatings.

**Physical Properties:** Hardness = n.d. D(meas.) = n.d. D(calc.) = n.d. Radioactive.

**Optical Properties:** Semitransparent. *Color:* Yellow, orange, reddish brown.  
*Optical Class:* Biaxial (-). *Pleochroism:* X = colorless; Y = pale yellow; Z = yellow.  
 $\alpha = 1.70\text{--}1.715$   $\beta = 1.75\text{--}1.763$   $\gamma = > 1.7$  2V(meas.) = n.d.

**Cell Data:** *Space Group:* n.d. Z = n.d.

**X-ray Powder Pattern:** Synthetic.

7.08 (100), 3.54 (50), 3.44 (35), 9.62 (33), 3.100 (26), 2.567 (15), 1.943 (15)

<b>Chemistry:</b>	(1)	(2)
SO <sub>3</sub>	9.69	9.62
UO <sub>3</sub>	69.10	68.71
ZnO	3.4	6.52
PbO	1.6	
MgO	0.87	
H <sub>2</sub> O	14.26	15.15
insol.	2.1	
<b>Total</b>	<b>101.02</b>	<b>100.00</b>

(1) Hillside mine, Arizona, USA; by microchemical analysis. (2) Zn<sub>2</sub>(UO<sub>2</sub>)<sub>6</sub>(SO<sub>4</sub>)<sub>3</sub>(OH)<sub>10</sub>•16H<sub>2</sub>O; synthetic material has 8 H<sub>2</sub>O essential and 8 H<sub>2</sub>O held zeolitically.

**Occurrence:** In quartzose ore containing uraninite and disseminated sulfides.

**Association:** Sodium-zippeite, johannite, schröckingerite, bayleyite, gypsum.

**Distribution:** From the Hillside mine, about 5.5 km north of Bagdad, Eureka district, Yavapai Co., Arizona, USA.

**Name:** For its content of *zinc* and relation to other *zippeite* group species.

**Type Material:** n.d.

**References:** (1) Frondel, C., J. Ito, R.M. Honea, and A.M. Weeks (1976) Mineralogy of the zippeite group. *Can. Mineral.*, 14, 429–436. (2) Haacke, D.F. and P.A. Williams (1979) The aqueous chemistry of uranium minerals. Part I. Divalent cation zippëite. *Mineral. Mag.*, 43, 539–541.