

**Eurekadumpite****(Cu,Zn)<sub>16</sub>(TeO<sub>3</sub>)<sub>2</sub>(AsO<sub>4</sub>)<sub>3</sub>Cl(OH)<sub>18</sub>·7H<sub>2</sub>O**

**Crystal Data:** Monoclinic. *Point Group:* 2/m, m, or 2. As micaceous crystals (< 1 μm) with either round or hexagonal outlines, to 0.5 mm, as spherulites and rosettes to 1 mm.

**Physical Properties:** *Cleavage:* Perfect on {010}. *Fracture:* n.d. *Tenacity:* Flexible. Hardness = 2.5-3 D(meas.) = 3.76(2) D(calc.) = 3.826

**Optical Properties:** Transparent. *Color:* Deep blue-green or turquoise. *Streak:* Light turquoise. *Luster:* Pearly flakes, silky aggregates. *Optical Class:* Biaxial (-). α = 1.69(1) β = γ = 1.775(5) 2V(meas.) = 10(5)° 2V(calc.) = n.d. *Pleochorism:* Strong, Y = Z = deep blue-green, X = light turquoise. *Absorption:* Y = Z > X. *Orientation:* X = b.

**Cell Data:** *Space Group:* P2/m, P2, or Pm. a = 8.28(3) b = 18.97(2) c = 7.38(2) β = 121.3(6)° Z = 1

**X-ray Powder Pattern:** Centennial Eureka mine, Tintic district, Juab Co., Utah, USA. 18.92 (100), 2.524 (41), 3.777 (24), 1.558 (22), 9.45 (19), 2.692 (15), 4.111 (13)

|                                |             |
|--------------------------------|-------------|
| <b>Chemistry:</b>              | (1)         |
| FeO                            | 0.04        |
| CuO                            | 36.07       |
| ZnO                            | 20.92       |
| TeO <sub>2</sub>               | 14.02       |
| As <sub>2</sub> O <sub>5</sub> | 14.97       |
| Cl                             | 1.45        |
| H <sub>2</sub> O               | 13.1        |
| <u>-O = Cl<sub>2</sub></u>     | <u>0.33</u> |
| Total                          | 100.24      |

(1) Centennial Eureka mine, Tintic district, Utah, USA; average of 14 electron microprobe analyses, H<sub>2</sub>O by Alimarin method, IR spectroscopy confirms TeO<sub>3</sub>, AsO<sub>4</sub> and OH; corresponding to (Cu<sub>10.32</sub>Zn<sub>5.85</sub>Fe<sub>0.01</sub>)<sub>Σ=16.18</sub>(TeO<sub>3</sub>)<sub>2</sub>(AsO<sub>4</sub>)<sub>2.97</sub>[Cl<sub>0.93</sub>(OH)<sub>0.07</sub>](OH)<sub>18.45</sub>·7.29H<sub>2</sub>O.

**Occurrence:** In the oxidation zone of quartz-sulfide ores containing tellurides (mostly hessite) in small cavities and in fractures in quartz.

**Association:** Mcalpineite, malachite, Zn-bearing olivenite, goethite, unspecified Mn oxides.

**Distribution:** From old dumps of the Centennial Eureka mine, Tintic district, Juab Co., Utah, USA.

**Name:** Reflects the fact that the first samples were found on the *dumps* of the Centennial Eureka mine. The mineral name is also related to the Greek word *eureka* -“I have found it” - in a *dump*—an allusion to the important role old mine dumps have played in the discovery of new minerals.

**Type Material:** A.E. Fersman Mineralogical Museum, Academy of Sciences, Moscow, Russia (3962/1), at the National Museum of Natural History, Washington, D.C. (174877), and the American Museum of Natural History, New York, New York (112206), USA.

**References:** (1) Pekov, I.V., N.V. Chukanov, A.E. Zadov, A.C. Roberts, M.C. Jensen, N.V. Zubkova, and A.J. Nikischer (2010) Eurekadumpite (Cu,Zn)<sub>16</sub>(TeO<sub>3</sub>)<sub>2</sub>(AsO<sub>4</sub>)<sub>3</sub>Cl(OH)<sub>18</sub>·7H<sub>2</sub>O - a new supergene mineral species. Zap. Ross. Mineral. Obshch., 139(4), 26-35 (in Russian with English abstract). Geol. Ore Deposits, 53(7), 575-582 (in English). (2) (2012) Amer. Mineral., 97, 1261-1262 (abs. ref. 1).