Zálesíite $CaCu_6(AsO_4)_2(AsO_3OH)(OH)_6 \cdot 3H_2O$

Crystal Data: Hexagonal. *Point Group*: 6/*m.* As aggregates, to 5 mm, of hexagonal crystals, to 100 μm, showing {100} and {001}, and as powdery coatings, crossfiber veinlets, and tufts of acicular crystals. *Twinning*: On {100}.

Physical Properties: *Cleavage*: n.d. *Fracture*: n.d. *Tenacity*: n.d. Hardness = 2-3
D(meas.) = 3.49(3) D(calc.) = 3.50 Slowly soluble in dilute HCl.

Optical Properties: Semitransparent to transparent. *Color*: Pale green. *Streak*: White.
Luster: Vitreous to resinous.
Optical Class: Uniaxial (+). ω = 1.688(2) ε = 1.765(2) *Pleochroism*: Weak, *E* = pale green, *O* = pale yellow-green. *Absorption*: *E* > *O.*

Cell Data: *Space Group*: $P6_3/m$ (probable). a = 13.571(1) c = 5.880(1) Z = 2

X-ray Powder Pattern: Zálesí U deposit, northern Moravia, Czech Republic.
11.64 (100), 2.9347 (42), 4.431 (41), 2.5624 (30), 2.6932 (29), 3.254 (22), 3.387 (17)

Chemistry:

	(1)
CaO	5.46
CuO	46.46
Y_2O_3	1.50
Al_2O_3	0.26
La_2O_3	0.10
As_2O_5	34.27
P_2O_5	0.37
H_2O	11.95
Total	100.37

(1) Zálesí U deposit, northern Moravia, Czech Republic; average electron microprobe analysis, H_2O by TGA; corresponds to $(Ca_{0.81}Y_{0.13}Al_{0.05}La_{0.01})_{\Sigma=1.00}(Cu_{5.75}Ca_{0.15})_{\Sigma=5.90}[(AsO_4)_{1.94}(PO_4)_{0.05}(AsO_3OH)(OH)_6] \cdot 3.03H_2O$.

Mineral Group: Mixite group. The Ca- and As-dominant member of the mixite group.

Occurrence: An oxidation product of chalcopyrite and cobalt arsenides.

Association: Chrysocolla, malachite, clinoclase, conichalcite, tyrolite, uranophane, zeunerite.

Distribution: From the Zálesí (formerly Valdek) uranium deposit, near Javorník, northern Moravia, Czech Republic [TL]. At the Hilarion mine, near Kamareza, Laurium, Attica Penninsula, Greece. At the Fuka mine, Okayama Prefecture, Japan and Mazarrón-Águilas district, Murcia, Spain.

Name: For the locality from which the first samples were collected.

Type Material: Natural History Museum, National Museum, Prague, and in the Museum of the Bohemian Paradise, Turnov, Czech Republic.

References: (1) Sejkora, J., T. Rídkošil, and V. Šrein (1999) Zálesíite, a new mineral of the mixite group, from Zálesí, Rychlebské hory Mts., Czech Republic. Neues Jahrbuch für Mineralogie Abhandlungen 175, 105-124. (2) (2000) Amer. Mineral., 85, 1564 (abs. ref. 1). (3) Tanaka, T., T. Minakawa, I. Kusachi, and M. Tanabe (2009) Bi-bearing and REE-free zálesíite from the Fuka mine, Okayama Prefecture, Japan. J. Mineral. Petrol., 104(3), 164-167. (4) da Baranda, B.S., J.G. del Tánago, and J. Viñals (2003) Secondary minerals of the Mazarrón-Águilas mining district, Murcia Province, Spain. Mineral. Record, 34, 331-332.