Mixite **$BiCu_6(AsO_4)_3(OH)_6 \cdot 3H_2O$**

Crystal Data: Hexagonal. *Point Group:* $6/m$. As acicular crystals, elongated along [0001], commonly in mats, radial fibrous aggregates, or cross-fiber veinlets.

Physical Properties: Hardness = 3–4 D(meas.) = 3.79–3.83 D(calc.) = [4.04]

Optical Properties: Transparent to translucent. *Color:* Blue-green to emerald-green, pale green, white; pale green to colorless in transmitted light. *Streak:* Pale bluish green. *Luster:* Vitreous, silky in aggregates.
Optical Class: Uniaxial (+). *Pleochroism:* O = colorless; E = bright green.
Absorption: $E > O$. $\omega = 1.743–1.749$ $\epsilon = 1.810–1.830$

Cell Data: *Space Group:* $P6_3/m$. $a = 13.646(2)$ $c = 5.920(1)$ $Z = 2$

X-ray Powder Pattern: Anton mine, Germany.
12.03 (10), 2.46 (9), 3.57 (8), 2.95 (7), 2.86 (6), 2.70 (6), 2.57 (6)

Chemistry:

	(1)	(2)	(3)
P_2O_5	1.05	0.06	
As_2O_5	29.51	28.79	29.64
SiO_2		0.42	
Fe_2O_3		0.97	
Bi_2O_3	12.25	11.18	20.03
FeO	1.52		
CuO	44.23	43.89	41.04
ZnO		2.70	
CaO	0.83	0.26	
H_2O	11.06	11.04	9.29
Total	100.45	99.31	100.00

(1) Jáchymov, Czech Republic. (2) Tintic district, Utah, USA. (3) $BiCu_6(AsO_4)_3(OH)_6 \cdot 3H_2O$.

Mineral Group: Mixite group.

Occurrence: An uncommon secondary mineral in the oxidized zone of copper deposits.

Association: Bismutite, smaltite, bismuth, atelestite, erythrite, malachite, barite.

Distribution: From the Geister vein, Werner mine, Jáchymov (Joachimsthal), Czech Republic. At Wheals Owles and Edwards, St. Just, and several other mines in Cornwall, England. In Germany, in the Black Forest, at the Anton mine, Heubachtal, near Schiltach; on the Schmiedestollen dump, near Wittichen; from the Clara mine, near Oberwolfach; from Neubulach; and in the Hechtsberg quarry, near Hausach; in Hesse, at Reichenbach, near Bensheim; in Saxony, from Schneeberg, Schwarzenberg, and in the Sadisdorf copper mine, near Schmiedeberg. At the Cap Garonne mine, near le Pradet, Var, France. From the Kamariza mine, Laurium, Greece. At Tsumeb, Namibia. In the Bonanza mine, Concepción del Oro, Zacatecas, Mexico. In the USA, from the Mammoth and other mines, Tintic district, Juab Co., and at the Gold Hill mine, Tooele Co., Utah; in the Majuba Hill mine, Antelope district, Pershing Co., Nevada; from the Mammoth-St. Anthony mine, Tiger, Pinal Co., and at the Joe Shaft, Tombstone, Cochise Co., Arizona; from Granite Gap, San Simon district, Hidalgo Co., New Mexico; at the Cerro Gordo mine, Inyo Co., California. A number of other localities are known.

Name: Honors Anton Mixa, a mining official from Příbram, who found the mineral at Jáchymov, Czech Republic.

References: (1) Palache, C., H. Berman, and C. Frondel (1951) Dana's system of mineralogy, (7th edition), v. II, 943–944. (2) Walenta, K. (1960) Chlorotil und Mixit. Neues Jahrb. Mineral., Monatsh., 223–236 (in German). (3) Mereiter, K., and A. Preisinger (1986) Kristallstrukturdaten der Wismutminerale Atelestit, Mixit, und Pucherit. Anzeiger der Österr. Akad. Wiss. math.-naturw. Kl., 123, 79–81 (in German).