Jurbanite

Al(SO$_4$)(OH) • 5H$_2$O

Crystal Data:  Monoclinic.  Point Group:  2/m.  As short prismatic crystals, dominated by {110} and {011}, to 0.3 mm; commonly in stalactites and crusts.

Physical Properties:  Tenacity: Brittle.  Hardness = ~2.5  D(meas.) = 1.786(8)  D(calc.) = 1.828  Soluble in H$_2$O.

Optical Properties:  Transparent.  Color: Colorless.  Luster: [Vitreous.]
Optical Class:  Biaxial (−).  Orientation:  Y = b; Z ∧ a = -5°.  α = 1.459(2)  β = 1.473(2)  γ = 1.483(2)  2V(meas.) = 80°  2V(calc.) = 80°

Cell Data:  Space Group:  P2$_1$/n.  a = 8.3965(6)  b = 12.479(2)  c = 8.1549(9)  β = 101.917(6)°  Z = 4

X-ray Powder Pattern:  San Manuel mine, Arizona, USA.  3.723 (100), 4.013 (90), 6.80 (80b), 4.954 (80), 4.494 (80), 5.74 (70), 3.922 (70)

Chemistry:  (1) San Manuel mine, Arizona, USA; qualitative emission spectroscopy confirmed major Al and very minor Fe, Mg, Mn, Si, Cu and Ca; stoichiometry established by the congruity of X-ray diffraction patterns of natural and synthetic material.

Polymorphism & Series:  Dimorphous with rostite.

Occurrence:  As rare secondary crusts in humid tunnels in oxidized portions of sulfide deposits in aluminous rocks; apparently deposited directly from mine water at about 27 °C and 100% humidity (San Manuel mine, Arizona, USA).

Association:  Epsonite, hexahydrite, pickeringite, starkeyite (San Manuel mine, Arizona, USA); rostite, gypsum, pickeringite, metavoltine, ferrinatrite, sideronatrite, tamarugite, uklonskovite (Cetine mine, Italy).

Distribution:  From the San Manuel mine, Mammoth district, Pinal Co., Arizona, USA. At the Cetine mine, 20 km southwest of Siena, Tuscany, Italy.

Name:  Honors Joseph John Urban (1915–1997), Tucson, Arizona, USA, mineral collector who first observed the natural material.
