

Mineral Showcase

Mimetite



A minor ore of lead, mimetite is a comparatively rare mineral of secondary origin occurring in the upper oxidized portions of lead veins. The name is derived from the Greek for *imitator*, in allusion to its close resemblance to pyromorphite. In fact, the two can be easily confused for each other when phosphorous-rich mimetite turns greenish in color, and arsenic-rich pyromorphite is more yellowish than its usual green. Though the chemical formula is for the pure compound, in reality arsenate and phosphate ions readily substitute for each other, and virtually all specimens found of both minerals contain some measure of the corresponding impurity, making identification of the specimens more difficult by optical and chemical means.

This hexagonal mineral is usually found as prismatic, barrel-shaped, vibrant yellow crystals. Globular-shaped forms, mammillary crusts, and earthy films are also common, but clusters of tiny radiating acicular crystals are more rare. Though yellow is the typical color, crystals can also be colorless or white, while impurities can color the mineral orange, or even brown. Orange-yellow rounded crystals (melon-shaped) are called *campylite*.

Specimens not worthy of display can be used for chemical testing, and serve well as a known reference for lead, arsenic, and chlorine tests when comparing to unknown samples. The mineral is brittle and has an irregular to sub-conchoidal fracture, is relatively soft with a hardness of about 3.5 on the Mohs scale, and is transparent to translucent with a resinous luster. Its specific gravity is 7.0 – 7.3, but this is difficult—if not impossible—to determine by amateur chemists, as crystals are too delicate to perform such a procedure, and often embedded in matrix. However, qualitative tests are easy to perform.

Mimetite fuses readily on charcoal, emitting the characteristic garlic odor that indicates the presence of arsenic, and reduces easily to a lead bead accompanied by a white coating of arsenous oxide, As_2O_3 , that is deposited some distance from the assay. These tests are usually sufficient to identify the specimen, but other tests can be conducted for confirmatory results (see page 23).

Famous locations include Mapimi, Mexico; Příbram, Czech Republic; and Cumberland, England. However, I venture to guess that few people have an opportunity to actually collect at these locations, unlike in the US where the mineral—though considered rare—is actually not all that uncommon in abandoned mines throughout the Mojave Desert region. Any bright yellow mineral encountered can be assumed first and foremost as mimetite (especially if in prismatic hexagonal crystals) until tests, if necessary, prove otherwise. Good specimens are readily sought by collectors, and can be among the showiest in any collection.



Mimetite

Specimen VII 145 C

Prismatic hexagonal crystals
with pyramidal terminations.

Natavidad Mine

Mapimi, Mexico

2.5 x 2 inches

Mimetite

Specimen XIII 38 D

Aggregate of spheroidal
groups of crystals.

San Antonio Mine

Santa Eulalia

Chihuahua, Mexico

1.38 x 1 inches





Mimetite

Specimen XIII 41 D

Rather rare clusters of
radial acicular crystals.

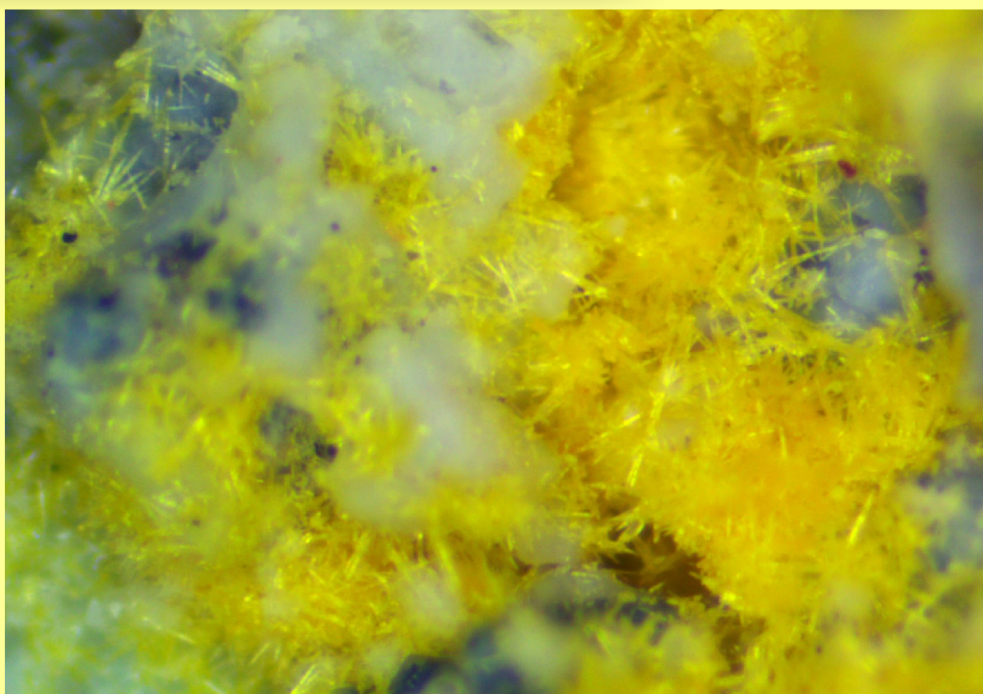
Blue Bell Mine

Soda Mountains
near Baker, CA

1.75 x 1.6 inches

View through
microscope of
acicular crystals
on same specimen.

FOV 8mm



Classic Relationship Specimen



The Blue Bell Mine in the Soda Mountains near Baler, CA, once provided superb multi-mineral specimens such as this one. Orange crystals of wulfenite dominate a bed composed of an intimate granular mixture of orange wulfenite and yellow mimetite. This mineral suite was laid down on a prior bed of very rare bluish plumbophyllite, which in turn lies on a layer of cerrusite and leadhillite. Associated minerals, not all on this particular specimen, include kuksite, perite, kettnerite, bismutite, sepiolite, chlorargyrite, plumbogummite, and chrysocolla. Quite a spectacular assemblage!

I collected specimens such as this one in the early 1990s from a vein in an adit just east of the glory hole that constitutes the Blue Bell Mine proper. Unfortunately, during a recent visit, I discovered that little remains of the vein this came from, with only minor indications of just mimetite remaining.

Specimen XV 03 S from the G. Miles Lehman Collection