

## Mineral Spotlight: Mimetite

We are resuming Mineral of the Week with a golden yellow specimen to welcome the hot, sunny days ahead of us this week. Mimetite is in the apatite mineral group - the same group that contains the mineral that makes up your teeth! But mimetite is definitely not safe to be in your mouth. Besides being relatively soft and easily scratched, it is a lead arsenate with the chemical formula  $Pb_5(AsO_4)_3Cl$ . It forms around lead deposits from the oxidation of minerals like galena and arsenopyrite.

In its crystalline structure mimetite is fairly safe to handle, but because it contains toxic lead and arsenic it may introduce environmental risks when the crystal structure is broken down. Mimetite can partially dissolve into groundwater, especially if the water is more acidic. It can also vaporize when heated, releasing arsenic into the air and producing a strong garlicky odor.

Mimetite's name comes from the Greek word *mimetes* for "imitator" because of its resemblance to pyromorphite. Mimetite forms a solid solution with sister minerals pyromorphite and vanadinite by replacing arsenic with phosphorus and vanadium. The similar properties of these minerals make them almost impossible to differentiate at times.

Mimetite has few uses because it is too soft to be made into jewelry and too rare to be used as a simple lead ore. Synthetic mimetite is making an appearance in environmental cleanup procedures however. By synthesizing mimetite, scientists are able to remove arsenic from natural environments and store it in a safer crystal structure.



This feature was posted on Dice Museum social media by Museum intern Josian Aardema on 6/20/2023.