

Calcite



large crystals

Indiana is well known for its limestone, but did you know that limestone is made primarily of the mineral calcite (CaCO_3)?

Most people think of limestone as a nondescript, mostly gray rock, but the mineral calcite can have many different forms and colors. The minerals in limestone usually are tiny and not easily seen with the naked eye. When calcite forms visible crystals, they are often six-sided (hexagonal). Most of the calcite found in Indiana is either colorless or shades of yellow and brown. Quite often calcite will engulf other minerals as it grows, and in Indiana, calcite crystals with inclusions of pyrite,

marcasite, and other minerals are fairly common. World-class specimens of calcite and other carbonate minerals have been found in Indiana. Some very large crystals (more than 2 feet long) have been found.

Calcite has properties that make identifying it easy. First, if the calcite is in crystal form, look at the broken parts of the crystal. Calcite has planes of weakness that allow a crystal, when broken, to split along those planes, leaving a smooth, polished-looking face. These planes are called “cleavage faces.” Calcite has three directions of perfect cleavage so that a crystal, no matter what it originally looked like, may be broken into a rhombohedron (a slanted cube). Calcite will also fizz if exposed to a drop of vinegar or other weak acid. Because it is a relatively soft mineral, it can be easily scratched with a knife. A rare phenomenon called “double refraction” occurs when the atomic structure of the crystals align so that when light passes through the crystal, a doubling of the image appears.



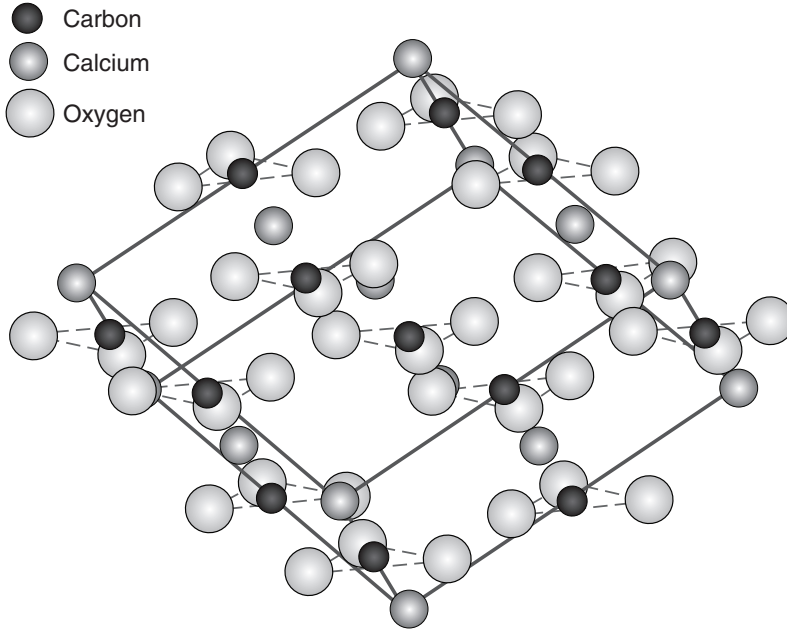
cleavage fragment



double refraction

Analyzing the Past to Provide for the Future

Calcite Unit Cell



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