

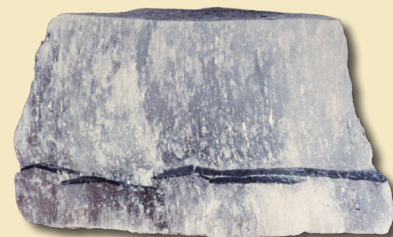
Anhydrite and Gypsum

Indiana's Evaporite Minerals

Gypsum ($\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$) and anhydrite (CaSO_4) are two related minerals that formed in Indiana during periodic episodes of ancient sea water evaporation in restricted basins. Large deposits of both minerals are located in northwestern and southwestern Indiana. These deposits are commonly associated with dolostone and limestone.

Anhydrite converts to gypsum when exposed to water, which creates a volume increase that destroys any planar features in the beds. The reverse is also possible—anhydrite can be created when gypsum is dehydrated.

Both minerals display vitreous luster and are white in color and streak. The calcium in either mineral may be substituted by small amounts of strontium and barium. But gypsum and anhydrite have differing physical characteristics that can help to identify them. Gypsum is soft and can be scratched with a fingernail. It has four different cleavage surfaces, and its crystals display a variety of forms, the most common being a granular, massive rock known as alabaster. Another type, selenite, is a transparent crystalline material that forms large, well-developed crystals. Aggregates of fibrous gypsum form a variety called satin spar.



satin spar gypsum



bluish anhydrite with calcite

Although associated with gypsum, anhydrite lacks H_2O molecules. Anhydrite closely resembles gypsum in hand samples, but it has three cleavage planes at 90 degree angles. In addition, anhydrite is slightly harder and denser compared with gypsum and may have a bluish tint.

Both gypsum and anhydrite are used as soil additives and in portland cement. Because of its use in drywall manufacturing, gypsum is more economically desirable.



gypsum crystals

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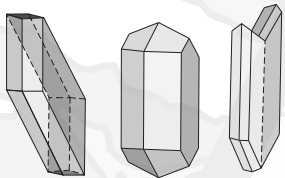
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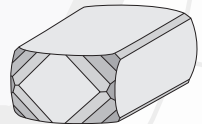
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- 1 TALC
- 2 **GYPSUM**
- 3 CALCITE
- 4 **ANHYDRITE**
- 5 APATITE
- 6 FELDSPAR
- 7 QUARTZ
- 8 TOPAZ
- 9 CORUNDUM
- 10 DIAMOND

- ← FINGERNAIL
- ← COPPER COIN
- ← KNIFE / GLASS
- ← STEEL TOOL



Gypsum Crystals



Anhydrite Crystal



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*Analyzing the Past to
Provide for the Future*