Minerals

Calcite

$CaCO_3$

Crystallography:

Hexagonal-R; $\bar{3}2/m$. Crystals are extremely varied in habit and can be highly complex. Three important habits include: prismatic, rhombohedral, and scalenohedral. Twinning is also common. Usually occurs in crystals or in coarse- to fine-grained aggregates.

Physical Properties:

Cleavage: {1011} perfect. Cleavage angle = 74°55' Parting along twin lamellae on {0112}.
Hardness: 3.0.
Specific Gravity: 2.71.
Luster: Vitreous to earthy.
Color: Usually white to colorless, but may be various shades of gray, red, yellow, blue or green, or when impure, brown to black. Transparent to translucent. Optically clear variety known as *Iceland spar*.
Streak: White

Composition/Features:

Most calcites are relatively pure calcium carbonate, with minor impurities of Mn, Fe, and Mg present in some varieties. Fragments of calcite effervesce freely in cold dilute HCl (as distinguished from dolomite). Calcite is infusible and characterized by its hardness (3), cleavage in three directions (rhombohedral), light color, and vitreous luster. It is distinguished from aragonite by a lower specific gravity and rhombohedral cleavage.

Occurrence/Use:

Calcite is one of the most common and widespread minerals. In limestones, it is essentially the only mineral present. Other varieties include *chalk*, a fine-grained deposit of calcium carbonate; *travertine*, a cellular deposit of calcite formed near the mouths of calcareous spring waters; and *onyx*, a banded calcite and/or aragonite. The primary use for calcite is in the manufacture of cement and lime for mortars, where limestone is the chief raw material.