

# EMERALDS

**What:** emeralds are a variety of the mineral beryl

**Rarity:** emeralds are rare and valuable and are one of the four precious gemstones, including diamonds, rubies, and sapphires

**Color:** opaque to transparent green

**Composition:** beryllium, aluminum, silicon, oxygen, and trace amounts of chromium or vanadium –  $\text{Be}_3\text{Al}_2(\text{SiO}_3)_6$

**Hardness:** 7.5–8 on Mohs Hardness Scale

## The Emerald City

Emeralds have earned a reputation as the ‘King of Jewels’ and have been prized throughout human history. Ancient Egyptians believed the color green represented regrowth during springtime so emeralds became a symbol of regrowth, fertility, and childbirth. Cleopatra owned the emerald mines of Egypt over 2000 years ago. The Romans took over the mines after her death and continued to mine for emeralds until the 6th century AD. Legend tells of Roman Emperor Nero watching gladiator fights through a large, transparent emerald because he found the green color to be soothing and calming. Green is a sacred color in Islam and is associated with paradise, purity, and prosperity. The Prophet Muhammad’s cloak is said to have been an emerald green color. Emeralds were central to the cultures of the Inca and Aztec people. They used the gem in religious ceremonies, as currency, and as personal adornment in headdresses and jewelry. In recent times who can forget Dorothy making her way to the Emerald City?



## Emerald formation...

- Most emeralds form in contact metamorphic rocks – narrow zones of ‘baked’ rocks where hot magma comes in contact with sedimentary rocks.
- When magma cools, some elements are left behind in the remaining hot magmatic fluid. If the right elements are present (i.e. beryllium and chromium), emeralds can form as that fluid cools.
- Emeralds can also form in veins in Earth’s crust when hot liquid escapes from deeper magma. These veins are called hydrothermal veins.
- Emeralds are unusually rare because their formation requires elements from entirely different depths within Earth’s crust.

## ...in North Carolina

- Hydrothermal quartz veins in rocks near Hiddenite, NC can contain cavities that allow emerald formation.
- Hiddenite, located in the inner Piedmont, is an area of highly deformed and metamorphosed rocks that is separated from the Blue Ridge by the Brevard Fault Zone.
- Rocks in the Hiddenite area were metamorphosed and deformed during multiple continental collision events between 750 and 500 million years ago.
- These collision events created fractures in rocks which allowed magma to fill in and eventually cool, creating cavities for emerald formation
- The Hiddenite area of North Carolina is currently the most productive area for mining emeralds in the United States

The NC General Assembly designated emerald as the state’s official gemstone in 1973

The first documented discovery of emeralds in NC was in Alexander County in 1874



The largest emerald from NC was found in Hiddenite in 1969 and was a whopping 1,438 carats!