

# Aquamarine

## Aquamarine



## General

Category	beryl variety
Chemical formula	$\text{Be}_3\text{Al}_2\text{Si}_6\text{O}_{18}$

## Identification

Color	transparent (or can be translucent if included), greenish blue to blue green, typically light in tone
Crystal system	hexagonal
Cleavage	very difficult in one direction, almost never seen
Fracture	conchoidal
Mohs Scale hardness	7.5 - 8
Luster	vitreous to resinous
Polish luster	vitreous
Refractive index	1.577 - 1.583 (+/- .017)
Optical Properties	Double refractive, uniaxial negative
Birefringence	.005 - .009
Dispersion	.014
Pleochroism	weak to moderate, blue and greenish blue; or different tones of blue with lighter tones associated with the optic axis direction
Ultraviolet fluorescence	inert
Absorption spectra	indistinct lines at 537 and 456nm. Depending on the depth of color, there is a strong line at 427nm.
Specific gravity	2.72 (+.18, -.05)

**Aquamarine** (Lat. *aqua marinā*, "water of the sea") is a gemstone-quality transparent variety of beryl, having a delicate blue or turquoise color, suggestive of the tint of seawater. It's closely related to the gem emerald. Colors vary and yellow beryl (heliodor), rose pink beryl (morganite), and white beryl (goshenite) are known.

## Contents

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### 1. Composition

Aquamarine is a beryl with a hexagonal crystal structure and a chemical formula of  $\text{Be}_3\text{Al}_2\text{Si}_6\text{O}_{18}$ , a beryllium aluminium silicate mineral. It has a specific gravity of 2.68 to 2.74 and a Mohs hardness of from 7.5 to 8. Aquamarine typically is on the low end of the specific gravity range, normally at less than 2.7. The pink variety exhibits a high specific gravity of around 2.8. Refractive indices range around 1.57 to 1.58.

### 2. Locations of deposits

It occurs at most localities which yield ordinary beryl, some of the finest coming from Russia. The gem-gravel placer deposits of Sri Lanka contain aquamarine. Clear yellow beryl, such as occurs in Brazil, is sometimes called aquamarine chrysolite. When corundum presents the bluish tint of typical aquamarine, it is often termed Oriental aquamarine.

In the United States, aquamarines can be found at the summit of Mt. Antero in the Sawatch Range in central Colorado. In Brazil, there are mines in the states of Minas Gerais, Espírito Santo and Bahia. Zambia, Madagascar, Malawi, Tanzania and Kenya also produce aquamarine.

The biggest aquamarine ever mined was found at the city of Marambaia, Minas Gerais, Brazil, in 1910. It weighed over 110 kg, and its dimensions were 48.5 cm long and 42 cm in diameter.

Aquamarine is the official state gem of Colorado.

### 3. Culture and historical/mythical usage

- Aquamarine (along with Bloodstone) is the birthstone associated with March. It is also the gemstone for the 19th Anniversary.
- People in the Middle Ages thought that aquamarine could magically overcome the effects of poison.
- Ancient sailors traveled with aquamarine crystals, believing that it would ensure a safe passage, and guarantee a safe return; they often slept with the stones under their pillow to ensure sound sleep. They believed the siren's (mermaid) fish-like lower body was made of aquamarine.

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Three Beryl Crystals - Aquamarine rough crystal in the center

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