

Learning Series: Birthstones – March

Aquamarine – The March Birthstone

Background

Derived from the Roman word "aqua," meaning water, and "mare," meaning sea, the aquamarine gem does indeed resemble the color of seawater. A member of the beryl family, it was first mined in 1811 in Brazil, but the earliest documented use of an aquamarine gemstone is by the Greeks, around 480 to 300 BC.

Aquamarine occurs primarily in granite pegmatites and to a lesser extent in granite vugs. It is also in hydrothermal carbonate veins and greisens. It is typically associated with quartz, feldspars and muscovite, and often occurs with other common pegmatite minerals such as biotite, garnet, phenakite and topaz. Because of aquamarine's relatively high hardness and specific gravity, it is sometimes found in eluvial and alluvial deposits.

Crystals are often elongated along the c-axis creating the effect of appearing wand-like or pencil-like. Aquamarine is known for having long, hollow tubes. Though rare, if there are enough of these hollow tubes, chatoyancy or asterism (also known as cat's eyes or stars) can be produced with proper cutting.

The name aquamarine has been used as a modifier for many other materials such as aquamarine tourmaline, aquamarine emerald, aquamarine chrysolite, aquamarine sapphire, aquamarine topaz, etc. It has even been used to describe the sea, the skies, some General Motors cars, or other pale to medium blue objects.

Composition, Chemical Formula, Colors and Sources

Composition – beryllium, aluminum, silicon and oxygen that is normally without color.

Chemical Formula – $\text{Be}_3\text{Al}_2(\text{Si}_{16}\text{O}_{18})$

Colors – ranges from an almost colorless pale blue to blue-green or teal. Trace amounts of iron and the location of iron impurities within the beryl crystal structure determine the level of color saturation. Aquamarines without any shades of green are the most valued type.

Sources – Madagascar was the historical source of aquamarine. Today, Brazil is probably the most prolific supplier. Other important sources are the African countries of Tanzania, Kenya and Nigeria. Also Sri Lanka, Afghanistan, the Ural Mountains in Russia, Pakistan and India. In the US, Colorado has some high quality aquamarine. It is found in the mountain peaks of Mount Antero and White Mountain.

Note:

Though aquamarine gemstones are not completely flawless, they do not have many natural inclusions. The transparent rough crystals are usually "eye clean". The most common eye visible inclusions are raindrop-like needles which can be clearly seen under magnification. Inclusions in aquamarine may include mica, hematite, liquid-filled (often salt-water) tubes and hoses. The liquid can expand considerably if the crystals become overheated, causing them to fracture badly, or in rare instances, to explode.

Beware of misleading retail labels. "Brazilian Aquamarine" is actually a blue topaz. Also, a gemstone known as "Siam Aquamarine" is heat-treated blue zircon.

Because aquamarine gemstones commonly occur in large clean crystals, the size of the finished stone is not an important evaluation characteristic. The price is dependent on its clarity and the depth of color. For example a 40 carat very pale aquamarine gem will be worth the same as a very fine deep blue aquamarine of one carat size.

Aquamarine has been the traditional birth stone for the month of March although some jewelers' charts list bloodstone as an alternate.

Identification

Streak – white

Hardness – 7.5 - 8.0

Crystal system – hexagonal

Crystal habit – prismatic

Transparency – transparent to translucent

Specific gravity – 2.68 - 2.80

Luster – vitreous

Cleavage – imperfect

Fracture – conchoidal

Twinning – very rare

Refractive Index – 1.563 - 1.583

Pleochroism – distinct in deep colors

Uses – clear, transparent crystals are faceted into various shapes for jewelry, while the rough material with heavy inclusions are often used in carving.

Folklore, Legend and Healing Properties

Lore attributes the power of foresight, happiness and courage to those who wear an aquamarine. It is considered a symbol of honesty, beauty and loyalty, and both increases intelligence and extends youth.

In alternative healing, aquamarine is considered to be an effective healing stone for anxiety and insomnia. In the Middle Ages, aquamarine was also thought to have a poison-reducing effect. It is said that aquamarine is particularly powerful when immersed in water which is bathed in sunlight. Water in which this gemstone had been submerged was used in ancient times to heal a variety of illnesses of the heart, liver, stomach, mouth and throat, as well as, cure hiccups.

It has been called the “treasure of mermaids”, with the power to keep sailors safe at sea. Sailors once believed that carrying an aquamarine would bring good luck and safety on the seas and protection against seasickness, especially if the stone was engraved with the Poseidon chariot.

A dream of aquamarine was said to mean you would meet new friends. Over the centuries, the gemstone has been said to protect against the “wiles of the devil”; to wit, when held in the mouth, aquamarine could enable one to call a devil from hell and receive answers to any questions asked.

Trivia

A 243 pound aquamarine crystal was discovered at Marambaia/Minas Gervais in Brazil in 1910. The specimen was so transparent that you could read a newspaper through it.

Other notable aquamarines include the almost 880-carat specimen in the British Museum of Natural History and the 271-carat specimen in the American Museum of Natural History. A 57-pound aquamarine once owned by Brazilian emperor, Dom Pedro, is said to be the most distinct and beautiful aquamarine ever produced.

There is a biblical mention of the aquamarine gemstone in the Song of Solomon.

It is the official state gem of Colorado and the suggested gemstone for the 16th and 19th wedding anniversaries.

Sources:

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