

Learning Series: Birthstones – August

Peridot – The August Birthstone

Background

Peridot (pronounced *pair-a-doe*) is the gem variety of olivine and has the distinction of being the only gemstone found in meteorites and one of the few gemstones that occur in only one color; basically an olive green. Olivine, which is actually not an official mineral, is composed of two minerals: the iron-rich fayalite and the magnesium-rich forsterite. Of the two, peridot is usually closer to forsterite in composition although iron is the coloring agent for peridot. Unlike other gems that gain their color from impurities in their composition, the green of peridot is an intrinsic part of its nature. This makes it an idiochromatic stone – colored by itself.

There are three prevailing theories as to how it got its name. In the gemstone trade it is called “peridot”, derived from the Greek word “peridona”, which means “to give richness”. Others feel it comes from the Arabic word *faridat*, which means “gem”. Still others claim it is derived from the French word *peridot* which means “unclear”. In either case, the French were supposedly the first to call it “peridot” in the 18th century.

These August gemstones are found in volcanic basalts where they are formed deep within the earth under tremendous heat and pressure, and more unusually, in iron-nickel meteorites called pallasites. Peridot may have small inclusions of biotite (brown), chromite (black), pyrope garnet (dark red), spinel (tiny octahedra) or liquid and gas-filled inclusions that resemble fried eggs. An interesting gemological feature of some peridot is its most famous inclusion, called a “lily pad”. When you spot one of these inside a yellow green gemstone, no further testing is required. The presence of the lily pad is proof positive that the gemstone is peridot.

Historically, the most important source for the gemstone has been St John’s, an island in the Red Sea near Egypt. Those mines were being worked as early as 1500 BC when the area was still known as the Isle of Serpents due to an infestation of poisonous snakes that made mining operations difficult. Because the pale green glimmer of peridot is difficult to see in daylight—but takes on a soft glow under the light of the moon or lantern light—it has been mined at night (or at least found by lantern light), and dug up in the day. This gave rise to the belief that peridot disappears in daylight. It has also earned it the nickname “Evening Emerald”.

Elsewhere in the world, some volcanoes—including those in Hawaii—occasionally produce sands which are composed of transparent green grains of peridot. On the Big Island, the sands mostly appear black except on a beach near the southernmost tip of the island. To the native Hawaiians, the peridot has a special meaning. The glistening green gems are called Pele’s tears and are often combed out of the volcanic basalt sands at the foot of the volcanic mountains.

Composition, Chemical Formula, Colors, and Sources

Composition – Magnesium/Iron Silicate

Chemical Formula – $(\text{Mg,Fe})_2\text{SiO}_4$

Colors – Peridot is one of the few gemstones that occur in only one color, an olive green. The intensity and tint of the green, however, depends on how much iron is contained in the crystal structure. Thus, the color of individual peridot gems can vary from yellow- to olive- to brownish-green. The most valued color, a dark olive-green, has an iron percentage of less than 15% and includes nickel and chromium as trace elements. Because of the way peridot splits and bends the rays of light passing through it, it has a velvety appearance, a rich glow, and a slightly greasy luster.

Sources – The best quality peridot has historically come from Myanmar or Egypt, but in 1994 a new deposit discovered in the Himalayan Mountains in Pakistan is now producing some of the finest stones ever seen. From a quantity standpoint, Peridot Mesa, located on the San Carlos Apache Indian Reservation in Arizona, is the most productive locality for peridot in the world; it is estimated to supply 80% to 95% of the world’s production. Other less prominent mining operations include sites in Colorado, Hawaii, Nevada, New Mexico, and North Carolina, in the US; and in Australia, Brazil, China, Ethiopia, Germany, Kenya, Mexico, Norway, Saudi Arabia, South Africa, Sri Lanka, and Tanzania.

Note: Sometimes vinegar is used to help in the peridot polishing process since the gem is considered one of the most difficult stones to polish.

Identification

Streak – colorless

Hardness – 6.5 - 7

Crystal system – orthorhombic

Transparency – transparent to translucent

Specific gravity – 3.2 to 4.3

Luster – vitreous

Cleavage – indistinct, two directions at 90°

Fracture – conchoidal, uneven, brittle

Refractive index – 1,654 - 1,690 ±0,02

Pleochroism – weak to moderate

Birefringence – 0.035 to 0.038

Folklore, Legend and Healing Properties

During the Middle Ages, peridot was pierced, then strung on the hair of a donkey and attached to the left arm to ward off evil spirits. Over the years, this was a practice especially favored by pirates.

One legend says that drinking from a peridot goblet will increase the potency of medicines. Ancient Indo-Iranians, Vedic and Persian cultures may have used cups carved from peridot for their ritual drink of Soma.

Peridot increases strength and physical vitality, protects against nervousness and aids in healing hurt feelings. It helps liver and adrenal function and is thought to protect lungs, sinuses, and wrists from illness and injury. Powdered peridot has been used to cure asthma and a peridot placed under the tongue of someone in the grip of a fever is said to lessen his or her thirst.

Trivia

The largest cut peridot is a 310-carat specimen in the Smithsonian Museum in Washington, DC and a 192-carat stone of fine clear olive-green is part of the Russian crown jewels in the Kremlin. Peridot is found in many European medieval churches. For example, peridots, more than 200 carats in size, adorn the shrine of the Three Magi at the Cologne Cathedral.

Turkish Sultans collected what is believed to be the world's largest collection. The gold throne in Istanbul's Topkapi museum is decorated with 955 Peridot cabochons up to 1 inch across, and there are also peridots used as turban ornaments and on jeweled boxes.

Peridot is the anniversary gemstone for the 16th year of marriage.

Mentioned in the Bible under the Hebrew name of *pitdah*, the gemstone represents the tribe of Asher on the Breastplate of Aaron.

Modern historians believe that the spectacles worn by the Emperor Nero to ease his eyes during gladiatorial games were not emerald, but peridot.

Sources:

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