
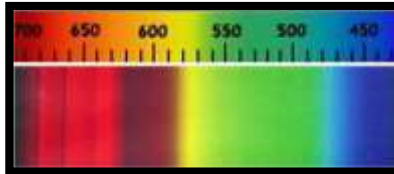



Warning: this version has been completed with Google Translate , it certainly contains errors or inaccuracies.

Technical sheet - general: Emerald

Gemma - names	(Italian - Smeraldo) (English - emerald) (French - émeraude) (Spanish - esmeralda) (Portuguese - esmeralda) (Thai - มรกต mrkt)	(German - Smaragd) (Arabic - زمرد zumarud) (Russian - изумруд izumrud) (Mandarin - 翠 Cuì) (Swahili - zumaridi) (Hindi - पन्ना panna)	photo 							
Colors (GIA)	The most desirable emerald colors range from bluish green to pure green (a slight shade of yellow is accepted in Brazilian stones which often contain vanadium), with a vivid color saturation and a tone not too dark or not too light (when the stone has a too faint tint is called beryl green). Even if the color is too yellowish or too bluish, the stone is no longer an emerald, but a different variety of beryl, and its value decreases accordingly.									
Cause of Color	<table border="1" data-bbox="341 734 1497 882"> <tr> <td>Berillo Verde Molto chiaro</td> <td>Berillo Verde Chiaro</td> <td>Smeraldo Medio-Chiaro</td> <td>Smeraldo Medio</td> <td>Smeraldo Medio-Scuro</td> <td>Smeraldo Scuro</td> <td>Smeraldo Molto Scuro</td> </tr> </table> <p>Chromium, vanadium and iron are the trace elements that cause the color of the emerald Cr^{3+} or V^{3+} in octahedral configuration replace Al^{3+}. The presence or absence of each and the relative quantities determine the exact color of an emerald crystal.</p>			Berillo Verde Molto chiaro	Berillo Verde Chiaro	Smeraldo Medio-Chiaro	Smeraldo Medio	Smeraldo Medio-Scuro	Smeraldo Scuro	Smeraldo Molto Scuro
Berillo Verde Molto chiaro	Berillo Verde Chiaro	Smeraldo Medio-Chiaro	Smeraldo Medio	Smeraldo Medio-Scuro	Smeraldo Scuro	Smeraldo Molto Scuro				
Classification	Mineral class Cyclosilicates	Species - Group Beryl - Beryls	Variety Emerald							
Optical properties	Specific Gravity: 2.63 - 2.92 common 2.76	RI: from 1,564-1,595 to 1,568-1,600 Polariscope : DR Double refraction: 0.004-0.007	Character optical Negative uniaxial Pleochroism Bicroic : green-blue green, (rare yellowish-green)							
	Luster (luster) - luster of the fracture Vitreous - vitreous		Dispersion (fire) 0.014							
Light	Fluorescence SWUV : none to reddish LWUV : none to reddish <i>The filler material can have its own fluorescence</i>		Phosphorescence No							
Form	Crystalline dress From massive to well defined crystalline	Phenomenal optical effects Trapiche-trapice Attitude Asterism	Crystalline system Hexagonal Crystal class dipyramidal hexagonal							
Chemical formula	Beryllium-aluminum silicate $Be_3 Al_2 (SiO_3)_6$		Spectrometer image 							
Fracture	Flaking Imperfect (1 direction, basal)	Breaking- Parting Parallel to the base (frequent)	Fracture Concoidal							
Durability	Hardness (Mohs) 7.5-8	Toughness Fair / good	Stability (heat, light, chemicals) Medium (susceptible to heat and chemicals)							

<p>Clarity - characteristics</p>	<p>Typical inclusions: magnesite, quartz, talc and dolomite, black graphite, amphibolite fibers (actinolite and cummingtonite), biotite,</p>	
	<p>Type III Typically included</p>	<p>Transparency (commercial) - diaphanousness From transparent to opaque</p>
<p>Deposits - types of rocks</p>	<p>Emerald ($\text{Be}_3\text{Al}_2\text{Si}_6\text{O}_{18}$) is often found in micaschists of hydrothermal-metamorphic origin in which shales and other associated host rocks were formed by the chemical interaction between granitic rocks or pegmatites and their basic (silica-deficient) containing rocks. The chemical ingredients required for the formation of beryl frequently migrate from the granitic material into adjacent bedrock where the beryl crystallizes, changing the composition of the original bedrock through the process known as exometamorphism. If the base rocks contain the elements chromium or vanadium, small amounts of these elements can be incorporated into the structure of the beryl thus imparting the deep green color characteristic of the gem variety of emerald.</p> <p>Some of the most famous emerald deposits in the world in Colombia are of hydrothermal origin where heated mineral waters or gases from deep igneous springs have subsequently cooled and crystallized along the fractures in the carbonate rocks. The minerals associated with these deposits are dolomite, pyrite, calcite, quartz and albite.</p> <p>Due to the relatively high hardness and specific gravity of the emerald, it is sometimes found in eluvial and alluvial deposits.</p> <p>Many of the world's emerald deposits have formed in contact metamorphism areas. Granitic magma can serve as a source of beryllium and shale (medium-large-grained metamorphic rock) or carbonaceous gneiss (one of the more common metamorphic rocks making up the continental crust) nearby can serve as a source of chromium or vanadium. Emeralds are usually formed in schist or gneiss or at the edge of a nearby pegmatite (Filonian rock belonging to the granite family). Mafic or femic rocks (rich in iron and magnesium) and ultramafic (with low silica content, less than 45%) can also serve as sources for chromium or vanadium.</p> <p>Type IA: Tectonic-magmatic, in mafic-ultramafic rocks, present in all continents Type IB: Tectonic-magmatic, in sedimentary rocks Type IC: Tectonic-magmatic, in granite rocks Type IIA: Tectonic-metamorphic, in mafic-ultramafic rocks Type IIB: Tectonic-metamorphic-related, in sedimentary rocks Type IIC: Tectonic-metamorphic-related, in metamorphic rocks Type IID: Tectonic-metamorphic, in type IA metamorphosis Age : 2.97 billion at 9 million years old</p>	
<p>Characteristics of rough stones</p>	<p>First-order prisms typically small and elongated, often with vertical streaks and irregular pinacoidal terminations</p>	
<p>Main Deposits Countries</p>	<p>Main deposits: Colombia, Brazil, Zambia, Pakistan</p> <p>Deposits by type of rocks:</p> <p>Type IA: 1. Fazenda Bon fi m; 2. Socotó ; 3. Carnaíba ; 4. Anagé , Brumado ; 5. Piteiras , Belmont mine , Capoiarana , Santana dos Ferros ; 6. Pirenópolis , Itaberai ; 7. Santa Terezinha de Goiás ; 8. Tauá , Coqui , Brazil ; 17. Tsa da Gliza . Western Canada; 14. Dryden, eastern Canada ; 18. Gravelotte (2.97 billion years) the oldest deposit, South Africa ; 19. Sandawana , Masvingo , Filibusi , Zimbabwe (famous for small stones , up to half a carat, but of intense color); 20. Morrua , Mozambique ; 21. Kafubu , Musakashi , Zambia 22. Sumbawanga , 23. Manyara , Tanzania ; 24. Kenticha (Halo- Shakiso) , Ethiopia (since 2015); 25. Boorama , Somalia ; 48. Val Vigezzo , Italy ; 49. Franqueira , Spain ; 42. Urals (Malyshevo) , Russia ; 43. Wolodarsk , Ukraine ; 44. Rila , Bulgaria ; 30. Poona; 31. Menzies ; 32. Wodgina ; 33. Emmaville , Torrington , Australia ; 28. Ianapera ; 29. Mananjary , Madagascar ; 36. Sankari Taluka ; 37. Rajasthan (Bubani , Rajgarh , Kaliguman); 38: Gubaranda (state of Oris-sa) , India ; 39: Khaltaro (9 million years old, the youngest deposit); 40. Swat valley , Pakistan ;</p> <p>Type IB : 16. Lened , Western Canada ; 13. Uinta , Utah , USA ; 46. Eidsvoll , Norway ; 34. Dyaku , China</p> <p>Type IC: 27. Kaduna , Nigeria ;</p> <p>Type IIA : 15. Mountain River , Western Canada ;</p> <p>Colombia, Zambia and Brazil produce most of the world's emeralds. Historically, Colombia has been the undisputed leader in emerald production and still produces</p>	

	<p>around 50% of the world's emeralds. But Zambia has become an increasingly crucial producer, breaking the market with emeralds prized for their bluish-green color, in part because they require less treatment than other emeralds.</p>
<p>Year of discovery</p>	<p>Unknown: emeralds began to be used as ornamental stones since ancient times, most likely starting from the third millennium BC or possibly even earlier.</p>
<p>History</p>	<p>Emerald and topaz are the only stones listed throughout the old birthstone and the emerald is considered the preeminent gem of spring. Arabs, Hindus, Poles and Russians, along with some modern lists, including that of the National Association of Jewelers, awards the emerald in May . According to an ancient story: " <i>Whichever woman first admires the light of day, in the sweet and flowery month of May in spring and wears an emerald all her life, she will be a beloved and happy wife</i> " . The ancient Jews, Romans / Italians and authors such as Isidore of Seville, associate the stone with the month of June . It is also considered a "talismanic gem" for this month. Emeralds are expected to be worn on Tuesdays, Wednesdays and Fridays . When worn on Fridays, they attract love as the fifth day of the week is dedicated to Venus. Monday is a special day to do magic with emeralds, while Wednesday is the best day to use them as therapeutic stones. Emerald-forged magic is said to be stronger if it is worked within a week before or after the full moon. As for the zodiac signs, the emerald is variously assigned to Taurus, Cancer, Gemini, Libra, Virgo, Scorpio, Aries or Sagittarius (especially in Spain). Marbodo (12th century) wrote that those who are born between June 22 and July 23 (cancer) and wear one, receive the gift of eloquence.</p> <p>In ancient times any green stone could be considered an emerald. The gems that adorned pharaohs and kings were of low quality (by modern standards), with minimal transparency and often dull colors, which is why many minerals of the same color could be passed for emeralds.</p> <p>About 2600 BC: Kagemni 's instructions are an ancient Egyptian didactic text of wisdom literature belonging to the sebayt ("teaching") genre. Although the earliest evidence of its compilation dates back to the Middle Kingdom of Egypt , its authorship has traditionally but doubtfully been attributed to Ka- gemni , a vizier who served during the reign of pharaoh Sneferu (r. 2613-2589 BC), founder of the IV dynasty of Egypt (belonging to the Old Kingdom). An excellent review is provided by John Sinlzanlzas (198 1). In 1817, Cleopatra's "lost" mines were rediscovered. However, due to heavy mining between 3000 and 1500 BC, the supply of emeralds had long been exhausted. Emerald crystals (typically opaque to translucent) were often used in their natural form or were slightly polished, with a hole drilled through them so they could be placed on a necklace or in earrings. Mount Zalora , in Upper Egypt, still produces emeralds, and was probably the only genuine stone location known to the ancients.</p> <p>2000 BC: According to Sinlzanlzas , there is some evidence to suggest that emeralds were mined in Upper Egypt as early as the 12th Dynasty (2000-1788 BC). However, most historians only agree that emerald deposits were extensively exploited from 330 BC (during the Greco-Roman period) to 1237 AD (during the reign of Sultan al- Kamil).</p> <p>1000 BC . circa : Archaeologists estimate that natives mined and traded Colombian emeralds as early as 1000 BC Before the arrival of the Spaniards in 1499, emeralds were mined by natives of present-day Boyacá province . When the Spaniards arrived, they quickly took control of the mining areas and forced the natives into slavery, mining emeralds for European royalty and aristocrats, as well as the Mughal rulers in India. The inhuman treatment of the natives led Philip III of Spain (r. 1598–1621) to issue a decree protecting them, but the tribes had already suffered greatly by that time.</p> <p>Ancient (??): The layers of meaning in the emerald tablet have been associated with the creation of the philosopher's stone , as well as other esoteric ideas.</p> <p>800 BC - 300 AD Habachtal : Austria . The first emeralds were taken from the gravel of the river by Celtic mineral seekers active in the area. Finds of emerald jewelry and loose crystals in the ruins of Pompeii and Herculaneum have led some scientists to speculate that the Habachtal mines produced larger quantities of rough stones during this period. These hypotheses are, although based on evidence, not yet proven.</p> <p>The famous Emerald of St. Louis (1260 - 1270) , a 51.5 ct. The square emerald cabochon mounted in the French Holy Crown has been shown to be of Habachtal origin . Also interesting is the fact that the gem, due to its cut, indicates an earlier period. The flat square cabochon of this style was used in Roman jewelry. There is evidence that points to a possible emerald mining under the supervision of the Archbishops of Salzburg between 1400 and 1650.</p> <p>1669 First written document mentioning "Emerald mines in Tyrol".</p>

The extraction of this gem continues in what was then part of the Roman Empire, already present for centuries. Although the presence of emeralds in this high Alpine valley is the only relevant one in Europe, it has almost no importance in today's international market. The rocks that host the emerald are located between the **2.000 and 2,200 m above sea level** in extremely steep mountains, whereby it was not possible to establish a regular underground mine for a long time. The first major international appearance of Habachtal emeralds was in 1861 at the World Industrial Exhibition in London. In 1903, **32,000 carats of fine Austrian rough and 7,000 carats of fine quality rough** were sent to England, but were labeled "Indian emeralds" because the deposit was not known to most people in the gem trade and would sell for a price much lower.

7th-5th century BC (on older history) : The breastplate of the High Priest (Exodus 28:17, 39:10, written between the 7th and 5th centuries BC). In Exodus 28:17: *Bare k et* (*בְּרִקֶּת* = in the Masoretic text) / *Smaragdus* (in the Septuagint, still debated translation) first line, third gem. For the 12 tribes of Israel.

500 BC: Archaeological evidence suggests that these Egyptian mines may have been worked continuously as early as 500 BC, although the main period of mining appears to have begun under the Romans around 30 BC. Early Roman writers often referred to this area as "Mons Smaragdus" (Emerald Mountain). Egypt was the main source of emeralds until they were discovered in greater abundance and better quality in the 1520s in the New World in present-day Colombia.

In classical antiquity, the Greek historian Herodotus (c. **484-425 BC**) was the first European to describe luminous gems. The temple of Heracles in Tیره had two large columns, one of gold, the other of **smaragdus** (*σμάραγδος*, "green gems including the emerald") that "glowed at night" (some scholars think it might have been fluorite).

429 BC : Contract of guarantee for the setting of a gold ring, thirty-fifth year of **Artaxerxes**, 429 BC

The wealthy representative of the Murashu house obtained from the jewelers firm that sold him the ring the guarantee that the setting would last twenty years; otherwise, they must give up ten manas.

320 BC: Alexander the Great wore a magical emerald on his belt, which was lost to him in a very singular way: "On his return from his Indian countryside, wishing one day to bathe in the Euphrates, he laid down his belt and a snake bite from the stone and then threw it into the river".

c.300 BC : Theophrastus (372-287 BC) speaks of counterfeit emeralds, coming from Bactria in the desert; they [the people] go there on horseback to look for them at the time of the summer winds or the annual east winds: they [the emeralds] are seen at those times because the sands are violently agitated by these winds.

About 50 BC : Cleopatra, (Cleopatra VII Philopator, 69-30 BC), the last active ruler of the Ptolemaic kingdom of Egypt, adorned herself and her palace with emeralds and also gave them as gifts to foreign dignitaries. Most likely, he meant it as a display of wealth and power. He believed that emeralds could be used to treat eye diseases and that the green color represented fertility and rebirth. The dead were often buried with emeralds to symbolize eternal youth. The dead were often buried with emeralds to symbolize eternal youth. When the visiting dignitaries left Egypt, Cleopatra presented them with her likeness carved in large emeralds.

First centuries AD : Legend has it that the **ancient Romans** believed that the faceted emerald (the shape of the crystal as found in nature) helped relax the eyes. Indeed, in ancient Rome some rich and powerful individuals, including Nero (37-68 AD), used shiny emeralds as eyeglasses. Emperor Nero of Rome is said to have witnessed gladiator fights using two emeralds as corrective lenses.

Pliny, the famous Roman author, tells of Lollia Paulina, the wife of Emperor Caius - she was not in any public holiday, nor in any solemn ceremonial, but only in an ordinary wedding reception - covered with emeralds and pearls, which alternately shone layers on his head, in his hair, in his wreaths, in his ears, on his neck, on his bracelets and on his fingers, and the value of which amounted in all to 40 million sesterces; The Latin author also reports that there are three sources for emeralds. In addition to the Egyptian mines of Cleopatra near Marsalalaam and those in the border region between Afghanistan and Pakistan, he writes about emeralds "in the mountains of the Scythians".

3rd-4th century AD : The **Papyrus Graecus Holmiensis**, also known as the Stockholm Papyrus (recorded **3rd or 4th century AD**) gives 1st-century recipes for imitating gemstones.

3rd-9th century AD .: Some believe that the **Emerald Tablet** was the first **alchemical work** (from Latin, Tabula Smaragdina translated from Arabic: **لَوْحَ الرُّمُودِ** , Law ḥ al -zumurrudh) , a series of compact and cryptic sacred texts. which **underlie hermeticism** . The text itself asserts that its author **is Thoth , or Hermes Trismigistos** . Hermes Trismegistus , a legendary Hellenistic figure who originated as a syncretic combination of the Greek god Hermes and the Egyptian god Thoth . The emerald tablet is very difficult to date precisely, but generally belongs to the Late Antiquity period (between c. 200 and c . 800). The oldest known source of the text is *Sirr al -khalīqa wa - ṣ an ' at al - ṭ abī ' a* (The Secret of Creation and the Art of Nature, also known as *Kit ā bal- ' ilal* or The Book of Causes), a falsely attributed encyclopedic work on nature philosophy to Apollonius of Tyana (c. 15–100, Arabic: *Balīnūs* or *Balīnās*). The earliest known version of the Emerald Tablet upon which all subsequent versions were based is found in the pseudo-Apollonius of Tyana *Sirr al -khalīqa wa- ṣ an ' at al- ṭ abī ' a* (The secret of creation and the art of nature) and dates back to. **750–850 AD** .

Medieval and early modern alchemists associated the Emerald Tablet with the creation **of the philosopher's stone and the artificial production of gold** . This belief was also popular with occultists and esotericists of the nineteenth and twentieth centuries, among whom the expression "as above, so below" (a modern paraphrase of the second verse of the Tablet) has become an often quoted motto.

5th-6th century AD: Justinian I (482-565 AD) : the Eastern Roman Emperor possessed an important emerald, which was apparently combined with a sapphire and a pearl.

8th-1st 10th century : Talisman of Charlemagne , Musée du Palais du Tau, Reims, with fragments of wood in the shape of a cross clearly visible under the central gem, surrounded by 4 real emeralds.

Charlemagne's talisman is a 9th century Carolingian reliquary encolpion that may have belonged to Charlemagne and is presumed to contain a fragment of the True Cross.

9th century: The emerald is included in the 12 apocalyptic gems described by **Rabanus Maurus** (780 - 856), archbishop of Mainz, at the end of the 8th century. Presumably it expresses the "strength of faith in adversity". In rabbinic legend, four precious stones, including an emerald, were given by God to King Solomon, giving him power over all creation.

1050-1348 : The **Islamic Mughal emeralds** (Islamic rulers of India)

The art of engraving on emeralds and other precious stones appears to have been perfected to a high level during this period.

The value of emeralds in the early Islamic period is discussed by **Al-Biruni** (died about 1050) in his great work on precious stones and mineralogy *Kitab al- Djamahir fi Ma'rifat 01-Djawal ~ ir* [Book of the multiform knowledge of stones precious]; of **Al- Akfani** (died 1348), in his *Kitab Irshad al -Kasid* [Treatise on precious stones]; and, to a lesser extent, by many other writers cited by Wiedemann in his *Ueber den Wert von Edelsteinen bei den Muslimen* [Concerning the Value of Gemstones by the Mus-lims] (Strasburg , 191 1). However, the most relevant to our topic is the chapter on emeralds attributed to **Ahmad Al - Tifashi (died 1253)**.

Jacopo da Varazze in the Chronicle of Genoa reports a very curious fact: in **1101** , during the **First Crusade** , participating in the capture of the city of Caesarea, the Genoese soldiers under the command of Guglielmo Embriaco found the emerald basin in which Jesus consumed the Last. Supper and that Nicodemus used to collect the blood of the Lord after his death on the Cross. If it is true, on the one hand, that the author does not take a position on the authenticity of the basin, on the other it is interesting to note the existence of a legend that considered a relic of such value to be a relic. We can suppose that Leonardo knew the Apocalypse of St. John, while perhaps he did not know the book of Exodus.

XII century: the Legend-La Emerald tablet : also known as Smaragdine's tablet, or Tabula Smaragdina, is a mysterious compact and cryptic piece of Hermetica , known for containing the secret of the raw material and its transmutation. It was highly regarded by European alchemists as the foundation of their art and its Hermetic tradition. The original source of the emerald tablet is unknown. Although **Hermes Trismegistus** is the author mentioned in the text, his first known appearance is in a book written in Arabic between the sixth and eighth centuries. The text was first translated into Latin in **the 12th century** . Numerous translations, interpretations and commentaries followed. The text of the Smaragdin Tablet gives its author as Hermes Trismegistus ("Hermes the three times greater"), a legendary Hellenistic combination of the Greek god Hermes and the ancient Egyptian god Thoth .

There are numerous expressions of the emeralds purportedly depicted likeness of Jesus Christ which are associated with a brief statement which reads:

~"A true likeness of our savior copied from the portrait carved on an emerald by order of Tiberius Caesar, an emerald which the emperor of the Turks then donated from the treasury of Constantinople to Pope Innocent VIII, for the redemption of his brother taken prisoner by the Christians".

Late 15th century: It is said that the true **Portrait of the Face of Jesus** was made engraved by the Emperor **Tiberius** on an emerald, formerly the property of the imperial treasury of Constantinople. The stone and the rest of the treasure fell into the hands of the Turks in 1453, but, a few years later, the sultan Bajazet II gave it to the Genoese pope **Innocent VIII** (213rd pope from 1484-1492), together with the holy spear that wounded his side. of the Lord, as a ransom for his brother taken prisoner by Christian arms in Rhodes. the presumed date on which the emerald was engraved, or 30 AD (" *True portrait taken from the emerald engraved by order of **Emperor Tiberius of Rome** , in the thirtieth year of the Christian era.* ") The hypothesis that the image of Christ was transferred to an emerald as early as the first century is therefore plausible, but there is no news of the jewel that could provide the testimony of the oldest known image of Christ.

1495-1498 : In the painting "The Last Supper", Leonardo da Vinci would have associated the gems to the apostles , making the properties of the stones correspond to the character of the disciples: to represent Jesus, the Tuscan genius chose an emerald: a symbol of peace and rebirth.

16th century : The **Spanish conquistadors** are those who are credited with having discovered and traded globally what we now call Colombian emeralds. Colombia , during the pre - colonial period, was occupied by the **indigenous Muzo** , who were overwhelmed by Spain in the mid-1500s. It took Spain five decades to overwhelm the Muzo Indians who occupied the entire mining area. Once in control, the Spaniards forced this indigenous population to work in the mining fields they previously held for many centuries. Monarchs and gem-loving royals in India, Turkey and Persia eventually sought out the treasures of the New World once the gems arrived in Europe. These new emerald owners expanded their private collections with spectacularly dazzled emerald artifacts between 1600 and 1820, the span of Spanish control over Colombian mines. After Colombia's independence from Spain in 1819, the new government and other private mining companies took over the mining operations.

French writer **Brantôme (c. 1540-1614)** Cortez had one of the emeralds he plundered from Mexico engraved with the following words: "*Inter Natos Mulierum non surrexit major (Among those born of women no major has arisen)* ", *Matthew 11: 11*), referring to John the Baptist. Brantôme considered sacrilegious the engraving of a product of nature so beautiful and simple and considered this act the cause of **Cortez's loss in 1541** of an extremely precious pearl (to which he dedicated a work,

1695: The Mughal Emerald is a beautifully carved historic emerald, weighing **217.80** carats. belonging to the period of the last of the four great Mughal emperors of India, Aurangzeb who reigned between **1658 and 1707** . The table-cut emerald, with two flat rectangular faces, with dimensions of 5.2 cm by 4.0 cm, and a thickness of 1.2 cm, is a symbol of the greatest cultural, literary and artistic achievements achieved by India , during one of the golden periods of its history, the Mughal period, which also gave us architectural marvels such as the internationally renowned mausoleum, the Taj Mahal .

Mid 17th century: Cheapside Hoard , one of the first **emeralds set in a watch was found** . The ship's cargo included emeralds from Colombia, Amazonite from Brazil, rubies from Burma, diamonds from India, chrysoberyls from Sri Lanka, pearls from Bahrain, a cameo from Queen Elizabeth I, a small red intaglio stone seal bearing the coat of arms of William Howard, 1st Viscount Stafford, Egyptian, Byzantine and Classical gems and also an amethyst with the head of a Roman emperor .. The treasure includes a total of nearly 500 pieces (but it is thought that some of them may have been taken by the workers). The Treasury includes.

It is generally accepted that the Treasury was buried during the English civil wars, from 1642 to 1646.

1665 - 1795 The " Hochfürstliche Crystallmühle "in the provincial capital of Salzburg was a gemstone and crystal cutting workshop that built many impressive works of art, mainly for the archbishops, but the pieces from here were highly sought after especially by the northern Italian aristocracy.

In **1735** , the French chemist Charles François de Cisternay du Fay determined that lapis lazuli, emerald and aquamarine were luminescent.

	<p>French chemist Jacques Joseph Ebelman developed the flux process to produce emeralds in 1848 . However, synthesizing emeralds was more expensive than mining them up to 100 years later thanks to the efforts of Carroll Chatham of Chatham synthetic emeralds.</p> <p>Name: The word "emerald" derives (through Old French: esmeraude and Middle English: emeraude), from the vulgar Latin: esmaralda / esmaraldus , a variant of the Latin smaragdus , which was had taken from the ancient Greek: σμάραγδος (smaragdus ; "green gem"), itself taken from a Semitic language.</p> <p>In the American author L. Frank Baum 's 1900 children's novel , The Wonderful Wizard of Oz , and in the 1939 MGM film adaptation, the protagonist must travel to an emerald city to meet the eponymous character, the Wizard.</p> <p>Other trade names : /</p> <p>Variety : the price difference for these gems is often linked to the place of origin. Colombian emeralds (especially, but not limited to, higher quality) typically fetch higher to much higher prices than those sourced from Zambia, Pakistan, or elsewhere, for the same gemological characteristics.</p>
<p>Attributed properties</p>	<p>Legend also states that the emerald was one of the four precious stones given by God to King Solomon . These four stones were said to have endowed the king with power over all creation.</p> <p>One of the most famous Indian works on gemology is. S. M. Tagore 's "Mani-mala " or "Treatise on Gems" . Although written in the late 19th century, it relied heavily on the Puranas , Hindu texts that were written and compiled from 400 to 1000 AD</p> <p>In this treatise, the author warns of seven emerald flaws that must be avoided at all costs: "An emerald which is not <i>fresh</i> is called Rukshma ; leads to disease". "The one that has a yellow spot is called a Bishfota . Death from wounds inflicted by a weapon can be arrested by wearing it." "An emerald to which a fragment of stone is inseparably attached has a fatal influence." "A dirty emerald is called Bic 'c' háya ; it can lead to a variety of diseases " . "An emerald containing grainy fragments is called Karakara ; causes the death of the owner's son " .</p> <p>An ugly emerald is called Jathara ; makes it subject to bites " . "An emerald, whose color is like that of Mashakalai , is fatal to the wearer."</p> <p>Today, emeralds and other precious stones are used in Vedic astrology or Jyotisha , a practice that also requires complicated calculations to ascertain the position of the stars and planets with reference to an individual's horoscope, days of the week and hours of the day. .</p> <p>According to Fernie (1907), Vishnu 's symbolic necklace contained emerald, which represented the Earth and the magnetic center of human passions.</p> <p>The emerald is associated with the planet Mercury in the practice of Jyotisha . If Mercury is well positioned in an individual's horoscope, the effect of the emerald is thought to be positive and can lead the person wearing it to be happy, lucky, rational, highly respected and wise. If Mercury is misplaced in the horoscope, however, the effect of the gem could be negative, leading to lack of vitality and concentration, being prone to deception or suffering from speech and hearing disorders. It is not recommended that Mercury gems, such as emerald, be worn with pearls or moonstones except with one of the navaratna (the 9 sacred gems). Wearing jewelry with, or holding an emerald crystal is said to give confidence, peace and harmony, and increase creativity and mental abilities . It is also said to instill and nurture mutual love and loyalty in marriage and to ensure honesty and success in business and other relationships. The use of emeralds is also said to help strengthen and heal the heart and kidneys , and to help remedy circulatory and neurological disorders and eye irritation, and to help eliminate free radicals from the body.</p> <p>The alchemical tradition attributes different uses and characteristics to emeralds: <i>The virtue of the Emerald is to counteract the poison. They say that if a poisonous animal were to look at it, it would be blinded. The gem also acts as a preservative against epilepsy; cures leprosy, strengthens sight and memory, controls copulation, an act during which it breaks down if worn at the time on the finger .</i></p> <p>It is the gem of the 20th wedding anniversary</p> <p>Seattle , in the US state of Washington, is also known as the Emerald City. Ireland is called the Emerald Isle. Thailand 's holiest religious icon is called the Emerald Buddha, although it is actually carved from green jadeite.</p> <p>Planet: Mercury</p>

	<p>Month: May (official stone) Zodiac sign: Cancer Chakra: Heart</p>
<p>Treatments</p>	<p>Emeralds tend to be among the most included natural gemstones. Inclusions are tolerated because the finer emeralds display a vivid bluish-green color that is quite unique in the gem world. But in many cases the various internal gas bubbles, embedded crystals, veils and cracks make the emerald cloudy or milky.</p> <p>Untreated emerald</p> <p>The traditional treatment for emerald is the filling of fractures with natural oils. Cedar oil is most commonly used, because it is colorless and has a refractive index close to the emerald. But the oil can dry out and the emeralds need to be re-oiled from time to time to keep them looking their best.</p> <p>It was interesting to note that some of the stones contained what is pleasing to be decomposed fill material in their surface fractures. The fractures may have been treated with oil to improve apparent clarity. Over time the oil may decompose leaving a dry residue. As suggested above, this could explain the yellowish green long-wave UV fluorescence noted in some of the stones. The historical use of oil to treat emeralds in Egypt has been documented. Schneider (1892) quotes Schehab ed-dm Abul Abbas Achmed from his work Mesa- Lek Al - Absar , written in the Middle Ages: "When an emerald is found, it is thrown into boiling oil, then into wood shavings and wrapped in linen or other material. "One of the cabochons had a green fill material in the cracks reaching the surface.</p> <p>It has long been known that emeralds can be oiled to improve their appearance. Since most emeralds have tiny crevices that reach the surface of the gem, it is possible to fill in the internal inclusions by forcing the oil through the crevices that reach the surface. The result is greater clarity as the light output of the filled slits is similar to that of natural emerald.</p> <p style="text-align: center;">Waterfall</p> <p>Water is not a real treatment, but it is a little trick that is often used to make the stone, both raw and cut, more brilliant at the time of sale.</p> <p style="text-align: center;">Fillers - Fillers</p> <p style="text-align: center;">fillers are known of which more than 70 are types of oil.</p> <p style="text-align: center;">The oil hides the flaws and enhances the colors</p> <p>Of course, this is why the treatment is done in the first place. However, these hidden flaws could make the stone more brittle than it looks. It may also not be suitable for jewelry use.</p> <p>Traders probably won't tell you how much the stone has been improved you can't really tell the quality of an oiled stone</p> <p>Oiling can make future repairs difficult</p> <p>Keep in mind that emerald jewelry, in particular, goes through a lot of wear and tear. Emeralds usually don't wear well due to their flaws. If you need to repair a crack, chip, or redo the cut, oiling will present problems. Fresh cuts (fixed facets) usually don't match the rest of the stone. Also, you will need the oiled stone again to make it decent again. This takes time and money. Many cutters (myself included) will not even consider carving an expensive emerald due to the problems and responsibilities involved.</p> <p>Treatments with oil</p> <p>Oiling gemstones to fill internal cracks is a common practice. Many different oils are used for emerald fractures. For example, the use of colorless cedar oil is a presumably acceptable practice. Colored oils are also used.</p> <p>I have specific problems with the oiling of precious stones. While many other industry professionals will tell you it's okay, I don't consider it an acceptable practice. I would advise against buying oiled gemstones.</p> <p>Some traders compare oiled emeralds to heating sapphires or rubies. Heating sapphires produces basically permanent colors. In addition, heating also occurs in nature.</p> <p style="text-align: center;">Polymers</p> <p>Opticon is a plastic polymer resin. It is injected on and into emeralds, both raw and cut, often in a vacuum. Although this treatment has more stability than oiling, it will yellow and crumble with age and some solvents. It fills in defects and helps improve color and some durability. (Again, that's why people use it).</p> <p>However, even after an Opticon treatment, emeralds are often still oiled.</p> <p>Different markets accept treatments differently.</p> <p>The hardener degrades over time</p>

	<p style="text-align: center;">Viscous resins, without hardener</p> <p>USE Epoxy resins marketed under their name, more accepted by consumers because the treatment is more stable (especially for lower quality stones) In the UK and Europe in general, oil tends to be more commonly agreed while it is more difficult to see gems enhanced with epoxies. New resins Excel and Permaset Amount of filler Iroldite / ivoldite ? Famous old resins in the United States: GemTrat Opticon</p> <p style="text-align: center;">Irradiation (infrequent)</p> <p>Although rumors about treated emeralds have been around for a number of months, the lab says this was the first time it was receiving stones identified as being irradiated - a procedure that was first shown to change the color of natural and synthetic emeralds comes close. 30 years ago (90s). for a typical Colombian emerald, the color alone cannot distinguish the treated gems. Instead, detection is most effectively done using a spectrometer (an instrument used to measure the properties of light over a specific portion of the electromagnetic spectrum) since the treatment can produce different types of defect centers that absorb in the ultraviolet region of the spectrum.</p> <p style="text-align: center;">Coating (infrequent)</p> <p>the emeralds presented at the Gem Testing Laboratory , Jaipur, India, were identified as coated due to the metallic or sub-metallic reflections on the pavilion facets. The coated surfaces did not show any diagnostic features with routine EDXRF and Raman spectroscopy . However, some samples had concentrations of the coating substance in the surface cavities and Raman analysis of those areas revealed the presence of amorphous carbon. In particular, the presence of a large absorption characteristic at ~ 1550 cm-1 with a shoulder at ~ 1360 cm-1 identified the coating substance as an "BC" type film. Microscopic observation showed that the coating was damaged and removed from several areas, suggesting its instability to normal wear. Although the allegedly DLC-coated colored gems have been commercially available for years (Koivula and Kammerling , 1991), no detailed documentation of these materials is available to the author's knowledge. Recently, the author examined nine faceted emeralds (Figure 1) at the Gem Testing Laboratory , Jaipur, identified as coated with an amorphous carbon film. According to the client, these stones came to Jaipur from Hong Kong. This article provides a brief characterization of these coated emeralds.</p>
<p>Synthetic counterpart</p>	<p>It was probably the French chemist Jacques Joseph Ebelman who developed the process for producing synthetic emeralds in 1848 . However, it was more expensive to synthesize emeralds than to mine them up to 100 years later, thanks to the efforts of Carroll Chatham of Chatham synthetic emeralds.</p> <p>Famous brands of synthetic emeralds: Chatham Emerald, Biron Emerald, Gilson Emerald, Kimberly Emerald, Lennix Emerald, Linde Emerald, Regency Emerald and Zerfass Emerald, IG Farben , Nacken , Tairus and others.</p> <p>There are on the market, synthetic emeralds on the market, created with a hydrothermal process that has grown in flow since the 1940s. In the 1960s, a method was developed for growing emeralds on colorless beryl. The first commercially successful synthesis process was that of Carroll Chatham , based on traces of vanadate, molybdenum and vanadium.</p> <p>It took Chatham three years to understand why emeralds were formed. When he did, he founded the company that bears his name. After perfecting the process for in 1938 , he devoted himself to the synthesis of rubies, alexandrite, blue sapphires and a variety of other precious stones. Chatham was able to duplicate the conditions deep in the earth: temperature, pressure and chemical composition. As early as the 1940s he managed to successfully cultivate artificial gemstones over the course of a year . All of Chatham lab-grown gemstones possess the same physical, optical, and chemical structure as their mined counterpart. The first commercial product on a softly enlarged scale was that of Johann Lechleitner of Innsbruck (hydrothermal type), in Austria, which appeared on the market in the 1960s. These stones were initially sold under the names "Emerita" and "Symeralds " and were grown as a thin layer of emerald on top of natural colorless beryl stones.</p> <p>The other great flux emerald producer was Pierre Gilson Sr. , Whose products entered the market since 1964. Gilson 's emeralds are usually grown on natural colorless beryl seeds, which are coated on both sides. Growth occurred at the rate of 1 mm per month .</p>

	<p>Between 1965 and 1970, the Linde division of Union Carbide produced fully synthetic emeralds by hydrothermal synthesis. According to their patents (attributable to EM Flanigen), acidic conditions were essential to prevent the precipitation of chromium (the coloring trace element). In addition, it is important that the silicon-containing nutrient is kept away from other ingredients to prevent nucleation and limit growth to the seed crystals. Growth occurs through a diffusion reaction process, assisted by convection. The largest producer of hydrothermal emeralds today is Tairus . This Russian society was founded, in 1989 , on the basis of the Academy of Sciences in the Institute of Geology and Mineralogy called by the academician VSSobolev .</p> <p>Tairus is now able to synthesize emeralds with a chemical composition similar to that of Colombian crystals . Its products are therefore known as "Colombian created emeralds" or "Tairus created emeralds". Ultraviolet light luminescence is considered an additional test when separating natural gems from synthetic ones, as many, but not all, natural emeralds are inert to ultraviolet light, while most synthetic ones exhibit fluorescence. It should be remembered that some of the artificial emeralds are however inert to UV rays. United States Federal Trade Commission (FTC) has very strict regulations on what can and what cannot be called a "synthetic" stone. The FTC says, "§ 23.23 (c) It is unfair or misleading to use the word "lab-grown "," lab-made "," [manufacturer's name] -created "or" synthetic "with the name of any stone to describe any industrial product unless such industrial product has essentially the same optical, physical and chemical properties as the named stone. "</p> <p>Synthetic emeralds created with the Flux method</p> <p>The elements that make up the emeralds are dissolved in a heated solution with a material (flux or flux) added in order to help dissolve everything, all within a platinum crucible (only flux emeralds can show platelets of platinum or other metals, coming from the furnace where the process was completed). The solution is then heated for as long as the grower desires. It can take months to grow large crystals, with the size of the crystal proportional to the amount of time it takes to grow.</p> <p>Synthetic emeralds are often grown with fewer inclusions and rarely need to be treated for clarity, unlike 99% of natural ones . These super "clean" emeralds are some of the most difficult emerald types for gemologists to identify by magnification alone. However, natural emeralds of any size that have this appearance (almost free from internal flaws), are almost guaranteed to have an accredited laboratory report. Untreated emeralds of good clarity cost about three times the price of treated emeralds of comparable quality.</p> <p>Identification:</p> <p>Hydrothermal emeralds are grown under conditions very similar to the heat and pressure in which natural ones form, but their crystals do not form freely. Instead they form an elongated hexagon grown from a colorless piece of beryl. This difference gives rise to specific characteristics such as nail-shaped spicules and chevrons, along with particular emerald-colored inclusions of fingerprints, tubes and fingerprints, not found in natural stones.</p> <p>Dark / flux emeralds, often too clear to be of underground origin, sometimes show metallic, black or reflective plates.</p>
<p>It can be confused with</p>	<p>Tsavorite (or other green garnets), green tourmaline (mint, chrome, etc.), peridot (rarely), Quartzite chalcedony / green quartz (dyed), and imitations such as CZ, YAG, glass, plastic . doublets / triplets (2 layers of gems with green paint used as glue and dye).</p>
<p>Indicative gemological tests</p>	<p style="text-align: center;">Detection of emerald treatments</p> <p>Evidence of this treatment often consists of flattened gas bubbles and a flash effect observed when examining the material under a microscope. Likewise, inclusions such as phenachite crystals and coiled growth zoning can offer insight into the flow and genesis of the hydrothermal synthetic emerald.</p> <p>Disclosure of Emerald treatments</p> <p>As long as retailers reveal treatments with emeralds and also rate treated stones lower than untreated quality emeralds, I am inclined to neutrality.</p> <p>The only natural untreated emeralds came from Zambia. However, I haven't seen many of them. Also, keep in mind that Zambian material can (and often does) be lubricated. I should reveal that I probably couldn't afford the ones I liked. To be honest, I didn't want to pay the offered price when considering what other stones I could buy with the money. Most of the natural Colombian material I've seen hasn't been particularly good. It has many flaws and inclusions.</p>

	<p>Again, emerald treatments exist primarily to enhance these gems. Ask yourself, do you really want an imperfect stone that has been "improved?" If so, how much improvement is OK? Where does it stop?</p> <p>Chelsea filter : red or reddish if it contains chromium. It should be remembered that: Emeralds that do not contain chromium (of Zambian and Brazilian origin, some others) can be colored by vanadium (and possibly iron) will not necessarily turn red or reddish when viewed through a Chelsea filter. Synthetic stone filter:</p>		
Value (2021)	High: 20,000- 100,000 \$ / ct 3 carat +	Medium: \$ 1,500-5,000 / ct 1-3 carats	Low: 200 \$ / ct below the carat
Typical cut	<p>Emerald : the cut whose name was dedicated to this stone precisely to reveal its internal characteristics. The emerald is typically included and many, when the internal features contribute to the uniqueness of the stone, they are collectively referred to as Jardin , which in French means garden . This term wants to describe the beauty of the imperfections of these stones.</p> <p>Cabochon : this type of processing is reserved for stones with good color but low transparency (due to the massive presence of inclusions).</p>		
Famous stones	<p>The Chalk Emerald is an extraordinarily beautiful 37.82 - carat emerald. This emerald is notable not only for its size, but also for its impressive color and clarity. Although the exact date of its discovery is not known, its origin is certainly Colombian and was once owned by a Maharani from Baroda, India. It was donated to the Smithsonian in 1972 by its most recent owners, Mr. and Mrs. O. Roy Chalk (from which it takes its name) and is currently available for public viewing in the Gem Gallery of the National Museum of Natural History in Washington DC.</p> <p>The Mughal Emerald is a beautifully sculpted 217.80 carat emerald. This emerald was originally mined in Colombia, after which it was sold to the Mughal emperors of India. This gem bears an inscription of a Shiite Muslim prayer written in Arabic. In addition to the inscribed prayer, a date is engraved on this emerald: 1107 AH (1695 AD), which places it under the reign of Emperor Aurangzeb.</p> <p>Elizabeth Taylor had one of the most impressive jewelry collections in the world. Among her many jewels was an emerald set, which included a necklace, brooch, ring, bracelet and a pair of teardrop earrings. Together, the pieces add up to nearly \$ 100 million ! Her husband, Richard Burton, had literally covered her with gold and precious stones.</p> <p>Angelina Jolie owns one of the most expensive emerald jewels of all time on the fabulous Mrs. Jolie. Her \$ 2.5 million emerald drop earrings absolutely stole the show at the 2009 Oscars.</p> <p>Queen Marie Jose of Belgium was not only Italy's last royal heir, but she also owned an incredible collection of jewelry. The collection obviously features an eye-catching emerald and diamond necklace, including 50 emeralds and many colorless diamonds . Other large rough and faceted stones:</p> <p>Mim Emerald , found in Colombia, 2014, of 1,390 carat uncut, hexagonal (12 sides).</p> <p>Gachalá Emerald , found in Colombia in 1967, of 858 uncut carats, is now in the National Museum of Natural History, Washington.</p> <p>Patricia Emerald , found in Colombia in 1920, of 632-carat uncut, hexagonal (12-sided), is now in the American Museum of Natural History, New York.</p> <p>Carolina Emperor , found in the United States, 2009, of 310-carat uncut, 64.8-carat cut North Carolina Museum of Natural Sciences, Raleigh.</p> <p>Saint Louis emerald , found in Austria (Habachtal), of 51.60 carats (cut), is now in the National Museum of Natural History, Paris.</p>		
Record stones	<p>The world's largest gem-quality uncut emerald , weighing 7,525 carats (1,505 kg) was unearthed in Zambia in 2021 . Previously too , two huge emeralds were found at the same site - Insofu , or " elephant " , discovered in 2010 and Inkalamu , or " lion " , which was found in 2018. While Insofu weighed 6,225 carats (1.245 kg / 2 lbs and 11.92 oz) , Inkalamu comes in third at 5,655 carats (1,131 kg / 2 lbs and 7.89 oz) , not quite rivalling the size of Chipembele .</p> <p>Bahia Emerald is the largest single crystal known. It was discovered in 2001 , weighing around 341 kg . Originating from the mines of northern Bahia, Brazil, this rough emerald has received the name of its home state. However, a \$ 400 million emerald was stolen in 2008 and the US government has been protecting it ever since. Learn more about the historic Bahia Emerald.</p>		

The **Isabella**, with its **954 carats**, is the largest cut emerald in the world and is now owned by the US company **Archeological Discovery Ventures, LLC**. It is known that it came from a Spanish shipwreck. The rare gem inherited its name from Queen **Isabella of Portugal**, consort of **King Charles V (1516-1556)**, Holy Roman Emperor, King of Spain and Archduke of Austria. This precious jewel was used as a bargaining chip by the Spanish conquistador Hernan Cortes. He wanted support and in exchange he offered the emerald to the Spanish royalty. Later, it is known that this transaction was not successful and therefore the *conquistador* gave it to his wife. In the late 18th century, the Cortes family attempted to ship 100 crates full of precious stones to Spain, but the ship they were housed on sank. After 200 years, the chests were recovered; they contained a total of approximately 1 million carats of raw emerald and 100.00 carats of emerald in gems.

The most expensive

The **Rockefeller Emerald** is the most expensive emerald (per carat) in the world. It was bought at a Christie's auction in the summer of 2017 by Harry Winston for **\$ 5,511,500, or \$ 305,500 per carat**, the highest price per carat ever for an emerald. After the auction, the gem was immediately renamed the **Rockefeller-Winston Emerald**.