

BUCHERER

1888

COLORED GEMSTONES

*A triumph of nature*



## THE FASCINATING WORLD OF PRECIOUS STONES

Colored gemstones have exerted a magical attraction on humankind since the dawn of time. They decorate crowned heads and cult objects; they are guarded like treasures, bartered or presented as signs of respect and affection. The mysterious power exuded by precious stones lies in their singular ability to reflect and absorb light. And they do so with inexhaustible variety: from the fiery red of the ruby to the mystical shimmer of the opal.

In this brochure, we open up to you a wonderful new world: the world of colored gemstones. You will be introduced to the central concepts in gemstone theory and learn about the gemological characteristics of your favorite stones.

We wish you pleasant reading as you embark upon your voyage of discovery through the fascinating and scintillating world of precious stones.

Highly treasured masterpieces  
The luxurious cocktail rings  
are sparkling proof of the craftsmanship  
nurtured and perfected in  
Bucherer's workshops







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## A DEFINITION OF GEMSTONES

Gemstones have been known since about 8000 B.C. Today, the word describes a very rare, homogeneous mineral, naturally occurring as part of the earth's crust.

Unfortunately, the term "semiprecious stone" still stubbornly persists in the trade, although its slightly derogatory connotations should forbid its use. At one time, less hard stones were referred to as semiprecious stones, but today we refer to them as gemstones.

## VALUING STONES

Essentially, the value of a colored gemstone is determined by its rarity, its durability and, above all, its beauty. Beauty in particular is a criterion that is difficult to assess objectively. It is also one of the reasons why gemstones, unlike diamonds, are not methodically classified in any other terms than weight.

Putting a value on a colored gemstone is a matter of experience. Our qualified gemologists examine every single stone using five quality criteria: color, weight, cut, rarity and transparency. Even the smallest nuances within a particular category can have a crucial effect on a stone's price.

The purchase of a gemstone is a question of ethics and trust. Our specialists draw on enormous expertise and a reliable feel for gemstones. Thanks to an international network, direct procurement and outstanding connections on the world markets, we are able to guarantee impeccable quality when purchasing gemstones.



Cage by Bucherer

## QUALITY CRITERIA

### COLOR

The most important factor in assessing the value of a colored gemstone is the quality of the actual color. The expert evaluates the basic color, the tone, the intensity and distribution as well as the change and interplay of colors.

The color of a gemstone is determined by its chemical composition and/or crystalline structure. If minuscule particles of trace elements become trapped inside the crystal structure during its formation, the result is color. Irregularities in crystal growth can also be a cause. Selective filtering of light penetrating the crystal only permits those parts of the spectrum to leave it that our eyes perceive as the stone's color.

The variety of colors is so enormous that no exact terms exist for every individual tone: the closest we can come is as exact a description as possible. A good example is the multi-colored tourmaline family. In its natural state, it is found in over 1000 different color varieties, tones and combinations.

## WEIGHT

Weight is the one quantifiable factor in the evaluation of colored gemstones. It is expressed in carats, a unit of weight for gemstones that has existed since ancient times (1 ct = 0.2 gr).

## HARDNESS

At one time, hardness was one of the few methods that could be used to identify gemstones reliably, because a gemstone that is harder than another kind of stone is able to leave a scratch on it. The hardness scale runs from 1 to 10. With a hardness of 10, diamond is not only the hardest gemstone but also the hardest naturally occurring substance on earth. Corundum (sapphire and ruby) has a hardness of 9 and is the hardest colored gemstone.

Cabochon	Round	Heart	Cushion	Briolette	Marquise or Navette	
						

## CUT AND FORM

Gemstone cutting is an art in its own right. Only when a gemstone has been correctly cut does it sparkle in all its full and consummate beauty. When deciding the type and form of the cut, the gemstone cutter's main priority is the structure of the rough stones. For the shape of the uncut gemstone will determine its final form after cutting and polishing.

On a clear, flawless stone, correct arrangement of the facets guarantees optimum brilliance. Opaque stones with lots of inclusions are commonly cut as dome-shaped cabochons to show off their color to its best advantage. But special reflectance effects such as chatoyancy (cat's eye), asterism in the star sapphire, or opalescence, found in moonstones and milky quartz, are also at their best in the cabochon cut.

Drop or Pear	Baguette	Princess	Trilliant or Triangle	Oval	Emerald
					

Natural spinel from Vietnam  
with parallel, rod-like inclusions  
and tension fields, 50x magnification



## **TRANSPARENCY**

Generally speaking, the purer and more transparent the gemstone, the greater its value. However, there are times when special kinds of inclusions can turn a gemstone – literally – into a star.

In much-coveted star rubies and star sapphires, for example, needle-like inclusions form a six-rayed star that appears to hover elegantly at the surface. At the same time, inclusions are unmistakable signs that a colored gemstone is genuine and enhance its individual charm.

Inclusions can also assume the function of a fingerprint. Apart from a gemstone's provenance, they also tell us much about the way in which it was created. Some of Nature's miracles, such as rubies, sapphires, emeralds, spinels and garnets, were formed by a process of metamorphosis. Rock in the earth's crust was exposed to such enormous pressures and high temperatures that the chemical elements released in the process crystallized in the form of minerals and gemstones.

## YOUR GUARANTEE FROM BUCHERER

In order to guarantee the quality and authenticity of your colored gemstone, our buyers cultivate close contacts worldwide with the trade's most trusted suppliers. Bearing in mind the fair trade rules that apply to gemstone trading, they seek out the most beautiful stones – usually on the spot – and buy them direct, thus eliminating intermediaries.

Fine gemstones are rare, the demand for them all the greater. With the practiced eye of the connoisseur, our experts can distinguish a special stone from an unusual one. Thanks to many years of experience, familiarity with the markets and an instinctive feel for the extraordinary, Bucherer is able to offer its customers only top-quality stones.

When buying stones, implicit trust and ethics play a vital role. We take our lead from the guidelines issued by the CIBJO (Confédération Internationale de la Bijouterie, Joaillerie et Orfèverie, des Diamants, Perles et Pierres) and apply them in accordance with the ethical code of the watch and jewelry industry.

After their long journey back to Switzerland, the gemstones are subject to another intensive examination by the experts in our gemological laboratory. As part of their demanding job, they identify stones and their provenance, and assess their quality and value. Working closely with some of the world's leading independent gemological laboratories, we are able to evaluate any stone precisely and reliably.

Our gemologists continuously upgrade their professional skills in order to remain up to speed on the latest methods of enhancing gemstones and increasing their value. Bucherer is the first Swiss jeweler to use the full disclosure principle with its gemstones. This means that every Bucherer customer benefits from an information policy based on total transparency regarding our gemstones and the methods used to enhance their appearance. Apart from being designated a name, every newly purchased gemstone is assigned a declaration code, which is clearly set out and easy to understand. This can be found on page 43.

# RUBY

The ruby (from the Latin for red) is the most precious of the gemstones and a symbol of passion and love. Its fiery brilliance radiates life and strength. Extremely rare examples of more than five carats are even more precious than colorless diamonds of the same size. Rubies are best in the evening or at night because artificial light endows them with a rich red glow.

The most valuable rubies come from the Mogok Valley in Myanmar and have a clear, purple radiance. The most sought-after of these rubies is pigeon blood red, a deep crimson with bluish reflections. Glowing red rubies, often with a touch of lilac or brown, come from Thailand, while those found in Sri Lanka tend to be pale red or even pastel tones. Rubies in every shade of red, some of them opaque, are found in East Africa. Sometimes rubies have gently shimmering reflectance effects with a silverish gleam. The silk, as it is known, is caused by delicate, needle-like rutile inclusions.



MINERAL GROUP	COMPOSITION	COLOR	OCCURRENCE
Corundum Hardness: 9	Aluminum oxide with inclusions of other elements. The characteristic ruby red comes from trace elements of chrome	Red in various tones	Myanmar, Thailand, Cambodia, Vietnam, Sri Lanka, Tanzania, Kenya, Mozambique

## SAPPHIRE

Originally, all blue gemstones were referred to as sapphires (Greek sappheiros, blue stone). As we now know, sapphires come in many different colors of the rainbow. However, only the blue stones are now referred to as sapphires; all the others are also described by their color. The most precious sapphires from Sri Lanka and Madagascar are a scintillatingly pure pale blue. Even rarer and consequently much more coveted are the sapphires from Kashmir and Myanmar, while those from Thailand and Australia command slightly lower prices. An absolute rarity is the paparadja, an intensive orange sapphire with a salmon-pink overtone.

A mysterious phenomenon encountered most frequently in sapphires from Sri Lanka and Myanmar is known as asterism. In exquisite, cabochon-cut sapphires, needle-like rutile inclusions produce a wonderful six-rayed star. The largest cut stone of its kind, the Star of India, which weighs 536 carats, can be viewed in all its splendor at New York's American Museum of Natural History.



MINERAL GROUP	COMPOSITION	COLOR	OCCURRENCE
Corundum Hardness: 9	Aluminum oxide with inclusions of other elements. The blue of the sapphire comes from trace elements of titanium and iron	Blue in various tones, colorless, pink, orange, yellow, green, violet, black	Sri Lanka, Thailand, Cambodia, Myanmar, Australia, USA (Montana), Madagascar, Tanzania and, rarely today, Kashmir



## EMERALD

The name emerald is Persian in origin and means “green stone”. Cleopatra would bestow emeralds from her private mine in the Aswan Valley as a token of esteem. One of the recipients was Julius Caesar, who preferred the green gemstone to all others on account of its medicinal properties.

### GREEN GOLD FROM AMERICA

Only when the Spanish plundered the riches of the Incas and Aztecs, among them stones of extraordinary size and beauty, did the emerald begin to appear more frequently in Europe. The Inca priests never disclosed the precise location of their emerald mines, with the result that the world’s richest reserves, in Colombia, remained undiscovered until the 19th century. And to this day, the most valuable emeralds continue to come from Colombia. Green in color, they have a bluish tinge with fine inclusions that are known in emeralds as the “jardin” (French, garden). In earlier times, huge emeralds were also found in India.



MINERAL GROUP	COMPOSITION	COLOR	OCCURRENCE
Beryl Hardness: 7.5 – 7.75	Aluminum beryllium silicate. The green color comes from trace elements of chrome, but sometimes also from vanadium	Green, bluish green, yellowish green	Colombia, Brazil, Afghanistan, India, Pakistan, Zambia, Zimbabwe, Madagascar, Urals

## AQUAMARINE

The name aquamarine means “water of the sea”. The stone mirrors the colors of the ocean: a delicate pale blue, vibrant deep blue or pale turquoise. Highly transparent, it is a wonderful adornment, worn casually or chic, at any time of the day or night.

The most coveted color for aquamarines is pure, pale blue. This clear, translucent color is found in stones from Brazil and Mozambique. The various intensities of color are referred to by names such as Santa Maria. This term stands for the color typical of aquamarines found in the now exhausted Santa Maria mine in Brazil. Other aquamarine deposits are found in Africa. The pale blue of these gemstones has a metallic shimmer with various gray reflections.



MINERAL GROUP	COMPOSITION	COLOR	OCCURRENCE
Beryl Hardness: 7.5 – 7.75	Aluminum beryllium silicate. The blue color comes from trace elements of iron	Pale to dark blue, blue-green	Brazil, Madagascar, Nigeria, Mozambique, Zimbabwe, Namibia, Pakistan

## BERYL

The sparkle of emeralds is an intense green, aquamarines twinkle in a wide range of blue tones, while the delicate pink of the morganite enchants women the world over. But how many people know that this wealth of beautiful stones belong to the same family of gemstones? Emeralds, aquamarines and morganites are all beryls, just like the gold beryl, the green, the red and the colorless beryl. Their chemical and physical properties are essentially the same, but their colors could not be more different.

The name “beryl” originates from India. It derives from the Sanskrit “veruliyam”. In the Middle Ages, the Latin word “berillus” was a generic term for all clear crystals, and was also used to describe eyeglasses.



MINERAL GROUP	COMPOSITION	COLOR	OCCURRENCE
Beryl Hardness: 7.5 – 8.0	Aluminum beryllium silicate. The color comes from the trace elements vanadium, iron or manganese	Gold-yellow, yellow-green, yellow, pink, red, colorless	Brazil, Madagascar, Mozambique, Namibia, Zimbabwe, Nigeria, USA, Sri Lanka

## TOURMALINE

The tourmaline's range of colors is unique and includes just about every imaginable nuance. A single stone can contain several different tones, generating the most unexpected effects. Earlier, every different color version of tourmaline had its own special name. But today, for the sake of simplicity, we use only the term tourmaline combined with the appropriate color.

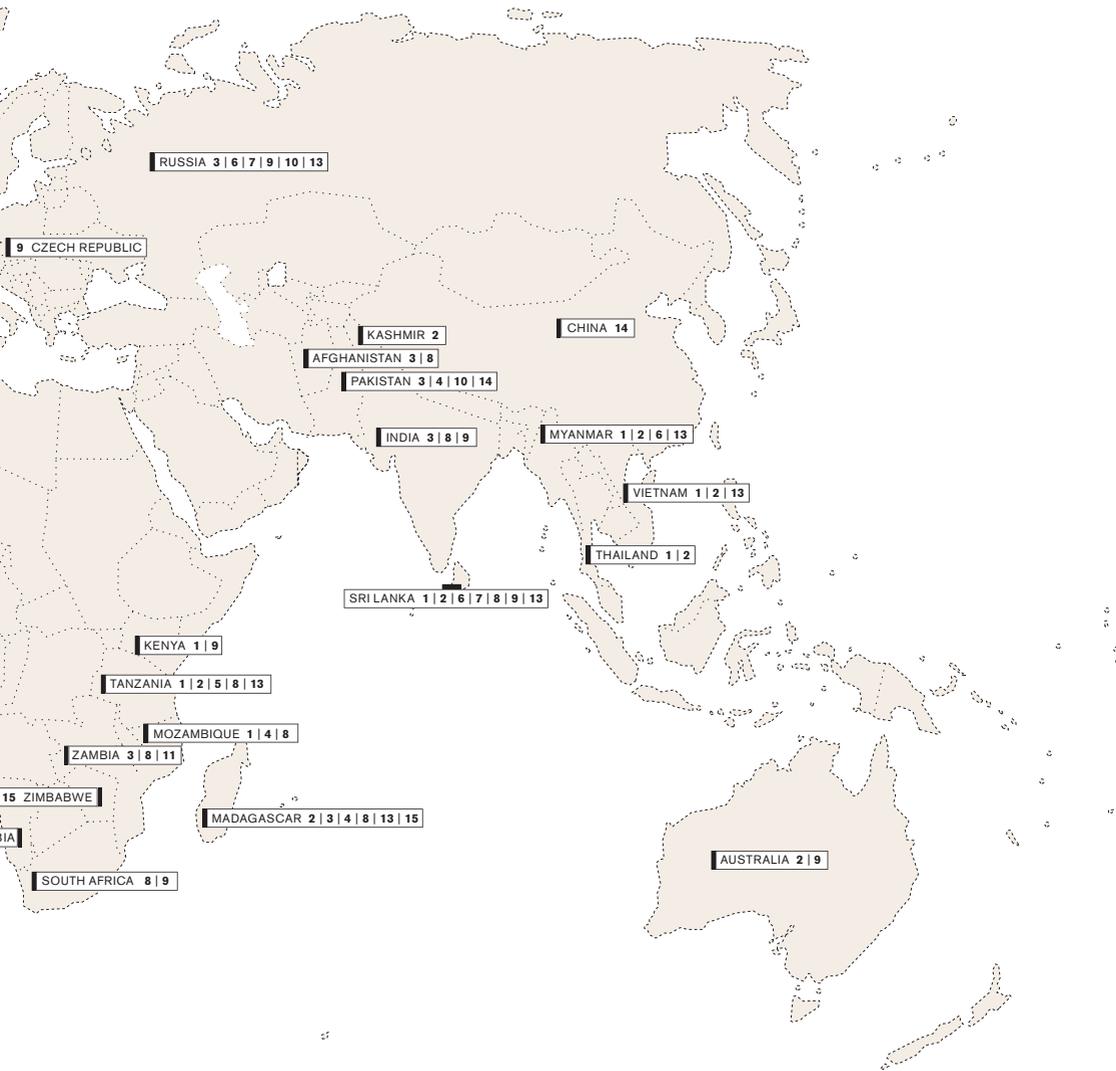
### **TREASURE-TROVES OF THE TOURMALINE**

The biggest reserves are found in Brazil. Red, green or blue tourmalines come from Namibia, Afghanistan or Sri Lanka. The tourmalines mined in Zambia and Zimbabwe are predominantly green while those found in Madagascar and Mozambique tend to be multicolored.



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## THE WORLD'S TREASURE-TROVES



**1** RUBY

**2** SAPPHIRE

**3** EMERALD

**4** AQUAMARINE

**5** TANZANITE

**6** CHRYSOBERYL

**7** ALEXANDRITE

**8** TOURMALINE

**9** GARNET

**10** IMPERIAL TOPAZ

**11** AMETHYST

**12** CITRINE

**13** SPINEL

**14** PERIDOT

**15** BERYL

## THE MUCH-COVETED PARAIBA TOURMALINE

In 1987, the world of gemstones experienced a genuine sensation: for it was then that the Paraiba tourmaline was discovered in Brazil. Anyone who has ever seen its electrifying color will never forget it. Today, they are among the most sought-after rare gemstones. Typically, the numerous beautiful colors of the tourmaline are caused by the presence of iron, manganese, chrome or vanadium. In the case of the Paraiba tourmaline, however, we have to look elsewhere. Its magnificent color is due to the presence of copper. The interplay of copper and manganese releases a riot of enchantingly beautiful colors. Emerald green, turquoise to sky-blue, sapphire blue, indigo and blue-violet to purple.



MINERAL GROUP	COMPOSITION	COLOR	OCCURRENCE
Tourmaline Hardness: 7.0 – 7.5	Boron aluminum silicate in complex, changing compositions, various trace elements responsible for color	Colorless, pink, red, yellow, brown, green, blue, violet, black, multi-colored	Brazil, Afghanistan, Sri Lanka, USA, Zambia, Nigeria, Mozambique, Zimbabwe, Namibia, Madagascar, Tanzania

# TANZANITE

The discovery of the first tanzanite in 1967 immediately attracted the attention of the jewelry industry. No wonder: for it is the only gemstone whose color can be compared to that of a sapphire.

One of the reasons why this stone is valued so highly is that, to this day, only one area in the world is known to have tanzanite deposits, and that is at the foot of Kilimanjaro in the north of Tanzania. In the late 1980s, it was there too that the extremely rare green variety was discovered, a stone that owes its unusual color to the presence of chromium. Tanzanite, also known as zoisite, is very popular in the USA, Japan and Germany.



MINERAL GROUP	COMPOSITION	COLOR	OCCURRENCE
Zoisite Hardness: 6.5 – 7.0	Calcium aluminum silicate. The blue color is due to the stone's vanadium content	Sapphire blue, amethyst violet	Tanzania

## PERIDOT

In 1749 extraterrestrial peridots fell to earth in the Krasnojarsk meteorite. For the time, it was a new and curious phenomenon. However, these peridots were as little suited for use in jewelry as the millions of tiny crystals that are found in the lava flow of the Mauna Loa volcano.

Indeed, peridots owe their existence to volcanic activity. The most valuable examples are found today in Myanmar and Pakistan. Its fresh, grass-green color has made it a very popular gemstone. Extremely rare varieties include the cat's eye peridot and the four-rayed star peridot.



MINERAL GROUP	COMPOSITION	COLOR	OCCURRENCE
Olivine Hardness: 6.5 – 7.0	Magnesium iron silicate. The trace element that gives the stone its color is iron	Yellow-green, olive green, brownish	Myanmar, Pakistan, USA (Arizona, Hawaii), China

## GARNET

Garnet is the name given to the members of a complex mineral group that appears in many different colors and has as many different names. The best known of them all is the fire-colored garnet. We shall restrict ourselves here to the red and green species of garnet.

### **PYROPE, ALMANDINE AND RHODOLITE**

The pyrope has a fiery red glow and because of its brownish nuances was a gemstone much in demand in the 18th and 19th centuries. Almandine is dark red in color with a delicate tinge of violet. It takes its name from Alabanda, an ancient city in Asia Minor famed for cutting gemstones. The rhodolite is a mixed crystal consisting of almandine and pyrope, and is velvety red in color with delicate raspberry-red undertones.

### **FIERY SPESSARTITE GARNET**

The first mandarin garnets were found in 1991 in northeastern Namibia, one of the few untouched regions of the earth. The deep red orange of the rare spessartite garnet variety is reminiscent of the warm glow in the evening sky when the sun has already disappeared beneath the horizon.

### **GREEN VARIETIES**

Not without reason did ancient legends claim that a garnet was a difficult stone to conceal. Its sparkling light can be seen even through clothing. The reason for its extraordinary brilliance lies in the high refractive index of garnets. This is also the property that makes the green varieties sparkle. In its natural state, the grossular – a calcium-aluminum species of the garnet group – has fine yellow, green, brown or earthy-colored tones. The tsavolite, one of the most beautiful of the grossulars, is a young gemstone with a very old geological history. It originates from the bushland of east Africa on the border between Kenya and Tanzania. The mineral was formed tens of millions of years ago. It was first discovered in 1967 and given the name tsavolite in honor of the Tsavo National Park and the Tsavo River running through an area rich in wildlife. The stone comes in a spectrum of colors ranging from delicate pale green and blue-green to a bold dark green.

### DIAMOND-LIKE DEMANTOID

The star among the green garnets is the rare demantoid. Its name comes from the Dutch and basically means “diamond-like”. Not without reason, because the demantoid is the most precious of the garnets and one of the most valuable gemstones of them all. It is particularly remarkable for its unusually high dispersion; in other words, its ability to refract light penetrating the facets into all the colors of the rainbow. The fabulous play of light and colors demonstrated by the demantoid is even more impressive than the diamond.



MINERAL GROUP	COMPOSITION	COLOR	OCCURRENCE
Garnet Hardness: 7.0 – 7.5	Silicates in various combinations.	Brown, red, violet, orange, yellow, green, colorless, various mixed colors	Myanmar, Pakistan, USA, various African countries, Russia, India, Sri Lanka, Australia



Cage by Bucherer

## AMETHYST

Magical properties are ascribed to many gemstones, but the amethyst surpasses them all. It is said to attract the favor of the goddess Fortuna, to hold out the promise of beauty, prosperity and sweet dreams, and to fend off magic spells and evil thoughts. Beyond this, it is supposed to bestow mental acumen, wisdom and dignity, to bring good luck to those in love, and to prevent drunkenness. Hence its name: for in Greek the word amethyst means “not intoxicated”.

The amethyst is the most valuable member of the quartz family. It comes in a wonderful play of colors from pinkish violet and pale lilac tones all the way through to dark violet. Fine, transparent examples are cut and polished as jewelry, while semi-transparent or opaque amethysts are used for artistic purposes or engraved. A particularly interesting gemstone is the ametrine. The bicolored crystal is a combination of amethyst and citrine. On one side it has a violet hue, on the other yellow.



MINERAL GROUP	COMPOSITION	COLOR	OCCURRENCE
Quartz Hardness: 7	Silicon dioxide. The trace element that gives the stone its color is iron	Violet, pale reddish-violet	Brazil, Uruguay, Bolivia, Russia, USA, Madagascar, Namibia, Zambia, India

# CITRINE

In about 1750, a gemstone cutter in Lisbon had a mishap: a pale yellow citrine fell into the still glowing embers of a fire. When he had fished it out, he was not a little amazed to see that the citrine had suddenly turned brownish red.

It was to this chance discovery that we owe a technique which allows us to influence the color of citrines.

In their natural state citrines range from pale to lemon yellow. If they are heated, their color turns from deep yellow to brown. The brownish red stones are called Madeira citrines because of the color's resemblance to the well-known wine. Not every citrine is "born" as such. When an amethyst is artificially heated, it is transformed into a pale to dark yellow – or even reddish brown – citrine. These stones are often known by other names such as Bahia, gold or Rio Grande citrines.

Because of the similarities in color, the citrine is still, erroneously, called topaz today, without ever approaching the value of the latter.



MINERAL GROUP	COMPOSITION	COLOR	OCCURRENCE
Quartz Hardness: 7	Silicon dioxide. The trace element that gives the stone its color is iron	Pale to dark yellow, golden brown	Brazil, Bolivia, Russia, Madagascar, USA

## CHRYSOBERYL

The sparkling honey-yellow to greenish brown chrysoberyl owes its prominence to two rare varieties: the chrysoberyl cat's eye and the alexandrite.

Master gemstone cutters and polishers take a semitransparent or opaque chrysoberyl and magically transform it into a cat's eye: a silvery sash of light appears to hover above the surface of the gemstone, as if freed from its confines. The name of this phenomenon, found in a number of gemstone types, is chatoyancy. The most precious of them all, however, is the chrysoberyl cat's eye.



MINERAL GROUP	COMPOSITION	COLOR	OCCURRENCE
Chrysoberyl Hardness: 8.5	Beryllium aluminate. The trace elements that give the stone its color are iron and chromium	Gold-yellow, green-yellow	Brazil, Sri Lanka, Myanmar, Tanzania, Zimbabwe, Madagascar, Russia

## ALEXANDRITE

The alexandrite is one of the rarest, most precious – and most fascinating – gemstones of them all. It was named after Tsar Alexander II because it was reputedly discovered in the Urals on the very day His Majesty came of age.

The alexandrite is particularly sought after because of its unusual ability to change color. A delicate olive green shade in daylight, it changes dramatically to a deep raspberry red with violet reflections in artificial light. This little piece of magic is due to the fact that blue is the dominant color in sunlight while red is supreme in artificial light. In the language of the trade, this play of colors is known as pleochroism.

Particularly fine alexandrites command high prices. However, buyers are well recommended to check each stone's ability to change its color. The alexandrite cat's eye is extremely rare and much sought after.



MINERAL GROUP	COMPOSITION	COLOR	OCCURRENCE
Chrysoberyl Hardness: 8.5	Beryllium aluminate. The color and color change are due to the presence of iron, chromium and traces of vanadium	Green by daylight, red in artificial light	Russia (Urals), Sri Lanka, Brazil, Tanzania, Zimbabwe

## TOPAZ

The topaz radiates all the colors of a midsummer sky: the delicate pink of sunrise, the yellow and gold of the morning sun, and the azure blue of the afternoon sky. It is said to soothe the nerves, to cultivate the power of logical thought and to prevent envy and resentment. This is probably the reason why topaz is so often found in sacral treasures.

Since the blue topaz rarely occurs naturally today, it acquires its color artificially. Natural-colored pink topazes are very rare. Stones in vivid yellow shades are found mainly near Ouro Preto in Brazil and are particularly treasured.



MINERAL GROUP	COMPOSITION	COLOR	OCCURRENCE
Topaz Hardness: 8	Fluoride aluminum silicate. The trace elements iron and chromium together with irregularities in the crystal lattice are the reasons for its delicate color tones	Colorless, yellow, orange, orangey pink, pink; very rarely lilac, red	Brazil, Russia, Tanzania, Nigeria, Pakistan, Myanmar, Sri Lanka



Pastello by Bucherer

## SPINEL

In the Mogok Valley in Myanmar rubies have been hacked out of the sugar-white marble since ancient times. Only in 1820 was it discovered that some of these so-called rubies were actually spinels. Nevertheless, these gemstones are often referred to as rubies. One particularly splendid example is the 361-carat Timur Ruby that is now found in a diamond-set necklace belonging to the British Crown Jewels.

Although spinels are usually found in the same areas as ruby deposits, the amounts mined are much smaller. In the past, they were only rarely found in the highly desirable ruby red color. The discovery of a magnificent red spinel in Tanzania and newly found deposits of spinels in pastel shades in Vietnam have led to the stone's renaissance. In the past ten years, it has become increasingly well known and today, spinels are as esteemed and valuable as rubies, sapphires and emeralds.

Mogok spinels have an octahedral – double pyramid – crystal form. The inhabitants of Myanmar often set the superb red stones uncut in their jewelry.



MINERAL GROUP	COMPOSITION	COLOR	OCCURRENCE
Spinel Hardness: 8.0	Magnesium aluminate. The trace elements that give the stone its color are chromium, iron and cobalt	Red, pink, lilac, purple, violet, brown, blue, black	Myanmar, Sri Lanka, Tanzania, Russia, Pakistan, Afghanistan, Thailand, Vietnam

## FROM MINE TO JEWEL

Gemstone deposits are not evenly distributed across the earth. They are concentrated in the countries that make up the Gemstone Belt, which extends from the northern Tropic of Cancer to the southern Tropic of Capricorn. In their search for gemstones, geologists make a distinction between primary and secondary deposits.

### **PRIMARY DEPOSITS**

In primary deposits, the stones still have their original relationship with the host rock. The crystals are well preserved, but the yield from these repositories is limited. Extracting the gems involves excavating many tons of non-gem-bearing rock.

### **SECONDARY DEPOSITS**

Secondary deposits contain gemstones that have been transported by erosion from the places where they were formed and deposited elsewhere. The harder crystals are rounded off in the process, while the less hard ones are reduced to smaller pieces or destroyed. The search for gemstones here is much easier and mining tends to be far more productive than in the primary deposits.

### **THE TRUE ART OF CUTTING**

Cutting gemstones is not only an artistic skill but also a science in its own right. Nature has endowed gemstones with an infinite variety of internal characteristics and combinations, which means that only the most experienced cutters are able to elicit the most beautiful colors and intensive fire from a gemstone. The first step in the cutting process is preforming: here, the gem cutter defines the depth of color, shape and size of the stone to be faceted. The preforming stage is the most difficult and important in the entire process. The weight and, with it, the maximum achievable value of the faceted gemstone largely depend on the success of this step. The final polishing is the culmination of the many grinding stages and gives the stone its seductive brilliance.





## CRAFTSMANSHIP AT THE HIGHEST LEVEL

Whenever our buyers see a gemstone, they are able to form a mental idea of the piece of jewelry that would set it off to perfection. Working closely with the designers in our workshops, they develop these ideas until we have a detailed drawing of the piece in question. This serves as a model for the goldsmith and the gem setter.

Drawing on all their artistic skill and craftsmanship, our goldsmiths transform the two-dimensional idea into a fabulous piece of jewelry. Finally, the gem setter puts the crowning glory on the design: with the steady hand and meticulous care indispensable for his craft, he expertly secures the gemstone in its gold setting.



## GEMSTONE TREATMENT CODES

Code Definition

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### **Natural stone category**

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N Not enhanced.

### **Specific enhancement codes**

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A At the moment, we do not know whether these stones have been or will be enhanced, or we are unable to say. We assume that they have not been enhanced.

Z At the moment, we do not know whether these stones have been or will be enhanced, or we are unable to say. We assume that they could have been enhanced.

E Normally enhanced stones. One or several kinds of enhancement are possible. These are listed below.

Q Composite stones. Made of the same material as the stone and/or foreign materials.

### **Specific forms of enhancement and their most important effects**

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F Cavities and fissures are filled with material (glass, resin) to harden the stone. The stone's durability is improved. The process can increase transparency and in some cases make the original color even more intensive.

H Stones have been heated. This often intensifies or changes the original color. At best, the transparency is increased. Particularly in corundums, fissures may contain foreign bodies left over from the heating process.

O Fissures and cavities are filled with non-hardening colorless materials (oil or wax). The process increases transparency and in some cases makes the original color even more intensive.

R Stones have been irradiated: gamma, electron or neutron bombardment. The original color is intensified or a new color is created.

U Color-producing substances are introduced into the stone at high temperatures. The color of a thin layer beneath the stone's surface is intensified or altered.

The declaration provides a dependable summary regarding the enhancement treatments undergone by our jewelry and gemstones or confirms that they are in their natural state.

### **Examples of declarations**

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To make these easier to understand, we have selected three declarations standard for the industry:

<b>Declaration</b>	<b>Meaning</b>
Ruby EH	Ruby, enhanced (E), heated (H)
Topaz blue EHR	Topaz, blue, enhanced (E), heated (H) and irradiated (R)
Sapphire N	Sapphire, not enhanced, left in its natural state (N)

For practical reasons, the gemstone treatment codes are kept brief. They should be understood as gemological information. For further questions and personal advice, our qualified gemologists will be pleased to help.

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