

THE  
ENGAGEMENT  
RING  
HANDBOOK

AMAN'S GUIDE  
TO GETTING IT RIGHT

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## CHAPTER 9

# ALL YOU NEED TO KNOW ABOUT GEMSTONES

If you hadn't thought about it before, I hope – having got this far – that you'll agree with me that an engagement ring does not have to mean diamonds. There are alternatives.

Other than diamonds, the main precious gemstones are sapphire, ruby and emerald, but there is an infinite variety of colour and texture in these, and many other gemstones. This chapter aims to provide some of the information you need about the gemstones you may be thinking of using. But it can only scratch the surface.

Each stone merits a book of its own, and there are gem dealers who specialise in one type of gemstone such as emerald or sapphire, but many jewellers are not specialists in coloured stones, and there is a great deal more complexity

in choosing the right coloured stone than there ever will be in choosing a diamond. In this area, you really do need specialist help, preferably from a jeweller who knows a good and experienced gem dealer.

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## Summary

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- There are many more beautiful and unusual alternatives to diamonds for your engagement ring, including various coloured sapphires, ruby and emerald
  - Some gemstones are not suitable for an engagement ring which is to be worn every day for a lifetime as they are too soft and easily damaged
  - Various treatments can be applied to gemstones to enhance them. Some treatments are not acceptable. All must be declared at the point of sale.
  - There is no certification process for coloured stones, like diamonds there's no mine to market tracing or guarantees, and production is unregulated. It is a matter of knowing who you are buying from
  - Coloured gemstones are a highly technical area. Consumers can influence the industry by the buying choices they make, so choose your supplier carefully.
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## **Beautiful, precious and durable – making sure it lasts a lifetime**

If your intended loves colour, you may want something more unusual than just diamond, or you may be thinking about incorporating her birthstone or other significant gems. If so, you need to be aware that many gemstones are too soft to use in an engagement ring which will be worn every day.

**Mohs scale.** The hardness of gemstones is measured on the Mohs scale. This is a logarithmic scale designed in 1812 by Friedrich Mohs, a German geologist, to describe the relative hardness of minerals. The hardest mineral on the scale is diamond at 10; ruby and sapphire (both forms of Corundum) come in at 9, while Emerald is 7.5.

**Gemstones to avoid.** It is inadvisable to choose a stone rated below 7 for your ring as it won't stand up to daily wear for a lifetime and will probably have to be replaced after a few years. So, for an engagement ring I would certainly advise you to avoid opal, moonstone, amber, turquoise and pearl. These scratch easily and their surfaces are too delicate to withstand everyday chemicals.

Amethyst, garnet, iolite and tourmaline at 7–7.5 will abrade in time. Morganite, though a pretty pink and currently popular, will also abrade quickly, and even at 7.5 I do not recommend it for an engagement ring. Other popular stones

like peridot and tanzanite really are too soft at 6.5–7.

Even if a gem is rated at 7 or over, if it's brittle, like emerald, the setting for the stone should be designed to protect it from damage, for example by using a bezel setting rather than claws (see Chapter 13).

**Durable gemstones.** These are the most durable or sought after gemstones for an engagement ring with their Mohs scale rating.

Gemstone	Mineral family	Colour range	Hardness on Mohs scale
Sapphire	Corundum	blue, pink, yellow, colourless	9
Ruby	Corundum	Red	9
Topaz	Silicate	colourless, red, yellow, pink-orange, grey, brown	8
Aquamarine	Beryl	shades of pale to intense light blue	7.5–8
Spinel	Spinel	red, blue, green, yellow, brown, black	7.5-8
Emerald	Beryl	rich deep green	7.5

Here is a brief rundown on these beautiful colourful gems.

## Sapphire

Blue Sapphire is a really popular choice for engagement rings and is one of the four precious gems. Like ruby, it is a form of corundum and therefore very hard and durable. Sapphire is an expensive stone, but it is worth getting the best quality you can afford because the lower grade, cheaper stones, which are commonly used, can be very dark in colour, verging on black, and have no fire or brilliance.



**The colours of sapphire**

Blue is the best known colour for sapphire, from a light true blue through to a deep indigo, the intensity depending on the amount of titanium and iron in the crystal. A medium coloured cornflower blue is the most desirable.

Sapphire does come in a range of other colours, including colourless, pale pink, orange, green, yellow, violet and brown – known as ‘fancy sapphires’. Paparadscha sapphire, a peachy pink, is a particularly lovely and unusual shade which is becoming very popular, but be aware that a ‘pink sapphire’ is really a pale ruby. By definition rubies can only be red, so these stones are marketed as ‘pink sapphire’, which also sounds better than ‘pale ruby’.

While sapphires are mined mainly in Australia, they are found in Sri Lanka, Thailand, China, Tanzania and Kenya. The best cornflower blue is very rare indeed and comes from Kashmir.

The name 'sapphire' is from 'sapphirus', Latin for blue, and the Greek 'sappheiros' from the island off the Arabian Sea where sapphires were first found. During the Middle Ages, priests wore sapphires as protection from impure thoughts and warriors gave their young wives sapphire necklaces to ensure fidelity. Sapphire is September's birthstone and is also given on fifth and forty-fifth wedding anniversaries.

## Ruby

Ruby is another popular gemstone for engagement rings. It is one of the four precious gems and, as one of the most valued gemstones throughout history, it has an extensive mythology. Like sapphire, it is a form of corundum, so is hard and durable.



**Ruby**

The red colour is created by traces of chromium in the crystal, and only red corundum can be called ruby. The range

of reds varies with the individual deposits and locations, the most desirable colour, called ‘pigeon’s blood’, being a pure red with a hint of blue. As a rough stone, ruby appears dull, but when cut, the lustre can be almost as good as diamond, and inclusions in rubies are common.

In recent years there has been a supply problem because the best rubies come from Burma (Myanmar). The country has been the subject of International trade embargoes owing to its poor human rights record. At the time of writing, it is still not possible to buy Burmese rubies in the USA, so a lot of Burmese ruby is channelled through Thailand and is misleadingly sold as of Thai origin. This may change with the democratisation of Burma/Myanmar.

Rubies are also found in Sri Lanka, Cambodia, parts of Africa and the USA.

Ancient Hindus believed that the red of ruby came from an eternal flame that could not be put out, making the stone a symbol of everlasting love. Ruby is the birthstone for July and is also given to celebrate fifteen and forty years of marriage.

## **Emerald**

Emerald belongs to the beryl family of gemstones and is one of the precious gemstones. Highly valued as a gemstone for

at least 4,000 years, a rich deep green is the most desirable colour and is the result of traces of chromium and vanadium in the beryl. Owing to its structure it is brittle and relatively easily scratched, chipped and damaged. If it is to be worn as an engagement ring, the ring must be designed to protect the stone as much as possible and treated with great care. It will abrade and will need repolishing in time. But emerald *is* the rarest and most precious stone.



**Emerald**

Beryl, vanadium and chromium do not occur naturally in the same geographical areas. So emerald is only formed when violent geological events occur which bring these minerals together. Owing to its dramatic formation, emerald is more brittle than other beryls, so the famous ‘emerald cut’ was developed for this gemstone to alleviate the amount of pressure required during the cutting process. Emeralds almost always contain inclusions and minute fractures or fissures, again as a result of their violent formation, so for thousands of years, emeralds have been treated with oils and resins to make the fissures less obvious and enhance the clarity of the stone. These fissures are called ‘jardin’, owing to their likeness to garden foliage.

The name for the stone comes from the Greek ‘Smaragdus’, via the Vulgar Latin variant ‘Esmeraldus’, meaning green stone. The earliest finds were near the Red Sea in Egypt, and it was a favourite of Cleopatra, who wore particularly lavish emerald jewellery. Hence the mines were dubbed ‘Cleopatra’s Mines’ when they were rediscovered in the early nineteenth century. Now, the main emerald producing country is Colombia, but fine quality emeralds are also found in Brazil, parts of Africa, Pakistan, India, Afghanistan and Russia.

The ancient Romans dedicated the stone to Venus, the goddess of beauty and love, and associated emeralds with fertility and renewal. A gift of emerald is considered to be a sign of love and devotion. Emerald is the birthstone for May and given for twentieth and thirty-fifth wedding anniversaries.

## **Precious Topaz**

Topaz has been used in jewellery for centuries but was elbowed out of fashion by the fad for diamonds. Pure Topaz is colourless and transparent, and was sometimes mistaken for diamond, although it does not have the same fire. The most famous topaz is a colourless stone of 1,680cts. Called the ‘Braganza Diamond’, it is set in the Portuguese Crown Jewels.



### Precious Topaz

Golden yellow topaz is the most widely known precious topaz, and ‘Imperial Topaz’ can be yellow or, rarely, pink or pinky-orange. Topaz can also be clear. Be aware that many brown, grey or pale topazes are heat treated or irradiated to make them more saleable colours such as bright blue, yellow, gold, pink or even violet. Consequently, some topazes can fade if exposed to too much ultraviolet light.

Topaz is a hard gemstone found in many parts of the world, but like emerald it is brittle and should be worn with care.

‘Topaz’ is from the Greek ‘Topazios’, the name of an island in the Red Sea where yellow stones were mined, and in the Middle Ages ‘topaz’ was the name given to any yellow gemstone. Because of its colour, both the Egyptians and Romans believed that it was associated with the sun god, and Golden Topaz is the birthstone for November.

## Aquamarine

Aquamarine is often used for engagement rings, perhaps partly because wearing an aquamarine is said to ensure a

good marriage and bring the wearer happiness and good fortune.



**Aquamarine**

Aquamarine is the light blue variety of the mineral beryl, the same mineral as emerald. It is a beautifully clear stone with a wonderful shine and is almost completely free from inclusions, unlike emerald. It can range in colour from a very pale blue to a deep-sea blue, and even have a light green hue. The intensity of colour depends on the quantity of iron within the mineral, and the most valuable aquamarines are an intense blue. It is mostly mined in Brazil, but occurs in parts of Africa, Burma, Russia and Sri-Lanka.

The name comes from the Latin ‘aqua’ for water and ‘mare’ for sea. Since ancient times, aquamarine has been seen as a gemstone of vision, and aquamarine crystals were often used for eyes in Roman and Greek statues to symbolise power and wisdom.

Aquamarine is the birthstone for March and October, and is the nineteenth wedding anniversary stone.

## Spinel

Spinel comes in a very wide range of colours, including red, blue, green and yellow. Although very beautiful, it is not now a commonly known gemstone. Both ruby and spinel are aluminium oxides, often found together, and before minerals were properly chemically classified, red spinel was equally known as ruby. So some of the most famous historical ‘rubies’ are in fact spinels, including the ‘Black Prince’s Ruby’ and the ‘Timur Ruby’ in the British Crown Jewels.



**Spinel**

The largest known spinel in the world is the 500ct Samerian Spinel, once owned by a seventeenth century Indian Mughal emperor, and now part of the Iranian Crown Jewels. It is even believed to have once adorned the neck of the biblical golden calf, said to have been destroyed by Moses.

Spinel is certainly hard enough to be considered for use in an engagement ring, and its colour range would make it an unusual and individual choice.

## **Treatments to enhance diamonds and gemstones**

There are a number of treatments which are routinely applied to both diamonds and gemstones to enhance their appearance, change their colours, stabilise, or otherwise improve the gem. Treatments include oiling, heating, dyeing, diffusion, irradiation, modifying inclusions in diamonds with the use of lasers as well as filling gems and diamonds with glass or resin.

Some treatments, such as filling with resin in order to deceive the customer, are not acceptable. Others have their benefits and are acceptable insofar as they are fully disclosed to the purchaser and the gem is priced accordingly. Some gemstones would hardly exist at all if it were not for common treatments, especially heat treating. An example is citrine, which is a heat treated amethyst. This occurs seldom in nature, so if it were not for heat treatment, those that were available would be much more expensive.

Any treatment which changes the colour or fundamental character of the stone will naturally affect its value and price. Some treatments are more acceptable than others and some are more obvious. Some are not permanent so the stone may degrade over time. Other treatments can make the stone less robust and so more liable to get damaged when it is worn. Unscrupulous dealers will attempt to sell treated diamonds and gemstones as natural.

All reputable stone dealers and jewellers will fully disclose relevant information about any stones they sell. This is why you must always buy your gemstones and diamonds from a reputable and knowledgeable source. Do be aware that there is no standard certification process for coloured gems as there is for diamonds, so you are reliant on the integrity of the person from whom you buy your gem.

Here's a brief review of some of the more common treatments. A full discussion would require a book of its own, so it's best to take expert advice.

**Heat treatment.** This is the most common treatment and is routinely applied to aquamarine, ruby, sapphire, tanzanite and zircon (both blue and colourless). Heating is only detectable by experts using special equipment and is usually irreversible under normal conditions.

It can lighten, darken, or completely change the colour of a stone, as well as improving clarity and brightness. Unheated rubies and sapphires will contain microscopic inclusions that show the stones have not been heated, but high quality unheated stones carry a very large price premium owing to their extreme rarity. Heat treatment brings beautiful gemstones within the reach of mere mortals.

**Oiling.** Oil is routinely applied to emerald, and sometimes to ruby and other stones, to fill surface fractures.

As mentioned earlier, the minerals which go to make up emerald do not occur naturally together in the Earth's crust, so emerald formation is the result of a confluence of cataclysmic forces. As a consequence, emeralds commonly contain many inclusions, fissures and minute cracks. These can make the individual emerald fragile and give it an uneven surface even when polished. To stabilise the stone, the majority of emeralds are oiled. As it is now a standard treatment for emerald, this is not generally disclosed as it is assumed that all cut, polished and finished mined stones will be oiled. Cultured or laboratory grown emeralds (see Chapter 10) do not require oiling.

**Glass fill.** The objective of glass fill is to improve the appearance of the gem by filling up all the gaps and fissures with coloured glass. It is a common procedure with lower grade ruby and must always be disclosed as it makes the ruby appear better quality than it actually is.

**Irradiation.** In order to improve their colour, some gemstones are irradiated. This treatment is often not permanent and must be disclosed as the gem can fade or change colour again, especially when exposed for long periods to ultraviolet light.

Blue topaz is irradiated either to make the blue stronger or to change lower grade brown or dirty yellow topaz into desirable blue. Many coloured diamonds are either heat

treated or irradiated in order to change the colour of the oxides they contain. So certification is important if you want to make sure you have a natural pink, for example.

**Lasers.** Most diamonds contain inclusions of one sort or another, which are more or less visible to the naked eye. As diamonds are composed of carbon it is not surprising that the most obvious inclusions in diamonds will be little black specks of carbon. These can spoil an otherwise perfectly good stone. One way to reduce the appearance of these black inclusions is to drill tiny holes in the diamond and target them very precisely with lasers. The lasers ‘burn’ the carbon and turn a black spec into a much less visible feather or other artefact in the stone. This is a permanent treatment and can effectively improve the quality grading of a diamond, and therefore the treatment has an impact on its price. As with any treatment, laser treatment should be disclosed in the diamond’s grading certificate.

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## **Conclusion – sourcing gemstones**

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This brief discussion is designed to arm you with some useful information about coloured gemstones so that you can ask the necessary questions when deciding on the stone for your ring. While the sourcing of coloured stones has not come under the same scrutiny as diamonds for ethical practices

and ecological impact, there are many issues to address as production in most countries is completely unregulated.

This does not mean it is all bad as there are both small scale and family-owned ‘artisan’ mines which are properly run, as well as larger well-run commercial enterprises. But, like the diamond supply chain, there is no tracking from mine to market, and for gemstones there is as yet no certification process, unlike diamonds.

A wide range of treatments is available for enhancing gemstones and diamonds. Most of these are entirely legitimate and accepted as long as they are declared at the point of purchase. The layperson is unlikely to be able to discern them.

The current danger is a concentration of ownership such as De Beers had over diamond production. This is unlikely to be a good thing for the consumer or the economies of the countries where these stones are mined. Again, the individual consumer can influence this by the choices they make when purchasing their stone, and by using a jeweller who cares about where their gemstone comes from and how it came to market.

When it comes to sourcing gemstones and assessing their quality and provenance, you are completely reliant on your jeweller for good advice and guidance. So it is worth asking the right questions.

**If you would like to read more you can download further chapters from my book FREE at: [juliepeel.co.uk/Tools\\_and\\_Advice/The\\_Handbook](http://juliepeel.co.uk/Tools_and_Advice/The_Handbook)**

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