GEMS

THE GEM DETECTIVE: IDENTIFYING BLUE GEMSTONES

Beautiful blue gemstones ranging from sky-coloured pastels to deep-sea blues are captivating to many but not always so easy to identify. In this new series, the gem detective, Megan Austin discusses how to navigate the complexities of the blue gemstone family.

The first and most popular candidate in any blue gemstone line-up is sapphire. From the corundum family, sapphire's tone and saturation ranges enormously from pale blue to almost black; however, the velvety blue of Ceylon sapphire and the royal blue of Australian material are both highly prized.

Sapphire is routinely heat treated to improve its colour and clarity but it is other treatments that keep gemmologists on their toes – surface diffusion combines heat with iron and titanium to produce Kashmir-like blue while cobalt-doped glass filling transforms low-quality corundum into bright blue sapphire. Such treatments are deceptive to the untrained eye.

Sapphire is frequently confused with tanzanite, a gemstone introduced in the 1960s that causes havoc for manufacturing jewellers and consumers alike because its colour resembles Ceylon sapphire. Tanzanite is usually heat treated to achieve this colour. Forsterite is a possible tanzanite imitation but the two are easily separated.

Iolite, improperly known in the trade as "water sapphire", can also be confused with both sapphire and tanzanite.

Known simulants for sapphire, tanzanite and iolite include cubic zirconia, synthetic sapphire, synthetic spinel, YAG and even blue glass.

Next up is tourmaline, available in many shades of blue, from striking neon colours to dark indigo depths. The former may be imitated by neon-blue apatite but is separated by tourmaline's doubling of the back facets.

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Competing for the mantle of "most confused" blue gemstone are aquamarine, topaz and synthetic spinel.

Aquamarine is a member of the prestigious beryl family and varies from pale blue with greenish overtones to rich ocean blue. It is often confused with blue topaz, a less expensive gemstone routinely irradiated and heat treated to create sky blue, Swiss blue or the darker London blue. Both aquamarine and topaz are frequently imitated by synthetic spinel.

Zircon, a natural gemstone that is usually heat treated, is available in the same colours as aquamarine and topaz; however, high dispersion and strong doubling should reveal its identity.

Natural blue diamonds are extremely rare; more commonly seen are irradiated ones. Some of these are of a lighter tone normally associated with natural coloured material. Even though it never displays the double effect, diamond may be confused with zircon due to its high dispersion.

Some more unusual blue gemstones include benitoite, kyanite, fluorite and spinel, and don't forget composite gemstones intended to imitate blue sapphire – garnet-topped doublets, used in antique jewellery, are comprised of a hard garnet top-fused to a blue glass pavilion while sapphire doublets have a natural corundum top and blue glass or synthetic sapphire pavilion.

Trying to ID unknown blue gemstones can be tough given the possibilities on offer. To avoid making a mistake, it's not a bad idea to consult your local gemmologist. ✻

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