Collecting Gem Crystals

By Ed Rosenzweig, Photographs by Joe Budd and Ed Rosenzweig



Emerald, Muzo Mine, Colombia, Joe Budd Photography

hy collect gem crystals? Why not! They are colorful, beautiful, and brighten any display cabinet. They also have a great deal of intrinsic value—either as gem rough or for use in jewelry in their natural state. However, collecting gem crystals requires different knowledge than collecting other mineral specimens. This is why purchasing them from a knowledgeable and reputable dealer is important.

Three things are essential for a great gem specimen: color, clarity, and luster. It's very difficult to find a specimen that has all three components. Most crystals that have great color and clarity end up being cut for jewelry; sometimes, I find the best gem specimens in parcels of cutting rough. Like gold, this underlying value drives the cost of specimens—they can never cost less than the value as cutting rough!

Every gemstone has a preferred range of color. Some, like tourmaline, are quite broad, with blues, greens, reds, and pinks all treasured. Others, like ruby and emerald, are much more constrained. Fine ruby crystals must be a pure, medium red with no pink or orange overtones. Emeralds must be a deep green with a blue overtone—never a yellow overtone. Otherwise, the value of the emerald or ruby crystal is substantially diminished. Similar preferred colors exist for blue sapphire (medium cornflower blue) and peridot (slightly yellowish-green). An experienced dealer will know the color standards for each gem species.

As with color, clarity standards can differ for each species. Sometimes, this is the result of the inclusions that occur in natural crystals, and in other cases, is due to economic factors. It is almost impossible to get a truly transparent, eye clean ruby crystal as they are all cut for the gem trade! The finest specimens are highly translucent to semi-transparent. On the other hand, the aquamarine and heliodor varieties of beryl are readily attainable in transparent, almost eye-clean specimens. In some cases, the inclusions can increase the value of the specimen, such as To see more of these beautiful specimens and discuss them with Ed, visit Edwards Minerals at the Tucson Gem & Mineral Show, Booth #1028–1030. February 12–15.

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in rutilated quartz, or identify the specimen as natural, as in emerald. Again, a knowledgeable and experienced dealer will serve as your guide.

Most gem minerals are available in crystals with good luster and the collector should not settle for less. A few, however, are difficult to find due to either the conditions of formation or the nature of the deposits. Many fine sapphire crystals come from the alluvial deposits in Sri Lanka. While they have excellent color and crystal form, most have a frosted, tumbled luster. Fine gem-quality ruby crystals usually form in marble and are either etched out or revealed through mechanical means. This gives many otherwise superb ruby specimens a more matte luster.

From glass substitutes to sophisticated treatments, gem specimens and gemstones have been faked, treated, and modified for centuries. In my years as a dealer, I have seen everything from the obvious (blue plastic rods in matrix sold as aquamarine) to the sophisticated (filled ruby and emerald specimens). While the collector's first line of defense is to buy from a knowledgeable and reliable dealer, I want to highlight some of the more common pitfalls.

Fake specimens and crystals are usually the easiest to detect. While most are not as obvious as the blue rods I mentioned above, most can be determined by careful examination. A lack of customary inclusions (such as the "lilypad" inclusions in peridot) indicate synthetics or impostors. Curved lines under diffuse illumination identify synthetic ruby and spinel specimens. I was once offered a parcel of synthetic spinels glued on matrix! The GIA reported a faked emerald specimen a few years ago, created from a synthetic emerald with small pyrite and calcite crystals attached to a roughened surface. Careful examination revealed the seed plate on which the emerald was grown.

Treated crystals can be harder to detect. Sapphires and other gem crystals can be carefully heated to improve their clarity and color. Only careful examination under magnification will reveal the telltale signs of this treatment. Spodumene, beryl,



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Ruby, Jagdalak Mine, Afghanistan



Topaz, Teixerinha Mine, Brazil, Joe Budd Photography

and topaz, among others, can be irradiated to improve or change their color. This treatment can sometimes be obvious, such as the unusual colors of many "kunzites" from Afghanistan and Pakistan. Other times, it is impossible to detect, and only broad experience and knowledge will identify suspicious specimens. Some gem specimens have had their clarity improved through crack filling with resins or oils. This can sometimes be detected through visual observation, but other times, more sophisticated tests are required.

In summary, gem crystal collecting can be exhilarating and rewarding. The great variety of species, forms, and colors provides both visual and intellectual interest. Given their value and the nature of the market, however, there is no substitute for the experience of a knowledgeable dealer!