

Beryllium Aluminum Silicate



Beryl

Facetable beryl appears in many colours: **aquamarine** (blue to green), **emerald** (green), **golden beryl** (lemon-gold yellow), **goshenite** (colorless), **heliodor** (yellow-green), **morganite** (pink), and **bixbite** (red). Some references classify all non-emerald and non-aquamarine samples as *precious beryl*.

Optical Properties		Physical Properties	
colour	blue, blue-green, green, lemon-yellow, golden-yellow, yellow-green, colourless, pink, red	hardness	7.5 - 8
refractive index	1.58 (1.562 - 1.602)	density	2.66 - 2.87
dispersion	0.014 - medium	crystal system	hexagonal
birefringence	0.004 - 0.01 - low	cleavage	indistinct
pleochroism	dichroic – aquamarine: distinct - (colourless/light blue to blue, greenish blue); emerald: distinct (yellow-green to blue-green); golden beryl: weak (yellow to light-yellow); goshenite: no dichroism (colourless); heliodor: weak (gold-yellow to greenish-yellow); morganite: distinct (pale-pink to lavender-pink)	fracture	conchoidal, brittle

Faceting Properties

- Localities** Many. Brazil, Colombia, Afghanistan, Pakistan, Zambia, Russia, Nigeria, Mozambique, Zimbabwe, USA, Australia, Madagascar, China, Tajikistan...
- Faceting Tips** Emerald and bixbite almost always contain inclusions, which can weaken the crystal and lead to fractures. Otherwise, beryl presents no problems. Polish with alumina, cerium oxide, or diamond on all common laps.
- Treatments** Natural aquamarine usually has a greenish hue. Blue material on the market is almost always heat treated. Emerald treatments include the injection of oils or synthetic fillers to stabilize the stone and improve colour. This type of treatment is not always reported. Other types of beryl may be heat treated or irradiated to improve colour.
- Rough Cost** Strongly dependent on type. Pale aquamarine is available in perfect crystals at modest cost, making it an excellent choice for a first stone (see Chapter 5.2). Well-saturated aqua commands premium prices, comparable to excellent quality tourmaline, for example. The less popular types of beryl – goshenite, morganite, heliodor, and golden beryl – can be difficult to find, but are not expensive. Due to its popularity and mystique, emerald is among the most costly of the coloured gemstones. The profit motive encourages cutting at the source, and you may have difficulty locating decent emerald rough. Natural red beryl, or bixbite, is exceedingly rare in large, facetable sizes, and hence can be expensive. Synthetic emerald and bixbite exist.