

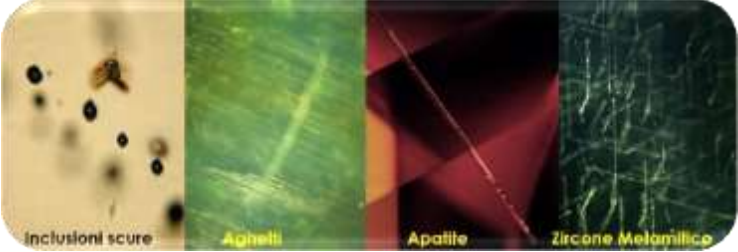


**Warning: this version has been completed with Google Translate , it certainly contains errors or inaccuracies.**

## Technical sheet - general: **Z i r c o n e**

<b>Gemma - names</b>	( <b>Italian</b> - Zircon ) ( <b>English</b> - Zircon ) ( <b>French</b> - Zircon ) ( <b>Spanish</b> - Circón ) ( <b>Portuguese</b> - Zircão ) ( <b>Thai</b> - เพทาย phethāy )	( <b>German</b> - Zirkon ) ( <b>Arabic</b> - الزركون alzarkun ) ( <b>Russian</b> - Циркон Tsirkon ) ( <b>Mandarin</b> - 锆石 gào sh í ) ( <b>Swahili</b> - Zircon ) ( <b>Hindi</b> - जिक्रोन jikron )	<b>photo</b> 
<b>Colors (GIA)</b>	The natural color of the zircon varies between <b>colorless</b> , <b>golden yellow</b> , <b>red</b> , <b>brown</b> , <b>blue</b> and <b>green</b> .		
<b>Cause of Color</b>	Blue, U <sup>4+</sup> . Red, Nb <sup>4+</sup> color centers. Classified in 3 categories: <b>high</b> , <b>medium</b> and <b>low type</b> . The presence of radioactive elements within the structure can cause the internal structure to rupture ( <b>metamictization</b> ). The size of the distribution defines the three types. <b>Allochromatic Gem</b>		
<b>Classification</b>	<b>Mineral class</b> Nesosilicates	<b>Species - Group (mineral)</b> Zircon - zircons	<b>Variety</b> -
<b>Optical properties</b>	<b>Specific Gravity:</b> 3.93 to 4.86 <b>Municipality:</b> 4.60-4.70	<b>High:</b> 1,925 - 2,024 <b>Medium:</b> 1,875 - 1,945 <b>Low:</b> 1,810 - 1,815 <b>Polariscope :</b> DR <b>Double refraction: A.</b> 0.036-0.059 <b>M.</b> _ 0.006 - 0.050 <b>B.</b> 0.002 - 0.008	<b>Character optical</b> Positive uniaxial <b>Pleochroism Dichroic - variable</b> <b>Red</b> - distinct; purplish red - reddish brown; <b>orange / brown</b> - weak; yellow-brown - red-brown; <b>Yellow</b> - weak; honey yellow - brownish yellow; <b>Blue</b> - strong; colorless to gray - blue; <b>Green</b> - weak; brownish-green - green
	<b>Luster (luster) - luster of the fracture</b> From adamantino a vitreous (rare oily) - sub-adamantine a vitreous		<b>Dispersion (fire)</b> 0.039
<b>Light</b>	<b>Fluorescence</b> <b>SWUV (254 nm) :</b> Red to orange red : inert to strong, yellow to orange (SW). <b>LWUV (365nm) :</b> Yellow to orange yellow : inert to moderate yellow to orange (LW and SW). <b>Green</b> : generally inert. <b>Blue</b> : inert to moderate, light blue (LW). Brown: from inert to very weak red (SO).		<b>Phosphorescence</b> Whitish, yellow, greenish or purple-blue under X-rays
<b>Form</b>	<b>Crystalline dress</b> Short, squat 4-sided prisms with pyramidal ends <b>Melting point:</b> 1852-2717 °C	<b>Phenomenal optical effects</b> Catitute (rare) Asterism (4 rays, rare) Color change (Myanmar)	<b>Crystalline system</b> Tetragonal (such as amorphous if highly metamictic ) <b>Crystal class</b>
<b>Chemical formula</b>	Zirconium silicate with traces of Uranium and Thorium  <b>ZrSiO<sub>4</sub> + Fe, U, Th, Hf</b>		<b>Spectrometer image</b>  Low-grade, heat-treated zircon have a weak spectrum
<b>Fracture</b>	<b>Flaking</b> Indistinct (1 direction)	<b>Breaking- Parting</b> Micro -geminatiõe . Lamellar twinning	<b>Fracture</b> Concoidal
<b>Durability</b>	<b>Hardness (Mohs) - Absolute</b> 6.5 (B) -7.5 (A); 86-150	<b>Toughness</b> Fragile	<b>Stability</b> (heat, light, chemicals) Discrete (sometimes susceptible to light)

<p><b>Clarity - characteristics</b></p>	<p><b>Typical inclusions:</b> Angular zoning and streaks (sometimes seen in low characters), crystals. Occasionally silk (rutile needles) is seen, as well as tension cracks, iron oxide-stained epigenetic cracks, and healed cracks. Metamictic pieces can have bright slits known as <i>corners</i> . Repeated gemination and zoning, "skeleton-like" angular tension slits, needle-like inclusions are common for low-type zircon. lamellar structure, liquid inclusions. These fluid inclusions typically harbor multiple child minerals dominated by <b>halite, coite, sylvite, magnetite, and fused silicate inclusions</b> .</p>	
<p><b>Deposits - types of rocks</b></p>	<p>The mineral is found mainly in granite or syenitic pegmatites, with or without nepheline, but also in igneous rocks all over the world, particularly in granites. Most zircons appear as pebbles in gravels near rivers , as an alluvial material. It can occasionally be found as a secondary (trace) mineral in intrusive ultrapotaxic rocks such as kimberlites, carbonatites and lamprophyres , due to the unusual magma genesis of these rocks. In geological contexts, the development of pink, red and purple zircon occurs <b>after hundreds of millions of years</b> , if the crystal has sufficient trace elements to produce color centers. The red or pink series color is obtained in geological conditions above temperatures of about 400 ° C. Zircon forms economic concentrations (which justify its extraction) within heavy mineral deposits of mineral sands, in the cavity of some pegmatites or some rare alkaline volcanic rocks, for example Toongi trachyte , Dubbo, New South Wales Australia in association with the zirconium-hafnium minerals eudialyte and armstrongite . <b>Geological Age</b> : The oldest of the zircons in the study, hailing from the <b>Jack Hills of Western Australia</b> , was around <b>4.404 billion years old</b> , meaning these near indestructible minerals were formed when the Earth itself was in its infancy, only around 200 millions of years.</p>	
<p><b>Characteristics of rough stones</b></p>	<p>Prismatic - pebble eroded by water. Tetragonal prism with pyramidal and / or pinacoidal terminations.</p>	
<p><b>Main deposits</b></p>	<p><b>Australia</b> is a world leader in the extraction of zircons (industrial quality, in part also gem quality), producing <b>37% of the world total</b> and accounting for 40% of the world EDR (proven economic resources) for the mineral. South <b>Africa</b> is the largest African producer, with 30% of world production, second after Australia. Sri <b>Lanka</b> produces material in all colors in gravels, including the rare <b>cat's eyes</b> . Cambodia <b>is</b> the main source of material that deals with colorless and blue heat. Myanmar produces yellowish and <b>greenish</b> stones in gem gravel with ruby. These stones have complex absorption spectra. <b>Thailand is one of</b> the most important commercial sources of gem zircon. Other important sources of gem quality include the following locations: <b>New South Wales, Australia</b> : fine ( <b>orange</b> ) gem. Quebec and Ontario, Canada: Dark, <b>opaque crystals up to 15 lbs</b> , produce only small gems. France: <b>red crystals</b> in Espaly , St. Marcel. Emali, Tanzania: <b>white zircon pebbles</b> . <b>Australia</b> (Northern Territories, Queensland), <b>Cambodia</b> ( Pailin province, Rattanakiri province ), <b>China</b> (Fujian, Hainan, Jiangsu), <b>Kyrgyzstan</b> ( Naryn region ) , <b>Madagascar</b> ( Anosy , Ihorombe ) , <b>Myanmar</b> (Mandalay region, of Sagaing ) , <b>Russia</b> ( Chelyabinsk Oblast, Primorsky Krai ) , <b>Sri Lanka</b> (Central Province, Sabaragamuwa Province ) , <b>South Africa</b> , <b>Tanzania</b> ( Ruvuma Region ) , <b>Thailand</b> ( Kanchanaburi Province, Trat Province ) , <b>Vietnam</b> ( Đ ð ng Nai Province).</p>	
<p><b>Year of discovery</b></p>	<p><b>315 BC:</b> Among the many names assumed in history, the first was perhaps λυγκύριον " <b>lincurion</b> " , a term used in about 315 BC by <b>Theophrastus</b> in his work <i>Perí líthon</i> (on the Stones).</p>	
<p><b>History</b></p>	<p><b>In Homer's Odyssey</b> , Athena gives Odysseus / Ulysses <b>hyacinth-colored hair</b> to make him look more beautiful. <b>Edgar Allan Poe</b> , in the poem "To Helen", uses the same term to beautify Helen's hair. Zircon has been used as a gemstone for over 2000 years. The ancient <b>Greeks and Romans</b> called it "hyacinth" or " hyacinthus " because its red, gold</p>	

	<p>and yellow tones are similar to the cream, apricot and wine reds prevalent in hyacinth flowers. In the Tanakh, the Hebrew Bible, and in Exodus 28: 15-21, zircon, referred to as "hyacinth" is the first precious stone in the <b>third row of Aaron's breastplate</b> . This sacred object features 12 precious stones to represent the 12 tribes of Israel. There is academic debate on how zircon got its name. Given the splendid range of colors of the zircons, especially in shades from golden to reddish-brown, both derivations are possible. In the <b>Middle Ages</b> it was believed that natural zircon promoted peaceful sleep, prosperity and wisdom to those who wore it. During this period, zircons were also worn as protective amulets, especially for travelers to ward off injuries and plagues. The gem would fade and lose its luster if the wearer was infected or in close proximity to a disease. In business matters, wearing zircons was believed to help make prudent financial and strategic decisions.</p> <p>Also since the late Middle Ages, zircon used as an imitation of the diamond and was called the "<b>diamond of France</b> " (it was mined near the city of Opui ). It was also called "<b>Matara diamond</b> " after a city in southern Sri Lanka.</p> <p>In metaphysics, zircon is associated with the crown chakra and stimulates and moves slow energy through all chakra centers in the body. Zircons are healing gemstones for the zodiac signs of Leo, Virgo and Sagittarius. Regarded as a "Stone of Virtue" by metaphysical practitioners, zircon is believed to help you feel more balanced physically, emotionally and spiritually by promoting letting go of old feelings and re-evaluating what really matters in life. Blue zircon was a favorite in <b>the Victorian era</b> and in fine jewelry, especially around 1880, these stones were often featured. Gemologist <b>George Kunz</b> , Tiffany's famous gem buyer, was a notable proponent of zircon and proposed the name " starlite " to promote the gem's fiery nature, but the name was not particularly successful in the market.</p> <p><b>Name</b> : Renamed in 1783 by Abraham Gottlob Werner probably from the Arabic (and, in turn, from the Persian " zargun ") "zar", gold, plus "gun", colored, referring to one of the many colors that the mineral can exhibit. A mineral that may have been today's zircon was named <b>chrysolithos</b> by Pliny in <b>AD 37</b> (Naturalis hystoria ). Called hyacinth by <b>Georgius Agricola</b> in 1555. Mentioned as jargon by Axel Cronstedt in 1758. Called hyacinte by Barthelemy Faujas de Saint - Fond in 1772. Numerous later synonyms have been advanced.</p> <p>Origin is not entirely certain , however , possibly from the French <i>zircon</i> , variant of <i>jargunce</i> , probably from the <b>Greek</b> <i>hyákinthos</i> , hyacinth, through a <b>Syriac voice</b> of the merchants, <i>jaqunta</i> , perhaps a loan from the <b>Persian</b> " zargun / azargun " which means "gold-colored", while still others think that the <b>Arabic word</b> " zarkun " , which means "cinnabar" or "vermillion "is the source.</p> <p>However, for some scholars, the classical Greek name <i>hyakinthos</i> (Revelation 21:20) appears to have been our <b>blue sapphire</b> . The Greeks generally called blue hyacinth. (However, the Roman scholar Pliny the Elder speaks of it as golden in color).</p> <p><i>The hyacinth is also the name of a flower, from the Greek myth of a young woman (called hyákinthos ) loved by Apollo, who accidentally killed her; from his blood was born the flower that took his name.</i></p> <p><b>Other trade names:</b></p> <p><b>Variety : Hyacinth or Jacinto</b> : transparent reddish brown zircons. Historically, this name has also been applied to exonite, a reddish orange variety of garnet.</p> <p><b>Starlite</b> : rich heated cubic zirconia, slightly greenish blue. While you may still come across this marketing name, it has never caught on.</p> <p><b>Slang or Jargon / Jargoan</b> : light yellow to colorless.</p> <p><b>Beccarite</b> : green zircons.</p> <p><b>Melichrysos</b> : yellow zircons.</p> <p><b>Sparklite</b> : colorless zircons. (Ceylon diamond and France diamond, in the past)</p> <p><b>Stremelite</b> : blue zircons.</p>
<p><b>Property attributed</b></p>	<p>It is sometimes worn as a good <b>luck charm</b> as it is known to bring good luck to the wearer. With its ability to <b>increase the appeal</b> of the person who uses or guards it, this stone will strongly attract your partner to you and your charisma. Owning one can help you get out of <b>difficult and dangerous situations</b> in life. To become an important member of society, this gem can give you positive energy to become a valued and outstanding person. It stimulates positive changes and above all in oneself for a complete transformation and <b>inner revolution</b> .</p> <p>Also, it will be of great benefit to use this stone if you are lost in the depths and <b>depression</b> because the power of this stone will instill a true desire for life.</p>

	<p>It is also beneficial in reducing <b>stress</b> , bringing stability, calming hyperactive people, and moving away from temptation. It improves mental growth and makes you more willing to accept the differences between yourself and others. It protects against damage, from human and natural threats. Students may want to use this crystal for its ability to raise the <b>intellectual level</b> . and intuition.</p> <p>Also, for those who have unfortunately been affected by the <b>death of a</b> close relative or friend, it can help overcome deep feelings of loss.</p> <p><b>Planet:</b> Neptune, Venus</p> <p><b>Month:</b> September (traditional) December (modern) <b>Zodiac sign:</b></p> <p><b>Chakra:</b> Crown (but also root, throat and sacral)</p>			
<b>Treatments</b>	<p>Virtually all blue zircon is heat treated. Brown varieties are heat treated at temperatures of <b>800-1000 degrees</b> C, producing colorless and blue zircons. These colors do not necessarily remain constant; ultraviolet rays or sunlight can produce changes.</p> <p>Heating helps crystallize <b>partially metamorphic zircons</b> . This increases the specific gravity and refines the absorption spectrum. Heating Sri Lankan green zircon makes it <b>lighter in color</b> . Sri Lankan red-brown material becomes <b>colorless, sometimes reddish purple</b> . Heating red-brown Thai and Cambodian stones makes them <b>colorless, blue or golden</b> . Brown stones are often heated with or without oxygen present to achieve shades of <b>blue and golden yellow</b> . Brown cubic zirconia with a high uranium content can <b>turn green</b> with heating.</p>			
<b>Synthetic counterpart</b>	<p>Synthetic zircons are of scientific interest only. However, there are advertisements for "synthetic cubic zirconia" for sale online. It is unclear whether this material is actually lab-created zircon or perhaps the most commonly found and known cubic zirconia (CZ).</p>			
<b>It can be confused with</b>	<p><b>Sphene</b> (separation by optical character, dispersion, spectrum), <b>Synthetic Cubic Zirconium</b> (separation by optical character, dispersion, spectrum), <b>YAG</b> (separation by optical character, spectrum), <b>GGG</b> (separation by optical character, spectrum, SG), <b>Titanate of strontium</b> (separation by optical character, SG dispersion), <b>Diamond</b> (separation by optical character, SG, spectrum), <b>Demantoid</b> (optical character, spectrum, inclusions), <b>Malaya Garnet</b> (separation by optical character, SG, spectrum), <b>Topaz</b> (separation by RI, SG, spectrum, dispersion), <b>Natural / synthetic sapphire</b> (separation by RI, spectrum, doubling), <b>Natural / synthetic spinel</b> (separation by RI, spectrum, doubling),</p>			
<b>Indicative gemological tests</b>	<p>The most obvious way to distinguish a zircon presented as a replacement diamond from a real diamond <b>is the birefringence of the former</b> .</p> <p><b>Metamorphic / Metamorphic Zircon: Low type zircon</b> in which the internal structure is broken down due to residual radioactive decay. Although doubly refractive, they become almost singularly refractive. Their properties are inferior (RI, SG) and they can show a weak doubling.</p> <p><b>Chelsea filter</b> : Blue color&gt; greenish; green color&gt; may appear pinkish</p>			
<b>Value (2021)</b>	<table border="1"> <tr> <td><b>High : 2500 \$ / ct</b> <b>3 carat +</b></td> <td><b>Medium: 500-1000 \$ / ct</b> <b>1-3 carats</b></td> <td><b>Low: \$ 75-125 / ct</b> <b>below the carat</b></td> </tr> </table>	<b>High : 2500 \$ / ct</b> <b>3 carat +</b>	<b>Medium: 500-1000 \$ / ct</b> <b>1-3 carats</b>	<b>Low: \$ 75-125 / ct</b> <b>below the carat</b>
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<b>Typical cut</b>	<p>The value of a zircon gem largely depends on its color, purity and size. Before the Second World War, blue cubic zirconia (the most precious color) was available from many suppliers of precious stones ranging in size <b>between 15 and 25 carats</b>; since then, stones as large as 10 carats have become very scarce, especially in the more desirable color varieties.</p>			
<b>Famous stones</b>	<p>There are no famous gems reported, although zircon still appears on important jewels.</p>			
<b>Record stones</b>	<p>The largest zircon gems come from Southeast Asian gemstone gravels. Smithsonian Institution (Washington, DC): <b>118.1 carat</b> (brown, Sri Lanka); 97.6 (yellow-brown, Sri Lanka); 75.8 carats (red-brown, Myanmar); 64.2 carat (brown, Thailand); 23.5 carats (green, Sri Lanka); 23.9 carat (colorless, Sri Lanka); 103.2 carat (blue, Thailand).</p>			