
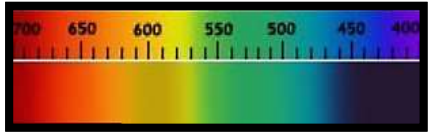



Warning: this version has been completed with Google Translate , it certainly contains errors or inaccuracies.

Technical sheet - general: **Tsavorite**

Gemma - names	(Italian - tsavorite) (English - tsavorite) (French - tsavorite) (Spanish - tsavorita) (Portuguese - - tsavorite) (Thai - - ต้าโวไรต์ tsaavorait)	(German - T savorit) (Arabic - سافوريت tasafurit) (Russian - цаворит tsavorit) (Mandarin -沙弗莱石 shā fú lái shí) (Swahili - - tsavorite) (Hindi - - त्सावोराइट tsaavorait)	photo 	
Colors (GIA)	Colors vary from green , green-yellow , yellowish-green , bluish-green (light to dark), with possible zoning and brown and yellow colors (normally not present in faceted gems).			
Cause of Color	Vanadium (V ³⁺) in octahedral coordination. Chromium oxide (Cr ₂ O) less frequent. The secondary shades of brown and yellow are caused by the presence of iron (Fe ³⁺) and manganese (Mn).			
Classification	Mineral class Nesosilicates	Species - Group Grossularite - Garnet	Variety Grossular (green)	
Optical properties	Specific Gravity: 3.55 to 3.73 common 3.60	RE: 1,740 (1,730-1,760) Polariscope : SR with ADR Double refraction: none	Character optical Isotropic	Pleochroism Monochroic
	Luster (luster) - luster of the fracture Vitreo, Fat -		Dispersion (fire) 0.028	
Light	Fluorescence SWUV: from inert to weak yellow-orange LWUV: inert to faint orange or yellow-orange		Phosphorescence none	
Form	Crystalline dress Massive and granular	Phenomenal optical effects nobody	Crystalline system cubic Crystal class	
Chemical formula	Calcium and aluminum silicate Ca₃Al₂Si₃O₁₂		Spectrometer image  Wide absorption band below 490 nm	
Fracture	Flaking None	Breaking- Parting Rare	Fracture Conchoidal, irregular	
Durability	Hardness (Mohs) - Absolute 7 - 7.5; 100-150	Toughness Fragile	Stability (heat, light, chemicals) Good	
Clarity - characteristics	Typical inclusions: (rows of) feathers, fingerprint inclusions, needles, asbestos fibers and small graphite platelets, apatite, tiny negative crystals, fluid inclusions. Color zoning is very rare.			
	Type II (normally included)	Transparency (commercial) - transparency Semi-transparent to transparent		
Deposits - types of rocks	In metamorphosed, impure limestone rocks, especially in the contact areas; also in schists, serpentine, Precambrian metamorphic graphite gneiss. Age of formation : between 600 million years and 2 billion years ago			

Characteristics of rough stones	Generally small in size and irregular in shape. Stones above 2.5 carats are considered to be very rare and precious.
Major Country Deposits (since)	Mainly in Kenya (Taita-Taveta, Turkana) and Tanzania (Manyara), Minor deposits, gems with slightly different characteristics: Madagascar (Atsimo-Andrefana , Vakinankaratra), Mozambique , Pakistan Sri Lanka and East Antarctica (Queen Maud Land), probably Zimbabwe .
Year of discovery	1967 : The tsavorite was initially identified in 1961, but officially discovered in 1967 by the Kenyan-Scottish geologist-gemologist Campbell R. Bridges (1937 - 2009), in Lemshuko , 15 km from Komolo , in the north-east of Tanzania, during a exploration he dedicated to the search for gems.
History	<p>The discoverer, Scottish geologist Campbell Bridges , first noticed small Tsavorite crystals in 1961 in Zimbabwe while working for the UK Atomic Energy Authority (UKAEA). Campbell's studies led him to hypothesize that the deposit also extended over the territory of Kenya, a country in which he therefore continued his research. His second discovery of green grossularite garnet , however, occurred in northern Tanzania in 1967 . Small green crystals were found in a small valley hidden in a low range of hills just over 100 kilometers southwest of Kilimanjaro, about 13 kilometers southeast of the village of Komolo . The color of the grossularite in this position ranged from a pale color to a nice vivid bottle green.</p> <p>Subsequently, this deposit briefly produced some of the largest Tsavorites ever found, including a beauty of just under 35 carats. But long after I had lost the mine due to nationalization by the Tanzanian government and moved to Kenya. By the late 1970s , a small range of gray humped hills had been identified in southeastern Kenya, 135km southeast of Mount Kilimanjaro, not unlike the appearance of the Komolo Hills . More importantly, these hills were part of a belt of rock types similar to those in which the Tanzanian green garnet was found.</p> <p>This time the geologist managed to obtain the authorization for the exploitation, but in the meantime the attention for the stone had slowed down and only in 1974 , when Tiffany began to promote it, did she know the definitive commercial recognition.</p> <p>Name : The initial name given to this stone was <i>green grossular garnet</i> . The grossular garnet takes its name from the Latin 'grossularia' which means "gooseberry" due to the similarity of the color of its pastel green varieties to the fruit. The tsavorite, on the other hand, takes its name from the Tsavo Park (Taita Taveta) in Kenya, where there are important deposits. The name was introduced in 1974. In late 1973 Henry B. Platt, then president of Tiffany & Co. , Who had been interested in the new gem from the beginning, decided it was time to give it a trade name. The modern mineralogical nomenclature dictates that the denomination of a mineral must end with " ite ". Campbell and his family had been forced to leave Tanzania, where the deposits had passed under government control and in the early 1970s new mines of this mineral had also been identified in Kenya, so the mine was linked to this nation. Since Tsavo was the closest place to the Kenyan deposits, Tiffany and Campbell decided to call the magnificent green fire gem "Tsavorite", (some German mineralogists had proposed the name " Tsavolite ").</p> <p>Market Names : Tsavorite, Tsavorite Garnet, Variety : /</p>
Property attributed	<p>In ancient times it was believed that green stones aided sight . Today, it is also added that tsavorite, in particular, increases fertility , strengthens the kidneys and is beneficial for membranes and skin . Since the tsavorite is a garnet, it is linked to the principle of love, in particular to ensure a good relationship with your partner, improving the clarity of perception, the knowledge of love and the understanding of the beloved. Emotionally, the stone also has many other attributes. It brings strength and confidence , teaches relaxation , and inspires service and cooperation . By meditating with a nearby tsavorite, or by wearing one, you can graft an increase in trust and benevolence, which start from the heart chakra. This vital organ can help rearrange the emotional state by triggering a change when needed. Through your heart, you find love for yourself and for others.</p> <p>Planet: Venus Month: January (garnet) and May Zodiac sign: Taurus Chakra: Heart</p>

Treatments	Tsavorite is one of the rare colored gems that normally is not subject to any kind of treatment or alteration. Some claim that heat treatments exist, but given the characteristics of the stone they seem unlikely.		
Synthetic counterpart	There is no direct synthetic counterpart, however there are other types of synthetic green garnets (YAG and GGG) and simulants may include glass or cubic zirconium.		
It can be confused with	<p>Emerald (Separation by: RI, optical character, SG, inclusions), Tourmaline verdelite or chromium-tourmaline (Separation by: optical character, pleochroism, RI, SG), Apatite (Separation by: optical character, SG, RI, inclusions), Diopside (Separation by: optical character, RI, SG), Chrysoberyl (Separation by: optical character, RI, SG), Peridot (Separation by: optical character, RI, SG, inclusions), Cubic Zirconia (Separation by: RI and SG), doublets (composite gems, Separation by: microscope, lens analysis), Glass (Separation by: UV fluorescence, inclusions), etc.</p> <p>There are two varieties of coarse green : one is found in the form of transparent crystals, the other is massive. The coarse green one, typical of South Africa, is known as Transvaal jade / Transvaal jade (from the SA region where it is recovered) because it resembles jade. May contain black grains of the mineral magnetite. The other is a transparent green variety called tsavorite. The former is used as a decorative stone, while the latter is faceted and sold as a gem.</p>		
Indicative gemological tests	RI, polariscope test, Chelsea filter (red-pink if rich in chromium), microscope analysis, The quickest way to identify garnet is with the use of powerful neodymium magnets . Garnet is attracted to neodymium magnets because it contains high concentrations of iron and / or manganese.		
Value (2021)	High: 6000-10000 \$ / ct 3 carat +	Medium: 500 -2000+ \$ / ct 1-3 carats	Low: \$ 20-100 / ct below the carat
Typical cut	A round, oval or teardrop-shaped mixed cut is usually given, or occasionally a brilliant cut. Since tsavorite is not often found in large sizes, the shapes that retain the greatest carat weight are often those preferred by lapidaries.		
Famous stones	Bridges Tsavorite unveiled the largest cushion-cut square tsavorite, weighing 116.76 carats (from a raw crystal of 283.74 carats), in March 2018. The gem was faceted by Victor Tuzlukov .		
Record stones	The largest crystal in the world, was discovered near Arusha, Tanzania in 2006 and weighed 185 grams (925 carats) , while the largest ever cleaned and cut is 325.14 carats and was valued at over \$ 2 million. in 2007. There is also a specimen, part of the Smithsonian Institute's Gem Collection, but it is only 7 carats .		