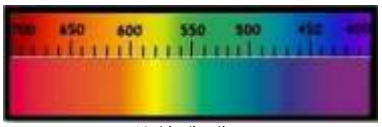
Warning: this version has been completed with Google Translate , it certainly contains errors or inaccuracies.

Technical details - general: Brown Diamond

<table>
<tr><td>Gemma - names</td><td>(Italian - Diamond)
(English - Diamond)
(French - Diamant)
(Spanish -Diamond)
(Portuguese - Diamond)
(Thai - เพชร phechr)</td><td>(German - Diamant)
(Arabic - الماس almas)
(Russian - Алмаз Almaz)
(Mandarin -钻石 zu à nsh í)
(Swahili - Almasi)
(Hindi - हीरा heera)</td><td>photo
  </td></tr>
<tr><td>Colors (GIA)</td><td colspan="2">Brown diamonds (gem quality and otherwise) are the most frequently mined underground worldwide.
In the system perfected by Rio Tinto (Argyle) the codes from C1 to C7 are used to indicate different colors and shades:
Real champagne diamonds are classified as C2-C3 and cognac diamonds are C4-C7. Of course, this degree of color will not necessarily be on a diamond's certificate. However, it can be helpful in your search for the perfect brown diamond.
Brown diamonds are classified by the GIA against brown touchstones and the grading reports include a comment describing the color for grades K to Z.
• Grades K to M include the “Faint Brown” modifier on the color grade of the ratio. (e.g. K light brown)
• Grades N to QR include the "Very Light Brown" modifier (eg OP Very Light Brown)
• Grades ST to YZ include the "Light Brown" modifier (eg UV Light Brown)
Brown diamonds outside the D to Z scale have the potential to receive degrees Fancy Light Brown, Fancy Brown or Fancy Dark Brown, depending on their tone.
Stones outside the D to Z scale have the potential to receive grades Fancy Light Brown, Fancy Brown or Fancy Dark Brown , depending on their tone. Brown diamonds vary in tone from very light to very dark .</td><td></td></tr>
<tr><td>Cause of Color</td><td colspan="3">There are several causes for the brown color, including irradiation treatment, nickel impurities, and lattice defects associated with plastic deformation; the latter is the predominant cause, especially in pure diamonds. In fact, in 90% of cases, the (non-homogeneous) color develops when the plastic deformation creates voids (in quantities of at least 40-60 PPM) in the planes of carbon atoms, or displaces some atoms in the crystal lattice of the diamond. This deformation develops along the so -called planes of glide , the spaces in which the color is concentrated and which can appear as " grana " (graining in English). a series of parallel brown bands,
This effect is probably caused by the extreme pressures that diamonds are subjected to when they are forming. This pressure forces the compact and regular structure to move and compress along the flaking planes. The more the structural defects are concentrated, the darker the stone appears (until it appears black). These gems can be either type I (one) or type II (two).
Allochromatic Gem</td></tr>
<tr><td>Classification</td><td>Mineral class
Native non-metallic, mineral</td><td>Species - Group (mineral)
Diamond</td><td>Variety
Brown diamond</td></tr>
<tr><td rowspan="2">Optical properties</td><td>Specific Gravity:
3,516-3,525
Common: 3.52</td><td colspan="2">RE: 2.417
Polariscope : SR
Double refraction: /</td><td>Characte r optical
Isotropic
Pleochroism
NO</td></tr>
<tr><td colspan="2">Luster (luster) - luster of the fracture
Diamantina - adamantine</td><td>Dispersion (fire)
0.044</td></tr>
</table>

<table>
<tr><td>Light</td><td colspan="2">Fluorescence
SWUV (254 nm) :
LWUV (365nm) : inert to type Ia, faint blue (dif. N3), faint green (dif. H3), rare, faint pink ; yellow (type Ib)
type IIa, variable, red / pink ,</td><td>Phosphorescence
Type Ib (isolated nitrogen, type C)
Sometimes indicative to distinguish treated (HPHT) or synthetic and red IIb (boron) stones</td></tr>
<tr><td>Form</td><td>Crystalline dress
Octahedral, dodecahedral, cube-octahedral, spherical or cubic
Melting point: 4.027 ° C, Burns above 700 ° C in air.</td><td>Phenomenal optical effects
/</td><td>Crystalline system
Cubic
Monometric
Crystal class</td></tr>
<tr><td>Chemical formula</td><td colspan="2">Carbon (typically 99.95%)
C.</td><td>Spectrometer image
 
Not indicative</td></tr>
<tr><td>Fracture</td><td>Flaking
Distinta - octahedral
(4 directions)</td><td>Breaking- Parting
. Twinning law of the common Spinel (which produces "macle")</td><td>Fracture
Complex, irregular</td></tr>
<tr><td>Durability</td><td>Hardness (Mohs) - Absolute
10; 1600
(with variations in directional hardness)</td><td>Toughness
Fair-good</td><td>Stability (heat, light, chemicals)
Excellent</td></tr>
<tr><td>Clarity - characteristics</td><td colspan="3">It is often difficult to find a brown diamond with a high degree of purity Many stones of this color have a classification in the range SI1-I2. However, some reasonably priced diamonds can be found in the VS (Very Small Inclusions) range. In general, the color of a stone tends to hide defects and inclusions. Since brown diamonds can be quite dark, they hide flaws very well.
 
What may seem like an obvious flaw in a colorless diamond would hardly be visible in a brown diamond. It is important that the gem is clean to the naked eye, with no obvious inclusions.
Typical inclusions: The most prominent inclusions are the zoning or bands of alternating tones that cause the brown coloring. Some low quality stones, however present in some jewels, can have a large number of internal characteristics, hidden by the dark color of the stones.</td></tr>
<tr><td></td><td>Guy:
NA</td><td colspan="2">Transparency (commercial) - transparency
Transparent</td></tr>
<tr><td>Deposits - types of rocks</td><td colspan="3">Brown diamonds are present in all deposits in the world. A large part of all the gems extracted have this color.
Geological age : 3.3 mil to 100 million years</td></tr>
<tr><td>Characteristics of rough stones</td><td colspan="3">They are never of regular octahedral shape if they belong to type II (without the detectable presence of nitrogen, which are formed at greater depths than those of type I). Brown diamonds can show the whole range of external shapes: from octahedron, to dodecahedron, to cube to geminate stones to completely irregular ones.</td></tr>
<tr><td>Main deposits</td><td colspan="3">This is the most common type of rough stone in the world (superior to yellow or colorless). in all warehouses of the world. Their characteristics embrace the general ones of formation of all diamonds.</td></tr>
<tr><td>Year of discovery</td><td colspan="3">Uncertain: As for the brown color, the commercial discovery is quite recent. Only after World War II, and in particular in the last twenty years, these diamonds found a small space in the world of precious stones.</td></tr>
<tr><td>History</td><td colspan="3">In the 17th century, the famous French explorer Jean Baptiste Tavernier amassed a fortune by buying diamonds for the French aristocracy. One of his most "loyal" customers was the Sun King, Louis XIV of France. During his travels in India he visited several mines in the area then called the Kingdom of Golconda. The transalpine merchant noticed the strong presence of brown diamonds which he considered of inferior quality. Tavernier believed that the extraction of diamonds of this color was not worthwhile and departed from such deposits. In 1900, there were several times when chocolate colored</td></tr>
</table>

gems began to find spaces of notoriety, but these moments in the limelight were typically short-lived and did not leave a long-term impact.
Krishna Choudhary , a member of a family that has been dealing with some of India's most precious jewels for 10 generations, stated that jewels have long been characterized by brown and yellow gemstones. For example, **in the 1930s** , the Maharajah of Nawanagar had Cartier set an unusual **61.50-carat golden brown diamond** , known as ***Tiger's Eye*** , on his favorite turban. Choudhary set a brown diamond in a men's ring for his Santi jewelry brand.
In **1937** , for example, a 65.7-carat golden-brown diamond was shown at the Universal Exposition in Paris; its large size attracted the attention of the press and attendees. After the event, the diamond was offered to the visitors of the American Museum of Natural History. Even this moment on the shields left no lasting mark.
In the 1960s , Jackie Kennedy received a marquise-cut brown diamond engagement ring called *Lesotho III from Aristotle Onassis* . After his death, the ring, valued at $ 600,000, was auctioned for $ 2.3 million at Sotheby's in 1994. In **1974** , Richard Burton gifted Elizabeth Taylor a ring and earrings adorned with cognac diamonds for their tenth. wedding anniversary. Elizabeth Taylor wore the precious jewel on the night of the Oscars.
Until the 1980s, prior to the advertising campaign for the Australian Argyle mine, most of them were regarded as suitable for industrial use. After their marketing through names such as ***Champagne*** **,** ***Chocolate*** **and** ***Cognac*** , (the term " *brown* " was not very popular), they began to earn a name in the diamond market landscape.
In **1991** , the stone sold for just $ 1.3 million. Compared to other diamonds of similar carat and quality, the value of the brown diamond is considerably lower. For example, on a per-carat basis, the price of this diamond was only 2% of the value of a red diamond sold at Christie's in 1987.
It is said that for nearly 100 years, De Beers, the company that controlled the diamond industry, enforced the policy that brown diamonds were excluded from the gemstone market. They ordered that all diamonds of this color be addressed for industrial use only, primarily as abrasives. For this reason, diamonds kept a very low value for a long time.
Baumgold Bros., high jewelry importing brothers of the **1950s and 1960s** , decided to rename brown diamonds to entice sales of these diamonds not too popular at the time. The names included ***champagne, amber, cognac and chocolate*** . Other companies have followed the original example by adding, over time, different terms related to shades of brown: ***clove, coffee, caramel, cappuccino, mocha, espresso, cinnamon and even tobacco.*** This rebranding caused a search for confusion in the market, but eventually was dusted off, in part, by the Australian company Rio Tinto, which after the opening of the Argyle mine in Australia, realized that about **80% of the stones extracted** (production arrived at a peak of 35 million carats annually) **were less than 0.1 carat brown** in size and most stones had problems with clarity.
De Beers, the company that at the time held the near-monopoly on rough diamonds, was only willing to pay an industrial-grade price for these diamonds. For this reason, Argyle decided to stop selling his gems to De Beers, but rather have them cut in India, where labor costs were very low and cutters were willing to facet very small stones. Jewelry made from these mini diamonds was inexpensive, yet attractive. This operation was an earthquake for De Beers' control and gave a huge boost to the Indian cutting industry. Also due to this failed deal, the Company, controlled by Anglo-American , lost its absolute monopoly on diamonds. In the 90s we witnessed the **official end of the so-called Single "Channel" (that of De Beers) and the birth of the Multiple one** (various companies such as Alrosa, Rio tinto etc. secured significant parts of the crude oil market).
De Beers later embraced this trend and in **1996** introduced a huge number of diamonds of this color to the market. Previously, they were almost always destined for industrial uses.
Given the new abundance and the absence of official criteria, Rio Tinto invented an ad hoc classification system, in which C1 represented the lightest shade, while C7 represented the darkest one. In **2000** , the high-end jewelry company ***Le Vian*** registered the " *chocolate diamond* " *trademark* , combining it with its new line of jewelry. The massive advertising campaign that followed was a success: in 2007, practically no one had bought a "chocolate diamond" but only 7 years later, in **2014** , around 400,000 were sold.
Today, there is a particularly significant problem with colored diamonds as, as of 2010, virtually all of the author's yellow melee (small) diamond packs contained HPHT synthetic

	diamonds. Additionally, as of 2019 most **brown melee diamond packs** contained CVD synthetic diamonds and as of **2020** gray and salt and pepper diamonds (included) often contain HPHT and CVD diamonds. Also in 2020, an online auction of three beautiful jewels, created by Anna Hu , was held, the proceeds of which will go to support health workers fighting the coronavirus. Ms. Hu created these one-of-a-kind pieces exclusively for this charity project **using rich brown diamonds** mined from Alrosa in Yakutia, a region of the Siberian Far East. The project is organized in collaboration with the non-profit charitable organization *Diamonds Do Good* . **Gray and brown diamonds** are the pillars of **Pomellato** 's 2021 Nudo (Nude) and Sabbia (Sand) collections. **Name** : The name diamond comes from the ancient Greek ἀ δάμ ας (adámas), "unalterable", "indestructible", "indomitable", from ἀ - (a-), "un-" + δα μdam (damáō), "I overwhelm ", or I" tame ". In India and surroundings: Etymology: Vai = Mouth, Ra = Light, Vaira = Portal of Light. In Sanskrit it also took on the meaning of diamond club or scepter. The term vajra indicated 2 distinct things: the "diamond" or the "lightning bolt". It also referred to a kind of battle weapon used by the god Indra. In Tibetan Buddhism this same object-stone-weapon is indicated by the name of Dorje . **Other trade names:** Cognac, amber, champagne, chocolate, clove, coffee, caramel, cappuccino, tobacco, cinnamon and mocha. **Variety** : /
Property attributed	Brown diamonds have become a real modern commodity and are perfect for simple, practical and good-natured people. They are said to represent stability, practicality and reliability. These gems strengthen the general well-being of those who use them in their spiritual practices. The brown color also has strong ties to nature, which in turn links it to feelings of peace and grounding. They are believed to have an effect on the wearer's energy charge and mental clarity. It is believed to have the ability to give spiritually uplifting experiences when worn and can also help a person have a more open mind. When it comes to energies, these brown diamonds are believed to be able to reduce energy obstructions which can make you feel lighter and overall better disposed. According to the **Garuda Purana** (9th-11th century AD), the value of natural diamonds was determined more by color and purity than by weight and there were eight varieties: **Hanspati - Creamy white** or shell color / semi-transparent or swan-like) Vanaspati - Grassy green, like in fresh grass, Vajraneel - Blue / bluish white, like blue jay, Kamlapati - Salmon pink or like a lotus petal. Shyamvajra - light gray, like smoke Sanloyi / Sanloyee - yellow-green, like a cedar Telia - dark oil-bearing color Vasanthi - black color Legends say that deities and demigods presided over each of the wonderful natural colored diamonds: Varun , the god of the sea, ruled over white diamonds. Indra preferred yellow diamonds. The copper-colored diamonds were those of Vayu or the god of the wind. Greenish diamonds (not emeralds) were Surya's favorites. **Agni** , **the God of Fire, ruled over the brown diamonds.** Hindu doctors used diamonds to treat various diseases and ailments. They believed that the diamond had immense powers because it was a combination **of different flavors such as salty, bitter, sweet, pungent and acrid.** Therefore, they used a variety of gems to address a broad spectrum of diseases ranging from fever to digestive problems. It was believed that holding a diamond in the right hand could maintain a good state of mind and prevent insanity. However, this had to be held without exerting too much pressure as doing so would cause muscle stiffness which would lead to seizures. Even today, many followers of these ancient cultures **only buy a diamond on Fridays** when the planet Venus is in the zodiac sign of **Taurus, Libra or Pisces.** They buy the diamond before 11 and deliver it to the jeweler on the same day if they want it set in a piece of jewelry. You should also pay attention to the appearance of the diamond before buying it. Flat gems or those with a shape that is not regular (the ancients said hexagonal) are a strict no-no; so are those with a cracked or discolored surface. Those that reflect all colors (dispersion) are the most valuable ones.

	Planet: Venus (diamond in general) **Month:** April (diamond in general) **Zodiac sign:** Virgo **Chakra:** solar plexus (stomach)		
Treatments	Electronic bombardment using Van de Graaff generators produces orange, yellow, **brown** or pink colors. **Treatments to enhance the color** **Irradiation** Irradiation with high-energy particles (electrons, ions, neutrons or gamma rays) produces free spaces in the diamond lattice, expelling carbon atoms. These wandering places create **centers of green color** in transparent diamonds and yellow-green in pure yellow ones. The color of yellow diamonds comes from a small number of nitrogen atoms that replace the carbon in the lattice. Heating irradiated diamonds to temperatures above 600 ° C **results in a brown color** associated with aggregation of vacancies, with or without the presence of nitrogen. Most natural brown diamonds do not show characteristic absorption peaks, while treated with irradiation or which owe their color to nickel impurities can be easily identified through spectroscopic measurements (eg Absorption), **Thermal treatments** Understanding the process by which brown can be related to lattice imperfections led to the creation of a technique to achieve the opposite effect. To convert brown diamonds into more valuable gemstones, such as light yellow or even colorless stones, they are subjected to high pressures of 6-10 GPa and temperatures above 1600 ° C. This procedure heals the modification of the defects present in the starting gems. The technique has been extensively demonstrated in several research laboratories in Russia and the United States. In March 1999, the Belgian company Pegasus Overseas , a subsidiary of New York-based Lazare Kaplan International, began marketing synthetic diamonds produced by US-based General Electric (GE). Those diamonds then received the name *GE-POL* / GEPOL and were also marketed in the United States under the ***Bellataire brand*** . The word "GEPOL" was engraved with a laser on the belts of each diamond treated. In 2004, however, the GE diamond business was bought by ***Littlejohn & Co.*** and renamed Diamond Innovations . Since 1999, several companies around the world have adopted this technique. This process goes well with **CVD grown diamonds.** These stones, instead of being created directly as colorless, with greater expenditure of time and energy, are **grown with a brown hue** . They are then subjected to the HPHT treatment (at high pressures and temperatures) to remove this chromatic component and discolor them (they are worth more without the brown component). This type of intervention can be applied, with the same purpose, to natural diamonds.		
Synthetic counterpart	There are 2 types of single crystal synthetic diamonds: **CVD** (chemical vapor deposition) diamond and **HPHT** (high pressure and high temperature) diamond. Synthetic brown diamonds are created by compressing graphite to several gigapascals and heating them to temperatures above 1500 ° C. They are generally rich in nitrogen. Nitrogen is dispersed through the lattice as individual atoms and **induces the yellow color** . Nickel **is** often added to graphite to accelerate its conversion to diamond. The incorporation of nickel and nitrogen in the diamond **induce the brown color** . Nickel is readily detectable by characteristic and sharp luminescence and optical absorption signals that make such diamonds easily identifiable.		
It can be confused with	**Moissanite synthetic (separable through: doubling, dispersion, inclusions), Zircon colorless** (separable through: double refractive), **Cubic Zirconium / CZ** (separable through: optical character, spectrum, splitting), **YAG** . (separable through: SG, dispersion), **GGG** (separable through: SG, gloss),		
Indicative gemological tests	Generally, diamonds are accompanied by certificates drawn up by gemological laboratories. Typically it is better to rely on such reports than to attempt Do-It-Yourself identification methods. There are tools to separate diamonds from imitations or synthetic stones. Most, if not all, of them are calibrated or can only distinguish colorless diamonds.		
Value (2021)	**High :** 5 / 10,000 $ / ct **10 carat +**	**Medium:** $ 2,000 / ct **1-2 carats**	**Low:** $ 1000 / ct **below the carat**
	Generally medium to dark tones with a warm, golden or reddish appearance are the most popular. The most popular show **a hint of secondary colors** : greenish, yellowish, orange or reddish. While for such hues a brown component (indicative of low vividness)		

	can drastically reduce the price per carat, in stones that have brown as their dominant color, practically any other secondary color leads to an increase in cost. **GIA classification and general preferences in the first two decades of 2000** : Brown diamonds vary in tone from very light to very dark. Consumers generally prefer medium to dark shades with a 'warm', golden to reddish appearance. Since the color of these gems can cover the inclusions, in the case of darker stones, they have less influence on the degree of purity and therefore on the price. There are pink diamonds with a secondary shade of brown and some browns with a pink shade. And the price differences between these stones are huge. When the GIA classifies a colored diamond, the color description is often made up **of two and even three colors** . A main color (last mentioned, with capital letters) and supporting secondary shades. The gray (tertiary) components of gray (cool colors, such as blue, green and partially purple and yellow) **and brown** (warm colors, such as red, orange, purple) appear as obvious signs of saturation.
Typical cut	Brown diamonds, being of lesser value than those of other colors or colorless ones, lend themselves well to calibrated cuts (brilliant, oval, heart, etc.). The most important stones (by weight or by the evident presence of secondary colors of value, such as red or pink).
Famous stones	**The Southern Star** (the original name was Portuguese " Estrela do Sul") in *Fancy Light Pinkish -Brown color* is one of the largest diamonds ever mined in Brazil. The original rough stone was found in 1853 by an African slave, for whom she received liberty and a life pension. The diamond was cut into a cushion-shaped gem weighing 128.48 carats. **Lesotho Brown was** unearthed in the Letseng diamond mine in Lesotho in 1967 by Ernestine Ramaboa . The rough stone **weighed 601 carats** and was worked in 1968. From it 18 gems were obtained for a total of 252.40 carats. The largest, emerald cut, weighs 71.73 carats and is known as **Lesotho I** It was proposed by Sotheby's, Geneva, in 2008, but was not sold. **The 40.42-carat Lesotho III** (third largest) is *marquise -shaped* (8.084g) and was once owned by Jacqueline Kennedy, who received it from her husband Aristotle Onassis as an engagement ring. It was mounted on a ring The platinum ring, created by Harry Winston, was worth $ 600,000. It was auctioned in 1996 and was awarded for US $ 2,587,500. In 1974, **Elizabeth Taylor** wore a cognac diamond ring and earrings to the Oscars. The jewels had been a gift from Richard Burton for their 10th anniversary.
Record stones	**The Golden Jubilee Diamond** is the largest transparent diamond in the world (currently surpassed by the Enigma *carbonado* (opaque polycrystalline diamond), of 555.55 carats and 555 facets). It was found in 1985 as a rough stone of 755.5 carats in the Premier mine in South Africa.The stone was cut in 545.67 carats and was bought by De Beers by a group of businessmen, led by the gemologist Henry Ho of Thailand in 1995. The golden jubilee diamond was dedicated to King Rama IX (Bhumibol Adulyadej) for his 50th coronation anniversary. **The** Earth Star Diamond was found in the Jagersfontein mine (owned by De Beers) in 1967. The rough stone weighed 248.9 carats and was cut into a 111.59 carat drop-shaped gemstone with a deep brown color and an extraordinary brilliance. The diamond was purchased in 1983 for $ 900,000. **The Incomparable Diamond** is another African diamond, one of the largest ever found in the world (890 carats). In 1984, a young girl discovered it in a pile of rubble from old mining dumps in the nearby **MIBA Diamond Mine** , **Democratic Republic of the Congo** . The final size of the diamond was decreased to 407.48 carats after subsequent re -cuts to reduce the number of internal defects. It classified by the GIA as internally flawless (IF) in 1988. At the end of **2021** , in Geneva, in the *Magnificent sale Jewels* , by Christie's, a pear-shaped brilliant brown diamond of 7.60 carats and VS1 clarity, sold for $ **42,835, per carat** .