amethyst absorption spectrum; absorption spectrums of amethyst is not distinctive but two in the yellow-green seen at 520 and 550 nm.

<table>
<thead>
<tr>
<th>nm</th>
<th>700</th>
<th>650</th>
<th>600</th>
<th>555</th>
<th>550</th>
<th>500</th>
<th>450</th>
<th>400</th>
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</thead>
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<tr>
<td></td>
<td>red</td>
<td>orange</td>
<td>yellow</td>
<td>green</td>
<td>blue</td>
<td>violet</td>
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</table>

Absorption spectrum of amethyst

amethyst basaltin; a German misleading term for pale amethyst colored apatite.

amethyst basaltine; a misleading term for pale amethyst colored apatite.

amethyst basanite; a pale yellow reddish beryl.

amethyst basanite; a color designation meaning violet or purplish.

amethyst–citrine; a rock crystal containing both minerals with both colors. Also called ametrine or trystine. Heat treatment of amethyst can produce similar stone.

amethyst, -color interference of; frequently color interference bands caused due to twinning can be seen in natural quartz or amethyst by using thin section and crossed Nicols under microscope.

amethyst, -color of; a pale violet to purple or violet, transparent variety of quartz. The color being due to present of Fe$^{2+}$ or Fe$^{3+}$ and traces of manganese, owing to irregular color zoning. When amethysts are heated to 350–400°C under reducing conditions or irradiated, the color changes to light to dark yellow, which is frequently misnomered as citrine. Amethyst containing Fe$^{3+}$ before irradiation changes to yellow, when containing Fe$^{2+}$ the color turns green, which is called prasiolite or greened amethyst. When the stone is heated to 350–400°C obtains a parti-color of amethyst–citrine known as ametrine.

amethyst cut; cut as faceted gemstones in various sizes, cabochon, or are tumbled.

amethyst imitation; a violet barium-glass. SG: 2.80, RI: 1.542.

amethyst inclusions; → inclusion in amethyst.

amethystine; a variety of quartz or glass with patchy amethyst coloring.

amethystine chalcedony; light violet to gray-purple variety of amethyst-chalcedony from Arizona, USA, which is commercially known as damsonite. → Chalcedony.

amethystine quartz; massive quartz with patchy amethyst coloring. → Amethyst quartz.

amethystine sapphire; same as violet to purplish sapphire.

amethystzonats; the fiery red hue passes at the edges into amethyst violet color.

amethyst, -name of; the term is derived from the Greek name amethystos meaning not drunken refer to a supposed power to mitigate alcoholic excess. In Farsi (Persian) gemast (not drunken).

amethyst lithia; a misnomer for lilac spodumene.

amethyst oriental; a misnomer for violet corundum.

amethyst point; hexagonal amethyst crystal from an amygdaloidal geode.

amethyst quartz; a commercial term to designate badly fashioned cabochon from amethyst quartz, especially those from amethystine quartz.

amethyst, synthetic; → synthetic amethyst.

Amethystus; sixth stone in Jewish High Priest Breastplate. → Breastplate.

amethyst, -zebra stripes in; a typical liquid-filled duct inclusion in parallel arrangement with a structure appears as striations similar to zebra or tiger stripes, which may occur due to some kind of growth disturbance or pressure causing internal shearing.

ametrine; a combined term used for violet and yellow striped amethyst–citrine, which grows together, found only in Anahi Mine, Bolivian. Used as a gemstone.

amherst stone; → blue stone.
amianthus; ancient name for long, fine silky fibered variety of asbestos such as chrysotile.
amiantoid; an olive-green, coarse fibrous variety of asbestos.

Amici glass-prism; a lens system that is integral in some direct-vision spectrometers consisting of two or three or more layers of glass of differing refractive indices to give zero deviation at yellow wavelengths. The lens in the middle of the system is from lead glass (flint) and both of the ends are potassium-glass (crown glass). This lens system is arranged to give dispersion without deviation of the yellow color.
amicroscopic structure flaw; deviation from an ideal crystal lattice in unit of 10^{-7} to 4 \times 10^{-7} \text{ cm}.

AMICUT; → Diaminir, Ltd.
amino group; the radical (NH\textsubscript{2})\textsuperscript{−} in organic chemistry.
aminobenzene; same as aniline.
aminoplastics resin; the name applied to the urea and thiourea or melamine in formaldehyde condensation products. They are synthetic resins of the bakelite type. Dyed and used as gemstone imitation. RI: 1.55–1.62. SG: 1.50. H: 2. Transparent to translucent.

Amiti Diamond; a stolen diamond of 31 cts, was owned by Mrs. N. Coffin, her girl’s name was Amiti; from Bedford, Massachusetts, USA.
ammolite; a term used for doublet made from lumachelle, a fossiliferous fire marble usually ammonites or baculites. → Ammonite.
ammonalaun; a colorless to gray mineral of alum group with chemical formula: NH\textsubscript{4}Al(SO\textsubscript{4})\textsubscript{2}, 12H\textsubscript{2}O. H: 1.5. SG: 1.650. RI: 1.459. Also called tschermigite.
ammonite; an iridescent gem material derived from aragonite-nacreous layer of ammonite fossils. The polished surface shows closely patches with play-of-color similar to that of black opal. Worn as brooch or pendant. Found in Alberta, Canada. Sometimes it is impregnated in plastic to prevent damage and marketed as korite. → Korite, fire marble, lumachelle

ammonite; an explosive substance, which contains 70–95% ammonium nitrate.
amorphism; the state or quality of being amorphous, such as absence of crystalline structure.
amorphous; a term applied to minerals or gem materials, which have no definite internal arrangement of the atoms or molecules, and hence no external crystal form. Sometimes its properties are the same in all directions such as amber and glass. The term excludes the existence of any degree of order. Noncrystalline. → Crystalline.
amorphous mineral; a mineral with no definite crystalline structure.
amorphous zircon; zircon, which has suffered a break-down from crystalline form to an amorphous zircon. Common in minerals containing radioactive elements. The name applied to the low zircon, which has decomposed into nearly amorphous SiO\textsubscript{2} and ZrO\textsubscript{2} from the normally full crystalline zircon mineral. Also called metamicts.
amosite; an iron rich anthophylite a variety of asbestos in yellow color from Transvaal, South Africa.
amourant; a commercial term for doublet or composite stone made of synthetic white sapphire top and strontium titanate on the bottom.
amhangabeite; same as samarskite.
amellite; an old and obsolete term for shale containing bituminous carbonaceous.
amplithe; another term for cannel coal, carbonaceous schist.
**amphibole**; the name applied to a dark colored group of ferromagnesium silicate minerals whose physical and chemical characters serve to link them together in one family of inosilicates with double chains and chemical formula of $A_2B_5(Si,Al)O_{22}(OH)_2$. Where $A = Mg, Fe^{2+}, Ca, or Na$, and $B = Mg, Fe^{2+}$, $Fe^{3+}$ or Al. They are silicates of magnesium, iron, calcium, sodium, and sometimes potassium. The minerals are characterized by prismatic columnar or fibrous crystals. Hornblende, asbestos, and nephrite are essential amphibole minerals. Crocidolite is a blue member of asbestos amphibole mineral, which changed by oxidation to a fine golden-brown, is known as *tiger’s-eye* or *tiger-eye*. Occasionally has been silicified (pseudomorph) without alteration of the blue color, it is known as *sapphire-quartz*, *azure-quartz*, *siderite*, or *hawk’s-eye*, or *falcon’s-eye*.

**amphibole**; a mineral of the amphibole group such as hornblende, actinolite, anthophyllite, cummingtonite, arfvedsonite, riebeckite, tremolite, glaucophane. Also called *amphibole group*.

**amphibole group**; same as *amphibole*.

**amphibolid**; → *amphibolite*.

**amphibolite**; a crystalline, coarse-grained rock, consisting of amphiboles, those from Malawi, South-East Africa. Contain corundums and sapphires. Also called *amphibolite*, *amphibololite*.

**amphibololite**; → *amphibolite*.

**amphigene**; same as *leucite*.

**amphisiene shale**; a polishing slate with menilite concretions and imprints of amphisiene fishes from Eocene Age. Used as decoration.

**amphoteric**; having both functions as a base and an acid.

**amplitude**; the maximum displacement from its main position in connection with vibration.
**amygdaloid geode**; → **amygdaloidal**.

**amygdaloid**; any vesicular or cellular igneous rock, in which the vesicles have been filled partly or completely with secondary minerals such as calcite, quartz, epidote, zeolite, native copper.

**amygdaloid**; an almond shaped and sometimes engraved gemstone.

**amygdaloidal**; containing amygdules. Like or pertaining to an amygdaloid, or a geode, this has formed in an amygdaloid. Also called **amygdaloid geode**.

**amygdaloidal diabase**; diamonds from Africa that are reported to be found in a fine-textured, dark-gray to black igneous rock of medium silica content, formed by rapid cooling and contain minute vesicles or cavities.

**amygdaloid geode**; same as **amygdaloidal**.

**amygdaloidal cavity**; an elongated, almond-shaped cavity. Also called **almond-shaped cavity**.

**amygdaloidal marble**; a misleading term for gray-green, dark red, or mixed color flattened almond-like shaped marble pebbles.

**amygdule**; a round, small, or almond-shaped cavity or vesicle in volcanic rocks or lava, which later filled partly or completely with secondary minerals such as calcite, quartz, chalcedony, epidote, set as beads and engraved gems.

**amygdaloidal geode**; same as **amygdaloidal**.

**amygdaloidal cavity**; an elongated, almond-shaped cavity. Also called **almond-shaped cavity**.

**amygdaloidal marble**; a misleading term for gray-green, dark red, or mixed color flattened almond-like shaped marble pebbles.

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**Anacreon Emerald**; among Hope Collection was an emerald of $16 \times 14$ mm engraved with an owl with a human face. Now on display at Townshed Collection of the Victorian Albert Museum, London.

**anacona ruby**; a misleading term for rose quartz.

**anaglyph**; same as cameo.

**Anakie sapphire**; a prolific gem district of about 20 square miles near Anakie, Queensland, Australia. The sapphire from here are dark blue, often green, frequently yellow, purplish or pink. → **Queensland sapphire**.

**analcime**; a white or slightly colored zeolite. A collector’s mineral and faceted as a gem. Also called **analcite**.

**analcite**; another term for **analcime**.

**analogous pole**; a term used in crystallography for negative end of the $c$-axis with polar symmetry.

**analyzer**; same as a Nicol prism or polarizer disc, which transmits only plane polarized light, is placed above the objective in a polarizing microscope. → **Polariscope**.

**analyzer quartz-lamp**; a quartz lamp used to measure the luminescence of gems under UV ray.

**anamesite**; an obsolete term for fine-grained basaltic rock, which has a texture between fine-grained basalt and coarse-grained dolerite. Used as cladding material.

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**amyl acetate**; an organic, colorless, flammable, liquid having pear-like odor, with formula of $\text{CH}_3\text{–COOC}_5\text{H}_{11}$. RI: 1.37. SG: 0.862–0.866. Dilute with water, alcohol, and ether. The liquid is useful as a test for cellulosic plastics, which softens under its influence. Also called **pear oil** and **isoamyl acetate**.

**Anabar River**; an alluvial diamond mine north of Mirny of Sakha, Yakutia, the Russian Federation, CIS.
Ananda; a Chinese term used for Buddha figure carved on jade as Teacher and discipline. → Chinese ritual and symbol jades.

anatase; a rare transparent to opaque mineral. One of the three polymorphous naturally occurring forms of crystalline titanium oxide: rutile and brookite. Cut into cabochon or faceted gemstones and prized by collectors. Synonym: octahedrite and oisanite.

System: tetragonal.
Formula: $4[\text{TiO}_2]$.
Luster: adamantine to metallic adamantine.
Colors: various shades of brown to deep blue or black, green, and pale lavender.
Diaphaneity: transparent to nearly opaque.
Streak: colorless to pale yellow.
Cleavage: $\{011\}$ perfect, $\{001\}$ perfect.
SG: 3.28–3.97.
H: 5–6.
Optics; $\varepsilon$: 2.493, $\omega$: 2.554.
Birefringence: 0.061.
Dispersion: strong.
Found in Brazil, France, Austria, Switzerland, Russia, Colorado (USA), and other countries.

anatase; Spanish term for anatase.

anatexis; the partial or incomplete melting of a pre-existing rock due to increasing of temperature at constant pressure such as formation of basalt due to partially melting of peridotite.

anbardan; a Farsi (Persian) name, which means amberbox. In Iran used for a box in which amber gries is deposited. → Amberdan, amber.

ancillary; gems or minerals colored by iron.

ancillary test; a test to appoint the gemstones, which will be treated.

anatherie; same as anitari. Sri Lankan commercial term for slightly lower quality of pearl than ani.

anatherie pearl; → anitari pearl.

Ancona ruby; a local, misleading term for a reddish or brownish quartz (rose quartz), colored by iron from Ancona, Italy. → Rubasse.

andalusite; it is trimorph with kyanite and sillimanite. It is strong dichroic, resembling alexandrite. Some specimens show chatoyancy, when cut cabochon because of streaky inclusions. Cut as faceted gems, when translucent. Variety known as chiastolite, which exhibits cruciform pattern of carbonaceous impurities, when viewed in cross section. Also called viridine and sometimes named as hard spar.

System: orthorhombic.
Formula: $4[\text{Al}_2\text{SiO}_4]$.
Luster: vitreous to subvitreous.
Colors: usually pink, reddish-brown, rose red, rose whitish, grayish, yellowish-white, violet.
Streak: white, colorless.
Diaphaneity: transparent to nearly opaque.
Fracture: uneven to subconchoidal. Brittle.
Cleavage: $\{110\}$ distinct, $\{100\}$ vary, $\{100\}$ indistinct.
SG: 3.13–3.16.
Optics; $\alpha$: 1.629–1.640, $\beta$: 1.633–1.644, $\gamma$: 1.638–1.650.
Birefringence: 0.007–0.013.
Dispersion: 0.016.
Source: Brazil, Canada, Andalusia (Spain), Sri Lanka, France, Chile, Myanmar (Burma), Australia, Bolivia, USA, and Russia.

andalusite; a commercial, misleading term for brown variety of tourmaline.

andalusite absorption spectrum; deep green andalusite from Brazil has absorption spectrums at 553.5, 550.5, 547.5, 518, 495, and 455 nm for manganese and a narrow band at 436 nm in Sri Lankan samples.

andalusite pleochroism; frequently strongly pleochroic, resembling alexandrite with a brownish-red, brownish-orange, and brownish-green to yellow-green.
Andamooka; location of opal mining area in Australia.

Andamooka matrix; a pale colored matrix, which frequently can be appeared similar to a black opal.

Andamooka Opal; a brilliant fire, oval cabochon cut white opal of 203 cts. It was cut from a rough stone of 850 cts, (170 g). Found in 1949 at Andamooka, South Australia. Was presented in 1954 to Queen Elizabeth II of England. Now it is mounted in a necklace with 180 diamonds and 2 other opals. Some gray to creamy colored inferior quality opals from Andamooka are artificially dyed black.

Andelibi; a term used in Nishabur turquoise mine for milky stone but lesser than Soliemani. → Turquoise classification in Nishabur, Iran.

Anderson liquid; → Anderson and Payne liquid.

Anderson and Payne liquid; a standard contact liquid composed of sulfur and di-iodoform (C\textsubscript{2}I\textsubscript{4}) with the high refraction RI: 1.81. Solved in methylene-iodide.

Anderson-Payne refractometer; an official model, in which the prism incorporates all forms of spinel, sphalerite, and diamond.

Anderson’s Willows Yellow Sapphire; a yellow rough sapphire of ≈218 cts. Found in Willows Field, Queensland, Australia in 1946. Later cut into several pieces, biggest weighed 35.50 cts. Present owner unknown.

Andes Crown; → Crown of the Andes.

Andes diorite; a quartziferous diorite from Argentine Andes containing augite as principal mafic mineral. Frequently used as decorative or cladding stone.

andesine; a member of plagioclase feldspar group with the composition ranging Ab\textsubscript{70}–An\textsubscript{30} to Ab\textsubscript{50}–An\textsubscript{50}. Also called pseudoalbite. Frequently cut into cabochon.

System: triclinic.

Formula: 4[NaAlSi\textsubscript{3}O\textsubscript{8}].nCaAl\textsubscript{2}Si\textsubscript{2}O\textsubscript{8}\].

Luster: vitreous to resinous.

Colors: colorless, white, gray sometimes jade-green.

Streak: white.

Diaphaneity: transparent to opaque.

Fracture: uneven. Brittle.

Cleavage: not determined.

SG: 2.66–2.68. Cleavage: {001} perfect and {010} nearly perfect.

H: 6–6 1/2.


Birefringence: 0.008. ⊆ or ⊄.

Found in California, Utah, and Colorado (USA), Greenland, Norway, France, Italy, India, and South Africa.

andesine jade; a misleading term for jade-green andesine.

andesinite; a coarse-grained, phenocrystalline igneous rock composed primarily andesine. Frequently used as decorative or cladding stone.

andesite; a fine-grained, dark-colored, igneous extrusive rock composed chiefly of andesine and some mafic minerals. Frequently used as decorative or cladding stone.

andesite glass; a natural andesitic glass. Frequently used as a gemstone.

Andhra Pradesh diamonds; Andhra Pradesh is a state in Central India with some diamond locations: Golconda, Wajrakarur, Krishna River. City of Hyderabad is capital of the Andhra Pradesh State.

Andrada Mine; an alluvial diamond-bearing deposit in northeastern Angola, Africa.

Andradite garnet; a mineral of garnet group, which includes the varieties demantoid, a brilliant green and topazolite in yellow to pale green. All garnet minerals are birthstones for January. The stone once was named as allochroite. Also called andradite. Other varieties, of which are titanium-rich melanite in black, bright green variety is known as demantoid. Topazolite is a misleading term for transparent yellow, greenish-yellow variety of andradite, pyreneite, schorlomite, aplome, and bredbergite. Succinite garnet is a pale yellow amber-colored variety of andradite.

System: cubic.

Formula: 8[Ca\textsubscript{3} (Fe\textsuperscript{3+} )\textsubscript{2} (SiO\textsubscript{4})\textsubscript{3}].

Luster: vitreous to resinous.

Colors: green, yellowish-green, yellow, gray-green, or black.

Streak: white.

Diaphaneity: transparent to opaque.

Fracture: uneven. Brittle.

Cleavage: not determined.

SG: 3.81–3.87.


RI: 1.856–1.895.

Birefringence: none.

Dispersion: 0.057.

Found in Garnet Hill, Calaveras County, San Benito, Arkansas (USA), Cornwall (England), Piemont (Italy), Greenland, Norway, Sweden, Switzerland, Romania, Russia, and Uganda.

Andradite absorption spectrum; a strong line at 443 nm, sometimes when demantoid contains Cr at 701, 693, 640, and 622 nm.

Andradite cut; cut cabochon.

Andrewsite; a bluish-green mineral with the chemical composition of (Cu,Fe\textsuperscript{2+})(Fe\textsuperscript{3+})\textsubscript{3}(PO\textsubscript{4})\textsubscript{3}(OH)\textsubscript{2}. 
angel skin; same as angel’s skin coral.
angel’s skin coral; same as pelle d’angelo.
angelite; a term applied to anhydrite of bluish gray color.
angelo pearl; a new or recent imitation pearl consisting of mother-of-pearl beads and covered with layers of essence d’orient or plastics.
angle; any shape formed by two meeting planes or lines, commonly measured in degrees or radians.
angle cutter; same as angular cutter.
angle of contact; → contact angle.
angles of crystal; the interfacial angles, by convention the angles between the normals of two crystallographic faces and not the outside angle formed by them.
angle of deviation; → deviation method.
angle of extinction; when a thin section of an anisotropic crystal is revolved between crossed Nicols in a polarizing microscope the light does not transmit, when the mineral planes of vibration are parallel to a Nicol plane.
angle of faces; in crystallography, interfacial angles are determined from angles between two normals.
angle of friction; the greatest angle between the horizontal and the plane surface of contact between two bodies, when the upper body is just about to slide over the lower. Also called angle of repose, angle of static friction.
angle of incidence; the angle at which a ray of energy or light strikes the surface of mineral or an object makes it normal to the surface or boundary. → Angle of refraction.
angle of minimum deviation; → minimum deviation.
angle of polarization; the angle of reflected light from a plane surface at which the light is polarized. The plan of vibration light being at right angles to the plane of incidence.
angle of reflection; the angle of the reflected ray of light or energy, measured perpendicular (called the normal) to the surface, from which the ray is reflected. It is symbolized by theta(θ). Also called reflection angle, reflexion angle, angle of reflexion. Same as Bragg angle. → Angle of refraction.
angle stone – anhydrite

Birefringence: 0.0166. ⊙.
Dispersion: 0.044.
Found in the USA, Morocco, Tunisia, Mexico, Russia, Australia, and Scotland.

angle stone; a term used by Australian miners for coarse, lenticular, and silicified layer variety of sandstone or clay, which is found just above the opal bearing strata. The obtained rock often contains cracks, which are filled with precious opal. Also called guardian-angle stone, walnut stone.

angel stone; a term used by Australian miners for hard semi-spherical pieces of porcellanite, which is formed within the clay shale with potch opal along their joint. Also called walnut potch, yowah nut.

→ Yowah nut.

angel stone; a term used by Australian miners in Ridge for a stone formed within the opal level.


Angola; an important diamond-bearing country in central, Africa.

Angola diamond; diamonds from the Angola district of Africa.

angoshtari; a Farsi or Persian term meaning stone for finger ring which is a sky blue turquoise without dendrite (matrix). → Turquoise classification in Iran. Also spelled angushtary.

Ångström or Ångström unit; named after the Swedish physicist A. J. Ångström, (1814–1874). One billionth of a meter, one tenth-millionth of a millimeter, (1 Å: 10⁻⁷ mm), or one hundred-millionth of a centimeter; the unit is used for smallest measurements required in the electro-magnetic spectrum, the wavelength of visible light waves, and X-rays. The standard international (SI) unit for the measurement of short-wavelengths is the nanometer (nm). 1 nm: 10 Å. A or Å, seldom, ÅE is an abbreviation for the Ångström and the Ångström unit. → Millimicron.

Ångström unit; → Ångström.

angular; the particles having sharp angles, borders, or corners.

angular cutter; a milling cutter, on which the cutting face is at an angle, greater or lesser than 90, with regard to the axis of the cutter. Also called angle cutter.

angushtary; another spelling for angoshtary.

anhedral; → anhedral crystals.

anhedral crystals; crystals which do not show good, outward form, or, have an abnormal external shape, in contrast to euhedral. Also called anhedral, subhedral, or allotriomorphic.

an hedron; an anhedral crystal.

anhydrate; same as dehydrate.

anhydric; free of crystallization water. Not containing hydrogen, or water, in its composition.

anhydride; a compound derived from another compound (such as an acid), by the elimination of a water molecule.

anhydrite; calcium sulfate, without water.
**anhydrous**: without water, not containing hydrogen, or water, in its composition. Often applied to salts without water.

**ani**: a Sri Lankan (Ceylonese) commercial term, for pearls of fine orient, almost perfectly spherical in shape.

**anidiomorphic**: same as xenomorphic.

**anigyi**: a Burmese term used for second water corundum stones of pale red-crimson which are graded due to weight, for sample anigyi stone of 2–6 cts. → Corundum classification in Myanmar.

**anil**: a basic compound derived from an aromatic aniline amine.

**anil dye**: an anil compound which used as dye.

**aniline**: an organic, colorless, oily composition of C₆H₅–NH₂, a liquid used in microscopy as an immersion medium. It turns brown on exposure on air. Soluble in alcohol, ether, benzene, and to some degree in water. RI: 1.58. Also, used as a coloring agent. Highly poisonous. Also called aminobenzene.

**aniline purple, synthetic**: a term applied to first synthetic dyestuff, which known as mauvein. Also called Perkin’s mauve.

**animal black**: a term for black ivory or bone black.

**animal calculi**: a term applied to stone-like concretion consists of minerals and salts found in hollow organs of animal body, which used in the past as medicine.

**animals**: carved animals from jade are Chinese religious symbols and have been used throughout Chinese civilization. Small carvings of animals were used in tomb pieces as guardian symbols. → Chinese ritual and symbol jades.

**animals in amber**: → insects in amber.

**animal turquoise**: same as odontolite.

**anion**: a negatively charged atom, ion or radical, opposite of cation.

**anionic dye**: same as acid dye.

**anisodesmic**: a crystal or compound, in which the ionic bonds have unequally strengths, such as in nitrate.

**anisole**: the organic composition C₆H₅OCH₃, a colorless, toxic liquid, with an aromatic odor, used in microscopy, as an immersion medium, RI: 1.516. Soluble in alcohol, ether, acetone, and benzene, but not in water. Also called methyl phenyl ether, and methoxybenzene.

**anisometric**: not isometric, having unsymmetrical parts, applied to crystals with three unequal axes.

**anisometric**: a term applied in petrology to a texture of a rock in which the grains are different sizes.

**anisotropy**: → crystal anisotropy.

**anitari pearl**: Sri Lankan commercial term for a slightly lower quality of pearl than ani. Also called anatherie pearl.

**ani-te**: a Siamese (Thailand) term used for third water corundum stones of bright light-crimson known as ani-te or bombaing, which are graded due to weight of 2–6 cts, they were fancied in India. → Corundum classification in Myanmar.

**ani-the**: a Burmese term used for mixed minute corundum stones of second water and fine quality. → Corundum classification in Myanmar.

**ankaramite**: a Malagasy name for olivine-bearing basalt, containing pyroxene and olivine phenocryst.

**ankerite**: a mineral related to dolomite, it is associated with iron ores. Frequently cut cabochon and prized by collectors. Also called ferroan dolomite, claet spar. → Dolomite.

- System: hexagonal.
- Formula: 3[(Ca,Fe,Mg)(CO₃)₂].
- Luster: vitreous to pearly.
- Colors: colorless, white, grayish, pale brown, greenish, pinkish.
- Streak: colorless.
- Diaphaneity: translucent to subtranslucent.
- Cleavage: {1011} perfect.
- SG: 2.97.
- Optics: ω: 1.728, ε: 1.531.
- Birefringence: 0.187.
- Found in Algeria, the Czech Republic, Hungary, USA, and throughout other countries.

**ankerite luminescence**: orange, creamy white, blue, green, pale brown under SWUV. Orange, blue, creamy white, green, pale brown under LWUV.

**ankh symbol**: an ancient Egyptian symbol for life, which is in the form of a tau cross.

**ankle ring**: same as anklet.

**anklet**: an ornament of gold or any other noble metals, such as a ring, chain, or band, worn around the ankle by women in Egypt, Greece, and Rome. Also known as an ankle ring.

**annealing**: the method by which metals and glass are heated to high temperature and then slowly cooled to give more tenacity and make them less brittle, eliminating various stresses and weaknesses.

**annealing**: annealed diamonds are diamonds changed in color from the green of reactor-treatments to yellow-orange, or brown (between 200°C and 800°C or 392°F and 1,472°F).

**annealing**: in the glass industry the heating and slow cooling of glass to reduce stress.
Anne of Austria; the circular, rose cut diamond of 14 cts, or the Rose d’Angleterre, which once belonged to Anne of Austria or the Queen of France. It is one of the 50 diamonds that the Cardinal Mazarin (1602–1661); a cardinal, statesman, and prime minister under Louis XIV, bequeathed to the French Crown.

Anne of Brittany’s Ruby; an irregular polished ruby of 105 cts. Now on display at the Museum in Louvre, Paris, France.

Annex Kleinzee; an alluvial diamond deposit in the northern part of Namaqualand, Southwest Africa. 

annite; an iron-rich variety of biotite or mica. Also called hydroxyl-annite.

anniversaries; same as wedding anniversaries.

Anniversary Diamond; the pear-shaped diamond of 65 cts, from South Africa, cut from a rough stone, weighing over 200 cts. Bought by Baumgold in 1951 to celebrate the 75th anniversary of the Baumgold Company. The present owner is a Canadian.

annular ring; same as eternity ring.

annular; having the shape of an unbroken circle, or ring.

annual ring; a term used for rings of wood, which indicate one year’s growth of stem of a tree. Similar to that can be seen in some stones such as coral. 

anode; positive electrode, used in a plating bath.

anode polishing; same as electrolytic polishing.

anodizing; a method of color covering aluminum, aluminum alloys, magnesium, and a few other metals in an electrolytic treatment bath.

Anodonta cygnea; a kind of freshwater pearl-bearing mussel found in ponds near Turin, Italy. Also called swan mussel.

anodyne necklace; a charm necklace, used to ward off pain or illness in eighteenth century.

anomalous birefringence; anomalous double refraction.

anomalous dispersion; anomalous behavior of refractive index versus wavelength being abnormally high on the longer wave side of the band and abnormally low on the other side, it means absorption spectrum created by a prism is not in its normal order. This effect frequently can be seen in violet crown glass, which has an anomalous band at 550 nm. Also can be seen in fuchsin.

anomalous double refraction; double refraction in a normally, single refraction stone, caused by internal stresses. Found in stones, such as almandine garnet, diamond, synthetic spinel, due to rapidly cooled glass, or cubic minerals. Seen through irregular extinction, when a substance is observed between crossed Nicols, or crossed filters, of a polariscope, as in synthetic spinel and sometimes in garnet. Known as tabby extinction, when the effect is alternate light and dark striping. Synthetic spinel always displays the anomalous effect, and presence of peculiar strain knots or pseudointerference is a helpful feature in its identification. Also called anomalous birefringence. Anomalous extinction (anomalous double refraction) always appears at irregular intervals and is rarely oriented at 90°. Also called extinction position. → Polariscope, strain, tabby extinction.

anomalous double refraction in garnet; → anomalous double refraction.

anomalous double refraction in glass; anomalous double refraction in glass is seen due to the suddenly cooling of the mass. → Anomalous double refraction.

anomalous double refraction in synthetic spinel; → anomalous double refraction.

anomaly; deviation from the normal, or average, or expected, or unusual or irregular.

anomite; a term used to a variety of biotite, which differs from biotite only in optical orientation.

anophorite; → hornblende.
anorthic system; same as a triclinic system, crystals having unequal, oblique axes.

anorthite; a basic and endmember of the plagioclase feldspar series, $\text{Ab}_{10}^–\text{An}_{90}$ to $\text{Ab}_{0}^–\text{An}_{100}$.

anorthite crystal

Formula: $\text{CaAl}_2\text{Si}_2\text{O}_8$. It consists of calcium–aluminum silicate and contains no sodium.

System: triclinic.

Colors: colorless, white, gray, reddish.

Diaphaneity: Transparent to translucent.

Streak: white.

Cleavage: {001} perfect, and {010} nearly perfect.

Fracture: conchoidal to uneven. Brittle.

Optics; $\alpha$: 1.577, $\beta$: 1.585, $\gamma$: 1.590.

Birefringence: 0.013.

SG: 2.74–2.77.

H: 6–6½.

Cut as faceted gems for collectors. Also called calciclace, Ca-spar, calcium feldspar, lime feldspar.


Birefringence: 0.005. SG: 2.56–2.60. H: 6–6½.

Found in Australia, Germany, USA, Kenya, and Nigeria (Africa).

anorthosite; a coarse-grained, igneous rock, containing plagioclase, labradorite ($\text{Ab}_{33}^–\text{Or}_{17}$), which convert to monoclinic system when heated, and contain minor amounts of pyroxene and olivine. Found in the Canadian Shield. Also called soda microcline, anorthose.

anoxic; deficiency of oxygen or without oxygen.

Antarctica; a common beryl deposit of greenish-blue in quartz veins worked out near Commonwealth Bay, Adélie, Australia.

antelope jade; a term used by the Chinese to describe a particular color of jade.

antero aquamarine; same as Colorado aquamarine.

anthurh garnet; early pyrope mines in New Mexico, Arizona, and Utah, USA, where large ants and scorpions constructed their sites using garnet grains.

anthurh scorpion; early pyrope mines in New Mexico, Arizona and Utah, USA, where large ants and scorpions constructed their sites using garnet grains.

anthocyan; same as anthocyanin.

anthocyanin; a flavonoid plant colorant of red, pink, and blue colors seen in leaves and fruits of plants as glycosides pigments. Water-soluble. Used as dyes. Also called anthocyan.

anthochromacy; → metachromacy.

anthodite; gypsum or aragonite that occurs in caves, as radiating, needle-like, or hair-like crystals from a common base.

anthosiderite; a pseudomorph of quartz and hydrated iron oxide (goethite), after cummingtonite.

anthophyllite; a silicate mineral of the series anthophyllite gedrite in the amphibole group and a variety of asbestos. Occurring as massive lamellae or radiating fibers in metamorphic rocks. Dark violet fluorescence under SWUV and LWUV lights. Cut gems exhibit sparkling iridescence and frequently cat’s-eye effect. Also called bidalotite.

System: orthorhombic.

Formula: $4[(\text{Fe}^{2+},\text{Mg})_7\text{(Si}_8\text{O}_{22})(\text{OH,F})_2]$.

Luster: silky to vitreous, pearly on fresh cleavage.

Color: clove-brown, yellowish-brown to yellowish green, light green, light yellow.

Streak: colorless to light gray.

Diaphaneity: transparent to translucent inclined to opaque.

Cleavage: {110} perfect, {010} imperfect, and {100} imperfect.

Fracture: not determined.

SG: 2.85–3.57.

H: 5½.

Optics; $\alpha$: 1.587–1.694, $\beta$: 1.605–1.71, $\gamma$: 1.613–1.721.

Birefringence: 0.013–0.028. SG or SG.

Found in Canada, Greenland, Norway, USA, Italy, Austria, and the Czech Republic.

anthophyllite cat’s-eye; a red-brown to clove-brown variety of anthophyllite, it occurs as fibers which exhibit a sharp cat’s-eye effect after cut cabochon.

anthracite; a compact, dense, brittle, glassy, or semimetallic luster coal of black color like jet, in which carbon content is 92–98%. Conchoidal to uneven fracture. H: 2–2.5, SG: 1.32–1.37. Ignites with difficulty.
and burns with a short blue flame and much less smoke. It is of the highest metamorphic rank. Found in China, Russia, USA, and South Africa. Used as jet imitation for small ornaments. Also called hard coal, stone coal, black coal, kilkenny coal.

anthracite: a stone emits an odor when rubbed or broken such as bituminous limestone or brown dolomite.

anthrakion: a term used by Theophrastus for carbuncle garnet from Orchomenos in Arcadia, Troezen, and Corinth.

anthraquinone: a yellow needle crystal \( \text{C}_6\text{H}_4(\text{CO})_2\text{C}_6\text{H}_4 \). Soluble in alcohol, ether, and acetone. Insoluble in water. Used as dyes. Also known as C.I. vat blue 4.

anthrax: a red gemstone referred to by the ancients, probably carbuncle, garnet, ruby, or other red stones.

anthrax: a Greek term for incombustible or cannot be burnt, in contrast to charcoal.

Anthrax: a biblical term for the fourth gemstone in the Aaron’s Breastplate comparative to nephew. Translated as ruby (carbuncle) or probably an almandine garnet or emerald, also hematite. The stone is engraved with the word Judah. Also spelled nophech, nophak.

anti: → corozo nut.

antibiotic aureomycin: a combat agent against mortality of oysters, when the nuclei are dipped in the agent.

antidote to poison: powder of emerald is taken before the poison spreads all over the body. Alternatively, a fossilized object consisting of a petrified fish tooth or parallel bone was occasionally worn as a protective or curative power, charm, or an antidote to poison. Set in finger rings as an amulet. Also called poison antidote, virtuous stone, when it is made from gemstones. → Toadstone, garalàri.

antigorite: a soft, platy or lamellar, mineral variety of the serpentine group, with a pale green color.


Antilles pearl: a misleading term for imitation pearl, cut as beads, from the iridescent, mother-of-pearl of the turbo sea snail. It has a pearly appearance on surface, but a yellowish, nonnacreous bottom. Also called oil pearl.

antilogous pole: a term used in crystallography for the negative end of the \( c \)-axis with polar symmetry.

antimonite: an obsolete name for stibnite.

antimony: a trivalent, and pentavalent, metalloid element of the group VA of Periodic System. It is metallic, silvery-white, crystalline, and brittle, with the symbol Sb. Used as an alloy, in pewter.

antimony glance: an obsolete name for stibnite.

Antipathes spiralis: → king’s coral, accarbaar.

antiperthite: microcline or orthoclase inclusions exsolved in albite, or oligoclase feldspars. Found in parallel or subparallel intergrowth formed during the slow cooling of magma, may be visible to the naked eye. → Perthite feldspar.

antipoint: → airy disc.
antique amber; antique amber can be produced by heat treatment which gives it rich brown color. Amber is embedded in heated colza or rape seed oil in an iron vessel for 30–40 h. Also called antiqued amber, toasted amber. → Heat treatment of amber.

antique amber beads; antique amber beads are often golden-orange in color because of exposure to air, those fresh amber are yellow-gold in color.

antique cut; → cushion cut.

antique cushion brilliant; named for any of the modifications of the brilliant cut, either in outline or in the number of facets. More or less rectangular, or square, in form, with rounded corners and slightly curved sides. → Cushion-shaped brilliant.

antiqued amber; same as antique amber.

antique glass; same as cathedral glass.

antique gold; averaging color of dark yellow similar to mustard but lighter, greener, and stronger than normal gold.

antique gold; a dark red to brown gold that is redder, stronger, and lighter than buckthorn and yellover and paler than orange rust.

antique reproduction; copy made from the design of ancient jewels.

antique shape; a gemstone shaped with rounded ends.

antiquing; metals or other materials made by subjecting them to atmospheric corrosion, after long exposure, or chemical treatment, they take on color, such as the green film or discoloration that occurs naturally on copper and bronze to protect the metals from further oxidation. Gold may be darkened by a black chrome. → Patina.

antireflection coating; same as antireflex film.

antireflex coating; same as antireflex film.

antireflex film; a thin coating of some substance, such as cryolite Na₃AlF₆ or MgF₂, on the surface of gems or imitation gemstones, which gives no reflecting properties to the stone. Also called antireflection coating, antireflex coating.

Anton Dunkels Diamond; the black drop-shape diamond set in a brooch, named after the diamond merchant Dunkels.

antozonite; a dark violet to black semipaque variety of fluorite from Wölsendorf Germany, which emits a strong odor when crushed.

Antwerp; the most important diamond-cutting center in the world, Antwerp, Belgium.

Antwerp Diamond; the diamond of 47.50 old cts. King Philip the II of Spain bought this diamond in 1559 for his third wife.

Antwerp qualities; a commercial term for diamonds cut in Antwerp.

Antwerp rose; a cut which has fewer than the usual 16, namely 12, triangular and trapeze-hedron tin shape. Also called Brabant, Dutch rose cut, Antwerp rose cut.

Antwerp rose cut; → Antwerp rose.

anyan; a Burmese term used for mixed common water-worn spinel. → Corundum classification in Myanmar.

anyan-nat-thew; a Burmese term used for rose spinel of octahedron crystal and perfect luster. → Corundum classification in Myanmar.

anyan-seinche; a Burmese term used for small spinels of quality of anyan-nat-thew. → Corundum classification in Myanmar.
anygyi – apex

anygyi; a Burmese name, applied to second-water rubies. → Corundum classification in Myanmar.

anyolite; a green, zoisite rock, containing black hornblende and large, opaque ruby crystals. Used as ornamental rock. It has an absorption spectrum band at 455 nm. Found in Tanzania. Also called Masai anyolite.

anyum; a Myanmar (Burmese) name employed to denote first quality, 2 cts rubies.

anyun; a Burmese term used for corundum stones of 2 cts and over. → Corundum classification in Myanmar.

Apache tears; a tear-shaped, pebble-like, rounded nodule of obsidian. Translucent, iridescent, light to smoky, dark-gray to gray-brown color. The occasional presence of silky striations gives it a cat’s-eye effect, when cut cabochon. Supposedly named after their resemblance to the tears of Apache Squaws. Occurs in Maricopa and Pilal Counties, Arizona, California, and Nevada, USA. Used by Indians for arrowheads.

apanica; a Sanskrit term for emerald.

apatite; a group of variously colored minerals. Varieties: the blue-green is named moroxite, the colorless is named francolite, the yellow-green is named asparagus stone, a fine deep-green, from Canada, is named trillium, a sky blue mixture of lapis lazuli and aperiodic balance; a balance, which reads or measures the magnetic attraction placed on a stone, the weight can be read directly on the scale.

aperture; the diameter of the circular opening of a lens or mirror system through which light enters an optical system.

aperture of shell; the hole of the quasi circular opening of a shell.

apex; the top or highest point of a vein, relative to the surface.

apex; the highest point of a land formation.
**apex of shell**; the highest or uppermost point of a shell organ or structure body.

**apex stone**; the highest ornament stone in a building. Also called saddle stone.

**aphaniphyric**; → cryptocrystalline.

**aphanite**; any fine grained, compact rock of diorite composition, whose components are not distinguishable by the unaided eye. Also called felsite, kryptomere.

**aphanite**; same as fine grained. Also called cryptomere, aphinite, felsitoid.

**aphanitic**; very fine grained igneous rock or groundmass or related to aphanite. The obsolete term felsitic was for light-colored rock with aphanitic texture.

**aphinite**; → aphanite.

**aphrite**; a foliated, lamellar, scaly, chalky variety of calcite, having a white, pearly luster. Synonym: earth foam, foaming earth, foam spar, foam stone.

**aphrizite**; a local term, for a black variety of tourmaline, containing iron.

**aphrodisiac properties**; pearls are believed to have aphrodisiac properties?

**aphroseline**; a Greek term, same as adularia.

**aplanachromatic lens**; a lens corrected for both chromatic aberration and spherical aberration. → Apochromatic lens.

**aplanachromatic loupe**; a loupe containing an Aplanachromatic lens.

**aplanatic**; an optical system, which produces an image free from spherical aberration.

**aplanatic lens**; a lens, which is corrected for spherical aberration and coma.

**aplanatic triplet**; an aplanatic lens system, made of three pieces cemented together, to produce an image free from spherical aberration. A more popular name for this term is triple aplanat.

**aplite**; white to gray, fine-textured granitic dike rock, consisting mainly of quartz, potassium feldspar, and acidic plagioclase. Used for carving statues and enamel in glass industry. Also calling haplite.

**aplite**; having the fine-grained texture of haplite.

**aplome**; the yellowish-green, brownish-green to dark-green varieties of andradite or manganese garnet. Same as haplome.

**apobsidian**; an old, devitrified obsidian.

**Apocalypse gems**; a term used for an emerald (a variety of beryl), which used in High Priest Breast Plate and in the Apocalypse.

**apochromatic lens**; a high-quality lens, which has been corrected for both spherical and chromatic aberration. → Aplanachromatic lens.

**aplogranite**; a term used in Russia for high albite (which is sodium-rich) granite enriched in beryllium, lithium, niobium, tantalum, zirconium, etc.

**apogrit**; same as graywacke.

**apophyllite**; a phyllo-silicate mineral. Cut as gems and prized by collectors. Also, called fish-eye stone variety of apophyllite is called ichthyophthalm. Apophyllite is a secondary mineral and occurring with zeolites in geodes in igneous rocks and basalts. System: tetragonal.

Formula: \(4[KCa_4(F,OH)(Si_4O_{10})_2] \cdot 8H_2O\).

Luster: mother-of-pearl. Sometimes with fish-eye effects.

Colors: colorless, white, reddish-white, gray, yellowish, greenish, flesh-red, and brown.

Streak: colorless.
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