

Topic Page: [Rubies](#)

Definition: **ruby** from *Philip's Encyclopedia*

Gem variety of the mineral corundum (aluminium oxide), whose characteristic red colour is due to impurities of chromium and iron oxides. The traditional source of rubies is Burma. Today, synthetic rubies are widely used in industry.



Image from: [Ruby doublet in Guide to Gems](#)

Summary Article: **Ruby**

From *Guide to Gems*

Rubies are very rare gems. They exist in many shades of red, from pinkish to purplish or brownish red. The red colour is determined by the amount of chromium, which further enhances the colour by causing a red fluorescence. A ruby's brownish colour indicates iron. The name comes from the Latin word for red, *rubeus*. The true ruby has sometimes been called an 'oriental ruby' to distinguish it from the red SPINEL. GARNETS and purple SAPPHIRES have also

been mistaken for rubies. Besides their obvious value as precious gems, rubies are also used extensively in laser technology.

The great value of rubies is mentioned in the Bible. Ruby mining goes back more than 2,500 years in Sri Lanka and was recorded in the sixth century AD at Mogok, Burma (Myanmar). The Burmese wore the stone as a talisman to protect them against illness or misfortune. Many in the ancient world believed they could predict the future based on the changing colour of a ruby they wore. The rare and valued 'pigeon's blood' variety now mined in Burma was previously called 'blood drops from the heart of Mother Earth' by the Burmese. The Hindus, who thought a ruby burned with an internal fire, called it 'the king of precious stones'. Rubies have also been assigned various mystical powers and are said to bring the wearer romance, friendship, energy, courage, and peace.



Ruby doublet

CHEMICAL COMPOSITION	Al ₂ O ₃
COLOUR	red to brownish red
REFRACTIVE INDEX	1.76–1.77
RELATIVE DENSITY	3.9–4.1
HARDNESS	9
CRYSTAL GROUP	trigonal
CLEAVAGE	none
FRACTURE	uneven to conchoidal
TENACITY	brittle
LUSTRE	vitreous
TRANSPARENCY	transparent to translucent
DISPERSION	weak, .018
BIREFRINGENCE	.008
PLEOCHROISM	strong
LOCATION	Afghanistan, Australia, Burma (Myanmar), Cambodia, India, Kenya, Madagascar, Sri Lanka, Tanzania, Thailand, Vietnam

Rubies occur in bands of crystalline limestone, and the associated minerals include mica, FELDSPAR, SPINEL, GARNET, graphite, pyrrhotite, and wollastonite. Ruby is a hard stone but can fracture where the crystals are twinned. The hexagonal, barrel-shaped crystal prisms have flat or tapering ends. Short, prismatic crystals have been found in Tanzania in green ZOISITE, and rubies measuring more than 5 centimetres (2 inches) were discovered in mica schists in the Hunza Valley, Pakistan. Like sapphires, rubies are pleochroic and their hue will change if the stone is turned.

Large rubies have earned higher prices per carat at auctions than flawless diamonds. Fine stones that are more than two carats are rare and expensive. The prized colours are pure reds without traces of brown or blue. Less value is placed on light or dark shades. Intensely coloured clear pink varieties are also greatly valued, especially when cut well. Rubies are usually fashioned as a mixed-cut or cabochon. They are very durable, and are used for rings, bracelets, necklaces, earrings, and other items of jewellery. Breakage rarely occurs because there is no easy cleavage.

Rubies should be evaluated under different intensities of light. A very strong light normally gives a ruby a

very intense colour, while normal light may show a less intense colouring. The stones should also be assessed for their symmetry by placing them face up.

Like SAPPHIRES, rubies may have needle-like inclusions that appear as a 'silk' sheen. A cabochon-cut allows these inclusions to resemble a six-pointed star. The 'Eminent Star' ruby, an oval cabochon with a six-ray star, weighs 6,465 carats. Attractive star inclusions can add to a ruby's value. Some sellers may fill fissures with materials such as glass or borax to improve the gem's appearance and durability, but the filler material may break or fall out with rough treatment or exposure to heat.

Synthetic rubies were the first synthetic gemstones to become commercially available in large quantities. Small fragments of the real stone were once fused together to create 'reconstructed rubies', but this practice came to an end in 1902 when French chemist Auguste Verneuil flame-fused powdered aluminium oxide and a colouring material to produce a synthetic stone. Today, synthetic rubies can be very difficult to distinguish from true rubies.

The centre of the ruby trade is located in Bangkok, Thailand, which was once one of the most important ruby mining localities. The Thais developed many ruby cutting and polishing techniques. Thai and Cambodian rubies (latter largely from around Pailin, western Cambodia) are of high clarity but lack any light-scattering silk inclusions and only those facets where light is totally internally reflected are a rich red. The best-quality rubies come from the Mogok Valley of north-central Burma (Myanmar) and Mong Hsu in northeast Burma. Mogok rubies are prized for red fluorescence and tiny amounts of light-scattering rutile silk which give the stones a beautiful crimson glow. The Vietnamese mines of Luc Yen and Quy Chau also yield superb stones. Sri Lanka is one of the best sources of alluvial 'star' rubies. Kenya and Tanzania yield excellent fluorescent stones, but facet grade material is rare. The situation is similar in Jegdalek, east-central Afghanistan. The state of Karnataka, south-west India, has a history of ruby mining but produces largely low-grade star rubies. The state of Orissa, east India, is a new source. Other sites include Harts Range, northern Australia, and Madagascar.

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Ruby. (2003). In C. Oldershaw, *Guide to gems*. London, UK: Philip's. Retrieved from <https://search.credoreference.com/content/topic/rubies>

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