

## Alexandrite-the sensational colour change gemstone and the birthstone for month of June

This rare gemstone is named after the Russian Tsar Alexander 2nd (1818 – 1881). The most sensational feature of alexandrite is its ability to change colour – green or bluish green in daylight, turning to a soft shade of red, purplish-red or raspberry red in artificial light.

This unique optical characteristic makes it one of the most valuable gemstones of all and fine quality is extremely rare. This is due to its chemical composition which is basically chrysoberyl but with the addition of chromium. It is this trace element which causes the spectacular colour change.

### History and Lore

The very first alexandrite crystals were discovered in 1834 in the emerald mines situated in the Ural Mountains of Russia. The discovery was made on the day the future Tsar came of age.

The stone has a noble history and became the national stone of Russia as the imperial colours of Russia were red and green. This made alexandrite a highly desirable stone among the masses. It may be found in some antique Russian jewellery and Tiffany produced a beautiful series of alexandrite jewellery in the late 19th and early 20th century.

Alexandrite is a type of chrysoberyl, a rare oxide mineral. The inorganic stone is one of the hardest and most durable gemstones. Alexandrite is scarce owing to its unique chemical composition that gives the stone its unique property of changing colour in light.

### Location

Russia has remained the primary source of alexandrite but in 1987 deposits were found in Brazil. The Brazilian stones show a distinct colour change, good clarity and colour. Occasionally cat's-eye alexandrite is found, something which is not seen in Russian stones.

Other mining sources are Sri Lanka, Tanzania, Burma, India, Madagascar and Zimbabwe. Occurrences in New Mexico, USA and Dowering, Western Australia



## Colour

Alexandrite is a trichroic (3 colour effect), however, it is not the trichroism that is responsible for the remarkable change. The colour change phenomena are a result of the presence of chromium +3 ions and the way they are absorbed and reflected. When the light is balanced (daylight), the stone will be green but when the light source is reddish (incandescent), the stone appears red. Daylight, is more equally balanced. Since our eyes are most sensitive to green light, the balance is tipped to the green side.

Alexandrite can exhibit a colour change ranging from 100% to just 5%. The closer the colours meet the ideal - pure green (in daylight) and red (in incandescent light), the higher its value. Top quality alexandrite is green to blue green in daylight and red to purplish red in incandescent light.

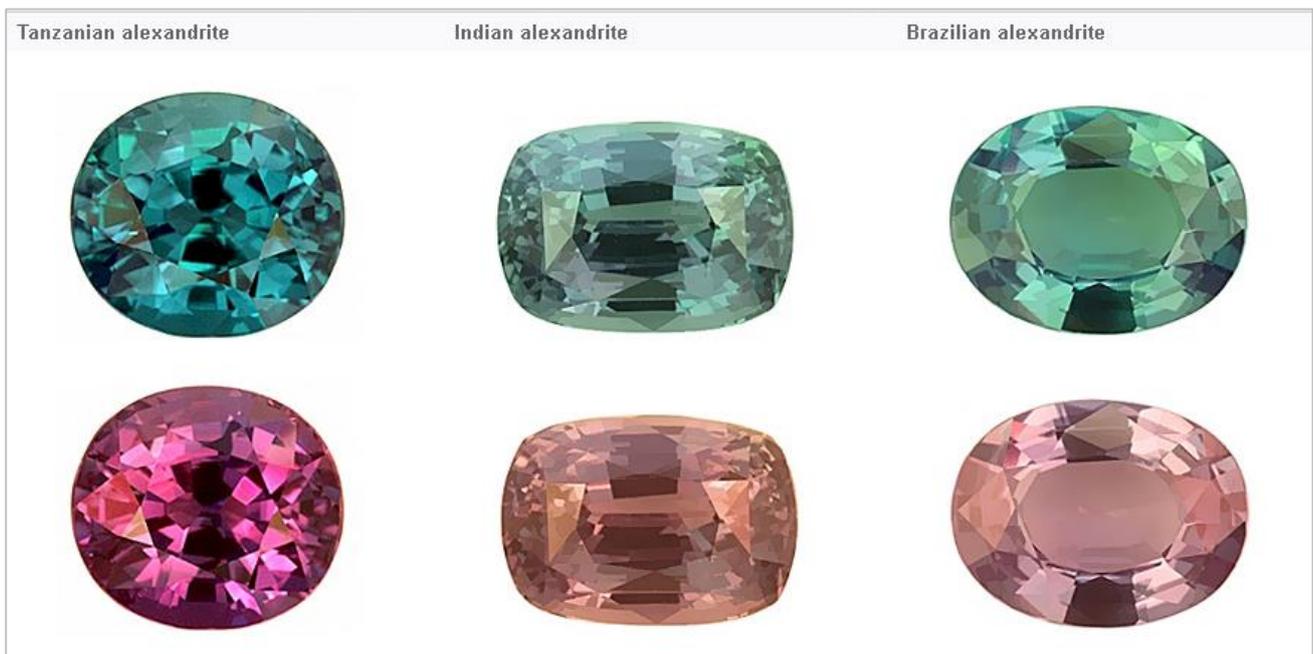


Daylight



Incandescent light

Typically, Alexandrite from Sri Lankan mines tends to exhibit less favourable colours. More yellowish greens and more brownish reds. Examples of Alexandrite, mined from Tanzania, India and Brazil, exhibiting fine colour change below.

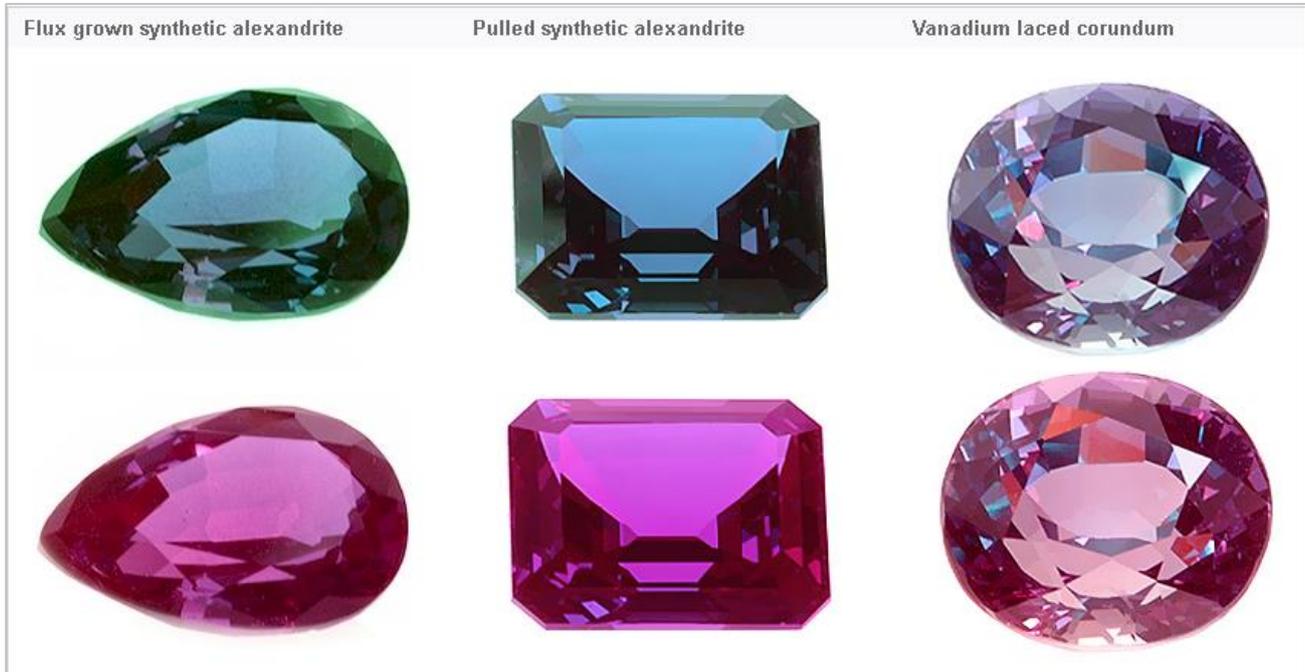




## Synthetics and Simulants

Synthetic alexandrite has existed since the 1970's, mainly produced in Japan and Russia.

However, most imitations are in fact colour-change synthetic corundum due to the element vanadium. The colours displayed in the synthetic imitation are greyish green in daylight and a purple colour in artificial light.



*Photograph's courtesy of ALEXANDRITE TSARSTONE COLLECTORS GUIDE, [www.alexandrite.net](http://www.alexandrite.net)*