

Phenomenal Glass Gemstones

By James Evans, FGA

At once the most undervalued of gemstones, and the most remarkable...
Glass is unrivalled in the range of optical phenomena it displays.

Goldstone (*aventurescence*)

This glittering gemstone, also known as 'Aventurine Glass', is the origin of the term *aventurescence*. The term was later applied to varieties of quartz and feldspar that contain glittering flakes of mica.



The optical effect is a result of reflections from numerous small crystals (typically copper octahedra) which grow within the glass as it cools.

Cat's-eye Glass (*chatoyancy*)

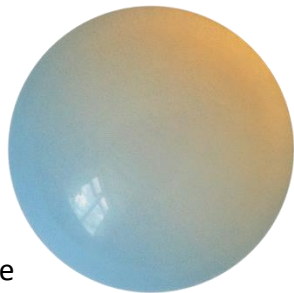
This gemstone displays a bright and even *cat's-eye*. A more fibrous, shimmering *chatoyancy* can be seen within 'Victoria Stone', though the skills required to produce this gemstone no-longer exist.



The *cats-eye* effect is a result of reflections from the core of optical fibres, which are fused together to form a parallel, honeycomb-like structure within the gem.

Opalite (*adularescence*)

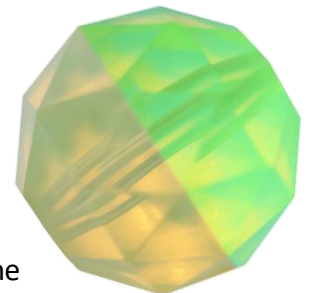
Also called 'Opalescent Glass', this gemstone was favoured by Lalique for the golden glow produced by light as it shone through the material, and the cool blue glow from light shining on and across it.



The optical effect results from the scattering of light as it hits areas of partial crystallisation within the glass – with blue light scattered much more than red.

Uranium Glass (*fluorescence*)

Also called 'Vaseline Glass', this gemstone glows green under UV light – a result of the uranium it contains. From the 1940's uranium became a strategic material, leading to a pause in the gem's production.



The optical effect results from the chemistry of uranium, not its radioactivity: UV light is absorbed by electrons before being re-emitted as green light.

Imitation Zultanite (*colour-change*)

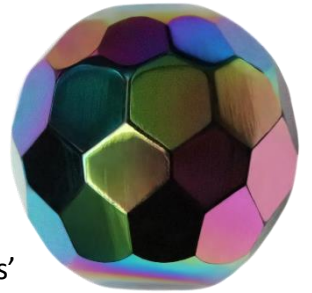
This remarkable gemstone displays a vivid green in fluorescent light, yellow in LED light, an amber-orange in incandescent light, and a purplish-pink in sunlight. This partially resembles 'Zultanite'; a trademarked name for colour-change diaspore.



The optical effect is a result of rare earth elements (Nd and Pr) within the glass. A more subtle (lilac to blue) effect is produced in 'Neodymium Glass'.

Carnival Glass (*iridescence*)

This vibrant gemstone first appeared in the early 20th Century as an affordable alternative to the 'Favrile Glass' jewellery of Louis Comfort Tiffany (son of the famous New York jeweller).



The optical effect results from a thin layer of metal on the gem's surface which causes *thin-film interference*. Similar films are responsible for the *play-of-colour* in 'Slocum Stone' and the *pleochroism* in 'Dichroic Glass'.