



Does someone in your family own a ring or pendant that contains an opal? An opal is a 'gemstone' - that is, a mineral valued for its beauty. Gemstones are most often used in jewellery and examples include diamonds, rubies, emeralds, sapphires, jade, opals and amethysts. Gems generally get their colour because of certain metals contained in the mineral (for example amethyst is quartz containing tiny amounts of iron) however opals are unique because they display many different colours.

PROPERTIES

- Opals are multi-coloured.
- Opals consist of small spheres of silica arranged in a regular pattern, with water between the spheres.
- The spheres diffract white light, breaking it up into the colours of the spectrum. This process is called 'opalescence'. Larger spheres provide all colours, smaller ones only blues and greens.
- White opals have delicate, pale colours on a lighter background.
- Black opals (very rare and valuable) have a dark background and colours ranging from brilliant red through to greens, blues and purples.
- Boulder opals are cut with the natural host rock, ironstone, on the back.
- Opals have the same hardness as glass (5.5 - 6.5)
- If you move the stone, light hits the spheres from different angles and brings about a change in colour.
- Opal comes from the Greek *opallos* meaning 'to see a change (of colour)'



*A microscopic view of the silica spheres in opal -
Photo courtesy of Office of Mineral Resources, PIRSA.*

USES

Opals are used in jewellery and ornaments.



Photo courtesy of Office of Mineral Resources, PIRSA



Photo courtesy of NSW Department of Mineral Resources

SOURCE

Opal is found around the world (Brazil, Mexico, Honduras and the western US) however Australia produces 95% of the world's precious opal.

White opal was first mined commercially at Listowel Downs in Queensland in 1875. Today, Coober Pedy (SA) is the main white opal centre, Lightning Ridge (NSW) the world's only source of black opal, and boulder opals are mined in Central Queensland.



Picture courtesy of www.opalmine.com.

1. **Boulder Opal:** Queensland (Winton , Quilpie)
2. **White Opal:** South Australia (Coober Pedy, Mintabee, Andamooka)
3. **Black Opal:** New South Wales (Lightning Ridge, White Cliffs)

Opal is one of the few minerals which can be mined economically by a miner working alone. The miner digs a shaft using a pick and shovel, uses explosives or a pick to dig out earth sideways from that, then uses a small handpick or even a screwdriver to extract any opal traces found.



'Noodling' is when people search through old mullock heaps for pieces of opal that might have been missed in the initial mining operation. Photo courtesy of Office of Mineral and Energy Resources, PIRSA.

However, since the 1970s machines have been gradually taking over from hand mining methods, along with the use of radar and electric currents to find possible opal-rich areas.

Once mined, opal ore is then sifted to separate the hard material, which is then tested for any signs of colour. After that, opal sorting is done by hand and requires a keen eye to see for signs of 'colour in the rough'.

AMAZING FACTS

- Opal artefacts several thousands of years old have been discovered in East Africa.
- As early as 250 BC the Romans prized opals, thought to have come from mines in eastern Europe, the world's main source of opals until 1932 when Australia took over as the major producer.
- In 1915 a group of people were prospecting for gold at the edge of the Great Victoria Desert northwest of Adelaide. Making camp one night, a 14 year old boy found an opal. This started an 'opal rush' and soon the settlement of the Stuart Range Opal Field was founded.
- Today's main white opal centre is the town of Coober Pedy, whose name comes from the aboriginal name *Kupa Pita*, which means 'White man in a hole or burrow'.



An underground home in Coober Pedy - Picture courtesy of Office of Minerals and Energy, PIRSA.

- In Coober Pedy many people have built their homes in old mine shafts (calling them dugouts) or in low hills because in summer the temperature goes over 50 degrees Celsius.
- People thought opals gave the power of foresight and warded off disease. However a novel written by Sir Walter Scott linked opal with bad luck, and this theory was encouraged by diamond merchants who didn't want opals competing for their sales!

FOR FURTHER INFORMATION

- Contact your State/Territory Chamber of Mines or Minerals Council.
- www.opalmine.com
- www.opals.net.au