

# Jasper

**Category** Mineral  
Considered a Chalcedony  
However, some scientist class it as quartz due to the grainy structure

**Crystal System** Hexagonal

**Crystal Class** n/a

**Colour** All colours, mostly striped or spotted.  
Natural Colour & Colour Range:

**Chemical Formula** SiO<sub>2</sub> (Silicon Dioxide)

**Moh Scale of Hardness:** 6.5-7

**RFI** 1.540 (+/-)

**Critical Angle** n/a

**Cleavage** n/a

**The Four C's** Colour n/a

Clarity n/a

Cut n/a

Carat n/a

**Birthstone** Bloodstone is a type of Jasper and is the birthstone for March.  
Jasper is also a mystical birthstone for October.

**Trivia** Jasper is distinguished from other Chalcedony varieties such as Agate and Carnelian by its opacity. The unique colour patterns (combined with hardness) can distinguish Jasper from all other gemstones.

Jasper is called "Jaspis" in a number of languages: Czech, Dutch, German, Latin, Lithuanian, Polish, Slovak and Swedish although the pronunciation may not be the same.

Black Jasper was once used as a 'touchstone' to determine the quality of gold or silver. The gold alloy would be rubbed onto the black Jasper and the streak compared with others of known purity.

Primitive stone axes made from Jasper have been found in Omo Valley in Ethiopia and dated to 2.5 million years old.

**Geodes** n/a

**Largest Geode** n/a

**Types of Jasper** Jasper is an opaque rock of virtually any colour stemming from the mineral content of the original sediments or ash. Patterns arise during the consolidation process forming flow and depositional patterns in the original silica rich sediment or volcanic ash. Hydrothermal circulation is generally thought to be required in the formation of jasper.

Jasper can be modified by the diffusion of minerals along discontinuities providing the appearance of vegetative growth, i.e., dendritic. The original materials are often fractured and/or distorted, after deposition, into diverse patterns, which are later filled in with other colourful minerals. Weathering, with time, will create intensely coloured superficial rinds.

The classification and naming of jasper varieties presents a challenge. Terms attributed to various well-defined materials includes the geographic locality where it is found, sometimes quite restricted such as "Bruneau" (a canyon) and "Lahontan" (a lake), rivers and even individual mountains; many are fanciful, such as "forest fire" or "rainbow", while others are descriptive, such as "autumn" or "porcelain". A few are designated by the place of origin such as a brown Egyptian or red African.

### **Agate Jasper**

Opaque multicoloured Jasper, or Jasper with banding; may also refer to a single stone with a combination of both Agate and Jasper



### **Brecciated Jasper**

Jasper in rounded fragments naturally cemented together in a gray material; appears similar to breccia.

### **Biggs Jasper**

Jasper from Biggs Junction, Oregon, with varying light and dark colour brown bands and pretty formations.



### **Bruneau Jasper**

Jasper from Bruneau Canyon, in Owyhee County, Idaho, with distinctive brown, cream, (and sometimes even red or green) banding and patterns.



### Cave Creek Jasper

Reddish Jasper found near Cave Creek in Maricopa County, Arizona.



### Deschutes Jasper

Jasper from a deposit slightly east of Biggs Junction, Oregon, near the Deschutes River, with good banding and interesting colour formations.



### Egyptian Jasper

Form of Orbicular Jasper with white and gray circles on a red background. It is found as rounded pebbles on the beaches of Egypt. A similar Jasper is found on the beaches of Washington state and sometimes also labelled as Egyptian Jasper.



### Green Jasper

Jasper with a light to dark green colour. Green Jasper differs from Prase and Plasma since it is fully opaque



### Jaspilite

Banded rock that is a mixture of Hematite and Jasper.



### Kinradite

Orbicular Jasper with concentric rings of colourless or white Quartz. Occasionally used as a synonym of Jasper.



## Irnimite

Very special multicolour black-blue-brown-white local variety of jasper or microquartzite associated with manganese ores of Taikan range in Eastern Siberia. Its colouration is caused by: black - manganese oxides (very often braunite), blue - alkali amphiboles, brown - iron hydroxides, white - pure quartz parts.



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## Morgan Hill Jasper

Jasper from Morgan Hill, California, with small reddish and yellow "poppy" formations. Also synonymous with "Poppy Jasper".



## Moss Jasper

Form of Jasper or Chalcedony containing dense inclusions of green Hornblende that cause the pattern to resemble moss. Often used as a synonym for Moss Agate, though Moss Agate is translucent whereas Moss Jasper is opaque.



## Leopard Jasper

Form of Orbicular Jasper with tan colour rings, appearing similar to the spots of a leopard.



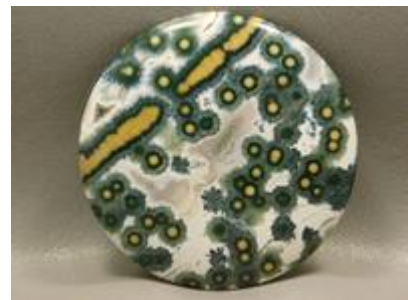
## Morrisonite

Multicoloured Jasper from the Owyhee River gorge in Malheur Co., Oregon.



## Ocean Jasper

Form of Orbicular Jasper found on the coast of Madagascar with small, tight, concentric ring formations.



### Opal Jasper

Form of Brecciated Jasper in which the cementing material is Opal.



### Orbicular Jasper

Jasper with rounded concentric rings throughout.



### Owyhee Jasper

Form of Jasper with scenic picture formations found near the Owyhee River in Oregon.



### Picture Jasper

Form of Jasper with scenic picture-like formations



### Rainforest Jasper

Rainforest Jasper is a rare type of rhyolitic lava, associated with volcanic activity in some areas. Gas bubbles are trapped in the lava flow during solidification, creating pockets which are later filled, or partially filled by flows of siliceous material, which may be Agate, Jasper, Quartz Crystal or other minerals. The Rhyolite usually occurs in association with Thunder Eggs, another volcanic gemstone.

Rainforest Jasper is known in different parts of the world by several other names. These include Spherulitic Rhyolite, Agatised Rhyolite and Green Rhyolite.



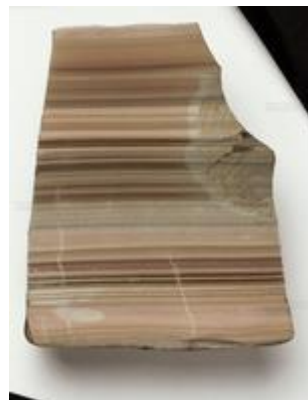
### Poppy Jasper

Form of yellow Orbicular Jasper with red concentric rings.



### Riband Jasper

Jasper with banded stripes, usually dark red, brown, yellow, or white bands.



### Ribbon Jasper

Form of Banded Jasper with think banded lines.



### Rogueite

Green form of Jasper from the Rogue River in Oregon.



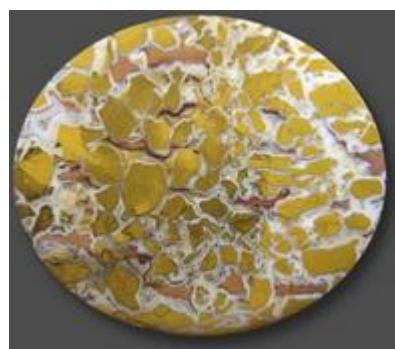
### Russian Jasper

Jasper from Russia, usually with reddish spots



### Stone Canyon Jasper

Yellowish Brecciated Jasper from Stone Canyon (near San Miguel), California.



**Wascoite**

Jasper from Wasco Co., Oregon, with irregular yellow, pink, and red concentric bands.



**Zebra Jasper**

Dark brown Jasper with lighter brown to white coloured banding streaks.



**Did you know?**

Bumblebee Jasper is actual not a jasper as it doesn't contain any quartz

**Can be found in**

Australia

India, Russia, Kazakhstan, Indonesia, Egypt, Madagascar, Brazil, Venezuela, Uruguay and the United States (Oregon, Idaho, Washington, California, Arizona, Utah, Arkansas, and Texas)

**Fossicking Locations**

All over Australia, no specific location found. Talk to those that go fossicking.

## Jasper types found in Australia

**Mookaite** The term 'Mookaite' is an unofficial, locally coined name for a silicified porcelanite which forms in the weathering profile of a geological formation known as Windalia Radiolarite (WR), a Lower Cretaceous sedimentary unit that outcrops over much of the Carnarvon Basin in Western Australia.

Mookaite is variously, and incorrectly, described as chert, opalite, chalcedony or combinations of the three.

From a strictly geological perspective however, Mookaite is best defined as a silicified type of Radiolarite whose silification is opaline to chalcedonic.



## Sunset Jasper



Sunset Jasper is found on Hamersley Station, a large cattle grazing property about 75 km west of Tom Price in the Pilbara region of Western Australia.

Sunset Jasper is a metamorphosed sedimentary rock that is part of the quartz family, being very high in silica but with a high percentage of impurities, in this case mainly iron oxides. These iron impurities give Sunset Jasper its mixed range of colours, from vivid reds through to various shades of yellow, cream, brown, and grey. The stone often has vughs of higher purity iron in the form of goethite pisolites. Interestingly, the deposit has 3 distinct layers, each with its own palette of colours and patterns.

The deposit sits adjacent to the Marra Mamba iron formation, in one of Western Australia's



main iron ore provinces, which explains its high iron content. It is close to operating iron ore mines. This area was once a vast inland sea, where iron was pumped from underground vents into a very calm body of water. The heavy iron particles settled in layers on the sea floor, building up over time. Heat, pressure and an oxygen atmosphere, transformed these layers into the iron ore we see today. The Sunset Jasper was a later but similar layered formation, with much of the iron replaced by silica. The iron formations date back 2.4 – 2.8 billion years, but the jasper deposit is likely younger than this.

**Noreena Jasper**

Noreena 'jasper' is a marketing term for a colourful silicified pelite (mudstone). This small deposit is mined from a low hill by a Western Australian rock dealer. Slabs are regularly sold at Tucson, and the material is also made into pendants, beads, and spheres.

Noreena 'jasper' looks almost the same as Munjina Stone, extracted by the same miner elsewhere in the Pilbara region, and also a pelite.

<http://www.outbackmining.com.au>



**Pilbara Picasso Jasper, West-Australia**



**Greenskin Jasper,**

Turee Creek, WA



## In History

The name means "spotted or speckled stone", and is derived via Old French *jaspre* (variant of Anglo-Norman *jaspe*) and Latin *iaspidem* (nom. *iaspis*) from Greek ἱάσπις *iaspis* (feminine noun), from an Afroasiatic language (cf. Hebrew יַשְׁפֵּה *yashpeh*, Akkadian *yashupu*). This Semitic etymology is believed to be unrelated to that of the English given name Jasper (of Persian origin).

Green jasper was used to make bow drills in Mehrgarh between 4th and 5th millennium BC. Jasper is known to have been a favorite gem in the ancient world; its name can be traced back in Arabic, Persian, Hebrew, Assyrian, Greek and Latin. On Minoan Crete, jasper was carved to produce seals circa 1800 BC, as evidenced by archaeological recoveries at the palace of Knossos.

Although the term jasper is now restricted to opaque quartz, the ancient *iaspis* was a stone of considerable translucency including nephrite.

The jasper of antiquity was in many cases distinctly green, for it is often compared to the emerald and other green objects. Jasper is referred to in the *Nibelungenlied* as being clear and green.

The jasper of the ancients probably included stones which would now be classed as chalcedony, and the emerald-like jasper may have been akin to the modern chrysoprase. The Hebrew word may have designated a green jasper.

Flinders Petrie suggested that the *odem*, the first stone on the High Priest's breastplate, was red jasper, whilst *tarshish*, the tenth stone, may have been a yellow jasper.

## Uses

Jasper is generally an inexpensive gemstone when used in jewelry. It is cut and polished into cabochons, and used as beads for necklaces and bracelets. It is also carved into cameos which can be worn as pendants.



## Synthetic

Jasper is not produced and mostly used in natural form and not treated or enhanced, although occasionally it is dyed.

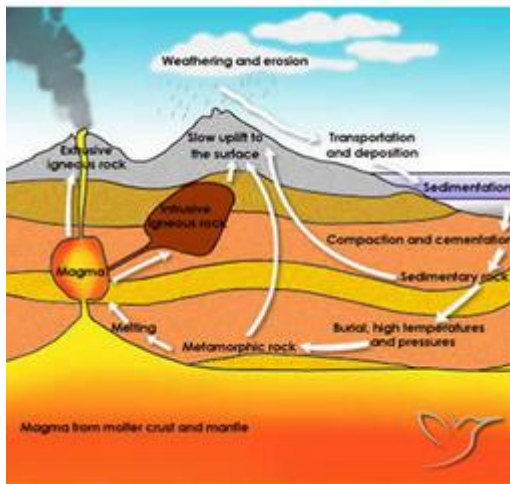
## How Jasper was formed

Like most gemstones, Jasper formed when hot molten rock, known as magma, rose to the surface crust of the earth and began to cool. As the soft, warm molten rock cools and hardens, gas bubbles form as well as cracks and cavities where magma flows overlapped or cooled at different rates. The magma hardens into rock and the gasses escape leaving little pockets of space. Into these pockets fluids such as silica, rich in dissolved quartz molecules, flowed and settled.

Jasper is very rich in impurities and foreign material - it is what gives it its variety of colours - which form part of the gemstone as it is being formed over millions of years. Iron, iron oxide and manganese are typical mineral impurities. In addition, the cooled magma can be reheated by hydrothermal activity, breaking down the crystal structure and twisting into the intriguing swirls we sometimes see in the gemstone.

Sometimes the Jasper gemstones are superheated, soften again and get mixed up with various rock types or even other gemstones like Agate or Opal. The surrounding volcanic activity can throw up tons of ash which can seep into the crystal formation and give the Jasper some interesting markings. Mud, organic matter, even wood can also affect the process and outcome of Jasper gemstones.

When the Jasper quartz material has fully formed it is generally harder than the surrounding rock. Wind, rain and ice slowly erodes away everything but the hard gemstone material. These Jasper gemstones then get washed away by streams and creeks and sit on river beds waiting to be collected by alluvial miners millions of years later.



## Websites

Wikipedia - <http://en.wikipedia.org/wiki/Amethyst>  
Mindat - <http://www.mindat.org/min-198.html>  
Minerals.Net - <http://www.minerals.net/gemstone/Amethyst.aspx>  
Fossicking Australia – <http://gemfossicking.com.au/>  
Gem Society - <https://www.gemsociety.org>  
GIA - <https://www.gia.edu/>  
Gemselect – <http://gemselect.com>  
World of Jasper - <http://www.worldofjaspers.com>