

Ammolite



By Skullis

History

Ammolite gemstones are arguably the rarest gemstones on earth, rivaling the rarity of Alexandrites and red diamonds. They are thin iridescent layers of fossilized shells of ammonites, which are composed primarily of aragonite, the same mineral which makes up nacreous pearls. It's not a true fossil gem; instead the shell from the ancient ammonite has been compressed to the point that the calcium carbonate has been re-crystallized to form a new material called aragonite.

Ammolite's main attraction is the opal-like play of colour. It is mainly found along the Eastern slopes of the Rocky Mountains of the United States and Canada, mostly in Alberta and Montana. It has been known to the native peoples of the Americas for hundreds of years and believed

to have magical powers. In the 1960's amateur lapidaries began to work with it, and by 1981 the World Jewelry Confederation (CIBJO) official recognized ammolite as a gemstone. The area where they are found was an inland subtropical sea in prehistoric times known as the Cretaceous or Western Interior Seaway. Ammonites are squid-like creatures that thrived in tropical seas until they became extinct along with the dinosaurs at the end of the Mesozoic era. They ranged in size from one inch to approximately nine feet, but most iridescent gem quality ones are typically smaller. As the seas receded, the ammonites were buried by layers of Benitoite sediment. This sediment preserved the aragonite of their shell remains, preventing it from converting to calcite.



By Science Photo Library

Geology /Properties

The chemical composition of ammolite is somewhat variable. In addition to aragonite, it may also include calcite, silica, pyrite or other minerals with trace elements of aluminum, barium, chromium, copper, iron, magnesium, manganese, silicon, titanium and vanadium. An iridescent opal-like play of colour is shown in fine specimens, mostly in shades of green and red, though all spectral colours are possible. The iridescence is due to the microstructure of the aragonite. Unlike most other gems, whose colours come from light absorption, the iridescent colour of ammolite comes from interference with the light that rebounds from stacked layers of thin platelets that make up the aragonite. The ammolite itself is actually a very thin sheet, about 0.5 – 0.8 mm in thickness, and is almost always found in matrix, which is typically a grey

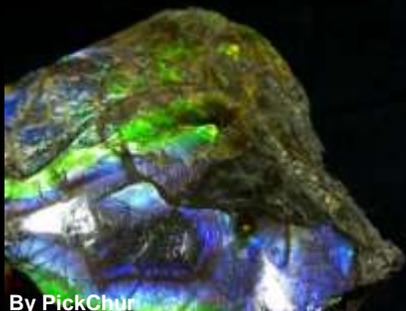


By Gio Gems

to brown shale, chalky clay or limestone. It is a soft and delicate material, most often requiring special processing techniques known only to a few experts specializing in this industry.



By Paleozoic



By PickChun

Approximately 50% of the ammonites mined in Alberta are of gemstone quality. The ammolite deposits have several layers which are excavated in open pits. Most commercial mining operations have been conducted along the banks of the St. Mary River, south of Lethbridge. Ammolite has formed in two distinct geological horizons, known as the K Zone and the Blue Zone.

The K Zone always found in concretions, it has been compacted and fractured through deposition and naturally sealed with a carbonite or conchiolin. It is found 30 m below the surface. The Blue Zone is usually found compressed with a thin layer of iron pyrite. It is compacted with fewer to no fractures. It is found a 120 m below the surface.

Ammonites are usually cut in half or into thin slices to expose the segmented spiral structure.



By Theodore W. Gray

Ammolite types:

Natural Ammolite: A stone which has been left to its natural appearance. The host material (e.g. petrified clay or shale) is grinded off to a thin layer which stabilizes the iridescent ammolite surface. The gemmy Ammolite layer is polished to a more or less flat surface.

Doublets: Doublets are two connected pieces of materials to create one stone. A thin layer of gemmy Ammolite is glued to a matrix which can be obsidian, glass etc.

Triplet: These consist of three layers – a thin gemmy layer of Ammolite is glued to a matrix which is on the bottom, and a clear quartz or glass dome on the top as a protective layer.



By Adventure Creations

Refractive index	1.52 – 1.68
Hardness	3.5 – 5.5 Mohs scale
Specific gravity	2.75 – 2.8
Crystal System	N/A
Crystal Habit	N/A
Fracture	Uneven – Granular
Luster	Vitreous



By Adventure Creations

Synthetics/ Imitations/Treatments

The finest ammolites are just polished and do not require any coating. However, most are stabilized with an epoxy coating which prevents the surface from splitting, eases the work of the lapidary, and makes use of otherwise low quality material. The coating of the stone should be disclosed as coated stones are of a much lower value and also the varnish can yellow or become cloudy over time which can result in a duller appearance. Intensive colours of doublets and triplets can be caused by using black or colour matrix or epoxy between the ammolite layer and the matrix. There are no synthetic counterparts to Ammolite, though it can be imitated by plastic or glass.



By My Ammolite



By Jewelry Gallery



By AzblueRockers

Evaluation and Use

Rarity / appearance and thus value is a complicated matter of often subjective estimation. Different factors have different importance to different buyers. Some prefer the full spectrum of colour, others like the brilliance and depth of just two, not to speak of the visibility from all angles, pattern and the strength of colour shifting. Gemstone ammolite can be found in any colour, though the higher grades will have a very strong bright single colour or contain a range of bright colours of the rainbow. Lower grade gemstones will show less vibrant colours in a more limited range. Generally, red and green is more common than blue or purple, but there are certain hues like crimson, violet and gold which are very rare and in high demand. The highest grade materials will show strong vibrant colours through 360 degrees of rotation. The brightness of colours and their iridescence is essentially dependant on how well preserved the nacles shell is and how fine and orderly the layers of aragonite are. The quality of the polish is also a factor. It is usually fashioned into free form cabochons and mounted in gold or silver with other gemstone accents.



By City of Lethbridge

Cleaning/Care

Natural Ammolites are best suited for broaches, pendants or earrings. Ultrasonic and steam cleaners should never be used. Excessive heat, acids and some perfumes or hair sprays may cause damage to the iridescence, therefore should be applied before putting on jewelry. Lukewarm soapy water is best when taking care of or cleaning the gemstone.

Metaphysical/Astrological Properties

Ammolite is the astrological sign of Aquarius, and vibrates to the number nine. It is a protective stone, giving stability and structure to one's life. It can eliminate the caustic attributes and can transform negativity into a smooth flowing energy. It also tends to encourage and to supplement one's survival instincts. It is a stone to assist one in the promulgation of the requirements and the actions necessary for world survival. It can alleviate the burdens of the birthing process and can provide for ease of relaxation.