



BIOLUMINESCENCE

Bioluminescence is the production and emission of light by living organisms. It occurs widely in marine, invertebrate, fungal, bacterial and terrestrial animals, as well as some microorganisms

... we learn from nature and do it better ...



History of Luminescent Pigments

There is a long history of luminescent pigments. In ancient times, the Chinese found photoluminescent jades and ground them into photoluminescent beads, wine cups or other ornaments. These were collected as precious treasures because of their rarity.



According to an ancient document from the era of Chinese Emperor, Zhao Tai Zhong, the first luminous paint was invented in Japan during the early Heian Period (794 – 1185 AD) over 1,000 years ago. The document, (Displayed at the Palace Museum in Taipei, Taiwan) tells of how the emperor heard of a painting which showed a wonderful cow drawn on the wall of a cave. Apparently, the cow could not be seen in the daytime because "it went to a meadow for eating", and "returned to the cave in the evening". Ordered to investigate, one scientist learned that "the cow was painted with special paints made from shells of the sea".

Other accounts of the era mention the use of seashells combined with volcanic materials - perhaps pointing to zinc sulfides being formed along with suitable impurities such as copper. The technique of luminous painting was known both to the Chinese and the Japanese and there was some trading of materials between the two countries.

In 18th Century Europe, John Canton prepared a luminous pigment made from oyster shells reacted with sulfur. By the end of the 19th Century, Swiss watchmakers began treating the dials of timepieces with a natural luminescent paint created using the same technique as the early Japanese artists.

Phosphorescent Paint

Luminous paints require direct sunlight for some time, and the phosphorescence they display in the dark only lasts for a few hours. Luminous paints are usually made by heating oyster shells in the fire until they become white, and then placing them in a crucible with sulphur and melting. Another method is to mix thoroughly 100 parts chalk and 40 parts flowers of sulphur, and heat in a closed crucible until fumes cease to be evolved. Powder the residue of calcium sulphide, mix with the smallest possible quantity of gum water or glue size, and use it as a paint; it is said to be not so good if mixed with boiled oil or varnish. Luminous paints can also be made by using strontium carbonate in place of chalk.

Luminous Enamel

Five parts of the ordinary luminous powder prepared from oyster-shells as previously directed; ten of fluor-spar, cryolite, or other similar fluoride; one of barium borate; powdered, mixed, made into a cream with water, painted on the glass or stone article, dried, and fired in the usual way for enamels. If the article contains an oxide of iron, lead, or other metal, it must be first glazed with ground felspar, silica, lime phosphate, or clay, to keep the sulphur of the sulphide from combining with the metal. The result is an enameled luminous article.

In 2004 I found in an old book a receipt for Phosphorescent Paint and Enamel and I have been experimenting for over a year to find a way to produce a bright, luminous powder from sulfurized oyster shells.

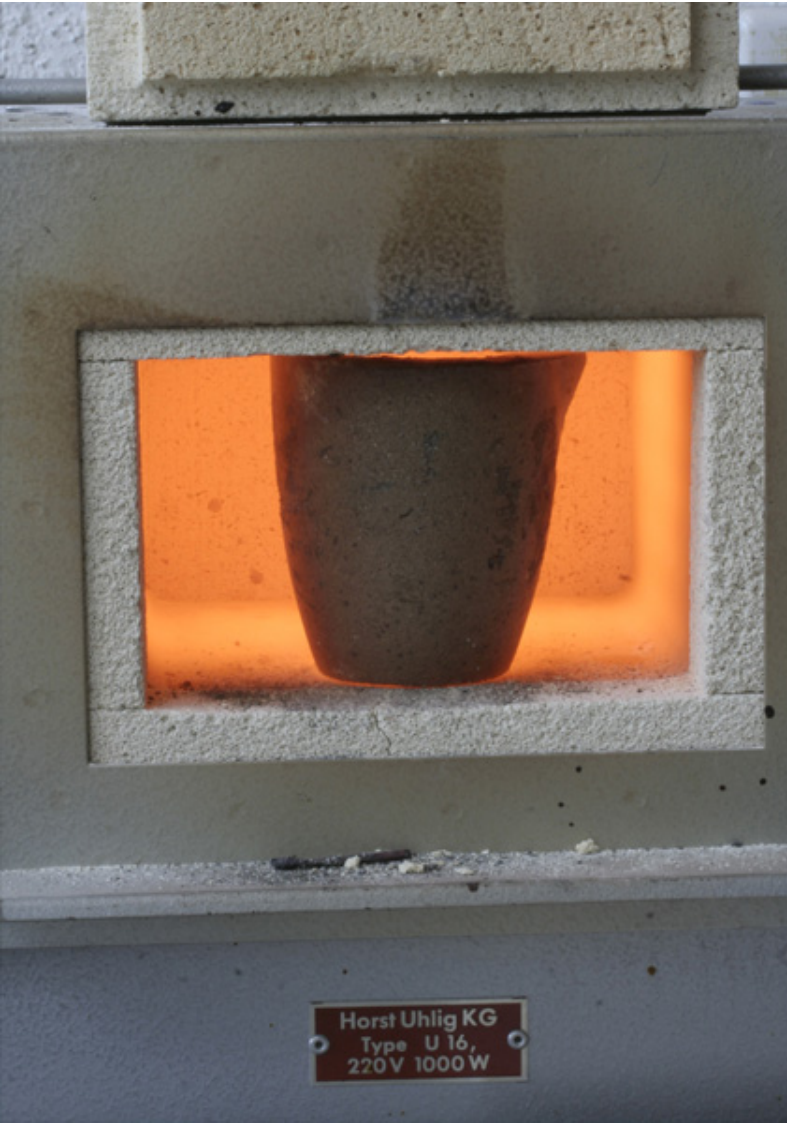
The powder does not have the purity of modern illuminants such as Super-LumiNova, which is used in the watch industry for example.

The powder or granulate is also too coarse to be used for printing. It is also not completely homogeneous in larger areas and the result sometimes appears somewhat blotchy.

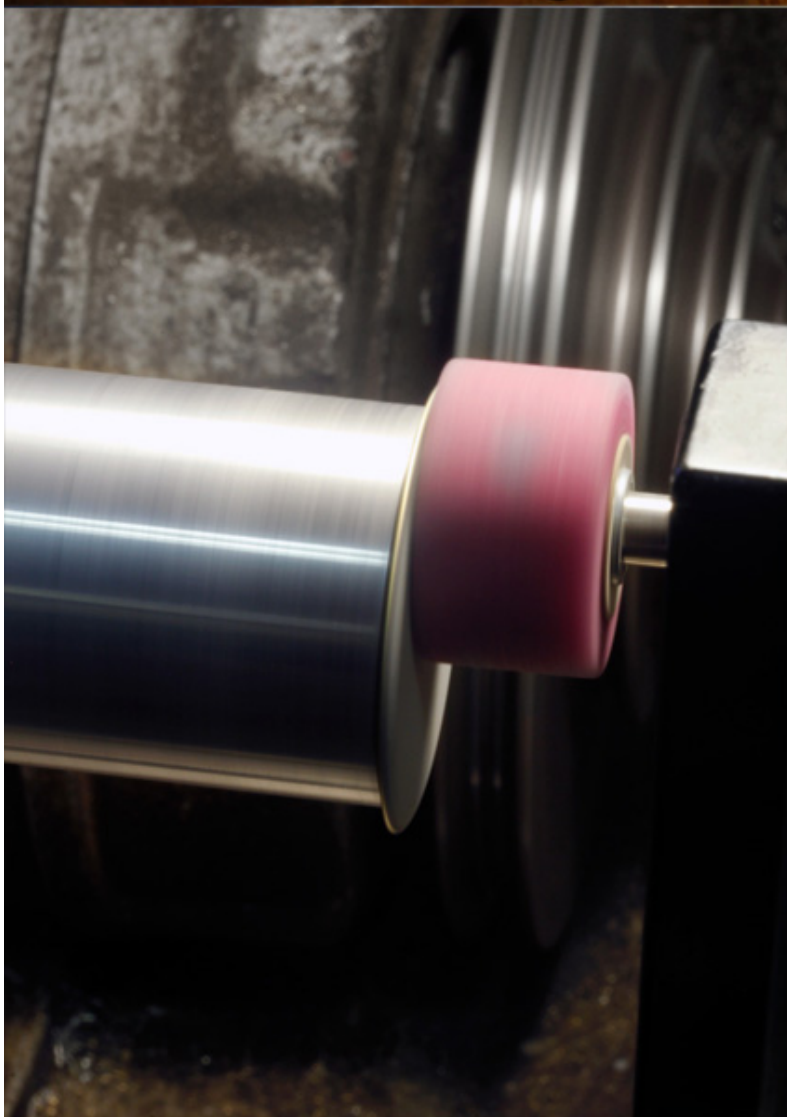
But it is 100% natural and impresses with its strong and long-lasting luminosity, which will last for years if not forever. For illuminating my watches, I combine the luminous powder mixed with clear, transparent cold enamel.

















La Collection Émail Lumineuse

42 Stainless steel watch case, single-curved sapphire crystal. Mechanical self-winding Movement
The strap, a combination of black calf leather and green rubber. The dials Émail Lumineuse, various black & white pictures appearing through solid bioluminescent cold enamel.

On the following pages you will find a selection of available possibilities for the Émail Lumineuse concept that I have manufactured: symbols from the world of religions such as the fascinating Orthodox icons, or from the Indian Bhagavad Gita Krishna the flutist, from the world of animals tigers, horses, birds, mythical creatures such as unicorns or Icarus. Subjects from the world of pirates or on the theme of vanitas.

I can create your individual picture for you