

Glossary Of Venetian Glass Making Processes

Murano glassmakers held a virtual monopoly on quality glassmaking for centuries and as such it remains the longest lasting centre for glass making in history. During this time they developed, or procured and refined, many processes which we have made reference to in our extensive [History of Venetian Glass](#) guide. This [BigBeadLittleBead](#) glossary describes the individual process, some of the science involved, and who the technique or process can be attributed to.

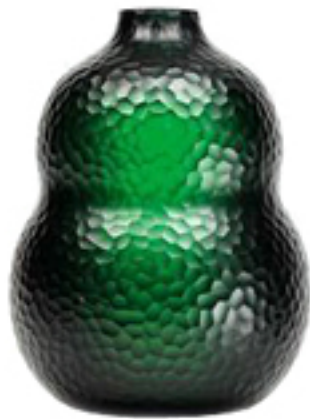


Aventurina - also known as Aventurine or Adventurina

This process involves adding micro particles of copper, gold, or chromic oxide to molten glass after which deglassification, during the cooling stage, results in the separation of the particles from the molten mass. This produces an affect whereby the fine particles are suspended in the glass and appear like gold flecks when they catch the light.

The root meaning of this word is sometimes wrongly ascribed to *avventura* (or *adventure* in Italian), rather than the correct *ventura* (*fortune* or *chance* in Italian), but both descriptions give a good idea of the skilled nature of producing consistent pieces. This process was a closely guarded secret when first developed and refined in the 15th Century, coming back to prominence in the mid 19th century at the glass works of Pietro Bigaglia and then Salviati & C. It is used for beads, vases, and a variety of other objects.

Image: Vintage orange and black Aventurina glass beads.



Battuto - Meaning struck or beaten

This is a cold working finishing treatment using a grinding wheel to mark the surface of the glass. The grindings are made to differing depths and with overlapping irregularity to create a faceted fish scale or hammered metal effect. This is a similar process to *incisio* but with broader, flatter cuts, as opposed to narrow and deep markings. The process originates from the early 1900s, most notably from the **Daum** glass works in Nancy, France. In Murano the process was a favourite of Carlo Scarpa at Venini & C, as well as Alfredo Barbini, Lino Tagliapietra, and Davide Salvatore.

Image: Battuto finish vase in green by Carlo Scarpa for Venini & C., circa 1940.

Calcedonio

This process results in glass that looks like the semi precious gemstone *agate*. This quartz stone is characterised by veins or bands of differing colours and this is replicated in this glass making technique. It is produced by mixing colouring agents, namely copper, iron, cobalt and tin oxides, with metallic silver. This is then blended into a fusion of different types of glass that is then mixed further until the desired effect is achieved. This was an historical formula from the 16th century which was then lost only to be rediscovered in 1846 by the industrialist Lorenzo Radi. It was used by Venini & C in the designs of Napoleone Martinuzzi.



Chevron - also known as Rosetta or Star

A chevron is a bead type produced from a cane known as a Rosetta. They were drawn from a hollow cane typically with six thin layers of glass, traditionally white, blue, white, brick red, white then finally blue. This was then ground to produce patterns with five concentric stars with twelve points. The canes were chopped allowing large numbers of beads to be produced from each production run. Later, this cane was produced without the hole and Millefiori canes were born.

They were first produced in Murano at the end of the 14th century with the first reference to chevrons appearing in the inventory of the Barovier glass works in 1496. They were one of the core bead types used as Trade Beads destined for West Africa and the Americas. Like most Murano techniques of the time production processes were heavily protected. Today, like seed beads, the production of Chevron beads in Italy is limited due to the influx of less expensive foreign beads, in this case from India and China. The best known contemporary chevron bead makers are Art Seymour, from the United States, and Luigi Cattelan, from Murano, Italy.

Image: Contemporary Venetian chevron bead produced by acclaimed Italian bead artist Luigi Cattelan.

Conterie - also known as Seed Beads

Seed beads created by the Venetian glass bead industry were initially small, opaque and round. The simplest form of beads they were produced from hollow tubes which were then chopped and re-fired for smoothness and colour. Typically sold in shanks pre-strung or by the kilo. They were used to decorate textiles and clothing, as well as for necklaces, hair combs and earrings. The peak of their production in Murano was in the early 1900s when these beads sustained the Venetian glass industry.

Today the industry is virtually non-existent in Italy, as the market is now dominated by Japanese and Czech distributors

Coroso - meaning corrosive

This is a cold working treatment in which the surface of the finished article is corroded by placing it in to a bath of diluted hydrofluoric acid or ammonium fluoride. The result is a rough layer on the items surface. By varying the temperature of the solution, the time in the bath, and the composition of the acid it is possible to obtain varied effects. It is also possible to mask areas of the glass surface using wax or paraffin to protect areas from the acid and to keep them bright. This technique was introduced by the French at the beginning of the 20th century and found its first applications in Murano in the 1930s in the designs of Carlo Scarpa at Venini & C, and the vases and figures of Flavio Poli for the Seguso Vetri d'Arte firm.

Image: Seguso Vetri d'Arte bowl with a corroso surface. Produced in Murano, Italy circa 1940 whilst Flavio Poli was artistic director.



Cristallo - also known as Cristallino

A clear, highly malleable, virtually colourless Venetian glass whose discovery is attributed to Angelo Barovier in the mid 14th century. It got its name from its resemblance to natural rock crystal. Aside from its clarity the other benefit of this discovery was that it could be blown into vessels with very thin walls that saw glass move away from the heavy designs of the time.



Filigrana

A process from 16th century Murano used to make items with an opaque white or coloured glass lined core. It was achieved by laying thin rods of glass alongside rods of the desired colour, which traditionally would have been white opaque glass. They are fused together in the furnace and then moulded into a cylinder. After which they can then be blown and shaped. This process has three additional patterns depending on how the filaments are twisted and aligned. With mezza-filigrana, rods with one filament are used. With vetro a reticello, a diamond shaped pattern is created by twisting two halves of an object in opposite directions while heating and distorting the straight lines of the filigrana rods, creating a diamond mesh pattern. Finally vetro a retortolio consists of two filaments twisted into a spiral. All the most important Murano glass factories used this technique.

Image: A clear glass mezza filigrana wine glass with grand shaft, red toned with gold, by Seguso Vetri d'Arte circa 1985.

Ghiacciato - meaning ice

A process used to create a cracked appearance in a piece by lowering the hot glass into cold water for a few seconds and then placing the item back into the heat of the furnace. The sudden cooling of the surface area whilst the core remains molten forces a non uniform contraction of the surface causing fine cracks which are then sealed and secured by the reheating of the surface. This process was in use from the 16th to the early 18th century primarily in the production of glasses, bowls and beads. It then came to prominence again in the 20th century with craquelé effect glass light fixtures. Particularly noteworthy in this regard are the chandeliers produced by Fratelli Toso in the 1930s.

Incamiciato

A multilayered glass plating technique, from the 1920s, where different layers of glass are placed over each other before being incased in a final cristallo or transparent coloured layer. This process provides great flexibility in design and finished plated pieces may be a single colour or include additional processes such as sommerso. It was a process quickly adopted up by all the most important Murano glass factories from the 1920s onwards, including Venini & C., Fratelli Toso, Vetreria Artistica Barovier & C. In large pieces it can create a great visual impact and these are much sought after.

Image: Green lattimo incamiciato green glass vase with vertical stripes and applied drops. Produced by Venini & C., circa 1928.





Incisio - meaning incision

Like *battuto* this is a cold working finishing treatment using a grinding wheel. In this case the lines are narrow but deep and linear in fashion. In Murano the process was a favourite of Carlo Scarpa at Venini & C., as well as Alfredo Barbini, Lino Tagliapietra, and Davide Salvatore.

Image: An orange glass stoppered bottle with horizontal inciso produced by Paolo Venini for Venini & C. circa 1950.

Inclamo

Is the process of fusing together many different pieces of coloured glass while pliable and then forming them into a single object usually a vase or goblet. It originated in the Islamic world before being adopted and adapted in Murano. It is an expensive technique requiring great skill on the part of the glass maker, as the individual blown parts need to be identical in shape, or circumference, prior to being warm jointed together and shaped into the end form. Notable forms being the vases and lighting created by Thomas Stearns in the 1960s for Venini & C.

Lattimo

Refers to an opaque milky white glass produced in the mid 15th century to imitate porcelain, allowing direct competition with real porcelain pieces from China. At this time it was particularly useful for manufacturing objects decorated with multicolored enamels and was opacified using tin oxide or arsenic. The word originates from *latte* meaning milk.

The process fell into disuse only to be revived in the 1920s by the key glassworks of Barovier & C., Venini & C., and MVM Cappellin & C. The latter was the first to use it without the addition of other colours for a series of geometric vases exhibited at the 1927 International Exhibition of Decorative Arts in Monza. In the 1950s it was adopted by almost all the glass furnaces on the island, being used more diversely, including in the famous *Commedia dell'Arte* figures by Fulvio Bianconi for Venini & Co. In modern production the opaque effect is created by adding calcium and sodium fluorides to the molten glass mix in the form of fluorine compounds such as cryolite or fluorine spar, as well as zinc oxide and alumina.

Image: A mould blown lattimo vase attributed to Tomaso Buzzi or Carlo Scarpa for Venini & C. circa 1932 to 1935.



Massiccio

A technique in which large or heavy objects are produced without being blown because the molten glass is too heavy or dense to handle creatively. The glass is therefore shaped, moulded, or formed whilst the glass is hot and malleable. This process is often used for thick glass sculptures.

Millefiori

Literally meaning a thousand flowers. Is one of the oldest and most well known techniques still in use in Murano. It is used to describe small mosaic cross sections of glass. The

process involves stretching and shaping regular arrangements of multicoloured rods of glass. Normally the colours are added and a shape is created before the molten glass is stretched into a long thin cane. The cane can then be cut to size for use as beads or placed on a gather of molten glass (pea) for inclusion into murrina paperweights or blown vases. This technique has been adopted in most of the glassmaking centres in the world including Japan.

Murrina

Meaning incision. One of the oldest techniques used in glass making dating back to Roman times and rediscovered in the 1800s. Thin sections of glass rod are placed together to form a pre-designed image before being fused together and then formed and moulded into shape or even blown. The rods are often designed to create a floral or geometric design.

Image: A red gather fused burst gold foil iridised pasta vitrea vase produced by Carlo Scarpa for MVM Cappellin & C. circa 1929.



Pasta Vitrea

This is a coloured opaque glass whose preparation is based on the same principle as lattimo glass, but producing coloured glass rather than the milky white. The use of vitreous paste was confined to just a few glass factories from the turn of the 20th century as the process was problematic and the results could often be sub standard. Venini & Co. and MVM Cappellin & Co. were two of these factories. The use of this process was more widespread after the war, largely in the making of figures, which were the fashion from the 1950s. Only the American designer Thomas Stearns made large items entirely of vitreous paste for Venini & Co.

Image: A red gather fused burst gold foil iridised pasta vitrea vase produced by Carlo Scarpa for MVM Cappellin & C. circa 1929.



Pennellate

A rare process developed by Carlo Scarpa for Venini & C in 1940. It sees the fusion of glass to the surface of a hot item that is still on the blower's pipe. Small balls of coloured glass are applied and then pulled over the surface of the blown object to leave a slight colour trace which is reminiscent of an artists brush or pennellata. This process is repeated until the entire surface of the object is covered. Often opaque glass in various shades of yellow, orange and red is used to obtain a slightly iridescent effect on the surface.

Image: A pennellate bowl by Carlo Scarpa circa 1942.

Perle a Lume Venetian Beads

Also known as Lampwork or Wound beads. These beads are often called wound beads because molten glass is wound around a mandrel to form the bead. Originally this was a ferrous mandrel covered with a mixture of silica and clay which gave the bead some room for contraction when it cooled and helped with removal of the bead from the mandrel. In 1935 copper mandrels were introduced into

Murano by the Moretti glass works and soon became the standard tool for making lampwork beads. They proved more economical as the mandrels did not need to be coated and breakages were reduced as the copper mandrel was cut off just below the bead and the cut off section was placed in nitric acid which etched the copper from inside the bead. Today, bead makers in Venice and Murano still use both methods, using stainless steel with a bead release material for more delicate beads, or for beads with silver in them which tends to turn dark if it comes into contact with acid.



Pulegoso

A technique used to create an almost opaque glass through the inclusion of innumerable bubbles or puleghe in the glass. This process was invented by Napoleone Martinuzzi in the late 1920s, whilst he was artistic director at Venini & C. The bubbles are created by adding salts, generally sodium carbonate or bicarbonate directly into the molten glass. The salt breaks down due to the heat, which releases gasses in the form of carbon dioxide, which disperse within the glass forming bubbles as well as giving the glass an irregular surface texture.

This has remained an important process from the 1930s to the present day, with Vetreria Artistica, Barovier & C., Seguso Vetri d'Arte and others producing vases, figures and the famous blown and hand-shaped glass cactuses. Twenty five years later during the 1950s Dino Martens made the famous pittorici vases for the firm of **Aureliano Toso**, whilst Gae Aulenti was combining metal and pulegoso glass for Venini & C., in 1995.

Image: A pulegoso lamp produced by Ercole Barovier for Artistica Barovier circa 1930.



Sommerso

Meaning submerged. A technique using coloured threads or small artistic designs that are then submerged into various crucibles of colourless transparent molten glass to form a multi layered or multi hued effect. Once again Carlo Scarpa for Venini & C. was at the forefront of this process from the mid 1930s. He made use of a layer of coloured glass along with gold leaf and frequently air bubbles, which he would capture in a thick layer of transparent glass. This technique was quickly taken up by many of the other Muranese glass factories.

Image: Vintage Venetian baby blue sommerso lamp worked glass beads with blue opaque glass and aventurina, circa 1955.



Tessere

Created by fusing together pieces of glass of almost random shapes or sizes before blowing or working into a finished object.

Image: Barovier & Toso clear glass and fused ochre brown structured glass vase circa 1957.



Tessuto

A multi coloured glass invented by Carlo Scarpa for Venini & C. in the late 1930s. Based on the filigrana process, very thin rods of coloured glass are fused together to create an alternating pattern of stripes and then blown.

Image: Paolo Venini tessuto matte finish vase with mint green, brown and white stripes with horizontal texturing, circa 1985.

Zanfirico

A type of glass cane made by assembling a bundle of different coloured rods and heating them until soft. The bundle is then attached to two metal pontils or metal rods before being drawn out and elongated. During this process the bundle is twisted to produce a spiral pattern. This process was originally known as vetro a retorti, but was renamed in recognition of a Venetian dealer called Antonio Sanquirico, who in the 1830s encouraged the revival of this and other traditional techniques on Murano.

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