

WHAT IS ENAMELING...

These are excerpts from my book, [The Art of Fine Enameling](#). You are free to reproduce this material as long as you give me credit:

This information was written by enamelist Karen L. Cohen, <http://www.kcEnamels.com>.

In easiest terms, ENAMELING is the fusing of glass to metal under high heat conditions.

The word enamel can refer to many substances, such as the coating of your teeth. But this site is about **Vitreous Enamel** - true glass fused to metal. This is not to be confused with resin, which some people call cold enamel or unfired enamel - this is not enamel, it is a poly-substance and much easier to work with.

Through the years, a variety of enameling techniques has been developed. Some involve how the metal is prepared and some involve how the enamel is applied. The following defines the most prevalent, but by no means all, techniques.

- **Basse Taille:** French for “low cut.” A technique in which a pattern is created in the metal backing before enameling. The project on this technique was written by Ingrid Regula.



bās tā' yā

- **Camaieu:** also called “en camaieu,” a term dating from the mid-18th century describing a grisaille-like technique which uses a buildup of white enamel to create highlights and light areas. However, instead of using a black background, as in grisaille, transparent enamel is laid in first, beneath the whites. This technique is frequently used on snuffboxes, watches, and medallions.

kām ay' euh

- **Champlevé:** French for “raised field” or “raised plain.” A technique in which enamel is inlaid into depressions in the metal, leaving metal exposed. The depressions are typically made by an etching process, although other methods exist. First done in the 3rd century AD by the Celts decorating their shields, this technique has been one of the favorite forms of enameling. The project on this technique was written by Katharine Wood.



shān lā vā'

- **Cloisonne:** French for “cloison” or “cell.” A technique in which metal wires are bent to form a design; enamel is then inlaid into the resulting “cloisons.” Although this can be done in copper, contemporary cloisonné is most frequently done in silver or gold. The Byzantine Empire, 6th century AD, was the setting for gold cloisonne pieces of a religious nature. In the same time frame, the Japanese were producing scenes of nature. In China, cloisonné has been used since the 13th century AD. The project on this technique was written by Karen L. Cohen.



kloi' zə nā'
klwa zô nā'

- **Ginbari Foil:** a technique, developed in Japan, using a foil design made with an embossing plate. This is an excellent technique for reproducing a design, as the embossing plate is reusable. It somewhat has the look of cloisonné; however, the “lines” are not wire, they are embossed foil. The project on this technique was written by Coral Shaffer.



geen bār' e

- **Grisaille:** French for “greyness.” A form of “painting” with enamel in a monochrome, using a black background with a buildup of white overlays. The project on this technique was written by D.X. Ross.



gri zāl'

- **Guilloche:** (gee-yoh-shay) French for “engine-turning.” Engine-turning is the mechanical cutting of lines on metal to create a design. Because the pattern is engraved, the reflection of light through the overcoating of transparent enamel is enhanced, and its brilliance can be seen as the piece is moved from side to side.

gee yoh shay

The best known, but not the first, artist using this technique was Fabergé, in Russia, who, when showing pieces in Paris in 1900, brought a new interest to this technique. Guilloche was a dying art until Pledge & Aldworth Engine Turners, an English firm, revived it in the 1970s.

- **Impasto:** a technique in which acid-resistant painting enamel is applied to a bare metal surface, then fired. Multiple layers can be worked to build up a relief design, which can be sculptural in effect. Finally, the piece is covered with a transparent color. Other colors then can be added in thin layers only.

im pas' tō
im pä' stō

- **Limoges:** a technique of “painting” with enamel in which different enamel colors are put next to each other without the separation of wire or surface metal. The project on this technique was written by Ora Kuller.



lē mōzh'

- **Plique-a-jour:** French for “membrane through which passes the light of day.” A technique that resembles miniature stained glass and is reminiscent of its Art Nouveau and old-world influences. There are two basic methods of plique-a-jour: surface-tension enameled and etched-enameled.



plēk' ä zhōör'
plē ka zhōör'

The surface-tension method has two different styles of metal construction: the first is pierced. The second style is filigree or skeletal framework. The filigree style was first used in the 11th century and accepted all over the world.

The etched-enameled method is called Shōtai-Jippō, and sometimes “crystallized cloisonné” in Japan. It is done somewhat like cloisonné with a copper backing and silver wires, but after the piece has been finished, the copper backing is etched off.

Plique-a-jour pieces, because of the open back, are more fragile than other types of enamels.

- **Raku:** a technique in which hot enamel that includes oxides is smoked, resulting in iridescent colors. The technique can be used with or without silver nitrate crystals. The project on this technique was written by Jean Tudor.



rä' kōō

- **Sgraffito:** a technique in which lines are drawn through a layer of unfired enamel, exposing the fused enamel (or bare metal) underneath. The project on this technique was written by Sally Wright.



skrä fē' tō

- **Silkscreen:** a technique in which designs on material mesh, such as silk, polyester, or nylon, are transferred onto an enameled base; this is similar to silkscreening on cloth. The project on this technique was written by Ute Conrad.



- **Stenciling:** a technique in which a design is cut into a material, such as paper or Mylar®, through which the enamel is applied to, or removed from, the metal. Thus, the “holes” that are cut can be either the positive or the negative space of the design. That is, one can sift enamel onto the metal, lay down the stencil, then use a brush to remove the enamel in the cut-out area (negative). Or, the stencil is laid on the metal and enamel sifted into the cut-out area (positive). The project on this technique was written by Sally Wright.



- **Torch-fired:** a method of enameling in which a torch is used for the heat source, instead of a kiln. The project on this technique was written by Aileen Geddes.



Although each of these techniques can be used by themselves, two or more can be combined in one piece.

In addition, enameled pieces can be enhanced by decorative additives such as:

- **China Paints:** low-fire compatible ceramic materials that can be used on the top surface of enamels.

- **Overglazes and Underglazes:** finely ground pigments used either over or under the regular enameling layers. Underglazes are particularly effective in a basse taille design. See the Limoges–Painting with Enamels project.
- **Copper Screen or Pot-scrubber Mesh:** elements for use on top or under transparent enamels, giving a wonderful texture to a piece. The screen can be used to give an interesting grid effect. If used slightly under the enamel surface, when the surface is ground down, screening can give the effect of woven fabric as the stoning picks up the high parts where the warp wire crosses over the weft wire, leaving copper glints that give a textured pattern on the surface.

- **Decals:** design or picture printed on specially prepared paper for transferring an image to enamel, glass, wood, etc. The project on this technique was written by j.e.jason.



- **Foil and Leaf:** come in both fine silver and gold. In addition, leaf, which is much thinner, also comes in palladium. These elements can be placed under the enamel or on a top layer. Special foil objects, called paillons, are small preshaped designs that have a slight relief to them. Various projects in this book use foil. The project on this technique was written by Dee Fontans.



- **Gemstones:** can be added in an enameled area, using a metal bezel, which adds relief to a flat piece.
- **Granules:** small grains of fine silver or 22k or 24k gold that can be used for top-layer embellishment of an enameled piece. See the Cloisonne Brooch project. Note that these small balls can be “granulated” (fused) to a thin back plate and then enameled around.
- **Glass Beads and Balls:** can be purchased without holes and fused to the top of enameled pieces. See the Liquid Enamel and Glass Ball Additives project.
- **Lumps and Threads:** “lumps” are odd-formed chunks of colored glass and “threads” are filaments (short or long, thin or thick) of colored glass. Each can be fused into an enameled piece. See Torch-fired Beads project.
- **Lusters:** metal colors thinly applied on the top layer of an enameled piece. These sometimes fire with a crackle-maze effect, allowing the enamel underneath to show through. Some fire iridescent and some opalescent.
- **Metal:** small pieces of shaped metal can be added on the top layer of an enameled piece. They are embedded in a similar way to granules.

- **Millefiori**: cross sections of glass canes that include intricate patterns. Millefiori is best known in Venetian glass objects such as vases, paperweights, and lamps.

mil' a fē ôr' ē
mil' a fē ôr' ē

There are some methods of enameling that do not fit into either a technique or a decorative additive, but are a combination of the two. These include:

- **Firescale Enameling**: the use of the oxide buildup on a metal. Some pieces are completely done through firescale manipulation (by painting with a holding agent, sifting transparent enamels, and building up the resulting firescale lines), and some pieces are enhanced by the additive use of firescale (could be from a flaked-off piece that is reattached). See Photo #21. Also see the Sgraffito Plate project.

Separation Enameling: a special type of enamel that when applied over regular enamel, indents the enamel and changes its color. The project on this technique was written by Tom Ellis.



In reality, any of these techniques, decorative additives, and methods can be combined to make a piece that is truly unique. Simply let the imagination soar.