

TECH NEWS

This technical article comes to us from Sharon Massey. Many of you know Sharon for her volunteer work at many SNAG conferences. Some of you may even have been lucky enough to swap pins with her.

Sharon's artwork was well received last year in the exhibition "Metalsmiths Linking: A Cross-cultural Exchange" that showed in Tokyo, Japan and she was invited back by the Japan Jewelry Design Association (JJDA) to participate in a group show that is traveling to five cities in Japan this summer.

I hope you are as inspired by her article as I am. I am ready to get my enamels out again. If you have knowledge you would care to share, please do so. I am always looking for new techniques, ideas and processes or great explanations of old ones.

Enjoy, Jim Bové

Imagery and Text in Enamel: Alternative Techniques

By Sharon Massey

Enameling can be a very graphic technique for Metalsmiths, and there are many excellent traditional techniques for incorporating text and imagery, such as cloisonné, champlevé, stenciling, painting techniques, etc. These traditional techniques can be found in many textbooks, including *The Art of Enameling* by Linda Darty, which also covers a lot of the fundamentals of the enameling process. A basic understanding of enameling is important to understand before moving onto more experimental and alternative approaches. This article will cover two processes for alternative enameling: laser-printer decals and enameling with graphite.

Both of these techniques require that you have at least basic enameling skills, because they require counter enamel and a base coat. As in all enameling, make sure your metal is clean and grease-free. Your base coat should be fired smooth and have an even surface. These techniques will work best if you use an opaque white or light colored base coat, such as yellow, cream, tallow pink, etc.

Laser-printer decals share many similarities with traditional decals, except that you can cheaply design and print them yourself using a black ink laser printer. Decals are often used for ceramics, but the process can easily be adapted for vitreous enamel. Most decals are silk screened onto special decal paper, but cheaper digitally printed decals are also becoming available (<easy ceramicdecals.com> is a U.S. supplier). Decals are printed using oxides, or ceramic pigments, which gives them their color, and allows them to be fired at the same temperatures used in enameling.

Laser-printer decals take advantage of the oxides in the black toner to create a decal. Most laser printer toners contain iron, which can withstand the firing process, and creates a rust-colored image. Some toners contain magnesium, which will also work, but you might have to experiment to find a laser printer with the best results. Hewlett Packard laser printers are rumored to be the best for this process.

Decals usually do not contain flux, or glass, and therefore require a base coat of enamel to fuse to the surface (they are technically an overglaze). Decals work best on a surface where they can be laid flat. This does not necessarily mean a flat sheet of metal, but think about how a sheet of paper will lie flat around a tube, but will wrinkle when laid across a hemisphere, and apply that thinking to forms that will work best for decals.

To make your own laser-printer decals, you need to buy laser waterslide decal paper, available from <www.beldecal.com>. This is a craft paper, intended for craft purposes such as decoupage, but it will also work for enameling and ceramics. Make sure you buy laser paper, because they also sell waterslide paper for ink jet printers, but an ink jet print will not create an enamel decal because it does not contain iron.

Design your image in the software of your choice. There is no need to reverse or invert your image or text. Print your design onto the glossy side of the waterslide decal paper using a laser printer. Cut out your design from the printed sheet. There is no need to cut right to the edge of the design, because the paper will not leave any residue on your enamel, the only thing you will see after firing is your image; however, it will not be as black as it appears in the printout, because everything except the iron will burn away.

Next, place your decal into a bowl of clean water. The paper will curl a little bit, and after a few moments it will begin to uncurl. This is a sign that your decal is ready to slide off the backing sheet. Take it out of the water and carefully slide the backing sheet off. This will leave a thin, clear film with your image on it. Be careful not to stretch or tear this material as you apply it to your piece. Position the decal where you want it, and smooth out any air bubbles, then blot it with a towel to remove excess water.



Your decal must be absolutely dry before firing. Ceramists usually let their decals dry overnight, but they don't have the luxury of having a hot enameling kiln that can serve as a drying rack. You can place your decal on top of your kiln to speed the drying process, and after it is completely dry, place it on a trivet and put it into the kiln, which should be around 1500 degrees F.



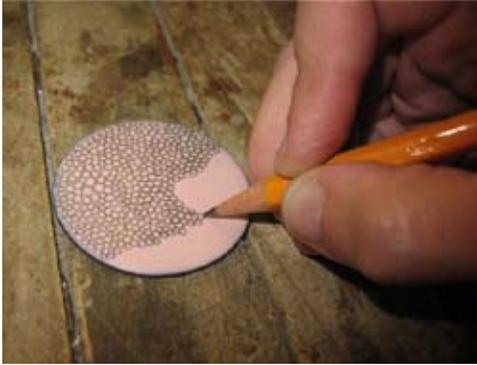
When you put your decal into the kiln, the waterslide decal film is going to burn off. This needs to be vented out of your kiln, so be sure the vent hole (usually located on the top or door of the kiln) is open. If your kiln doesn't have a vent hole, you will have to keep the door of the kiln open slightly when the paper ignites, and keep it open until it stops burning (usually only a few seconds). You can then close the vent hole or the door and resume firing as normal. You will be watching for the surface of the enamel to look slightly glossy. It is possible to overfire the decal, and the longer you leave it in, the fainter your image will be. If you take your piece out early and you are not sure if it is completely finished fusing, wait until it cools off and test a corner of your image with a little bit of water. If the image smears, then you need to put it back into the kiln and fire it a little longer.



You can use laser-printer decals in combination with traditional decals and also with painting enamels if you want to add color. I would not recommend firing transparent enamel over decals, or any other technique that requires a regular firing time, as the decal will tend to fade.

Graphite is another inexpensive and easy way to add imagery and text to an enameled surface. Again, you need to start with metal that has been counter enameled and has a light-colored base coat. If you try to draw with graphite on a fired surface, your pencil will slip across the glossy surface, so for this technique you need to create a matte surface on your enamel. This could be done by stoning the surface, but a much easier method is to use a glass etchant, such as Armor Etch, which is available through enamel suppliers and also at most craft stores. This process involves an acid, so take appropriate safety measures, including gloves and eye protection. Apply the glass etchant to the surface of the enamel, completely covering the surface with liberal amounts of etchant. Thin spots will not etch properly. Leave the etchant on for about 5–10 minutes; then rinse it completely away. When you dry off the piece, the enamel surface will be matte, and ready to accept graphite marks.





Use a regular graphite pencil (even a mechanical pencil will work well) to write or draw on your piece. If you make a mistake, wash it off with water and start again.

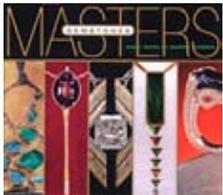
When you are satisfied with your image, place your piece on a trivet and put it in the kiln, which should be around 1500 degrees F. You will be watching for the surface of the enamel to look glossy again before removing it from the kiln. If you overfire the graphite it will fade and possibly disappear completely. A properly fired graphite piece will be glossy, and the graphite will not smear when rubbed. If you would prefer to matte finish a graphite piece, you must fire a soft-fusing clear flux over the graphite before using the glass etchant. If you apply glass etchant directly to a graphite surface, the image will be etched away.

Feel free to further experiment with these techniques and others to find processes appropriate for your own work. These processes were discovered through conversations with ceramists and enamelists who understand the firing process well enough to know what materials and oxides are possible to manipulate. There are probably countless other alternative techniques waiting to be discovered.

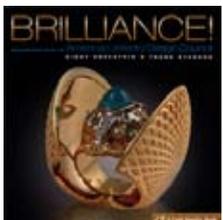
SNAG News will pay up to \$125 per page (up to 4 pages) for informative technical articles aimed at any level—from intermediate to advanced, from student to the highly skilled professional. If you teach a workshop, have a clever bench trick or technique of interest to other jewelers and metalsmiths, or have more academically based technical research, please share it with our SNAG community.

Send your submission to
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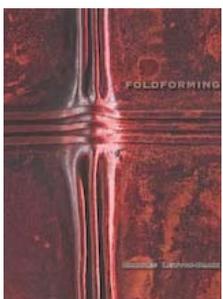
IN PRINT and on DVD



Masters: Gemstones; major works by leading jewelers, curated by Alan Revere. This book is a visual feast of eight pages each of excellent full color photos of the work of Bernd Munsteiner, Michael Zobel, Steven Kretchmer, Mark Schneider, Susan and Jeff Wise, Kent Raible, Janis Kerman, Todd Reed, Michael Boyd, Thomas Herman, and many more; 39 artists in all. Biographical information and artist's quotations are also included. Glossary, "About the Curator," lists of Featured Jewelers and Photographers, Acknowledgments. Published by Lark Books, 2008. 324 pages, 9" x 8", Paper, ISBN 1-57990-832-2, \$24.95.



Brilliance! Masterpieces from the American Jewelry Design Council by Cindy Edelstein and Frank Stankus. The results of the AJDC yearly challenges to its members to design a work of art based on a pre-determined theme are shown in full color, with designers' comments on how they determined their solutions. Projects range from the Cube (1996) through Wheel, Key, Puzzle, Water, Flight, Peekaboo, Fold, Sphere, Pyramid, Secret Treasure, and Spiral (2007). Also, information on The Origin of the AJDC; The Artists, their photos, and more photos of their work; The Authors; Acknowledgments; and Artists Index. Published by Lark Books, 2008. 228 pages, 9" x 9", Paperback, ISBN 1-60059-157-4, \$19v.95.



Foldforming by Charles Lewton-Brain. Using process as a basis for design led to "forming using metal characteristics," then expanded to the use of hardness dams and selective annealing to selectively collapse tubing. Presentation of the culmination of thirty years of work, enhanced by his extensive teaching experience, begins with "Before We Get Started," comments on ideas and considerations that helped develop foldforming. Overview of the Folds, and Materials and Tools (Chapters 1 and 2), precede detailed information and full-color photos of Basic Line Folds, T-Folds, and Miscellaneous Folds (including Hydraulic Press-Folds, Tube Forming, Hardness Dams, Corrugations, and Combination Folds, among others. Appendix: Family Tree of Foldforming, Health & Safety, Equivalent Numbers, Temperature Conversions, Suppliers, and Index. Published by Brynmorgen Press, 2008. 160 pages, 8¼" x 10¾", Hardcover, ISBN 978-1-929565-26-9. \$35.00