balancing act. And, by the way, while these numbers can fluctuate a few dollars either way in any year, they are relatively consistent.

Just to give you a deeper understanding, examine the following chart:

<table>
<thead>
<tr>
<th>City</th>
<th>#attending</th>
<th>surplus (loss)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seattle</td>
<td>1,000</td>
<td>$48,000</td>
</tr>
<tr>
<td>Houston</td>
<td>600</td>
<td>(29,000)</td>
</tr>
<tr>
<td>Philly</td>
<td>800</td>
<td>31,000</td>
</tr>
</tbody>
</table>

This information can help you understand how important you are to this organization and the difficult decisions the board has to make to keep our conference affordable but well-attended. As a point of reference, losses are in no way reflective of the quality of the programming at a conference. It is a function of the level of fixed costs that need to be covered by the attendance levels. All of our decisions have a profound impact on SNAG, and when deciding about the conference it is my hope that this information will show you that your participation means something and that you are vital to the strength of this organization. These numbers actually show how quickly losses can accumulate without 700 people attending and the negative impact on SNAG, so, when you are registering early and you want to make a small extra contribution toward the conference, we will not turn you down!

I hope you all had a wonderful holiday season and a Happy New Year and that you enjoy this new column. Oh, and as a New Year’s resolution, consider adding “attending the annual meeting at the conference” to your resolution list. We’d love to see you there!

TECHNICAL ARTICLE

This issue’s technical article is by Lisa Johnson, one of the current Artists-in-Residence at Arrowmont School of Arts and Crafts. I approached her about writing this article because I thought others might be interested in how to incorporate these ceramic techniques into their jewelry/metal smithing/sculptural studio work. Often it is difficult to learn about and adapt processes from other media so I hope this might facilitate some adventures into ceramics for those looking to expand their studio practice. Enjoy and please continue to share your explorations and discoveries with our community! – James Thurman

Slip Casting in Metalsmithing & Jewelry Design
By Lisa Johnson

Using the material of porcelain and the process of slip casting, I have considered its relevance and effectiveness to the content and subject of my work. In particular, it brings attention to the use of recognizable objects, allows for production of exact replicas, influences my selection of an object, and how the context of that object will exist – be it in the realm of jewelry, sculpture, or for functional service ware. Overall, slip casting has allowed me to transform an identifiable object into another material, often giving it new meaning and a purpose. Historically, the value of porcelain has been equated with the worth of gold, therefore it seems only appropriate that its ability to blend with precious metals in fine dining ware should be further developed and expressed using the same techniques in the creation of jewelry.

This article is a comprehensive introduction to the application of basic slip casting using a two-part drain mold. The process consists of: mixing porcelain slip, making a mold, pouring slip, refining, and firing an object. The outline is intended to reveal a method that has become a significant part of my studio practice, and it is one that is suitable for all levels of experience.

Before we begin the process, it is important to consider the object you are casting and how the rest of the piece will be fabricated. Placing emphasis on cold connections, please take note that the measurements of our connections and mechanisms (drilled holes, key in hole, etc…) will be determined after the piece is fired because the clay will shrink.
Images of my work that will be used as an example:

1. Soup Tureen, sterling silver, copper, porcelain slip, fired decal; 2. Soup Tureen (detail of pistol handle)

The Slip

Starting with the right porcelain slip is important to a successful casting experience. Before mixing up the clay remember to wear your NIOSH certified half-face piece particulate respirator, be in a well ventilated area, and cover your workspace with plastic.

The porcelain slip recipe I make, developed by Amy Norgaard, has produced excellent consistent results and is used for firing to cone 5 or 6. When mixing my own clay, I tend to make large batches, so keep in mind that the amounts provided below produces A LOT of slip.

Slip Ingredients & Proportions:

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>#6 Tile Clay</td>
<td>20lbs</td>
</tr>
<tr>
<td>EPK Kaolin</td>
<td>25lbs</td>
</tr>
<tr>
<td>OM#4 Ball Clay</td>
<td>10lbs</td>
</tr>
<tr>
<td>Flint</td>
<td>15lbs</td>
</tr>
<tr>
<td>G200 or Custer Spar</td>
<td>25lbs</td>
</tr>
<tr>
<td>Darvan #7</td>
<td>1 cup</td>
</tr>
<tr>
<td>Water</td>
<td>20 quarts</td>
</tr>
</tbody>
</table>

According to our definition of *Slip, the deflocculant suspends the particles in the slip keeping the consistency at a fluid state and preventing the materials from settling. This substance is sticky and should be measured wearing protective latex gloves.

The equipment needed for this step includes; two measuring buckets, a drill mixer, pound scale, and a larger bucket or empty trashcan (Figs. 3, 4).

Mixing

1.) Measure out water, dumping it into the larger bucket. Pour the amount of Darvan necessary and add it to the water.

2.) Add ingredients making sure to drill-mix in between until well blended.

3.) Drill-mix the mixture for a half an hour and let it sit overnight (Fig. 5).

4.) On the next day, drill-mix and check for consistency.
Testing the slip:
- **Viscometer:** This tool will indicate the amount of slip that flows per second in addition to showing the water to slip ratio.

- **Hydrometer:** This is an instrument that indicates the viscosity of the slip as it associates to a particular gravity.

There are various measures of testing the slip that are more sophisticated than others. In my studio I typically will submerge my hand into the slip – pull it out, and look for fast action webbing between my fingers (Fig. 6). If the clay slides off my hand and through my fingers without webbing, the clay may have too much water. If the clay is too thick add 50/50 water and Darvan mixture by the drop as needed. The clay can also have too much Darvan, so keep track of how many additional drops you add.

**Making a 2-part Drain Cast Mold**

The mold is the most crucial part of the process, and a well made mold can result in easy or little clean up. Trying to figure out shortcuts is not an option and will actually waste time. In addition, some objects might need extra steps for example; an object that can absorb moisture, such as wood, will need a lacquer applied to the surface, while hollow objects, such as a plastic bottle, will easily cave under pressure and therefore need to be filled with plaster before beginning. Always try to select objects that do not have undercuts.

For this two part mold you will want to be selective knowing that the object will be divided into two parts and much like centrifuge casting, you will need to create a spout or sprue for the material (slip) to enter. What you will need for producing a quality mold includes: cottle boards, Murphy’s soap, paint brush, sharpie, modeling clay, x-acto knife, wooden clay tool, cardboard cutter, and thick foam or soft clay (Figs. 7, 8).
1.) Selecting the object you wish to cast, measure it in half tracing a line around the entire piece with your sharpie (Fig. 9). Next, determine the location of your pour spout. The position of your spout is important because this is an area that will be the opening to your hollow form and allow the slip to enter and exit.

2.) Trace the outline of your object onto the foam. Measure and mark 1 1/2 inches from your outline to create a border. Cut out the framed area leaving a cavity in the foam. It’s important to leave at least a 1 1/4 to 1 1/2” border for smaller objects as it gives the mold strength and also enhances absorption of the slip unlike a thin walled mold (Fig. 10).
3.) Cut out the area in the foam and seat your object up to the dividing line (Fig. 11). Fit the object into foam making sure there are no undercuts. Place modeling clay anywhere in the foam that may cause undercuts (Fig. 12). Build your spout using modeling clay.

4.) C-Clamp the cottle boards around the foam and extend the spout to the wall of the board (Fig. 13). Once the piece is boarded up paint on a thin layer of Murphy’s Soap and let dry. Repeat putting on Murphy’s Soap three times letting it dry in between each application. *Your board should sit flush with the tabletop and not wobble.

Another option is to seat your object in clay following the same guidelines as foam.

**Mixing and Pouring Plaster**

The water to plaster ratio should be at 7-1. This number refers to the number of parts per 100 parts of plaster by weight. For instance, if you are using 1 lb 7 oz or 652.05 grams of plaster you would use approximately 1 pint of water. The equipment necessary for this task includes; a bag of pottery plaster No. 1, drill mixer, pound scale, spoon, Murphy’s soap, and a spongy paint brush.

1.) Weigh out the amount of water in one bucket and plaster in the other (Fig. 14). Sprinkle the plaster into water and soak for 2 minutes (Fig. 15).
2.) Mix on high for 3 minutes

3.) Hand-mix the plaster for 1 minute. Dip your hand in the mixture, if the plaster is translucent in appearance with your skin showing then the plaster is too thin and you should continue to mix for another 30 sec to 1 minute (Fig.16). If the plaster coats your hand, continue to step 4.

4.) Pour the plaster in one corner of the mold (Fig. 17) to reduce bubbles and continue poring until the piece is covered and the plaster reaches 1 1/2" above the highest point of your object. Once you have poured the plaster tap the sides of the cottle board with a hammer to release air bubbles.
5.) Drying time of the plaster varies with humidity and temperature. After the plaster is set and the mold feels cold, release the cottle boards. Remove the pink foam (leaving your piece in the plaster) and proceed to the second half of your mold.

6.) Flip over the mold and with your spoon create registration keys by digging slightly into each of the corners, creating small dimples into the plaster (Fig. 18).

7.) Using the same steps found in 3 & 4 of the previous page create your spout, set up the cottle boards, paint on Murphy’s Soap, and pour the plaster (Fig. 19). After the second half has set up and the plaster is cold, pull apart both sides and remove object * you may need to tap slightly with a rubber hammer to release the two halves.

8.) Place the mold in a dry climate and wait until it’s completely bone dry.

9.) Once your mold is dry, using a plaster scraper, remove the edges of all the plaster sides (Figs, 20, 21). This will make it easier to pull apart and protect the edges from being cracked off or damaged.
Pouring and Finishing
You’re almost there!

Before pouring your slip, drill-mix your slip for a couple minutes to bring up all settling from the bottom of the container. Check the consistency of the slip with your hand and look for webbing action as mentioned on page one. Using a strainer pour the slip into a pouring pitcher (Fig. 22). The strainer will catch all undesirable ‘foreign’ objects or materials that were not dissolved.

1.) Rubber band both halves of your plaster mold together and pour slip into spout. If the spout is smaller, use a funnel (Fig. 23).

2.) In about 15 minutes check the wall thickness by lifting the back of the edge around the spout using a wooden knife tool ideally your edge should be approximately 1/4” thick (Fig. 24). What is happening is that the plaster is absorbing the moisture out of the slip, causing the slip to accumulate and shrink away from the plaster.

3.) Once the correct thickness is achieved it is time to drain the mold and pour the excess slip back into your bucket (Fig. 25). Now wait for the slip to dry enough to release from the plaster mold, and depending on the size of your object, drying time will vary.
4.) ***When pulling the two halves apart do not use force. Both sides of your plaster mold should separate easily – releasing your piece (Fig. 26, 27).

5.) Clean up can be done in a variety of ways using any number of tools. I usually use an x-acto knife to cut/scrape excess clay from the seams created during the process, and a sponge for blending and removing the seams altogether.

6.) Make sure the clay is completely dry and then fire away!

In conclusion of this article I hope that others will enjoy and have fun with this process as much as I have. For further information regarding my work and process please visit <www.lisamjohnsonart.com> or feel free to contact me <lisamjohnsonart@gmail.com>. Don’t forget to check out the Arrowmont Artist-in-Residence blog <http://arrowmontresidents.blogspot.com/> for updates on exhibitions, workshops, and current events.

I would also like to mention that there will be a group exhibition put together by Autumn Brown in September 2012 titled “Ceremetal” that will highlight work created through the joining of metal and ceramic techniques. This exhibition will be shown at Pitt County Arts Council, Emerge in Greenville, NC. I look forward to being there and meeting everyone!

Bio:
Lisa M. Johnson is the current Artist-in-Residence for Metals at Arrowmont School for Arts and Crafts where she will be conducting workshops in the spring of 2012. She started her career in fine arts at Miami University earning her B.F.A degree in Metals in 2004 and continued her education at Indiana University receiving her MFA in 2009. Exhibiting her work nationally and internationally, for the last few years Lisa has been incorporating porcelain into her studio practice where the content of her work arises from an interest in the juxtaposition of puns, translations, irony, and duality. Through identifiable objects, her obsession with redefining the recognizable is a direct
expression of her observations or experiences that communicate as appealing, stimulating, and sometimes humorous antidotes.

~Lisa would like to express her gratitude and appreciation to Amy Norgaard, the Metals and Ceramic departments at Indiana University for all their help and support, and Nicole Roth for her assistance in photography during the documentation of this article.

JEWELERS MUTUAL SECURITY TIPS

Make security a top priority at your home-based business

If you operate your jewelry business out of your home, you know how important it is to follow security procedures each and every day, not only when you’re working. To decrease your risks and keep your home and business safe, follow the security advice from Jewelers Mutual Insurance Company, the only company specializing in jewelry insurance in the United States and Canada.

Protecting the jewelry industry for nearly a century, Jewelers Mutual offers the following security tips designed exclusively for home-based jewelry businesses:

1. **Operate your business from a defined location within your home.** A detached garage or outbuilding is ideal. If your shop or office is within your home, choose a room that is separate from your main living area.

2. **Consult a qualified, professional security company to evaluate your home security** and to design and install an efficient alarm system. Your alarm system should: 1) sound a siren both inside and outside the house, 2) detect a burglar opening and going through a door or window, and 3) be connected to a central station or the local police department. The alarm system for your business should be separate from the alarm system for the remainder of your home.

3. **Install a safe that is appropriate for the value of merchandise** you handle now and your projections for the next few years. If the safe weighs less than 750 pounds, it should be bolted to the floor. Store all jewelry in the safe when you aren’t working.

4. For exterior doors, **choose solid wood or metal doors with UL-listed deadbolt locks** with minimum one-inch throw bolts and reinforced strike plates.

5. **Secure windows with pin locks.** Your security company should install alarm screens on windows as part of your alarm system.

6. **If possible, avoid advertising the location of your home-based jewelry business.** Don’t put a sign out front. Use a post office box for mail and a cell phone as your telephone number. If you intend to meet with customers at your home-based business, do so by appointment only. Be cautious about opening your door to unscheduled visitors.

7. **Conduct all business within your home office;** don’t let the business spread into the rest of your home.

8. **Install smoke detectors and fire extinguishers.**