

Pewter Casting with Soapstone Molds  
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## Supplies needed:

- 2 slices of **soapstone** (for a two part mold) (cut to appropriate size)
- 2 **spring clamps** wide enough to hold your two pieces of soapstone together
- Carving Tools** (common wood carving tools of varying sizes/dental tools/ceramic tool)
- Small metal files**
- Wire Cutters / Heavy Duty clippers**
- Sandpaper**
  - A rough grit of your choice (works fast)
  - A micro grit of your choice (needed to create smoothest surface)
- Spray bottle** with water
- Work surface cover** of your choice (used to collect and remove dust quickly)
- Inspiration for your pewter piece
- Pewter & Melting Equipment** – there are a couple of members in the barony (of Tir-y-Don) with pewter melting pots whom are willing to share the equipment when you are ready. Just say the word. But if you want to get the supplies yourself:
  - Lead – Free Pewter** – yes in period it had lead but we know better now...
  - Small Cast Iron Pot and stove top OR**
  - An electric Melting Pot** – yes they did not have electricity in period, but I feel safer using it... or if you want to did it the old fashioned way:
    - A cast iron ladle, and seriously hot fire
  - Drip pan** - with sand (optional)
- Safety Gloves** – the kind welders use
- “Splash Protection”** – long sleeve shirt/long pants/closed to shoes/etc – you do NOT want molten pewter hitting your skin...
- Goggles**
- Dust Mask**

Here's the outline:

1. Soapstone safety brief
2. Preparing the mold
3. Creating the mold
4. Testing the mold
5. Preparing the Pewter
6. Pouring the Pewter
7. Finishing your Pewter Piece
8. Soapstone Hazards
9. Pewter uses in Period
10. References and Resources

## OK a bit about safety first!

Soapstone dust is bad news... You do NOT want to inhale it, or ingest it through any medium. So, we will be using the spray bottle as we carve to keep the dust from going airborne, and we won't be eating or drinking while we carve. Specific notes about the hazards of soapstone are at the end of this handout.

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## Preparing the mold:

1. **A simple hand saw can be used to cut soapstone to the size you need.** Blocks of soapstone are available in a variety of sizes. You'll want at least two "slices" of stone, approximately 1" thick, with a surface big enough for the item you want to make and a 3/4" border all around. Take your time and try to cut as straight as possible.

Use your spray bottle to control dust!

**Wear your Mask!**

2. **Sandpaper time.** Place the rough sandpaper on your covered, flat, work surface and place the stone on the paper. With even pressure, (as much as possible) use the sandpaper to create a *flat* surface. Do this with both pieces. Now, make a sandpaper sandwich with the micro grit sandpaper between the two flat sides you just created. Now you are sanding both pieces together, in an effort to create two sides that match practically perfectly.

3. **Check the fit.** Hold the two pieces you've just sanded together up to light and check for huge gaps. You don't want huge gaps. Once you're satisfied that the pieces fit as good as they're going to fit, you're ready for make your mold.

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## Making the Mold

1. On one slice of the soapstone you've just prepared, **use a pencil to lightly mark your pattern for carving.**

There are a couple of considerations to think about!

✓ Do I have enough space to make the item I want?

✓ Where is the sprue going to be?

The sprue is the small funnel the pewter is going to travel through. When thinking sprue placement, you want to be sure any "tiny detail" areas are on the opposite end from your sprue. Let gravity work for you. *The sprue doesn't need to be big...* It just needs to let pewter into the mold.

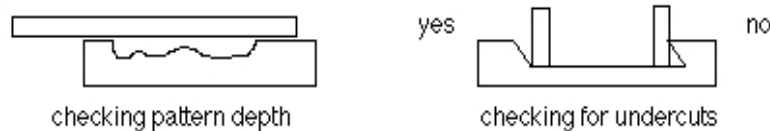
- ✓ Did you reverse your image?? Remember if your carving is facing right - the finished piece will face left.

**Remember: The pewter will go into any space where you REMOVE stone.**

2. **Use your tools to slowly carve out your design.** This is a very time intensive part... Don't rush...

**Tip: If you want a hole in your finished piece - don't try carving it - use a drill on the finished piece.**

3. **Be careful about undercuts.** A rounded blade along the edges will help prevent the undercuts...



**An undercut will destroy your mold!**

4. **Add your sprue.** You already know where it's going - you thought about that back at step one. Make a small funnel shape on your carved mold side. When you put your two pieces together, you can add a small bit of the "funnel" to the other side also, but don't make it huge... Molten pewter will flow in the smallest of spaces if the stone is prepared properly.

Use your spray bottle to control dust!

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## Test your mold

Use a craft clay or perhaps silly putty to test your mold. Smoosh it onto your mold. If you can remove it and it looks like it's supposed to, you are ready to try it with pewter. If the design looks mangled at all, you probably have an undercut there and need to do a bit more finishing.

Once you are satisfied with your mold and sprue, you are ready to pour the pewter.

## Prepare the Pewter

These instructions are for using an electric melting pot. I know it's not "period" but it feels safer and that's important to me.

1. **Let your LEAD-FREE Pewter Ingot melt completely** in the pot. My pot has a little handle that allows for controlled pouring. My pewter melts at almost 500 degrees, so be a bit patient. You want ALL of it in a molten state. (Yes Pewter with Lead is cheaper - but is it really worth it??? Noooooooo, it's not )
  2. **Be careful not to leave your molten pewter unattended!** Especially if the pot "drips" at all. Unplug it and be sure it's started to harden again before you leave it alone.
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## Pouring the Pewter

1. **WARM your molds.** This is very important!  
Warming the molds helps get rid of any moisture that might be in the mold. (VERY important since molten Pewter and Water do NOT like each other)  
Warming the stone also helps the pewter flow evenly without cooling prematurely.  
You can use an oven or toaster oven to warm them slowly.
2. **Fit the two sides of your mold together** and use the spring clamps on either side to secure them together.
3. **Place your drip pan** (with optional sand) **underneath your mold.** This is to safely catch any pewter that may escape the mold unwantedly.
4. **Align your sprue and the pour spout.** Lift the handle quickly and allow the pewter to fill up your mold.
5. **Watch the button.** You'll notice the pewter turn to a dull color. That's your cue that the pewter is now solid and ready to come out of the mold. Your pewter piece should practically fall out of the mold once the clamps are removed and the stone halves divided. If not, you probably have an undercut that was missed.

**Do NOT touch it with your bare hands...** Remember that piece of pewter was almost 500 degrees just a few seconds ago... Use your gloves or tongs to move it to a hot pad to cool.

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## Finishing the Pewter Piece

Once it's cool enough to handle without gloves...

**Examine your piece.**

**Does it look like you wanted it to?** If not, toss it back into the pot to reuse and fix your mold accordingly.

If it looks like what you wanted it to:

1. **Cut off the sprue with your wire cutters.** (The sprue SHOULD be small enough to use wire cutters to remove it)
2. **Use your small metal files to smooth all the edges.**

Does it need a hole? Use a drill. Be sure to file inside the hole to avoid sharp edges cutting any threads or string intended to go through it.

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## Soapstone Hazards

According to the Marble Institute of America... [www.marble-institute.com](http://www.marble-institute.com)

“OSHA considers the exposure to (Soapstone) dust from fabricating to be a serious health hazard that may result in a disabling lung disease... These stones should be worked under water to avoid creating dust. Dust produced from these stones can cause silicosis.”

Chronic Silicosis signs and symptoms may include shortness of breath following physical exertion, severe cough, fatigue, loss of appetite, chest pain and fever.

Do not eat, drink or use Tobacco in areas where there is dust containing crystalline silica. (soapstone). Wash hands thoroughly prior to eating.

**Bottom line... Be careful about the dust you create.  
Clean your work space thoroughly!**

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## References mentioned or with mention of pewter in them

Egan, Geoff & Pritchard, Frances. "Dress Accessories c.1150-c.1450," 2002, Museum of London Publication, London. Pgs 273-275

Marble Institute of America. "Preparing a Generic Material Safety Data Sheet (MSDS) for Natural Stone" .  
[www.marble-institute.com](http://www.marble-institute.com) 2005

Mitchiner, Michael. "Medieval Pilgrim & Secular Badges," 1986, Hawkins Publications, London, pgs 195, 230  
<http://www.warehamforge.ca/pewter.html> A great site about pewter casting. The "undercut example" picture is from here.

Ryan, V. "Casting Pewter-1." Technology Student.com 2006. Captured, August 2007.  
<http://www.technologystudent.com/equip1/pewter1.htm> A fun website about pewter casting.

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**Resources** - this is by no means a definitive list... These are simply the places where I have gotten, or get my supplies.

**Pewter** - from RotoMetals. <http://www.rotometals.com/> I buy the A/C lead-free pewter. Order by the pound.

Ney Metals

**Soapstone** - from Stoneman Distributors. <http://www.stonemandist.homestead.com/Index.html> You want the blocks of Brazillian soapstone. It came highly recommended for casting purposes and has been wonderful so far. Order by block size. You have to send an email to Stoneman asking for a quote. Be sure you know whether his quote is for US or Canadian dollars.....

**Carving Tools** - Detail Carving Set with Palm Style Handles found at [www.chippingaway.com](http://www.chippingaway.com) (Look under wood carving) They are PERFECT for carving soapstone. Regular wood carving tools available in most hobby stores will work also for low detail work.

Northern or Harbor Freight

**Pewter Melting Pot** - You want the Lee Production Pot available at  
[http://www.miniaturemolds.com/melting .htm](http://www.miniaturemolds.com/melting.htm)

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**My website: [www.goingmedieval.com](http://www.goingmedieval.com) - don't hesitate to ask if you have a question!**