

## PEWTER CASTING PROCEDURE

**These instructions are provided to help you. Please read and follow them! Take the time to carefully preview each project before beginning, and carefully read each step while working on the project.**

**Step 1: Safety Instruction** - The first thing you will need to do when you have selected this project is watch the [PEWTER CASTING SAFETY POWERPOINT](#). Complete the quiz at the end. Then review the [PEWTER CASTING STUDY GUIDE](#).

When you are confident you know the material, print and take the [PEWTER CASTING SAFETY TEST](#). Have the teacher correct your paper. When you pass the test the teacher will give you an ingot of pewter. He will weigh it and write down the weight. When you are done he will weigh your figures and left over pewter. You will need to pay for any pewter you lose.

**Step 2: Cast Three Figures Using a Rubber Mold** – Place your pewter ingot in the hot pot and turn it on. It will take 10-15 minutes for it to get hot enough to pour.

Select a rubber mold . Rubber is the easiest of all the mold materials to use. It pours with greater detail in less time. Unfortunately, rubber is easily damaged. If the Pewter is too hot, if a sharp piece of metal is pushed into the mold, or if it is handled too roughly, the mold will break or lose detail. It is your responsibility to keep all equipment in good working order. Rubber molds cost between \$20 and \$40 to replace. Properly handled, the rubber molds will give you long and durable use. Since rubber is not as good a conductor of heat as metal the rubber molds retain the heat of the hot metal longer than a metal mold. Continuous rapid pouring can overheat and burn a rubber mold.

Position the masonite (fiberboard) mold supports on the outside of each mold half. The mold should be clamped in at least four positions with spring clamps for best results. To help keep the mold from tipping over, use two large clamps at the bottom of the mold so they are resting on the table. This provides stability.

Once the mold is ready, you have put on proper safety equipment, and the metal has been melted into liquid for five minutes, you are ready to pour.

Pour the molten metal quickly into the mold, fill to the top. Tamp the mold to remove any trapped air. Allow to cool before splitting the mold (approx 5-10 min.).

After several pours, rubber molds expand from excessive heat build-up and may leak. If you cannot stop leakage by clamping and squeezing the mold, allow mold to cool.

Remember to have patience while you cast. It will take several pours to get one that you like. Luckily, any pours that you don't like can be removed from the mold and replaced in the Hot Pot.

**Step 3: Remove Parting Lines-** Much of the labor in making a casting involves cleaning it up and removing excess or extra metal. It is normal to have extra metal. **Vents** or "**air release cuts**" are often placed in molds to allow the air to be pushed out. Without these some parts of the mold will not properly fill since the trapped air will hold back the molten metal. The metal will flow into these vents and leave small metal threads attached to the casting. These, of course, will need to be removed from the casting. This is called "dressing". Extra metal is usually left around the edges of your castings where the two halves of the mold came together. This seam in the molds will leak a little creating what is called "**flash**". This can be cut away with "**side cutter**" (diagonal pliers) and/or filed away using "**needle files**".

Gently clamp the casting in a vise and use a needle file to remove any excess metal. You may find that the "**sprue**" (the unwanted part of the casting that was the pipeline for the molten metal) makes a good

handle. Don't cut it off until much later in the process when you won't need it to hold on to. Apply a light film of chalk to the file to prevent it from clogging with metal shavings.

When using a file, the file should move across the surface of the metal in one direction only. Gently push the file forward. When you are at the end of the stroke, pick the file up and begin again. Pulling the file backwards across the metal dulls the cutting surface quickly. Filing has a rhythm. It takes a little practice, but once you have the rhythm, the filing goes quickly.

After you are completely done filing, cut the sprue off of the casting with a hack saw.

Smooth and level the bottom of the casting with a large flat file. The casting shouldn't wobble when placed on a flat surface.

**Step 4 - Oxidize One Figure** - Oxidizer is used to prevent pewter from chemically reacting with the air. Oxidizing is similar to "rusting", only it is a different color (black). The oxidizer is an acid. Extreme care must be taken so that it doesn't get spilled. Do not get oxidizer on you! Oxidizer is a mild acid and can burn you. If you do spill some on your skin you will need to thoroughly flush the area with water. Be sure that you are wearing safety glasses, an apron, and rubber gloves when handling this chemical.

Sandblast the casting first! Set the container of oxidizer in the sink in case it spills, you won't have a big mess to clean up, or ruin something that comes in contact with the acid. Be careful not to add any water to the oxidizer as it will weaken the solution. Dip the metal in the oxidizer by holding it with tongs or tweezers. Remove it in 10 seconds to see if you have obtained the desired effect. If you would like it to be darker, put it in the solution for another 10 seconds and then look at it again. Sixty seconds will usually turn the figure completely black. Once you have reached the desired effect, put the lid back on the oxidizer to prevent it from getting water in it. Then, wash the figure in the sink to neutralize (stop) the acid. Scrub with a toothbrush to bring out the beautiful black luster of oxidized pewter. This process is sometimes called "Antiquing" since it makes the object look older than it really is.

**Step 5 – Paint One Figure** – Sandblast the casting before painting to help give the paint a rough surface to grip. Make sure to put newspapers down under your project before you start so you don't paint the table, wall, or ground on accident. It is much easier to put down the newspapers than it is to clean up spilled or unwanted paint. Paint the color coat using a clean paintbrush. When changing colors, rinse your brush first in the sink, then dry it with a paper towel before continuing. You want to work with a **dry brush**. Let the paint dry before painting another color beside it. Paint some other area while waiting for one region to dry. Acrylic paints dry quickly.

**Step 6 – Polish or Sandblast the Remaining Figure** – Pewter can be polished to a shiny silver color. Ask the teacher to demonstrate using a buffing wheel and polishing compound. This option takes a considerable amount of effort to make the casting shine like a mirror!

Sandblasting makes the figure look a satin (non-shiny) silver color. Simply place the casting in the sandblaster, close the door, and blast away!

Complete the grading rubric and bring it, the castings, and any left over pewter to the teacher. He will approve your grade and weigh your pewter. You can keep the three figures. If you are missing any pewter you will have to pay for it. The teacher will keep any leftover pewter and re-use it.