

## #91014 Melting Pot Instructions for Tinning Wire and Casting Metal

### Safety Guidelines

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This unit can get extremely hot (up to 600° F) while in use and great care should be taken when operating to avoid burns.

Keep the unit away from combustible materials.

KEEP CHILDREN AWAY FROM THIS UNIT DURING USE.

Wear heavy duty gloves when handling hot metals, even if using an insulated ladle.

Do not operate when under the influence of alcohol or pharmaceutical drugs that can affect or impede focus and judgement. Do not use narcotics of any kind when operating.

The use of a metal plate, ceramic tile, or other non-flammable material under the base of the unit is highly recommended.

The use of lead-based solders and metals requires adequate ventilation. Refer to the supplier's SDS (Safety Data Sheet) for a list of metals that are recommended for melting.

Wear eye protection.

Wearing a protective apron is recommended, as well as a long-sleeved shirt to cover exposed skin.

Keep water and cold drinks away from the melting pot when it is on, as any introduction of cold liquids into a hot and/or molten material can be extremely dangerous and potentially explosive.

As with any tool, common sense and good judgement should be always applied during operation.

### General Use

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This unit requires power from a standard USA 120V 60Hz outlet on a circuit protected by at least a 15-amp breaker.

### Wire Tinning

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This unit's primary purpose is to make "tinning" electrical wires fast and easy. Tinning is a process by which solder is applied to the end of a wire's exposed copper core (solid or stranded) before permanently joining the tinned wire to another wire or electrical connection.

Different solders melt at different temperatures, which is why this unit is designed to operate at a spectrum of temperatures based on the position of the knob. Rotating the knob clockwise to a higher number on the pad will increase the temperature generated by the unit. This unit is rated at temperatures of 100° to 600° F, though each unit may vary slightly. A thermometer is recommended for more precise measurement of the temperature generated by the unit. We found an inexpensive thermometer that works well for this purpose on Amazon: "*Hotloop Digital Oven Thermometer Heat Resistant up to 572°F/300°C, LCD*"

If precision temperature measurement is important to your work, we advise you to use the data you collect using a thermometer to make a list of the different temperatures reached when the knob is set to numbers 1 through 9 on the pad. It is important to know this so your material will liquify at a setting just above its melting point. You should never excessively overheat your material past its melting point, as doing so will cause more "dross" to form on the top layer of the molten metal. (*Note: Any dross must be skimmed-off and discarded before tinning.*)

To begin tinning, add solder to the melting pot, filling it at least one-quarter full or more as needed for the number of wires that you will be tinning, and set the knob to the desired temperature level; then wait for the material to liquify.

Strip away the coating on the wire to be tinned. If using stranded wire, you must twist the wires together prior to tinning. Flux the exposed copper end, dip it into the melted solder and remove it. Your wire is now tinned. At this point, the wire can be easily joined to one or more other wires by placing them side by side, cleaning with flux, and touching with a hot soldering tool to create a new connection. This enables a friendlier soldering set-up that requires only one hand to perform.

**Pro Tip:** Before joining the wires, cut a piece of heat shrink tubing to the appropriate length and slide it to one side of the wires to be joined. Once the connection has been made, simply slide the tubing over the connection and shrink with a heat gun (#84433) to insulate and protect your connection. Micro-Mark offers a variety of heat shrink tubing sizes, as well as Liquid Electrical Tape (#84902), soldering tweezers, clamps (#88576, #85151, #87864) and many brands of solder, flux, and other soldering accessories.

## Metal Casting

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**Now the fun begins!** Our Mini Melting Pot is also excellent for low-temperature metal casting projects when used in conjunction with the wide range of casting products offered by Micro-Mark. Create your own metal duplicates of jewelry pieces, model parts, railroad layout items, and more. Originals do not have to be made of metal to be duplicated; they can be made of plastic, wood, plaster and just about any other material.

### Here is a list of what you need to get started:

**#83093 Tin / Bismuth Alloy:** This low-melting-point metal (280° F) is lead and cadmium free and captures exceptional detail when poured into silicone molds.

**Mold-Making Rubber:** #82083 and #86226 are economical, general-purpose, RTV (Room Temperature Vulcanizing) mold rubbers that are easy to mix: Simply stir equal volumes of A and B together and pour.

**#80352 and #82415 Mixing Cup Sets:** Use disposable cups for mixing mold-making rubber. Peel off cured residue for reuse.

**Rubber to Rubber Release Agent:** Use #80475 to prevent cured rubber from sticking to mold walls and original parts.

**Helpful Casting Instructions Guide:** Refer to booklet #80965 for guidance on proper gating, venting, and other important casting tips.

**Casting Talc:** Use #80966 talc for pouring liquid metal into rubber molds, promoting smooth flow.

**Mold Putty:** Use this non-liquid RTV silicone mold putty to make a 1-part mold in as little as 10 minutes.

**Metal Ladle:** #88397 is ideal for use with our melting pot; withstands temperatures up to 800°F.

### Additional Items:

#33108 Swiss Pattern Needle Files for smooth finishing of cast metal parts.

#14349 and #14360: No. 1 Knife with No. 11 blades for cutting gates, vents, and keys in the mold rubber.

Magnifier for precision work (various options are available).

#86461 or #80333 cutters for cleaning up flashing, etc. on cast metal parts.

Scrap wood and rubber bands to bind molds for metal pouring.

**Creating the Mold Box:** You can use many different materials to create a mold box, including sheet styrene, Lego® blocks, small plastic storage boxes, and more. Be creative with what you already have on-hand! Just remember that if you intend to use wood or other porous material for your mold box, any surface that will make contact with the mold rubber must be sealed with lacquer or paint, then coated with mold release.