

Critical Equipment for Safer Casting

by Shannon L. Brown

Jewelry casting comes with a unique set of safety issues. Working with molten metal poses obvious hazards, but the less obvious problem is crystalline silica dust from investment powder. Breathing the dust can cause silicosis, a disease with no known cure. If you are casting jewelry in a small or large shop, using proper safety equipment and following careful procedures is vital—regardless the scale of your operation.

The following tips from casting experts will help to keep you and your employees safe and healthy:

Linus Drogs of Au Enterprises in Berkley, Michigan, offers this must-have list of protective equipment:

EYE PROTECTION: I've visited a number of factories in which the casting staff are not wearing eye protection. When silica gets in your eyes, it's like sand. You need to prevent that. It's not really any different from wearing sunglasses at the beach to keep sand out of your eyes.

GLOVES: High-heat-resistant gloves should be used with anything you're picking up. A typically cool flask out of the oven is 800°F/427°C. Even grabbing a pair of tongs can be dangerous because you just pulled something out of a hot oven with them.



such as Ransom & Randolph's Bandust, which eliminates up to 99 percent of airborne silica.

Remember to properly use and maintain the filter in your respirator. For example, if it's placed face up after use, dust can fall into it and contaminate it, rendering it useless.

CLEANLINESS: Keep a clean shop. A lot of people don't understand that you pick up the silica dust on your feet, drag it into your car, and drag it into your house. You're constantly transporting it.

J. Tyler Teague, owner of JETT Research in Johnson City, Tennessee, who has been working in the jewelry manufacturing industry for 35 years, offers these suggestions for outfitting yourself for safety in the casting shop:

CLOTHING: Never wear synthetic materials to cast. I know from personal experience that fabrics that contain polyester will melt on contact with most heat sources, including flying molten metal, and will quickly bond to your skin.

- It is best to wear a leather apron that is high up to your neck and down to the top of your thighs when casting, especially when torch casting with a centrifugal casting machine.

- Wear leather-top shoes, preferably with protective toe coverings, when casting. Gravity, hot metal, and heavy or hot flasks can be dangerous.

GEAR: Many casting shops do not have a fire extinguisher handy. For casting rooms, halon and/or dry chemical is best. Even a bucket of sand isn't bad. Avoid spraying water on a fire that may be related to electrical in a machine, or on a large spilled melt. It can create a nasty situation.

- Place a dense piece of Kaowool board beside your casting machine. It's a good and safe place to lay hot stirring rods, flasks, hot crucibles, or even the flasks after casting.

- You need the right kind of tongs to handle a hot crucible safely. Some of the best ones have carbide tips that lock onto the flasks in three locations to form a sturdy tripod of grip. Making do with a pair of pliers and grabbing a hot crucible full of hot metal by the edge can crack the crucible, which is very dangerous.

Daniel Grandi of RaceCar Jewelry Co. Inc. in Pawtucket, Rhode Island, warns about wax fumes when spruing trees for casting:

One of the things that I noticed over many years as a model maker, wax carver, and caster is that many people do not realize wax fumes are a problem. Many of the waxes that we work with, be they injection or carving wax, are derived from oil and/or have plastic in them. I designed a fume hood for this process many years ago in clear plastic so that light would shine through from all directions, allowing our wax tree and spruing person to be able to do his job without putting fumes in his face. Jewelry suppliers sell inexpensive suction devices that will also work well. ♦

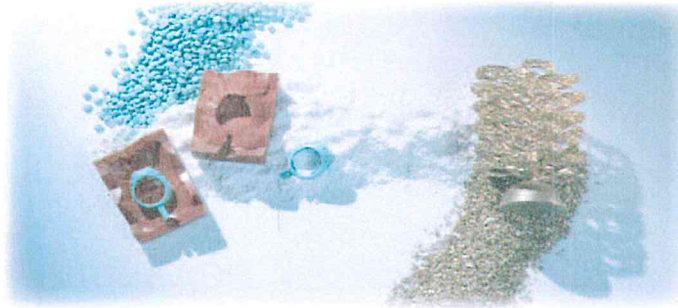




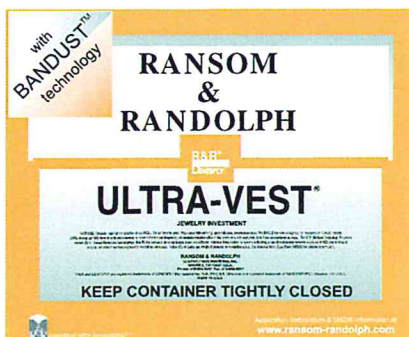
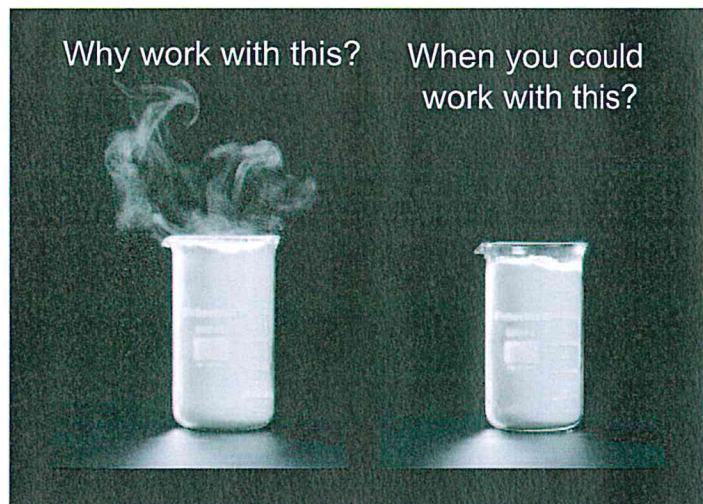
Ransom & Randolph

Products developed to meet the unique needs of the jewelry caster.

Specializing in jewelry investments, injection waxes, and
R&R® RTV2 silicone rubber.



*Introducing BANDUST™
technology jewelry investments.
Up to 99% reduction in
respirable dust exposure
during investing.*



R&R
DENTSPLY

Ransom & Randolph

3535 Briarfield Boulevard
Maumee, OH 43537 USA
TOLL FREE: (800)800-7496
PH: (419)865-9497
FX: (419)865-9997
www.ransom-randolph.com