

# PLASTICAST™

## JEWELRY INVESTMENT

FEBRUARY 2001

Plasticast was developed, and is ideally suited for, the investing and burnout of commonly used plastic or wax/plastic pattern materials. The high expansion of these pattern materials requires an equally high expanding, extra high strength investment.

Plasticast provides a smoother, cleaner casting surface not obtainable with standard brands of investment. Plasticast is designed for easy removal in water. Plasticast also provides a superior casting surface when standard injection waxes are used.

1. Prepare patterns by dipping tree in a suitable debubbler / pattern wash solution. Drain thoroughly and dry prior to investing.
2. Measure the water and weigh the investment powder at a ratio of 38 parts water to 100 parts powder (38 ml water per 100 g powder). Deionized water is recommended.

**NOTE:** For best results, adjust water temperature between 24-26°C (75-80°F).

3. Add the investment powder to the water.
4. Using a spatula, mix contents by hand until the powder is thoroughly wetted.
5. Using a mechanic mixer, mix on low speed for one minute and on medium speed for two additional minutes.
6. Place mixing bowl under vacuum. Vacuum until the investment slurry rises in the bowl, the bubbles break and begin to boil vigorously. Continue to vacuum for one minute.

**NOTE:** Due to the nature of this formula, the investment will rise higher in the mixing bowl than standard investments during initial vacuuming. For mix sizes larger than half the volume of the mixing bowl, after mixing transfer the investment slurry into the largest container that will fit under your bell jar. This will accommodate the extra rise, thus avoiding spillage. Disregard this note if a vacuum investing machine is used.

7. Pour the investment down along the inside of the flask allowing it to flow up, around and over the top of the patterns. Leave a minimum of 3/8" space between the sides of the flask and 3/4" at the top and bottom.
8. Place flask under vacuum and de-air for 1 1/2 - 2 minutes. Apply slight vibration to the vacuum table to assist in the removal of trapped air bubbles.
9. After vacuum cycle is completed, top off flask with investment if necessary.

**NOTE:** For best results, cycle time should not exceed 9 minutes.

10. Remove flasks from vacuum table and allow to set undisturbed for a period of 2 to 4 hours. Two hours is recommended for small flasks (2 1/2" X 2 1/2") and 4-5 hours is recommended for large flasks. If allowed to bench-set overnight, submerge flask in water for one minute before loading into the oven for burnout.

**NOTE:** To achieve the very best surface quality, proper investment curing times are critical for obtaining maximum fired strength. Curing times may vary due to differences in room temperature and relative humidity.

11. Remove sprue base.



**R&R**  
**DENSPLY**

*Investing with Innovation™*

**Ransom & Randolph**

3535 Briarfield Blvd.  
Maumee, OH 43537 USA  
USA Phone: (800)800-7496  
Phone: (419)865-9497  
Fax: (419)865-9997  
[www.ransom-randolph.com](http://www.ransom-randolph.com)

## BURNOUT (Actual times may vary)

<u>6 HR. Cycle 2 1/2" x 2 1/2" Flasks</u>	<u>8 HR. Cycle 3 1/2" x 4" Flasks</u>	<u>12 HR. Cycle 4" x 8" Flasks</u>
2 HR. 300°F 2 HR. 149°C	2 HR. 300°F 2 HR. 149°C	2 HR. 300°F 2 HR. 149°C
1 HR. 700°F 1 HR. 371°C	2 HR. 700°F 2 HR. 371°C	2 HR. 600°F 2 HR. 315°C
2 HR. 1350°F 2 HR. 732°C	3 HR. 1350°F 3 HR. 732°C	3 HR. 900°F 3 HR. 482°C
1 Hr. Heat Soak At Mold Casting Temperature	1 Hr. Heat Soak At Mold Casting Temperature	4 HR. 1350°F 4 HR. 732°C  2 Hr. Heat Soak At Mold Casting Temperature

After the metal is cast and solidified, the investment may be removed by plunging the hot flask into room temperature water or by using a deflasking machine with a hydraulic cylinder to push out the investment and cast tree.

## WARNING!

Plasticast™ investment contains respirable crystalline silica (RCS). Do not breathe dust. May cause delayed lung injury (silicosis, pneumoconiosis). The IARC (International Agency for Research on Cancer) reports (IARC Monograph 68) there is sufficient evidence in humans for the carcinogenicity of inhaled crystalline silica in the forms of quartz and cristobalite from occupational sources. The NTP (National Toxicology Program) reports (Ninth Annual Report on Carcinogens) that RCS is known to be a carcinogen based on sufficient evidence from studies in humans indicating a causal relationship between exposure to RCS and increased lung cancer rates in workers exposed to crystalline silica dust. Follow OSHA Safety and Health Standards for crystalline silica. See Material Safety Data Sheet (MSDS) for detailed information.

Ransom & Randolph's technical advice, whether verbal or in writing, is designed to assist the user in using Ransom & Randolph's product. Such advice does not expand Ransom & Randolph's limited warranty or relieve the user of testing Ransom & Randolph's products to determine their suitability for the intended uses and procedures. The user assumes all risk and liability for damages arising out of the improper use of Ransom & Randolph's product.

In the event of a defect in material or workmanship in Ransom & Randolph's product, Ransom & Randolph's liability is limited, at Ransom & Randolph's option, to replacement of the defective product or part thereof, or reimbursement of the actual cost of the defective product. In order to take advantage of the limited warranty, the defective product must be returned to Ransom & Randolph. In no event shall Ransom & Randolph be liable for any indirect, incidental, or consequential damages.



**R&R**  
**DENSPLY**

*Investing with Innovation™*

## **Ransom & Randolph**

3535 Briarfield Blvd.  
Maumee, OH 43537 USA  
USA Phone: (800)800-7496  
Phone: (419)865-9497  
Fax: (419)865-9997  
[www.ransom-randolph.com](http://www.ransom-randolph.com)