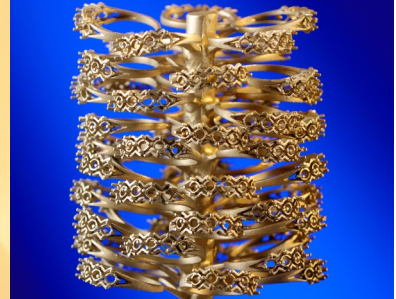




# CASTING CONNECTION



## Avoid Common Gypsum Mistakes

To prevent defective castings in your jewelry foundry, R&R recommends avoiding these common mistakes (often made with gypsum investments).

- **Failure to measure the water and powder:** inconsistent mixes can lead to inconsistent casting results
- **Mixing by hand, instead of mechanical means:** poor mixing can fail to activate chemicals that provide an investment's unique benefits
- **Mixing for too short a time:** poor mixing can fail to activate chemicals that provide an investment's unique benefits
- **Excessive vacuuming:** potential to run out of working time; better to have vacuum unit repaired
- **Handling molds too soon after filling:** cracks can appear due to disrupting the binding mechanism and lead to finning defects
- **Rushing the burnout cycle:** failure to remove moisture results in cracking and leads to finning defects
- **Overheating the molds:** leads to investment breakdown and results in finning, rough surfaces
- **Cooling the molds too much before casting:** begin to crack apart inside and can result in finning, inclusions, rough surfaces; essentially starts the break-away process designed into most investment materials
  - ★ *Tip: hold flasks at a minimum of 400 °F (205 °C) until you are ready to cast; then bring up to appropriate casting temperature*
- **Poor material storage:** allowing moisture into the powder will cause the investment to set up too quickly, leading to inconsistent casting results

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## Conventional vs. BANDUST Investments

In identical testing conditions, conventional investment materials (left) release noticeably more fine dust than BANDUST technology treated jewelry investments (right).

## BANDUST™ Technology

Respirable crystalline silica presents a health hazard in the investing room and silicosis has been a concern for jewelry casters for years. Historically, reducing the out-of-package exposure hazard for the operator has eluded manufacturers. Until now.

R&R's BANDUST™ technology significantly reduces respirable quartz and cristobalite exposure through a unique manufacturing process that allows us to bind typically respirable particles to the dry investment powder during manufacturing.

Patented BANDUST technology significantly impacts the casting environment, providing immeasurable impact to the overall health and safety of casters. R&R is investing in research to create innovative technologies to change the face of investment casting. Our flagship products are now available with this groundbreaking technology.

Based on third-party industrial hygienist air sampling test results, BANDUST technology significantly reduces total respirable dust – up to 97% versus standard R&R jewelry investments and as much as 99% when compared to other

jewelry investments.

Additional testing for respirable dust was conducted during the quench phase of the casting cycle. The industrial hygienist reported no measurable respirable dust from BANDUST technology flasks.

Casters using BANDUST technology products indicate noticeably less dust overall during the investing process.

Casters also noted the added benefit of improved housekeeping overall. Casting quality is maintained with excellent final casting results and no process changes are required during the investing stage.

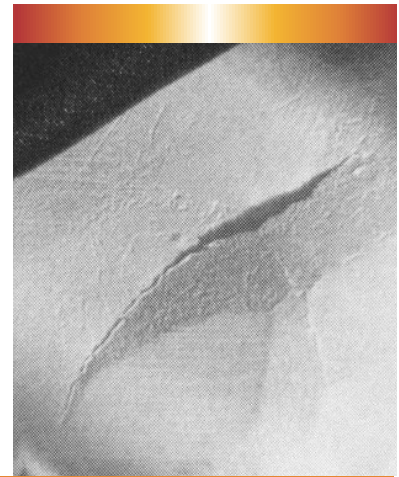
- Up to 99% less respirable dust exposure during the investing process, depending on which conventional investment you use.
- No measurable respirable dust during quench.
- Less total dust overall during the investing process.
- The high standard of casting excellence that only R&R provides.

Make the switch...try BANDUST today!



# Battling Buckling Defects

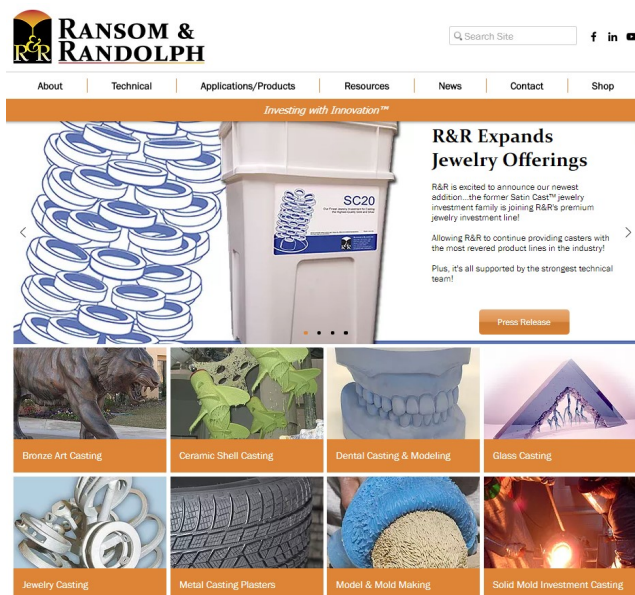
Buckling presents as a pyramid-like bump or lump (usually with a sharp peak) that appears on the surface of the casting. This defect indicates that the shell shrinks and loses adhesion to the wax pattern and buckles outward during the drying process. This is especially prevalent on primary coats and flat surfaces; indicating that the primary coat moved away from the wax pattern.



The causes of this defect are evident in the wax and shell portions of the process. To cure these causes, R&R recommends taking the following actions.

Area	Cause	Cure
Wax	Inadequate pattern cleaning – wax pattern not washed properly – first slurry coat could not adhere properly to the wax pattern	Check pattern cleaner; use non-silicone mold release; improve pattern washing technique
	Temperature change in wax	Make sure wax temperature has stabilized
Shell	Dried too fast	Slow down drying – reduce airflow & RH
	Dried too long	Set maximum dry time for primary coats
	Low adhesion binder	Use different binder with improved wax adhesion
	Poor/low wetting agent – primary binder not wetting wax pattern sufficiently – layer experiences stress & contracts or flakes as it dries	Check/add wetting agent; use high quality primary binder with good wetting/adhesion characteristics, resistant to drying stresses
	Temperature change in drying area	Control drying room temperature to $\pm 3^{\circ}\text{F}$ ( $\pm 16.1^{\circ}\text{C}$ )

# Website Facelift



Have you visited our new and improved website?

In an effort to streamline your online experience, we are merging our separate Glass-Cast and Art Casting Depot sites into our main R&R site.

The new and improved R&R site has a more modern look, offering a more streamlined experience, with improved resources and functionality designed exclusively for you.

Visit [www.ransom-randolph.com](http://www.ransom-randolph.com) and experience the difference today!



## Visit Us at ICI 2019

The Investment Casting Institute (ICI) is hosting the

66th Technical Conference & Product/Literature Expo in St. Louis, MO from October 27-30, 2019.

Don't miss our technical paper, *A Comprehensive Analysis of Viscosity Measurements*, being presented by Sam Duncan, R&R Product & Application Engineer, on Monday, October 28. This paper will present a comprehensive analysis of the impact of equipment and method variations on the accuracy and precision of viscosity measurement; specifically exploring results from various flow cups, end points, operators and slurry types.

Visit us at the Expo (October 28-29) in booth 213 to discuss your casting goals and how we can help you achieve those goals.

R&R recognizes that every foundry is different and what performs exceptionally for one may not perform the same for another. That's why the R&R team is committed to partnering directly with you to identify your process hurdles, casting objectives and company goals. R&R consults with you to customize a solution tailored specifically to fit your foundry's needs. Whether you need to make a minor product or process change or you desire a system upgrade, R&R has a solution for you.

We look forward to seeing you at the show!

## NEW! Product Literature

In an effort to streamline our literature library, we have updated our product literature.

Now, instead of having separate product data sheets and application instructions for each product, we have combined both into one all-encompassing product sheet.

Look for our new and improved product sheets on our website at: [www.ransom-randolph.com](http://www.ransom-randolph.com)

*Don't miss our technical paper, A Comprehensive Analysis of Viscosity Measurements, and visit us in booth 213 at the Expo!*

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## Ransom & Randolph



At R&R, *Investing with Innovation™* is more than just a slogan, it's a way of life. Dedicated to advancing the investment casting industry, we take pride in providing foundries with extensive process knowledge, exceptional technical expertise and innovative product technology. By coupling our revolutionary product developments with our experienced staff, manufacturing and warehousing facilities, we successfully help you become a casting industry leader. R&R is a wholly owned subsidiary of Dentsply Sirona (NASDAQ: XRAY).

R&R's core businesses are comprised of ceramic shell, industrial mold, jewelry and dental investment casting.

R&R takes great pride in providing customers with a pleasant procurement experience. R&R's Maumee, Ohio based customer service team services North America and US export customers. Our UK-based agent, HTM Tradeco, Ltd., provides service for the European Union. From initial order placement through delivery, R&R's customer service team takes responsibility for accurate and efficient processing of your material needs. As a result, R&R's customer service team is unmatched in the industry.

*Investing with Innovation™*