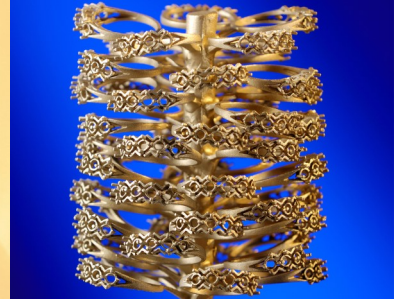
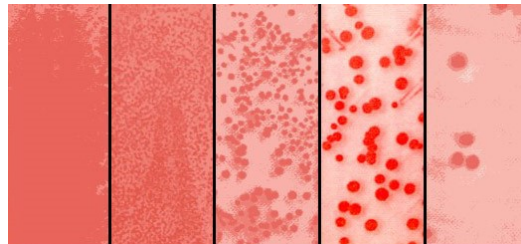




# CASTING CONNECTION



## Eradicate & Prevent Bacteria



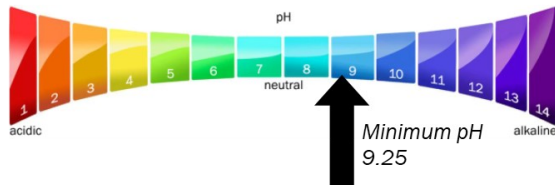
Bacteria growth can be detrimental to both the performance and life of a slurry. Due to the potential for bacteria in a slurry, it is important to know how to test your slurry to eradicate bacteria growth and prevent the contamination from

occurring. Major indicators of bacterial contamination can include a decrease in slurry pH or slurry odor. If bacterial contamination is left untreated, slurry gelation can occur.

### Test Your Slurry for Bacteria

#### Conduct a Slurry pH Test

A minimum pH of 9.25 is common for most colloidal silica-based systems, however finding a change in pH is just as important as the actual pH result itself. If the pH is lower than 9.25, or there is a sudden, drastic drop in pH, bacterial contamination could be a possibility and the binder should be separated from the slurry and tested for bacteria.



Slurry pH test

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## Eradicate & Prevent Bacteria

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### **Conduct a Bacteria Test**

Culture slides are used to test for the presence of bacteria in a slurry. At R&R, we use MCE Combi Dip Slides. They are available from Metal Working Equipment & Chemical Company Inc. at 518.523.2355. Procedures for use are always provided by the manufacturer of the culture slides. To test for bacteria, separate the binder from the slurry prior to dipping the culture slide into the sample.

### **Conduct an Accelerated Gelation Test**

An accelerated gelation test is performed by separating the binder from the slurry and storing the binder in a 60°C oven for 24 hours. If the binder does not gel, it is still healthy and can be treated for bacteria. If the binder gels, it is unhealthy and should be discarded.

### **Unable to Test at Your Facility?**

If you do not have the capabilities to conduct a bacteria or gelation

continued on page 3...

*Bacteria growth can be detrimental to both the performance and life of a slurry.*

## Have a Ceramic Shell Question?

Ask our ceramic shell expert!



[Dave.Berta@dentsply.com](mailto:Dave.Berta@dentsply.com)

For more ceramic shell FAQs, visit: [www.ransom-randolph.com/ceramic-shell-faqs](http://www.ransom-randolph.com/ceramic-shell-faqs)

## Ask the Expert



**Q:** I am getting pits in my castings. What causes this defect and how do I stop it?

**A:** Pitting is a negative metal defect that presents as random smooth depressions or shallow pits in the casting. This defect indicates that oxygen reacted with the chrome in metal.

This reaction is more prevalent with certain metals. 400 stainless series and pH stainless metals may be more prone to this defect.

Potential causes of the pitting defect are listed below. R&R recommends taking the following actions:

Cause	Cure
Oxygen reaction with metal.	Eliminate/reduce oxygen presence after pouring.
Chromium (Cr) oxides form when oxygen is present during solidification.	Avoid contact with oxygen during solidification. Implement capping practice once shells are poured.
CO gas forms through reaction between C in steel with the refractories of the mold.	Use carbon stucco, put molds in sand and use alternative refractories.

# Eradicate & Prevent Bacteria

...continued from page 2

test at your facility, send us slurry sample\* and we will test it for you.

Send via UPS to:  
 Ransom & Randolph  
 Attn: Technical Department  
 3535 Briarfield Boulevard  
 Maumee, Ohio 43537

\*Please note whether your sample is for a bacteria or gelation test.

## Eliminate Bacteria in Your Slurry

### Treat a Healthy Slurry

If your slurry has bacteria, add bactericide to the slurry in quantities according to the amount of bacterial contamination. R&R suggests using Grotan bactericide. Refer to the [Grotan product data sheet](#) for suggested addition amounts. R&R does not recommend using bleach to treat bacterial contaminations.

### Treat an Unhealthy Slurry

If your slurry failed an accelerated gelation test and has bacteria, discard the slurry. Clean the tank thoroughly with bleach before fresh slurry is added.

## Prevent Common Causes of Bacterial Contamination in Your Slurry

Cause	Prevention
Contaminated Water Source	Test a water sample for bacteria. If the water source has bacteria, it should be replaced with deionized or distilled water. If the water source is deionized/distilled, it may help to change the water cartridge.
Airborne Bacteria	Keep slurries covered when not in use.
Contaminated Pre-wet	Ensure that pre-wets are not contaminated. If they are, they will contaminate other slurries. Culture slides are also used to test for the presence of bacteria in a pre-wet. To test for bacteria, dip the culture slide into a sample of pre-wet. Clean pre-wet tanks and replace pre-wet as needed.
Dirty Equipment	Dirty equipment (i.e., Zahn cups, gloves, stirring paddles, etc.) coming into contact with your slurry can contaminate it. Ensure that Zahn cups are kept very clean. If cups are stored in water, replace the water weekly, at minimum. If Zahn cups are stored out of water, keep them clean, dry and stored in a clean, dry location. All equipment coming into contact with the slurry should be kept clean, and stored in a clean, dry location.
Dirty Slurry Tank	When replacing contaminated slurry in a tank, remove contaminated slurry and clean the tank with bleach before replacing the slurry.
High Slurry Temperature	Monitor slurry temperature, staying within $\pm 2^\circ$ of shell room temperature, and watch for any drastic spikes. If a contaminated slurry is kept at a high temperature, bacteria growth could accelerate. To help monitor slurry temperature, put your mixer on a timer so that it is running on intervals with small breaks.

## Label Facelift

In an effort to streamline our labeling process, we recently invested in a new color label printer at our



Maumee, Ohio manufacturing facility.

**Package labels are getting a facelift.**

The new and improved labels may be slightly different in dimension and are glossier than our current labels. Due to the change, you may see slight color variations vs. current labels. However, each R&R product will still have its own personalized color scheme and/or logo, continuing the brand recognition you are accustomed to.

During this transitional period, some shipments of products may contain a mixture of old and new labels. Rest assured that the product has not changed, only the label has been updated.

Have questions or concerns? Contact us at 800.800.7496.

# Scrape Mixer to Avoid Defects

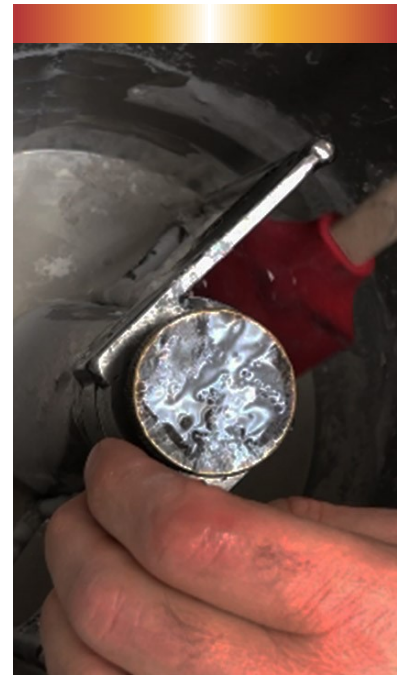
## Jewelry Tech Tip

In this [R&R YouTube](#) video tech tip, Mike Stover, R&R's jewelry product & application specialist, demonstrates how to avoid defects in final castings by following this easy tip.

Simply take the time to stop your mixer and scrape all the excess investment from the sides and central shaft, incorporating all the investment down into the water. This is essential to avoid incorrect mix proportions and defects such as flashing and inclusions.

### How?

When mixing, start by adding your water to the mixer and then add investment. Start the mixer. But wait! Don't just put the lid on the mixer, let it run and walk away. Be sure to pause and look inside the mixer to see how much investment is coating the sides and central shaft. Next, take the



*Avoid defects in final castings by following this easy jewelry tech tip.*

## Have a Jewelry Question?

Ask our jewelry expert!



[Mike.Stover@dentsply.com](mailto:Mike.Stover@dentsply.com)

For more jewelry FAQs, visit: [www.ransom-randolph.com/jewelry-faqs](http://www.ransom-randolph.com/jewelry-faqs)

time to get all the investment scraped down and back into the mixture. Restart the mixer, pause, rescrrape and start mixer again.

### Why?

You want to get all the investment that you painstakingly weighed, along with the water, completely mixed in.

As you will see, quite a bit of investment will stick to the sides and central shaft of the mixer and never actually make it into the mixture. At any given point, this loose investment could fall into your mix, especially when you are discharging down into your flask, causing issues and defects.

### Potential Issues & Defects

- If you have too much investment caked on the sides and central shaft of the mixer, mix proportions are going to be off. This could cause a really thin mix and other flashing issues.
- Inclusions may occur due to unmixed investment in with mixed investment. You don't know where that is going to fall or lie.

Watch the video: [youtu.be/HA6eVNg4wMw](https://youtu.be/HA6eVNg4wMw)

Subscribe to our YouTube channel today!





## Save the Date: MJSA Expo

Calling all jewelry casters!

**Where:** New York, NY, USA

### Save the Date!

**Venue:** Jacob K. Javits Convention Center (Hall 1D - Special Events Hall)

**What:** The show for professional jewelry makers; dedicated to the best in jewelry-related tools, equipment, supplies and services

**Stop in and see us!** Booth 223

**When:** March 10-12, 2019

Learn more at: [mjasa.org/eventsprograms/mjasa\\_expo](http://mjasa.org/eventsprograms/mjasa_expo)

# MJSA EXPO

MARCH 10-12, 2019 • JAVITS CENTER

THE FUTURE OF JEWELRY MAKING

*Stop in and see us! We look forward to seeing you at the show!*

## Contact Us

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Social:



## 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™*