



# CASTING CONNECTION

## Updated R&R Contact Info



With the recent sale of R&R to PMC Capital Partners, LLC, we have updated our contact information. We want to make sure that we remain in touch, so please take a few minutes to update our information.

### Email

- Employee email addresses have changed from First.Last@dentsply.com or First.Last@dentsplysirona.com to FirstinitialLastname@ransom-randolph.com
- Department email addresses have changed from RR-Department@dentsply.com or RRDepartment@dentsply.com to Department@ransom-randolph.com

For an updated R&R Team list (with new email addresses), please refer to page 4.



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Pictured above: Uniflex™ duplicating material, formerly known as Polyflex® duplicating material

# Dental Duplicating Materials Now Available Online!

We are excited to announce the following dental duplicating materials are now available for order through our webstore:



- [Uniflex™ duplicating material](#)
  - A universal duplicating hydrocolloid designed to produce both refractory and dental stone models.
  - It may be used to produce molds for the fabrication of partial and full dentures utilizing the fluid resin casting technique.



- [Perflex® duplicating material](#)
  - A reversible hydrocolloid duplicating material which has been designed to produce ethyl silicate refractory models.
  - It may be used to produce molds for the fabrication of partial and full dentures utilizing the fluid resin casting technique.



Shop our webstore!  
[shop.ransom-randolph.com](http://shop.ransom-randolph.com)

## TECH TIPS



### R&R Tech Tips

Looking for other technical tips or just need general technical support?

Visit us online at: [www.ransom-randolph.com/technical-tips](http://www.ransom-randolph.com/technical-tips)

Or email our technical team at: [Technical@ransom-randolph.com](mailto:Technical@ransom-randolph.com)

# Jewelry Injection Wax Guidelines: Wax Pot Operation



Jewelry casters use specially formulated injection waxes to produce high quality wax patterns.

To make the most of the inherent features and benefits in your jewelry injection wax, R&R recommends following these simple guidelines for **wax pot operation**.

Most wax pots rely on conduction to heat the wax from the inside walls of the pot towards the center. Consequently, wax in contact with the walls is exposed to higher temperatures.

The properties of all injection waxes are diminished by high temperatures and excessive on/off melting cycles. For these reasons, R&R recommends wax pots be kept on continuously at the chosen injection temperature setting. This will keep the wax at a constant and even overall temperature and will eliminate cool- down/heat-up cycles that can accelerate the degradation of wax properties.



*Shrink Defect*

## Stop Shrink

Shrink presents as irregular crevices, fissures or voids (apparent or not); usually on the surface of the casting or in the gating.

This defect indicates poor feeding during metal solidification in certain areas.

Metal shrinks as it solidifies and the defect occurs if molten metal can't feed the solidifying area.

The causes of this defect are evident in the metal and other portions of the process.

To cure these causes, R&R recommends taking the following actions.

Area	Cause	Cure
<b>Metal</b>	<ul style="list-style-type: none"> <li>• Metal temperature uncontrolled</li> </ul>	<ul style="list-style-type: none"> <li>• Determine optimum temperature &amp; control</li> </ul>
<b>Other</b>	<ul style="list-style-type: none"> <li>• Improper setup to feed casting</li> </ul>	<ul style="list-style-type: none"> <li>• Increase gate size, increase runner size, increase heat pressure</li> </ul>
	<ul style="list-style-type: none"> <li>• Pouring practice</li> </ul>	<ul style="list-style-type: none"> <li>• Fill mold quickly</li> </ul>
	<ul style="list-style-type: none"> <li>• Rapid or uncontrolled cooling</li> </ul>	<ul style="list-style-type: none"> <li>• Kaowool wrap molds or other external measures</li> </ul>

## Technical Support

Struggling with shrink or other casting defects in your foundry or just need general technical support?

Visit us online at: [www.ransom-randolph.com/defect-analysis](http://www.ransom-randolph.com/defect-analysis)

Or email our technical team at: [Technical@ransom-randolph.com](mailto:Technical@ransom-randolph.com)

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# Simplify Your Slurry

SuspendaSlurry® materials, were developed to eliminate costs associated with continuous mixing and to simplify the initial mixing process as the pre-mixed, chemically suspended ceramic shell slurry eliminates the need to weigh and mix binder and refractory components.

## Simplify Slurry Makeup

SuspendaSlurry materials are pre-mixed when they leave the R&R manufacturing facility. The risk of operator error in adding the proper amounts of flour to a binder is eliminated, as are the labor time and costs associated with this step of the process. A standard slurry can take a day or more to wet-out before dipping can start. SuspendaSlurry materials can be remixed in minutes, often by hand, and used immediately upon opening.

- Reduce expense and equipment maintenance - no propeller mixers required to wet-out refractory.
- Reduce labor costs associated with weighing and mixing flour and binder components.
- Eliminate time wasted waiting for a slurry to wet-out.

## Eliminate Continuous Slurry Mixing

Many foundries experience the costly loss of slurries when electric supply fails over a weekend. Others have experienced the loss of teardrop tanks



*Eliminate costs associated with continuous mixing and simplify the initial mixing process.*

and slurries when the propeller mixer moves off-center and cuts through the tank wall or when the propeller and shaft uncouple from the motor while the foundry is closed. SuspendaSlurry materials are formulated to maintain suspension for months without mixing; allowing the foundry to turn off mixers and tanks entirely - eliminating the risk of slurry loss due to uncontrollable, off-hour failures.

- Save electricity and lower costs by turning tanks off when not in use.
- Eliminate the risk of slurry loss and costly replacement due to electrical failure or a damaged tank.

## Simplify Slurry Maintenance

Slurry maintenance is simplified for the operator. Slurry viscosity is the only test parameter required to control the slurry. If viscosity is too high, a simple water adjustment will bring the slurry back into control. Placing a tight sealing lid on the slurry tank after dipping helps preserve water in the slurry so additions are required less frequently.

- Reduce labor costs and time associated with intensive slurry testing.

## Proven Casting Performance

SuspendaSlurry materials are based on R&R's leading primary binder technology. This allows casters added benefits over standard colloidal silica shells. The primary coats of SuspendaSlurry materials will result in stronger layers, reducing the potential for buckling, lifting or cracking defects. The slurry will flow, coat and drain in a fluid manner, eliminating any need for manual wax pattern application. SuspendaSlurry materials also contain a color indicator. When the shell changes from yellow to orange, the shell is ready for another dip.





## Understanding Shell Permeability

Shell permeability is a measurement of a shell's ability to allow fluids to pass through the material. In this case, the fluid is dry air. This can be expressed by using either the permeability constant or the gas flux value.

The permeability constant is an intrinsic property of a given shell. Its value is mainly determined by the shell materials (the interaction with the passing gas) and the shell structure (porosity). The permeability constant value is theoretically independent of the shell dimensions (cross-section area and path length that the gas passes through) and the experimental parameters (such as gas pressure and flow rate).

Gas flux is more representative of the actual amount of gas that passes through a shell. Gas flux is defined as the flow rate through an internal shell surface area. The gas flux is derived by measuring the pressure drop that occurs when

passing a fluid through a material.

Hot samples are heated to 1650 °F for 60 minutes to remove the organics from the shell. Air is passed through the shell and the flow rate and air pressure is measured at this temperature. These values are used to determine both the gas flux and the permeability constant of the material.

A higher permeability constant and gas flux value denotes a more permeable shell.

At R&R, we have the following shell permeability testing capabilities:

- Hot (up to 1832 °F [1000 °C])
- Green permeability (room temperature)

Interested in having your shell permeability tested or just need general technical support? Email our technical team at:

[Technical@ransom-randolph.com](mailto:Technical@ransom-randolph.com)

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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'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™*