

CASTING CONNECTION

• Your Link to Investment Casting News from Ransom & Randolph •

Inside this Issue:

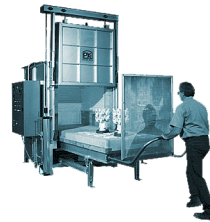
FlashFire Dewax	1 & 4
R&R Invests in Mfg.	1 & 3
PKI Equipment for Sale	2
Pour Cups	2 & 4
Meet the Team - Berta	3
Suspenda-Slurry material FAQs	3
Investment Casting Seminar	4

Less Stress with FlashFire Dewax

The FlashFire dewax method is used to dewax and burnout the ceramic shell. When completed properly, this process puts less stress on the ceramic shell than the autoclave dewax process and allows the recovery of a significant portion of spent wax. A brief review of general process recommendations, using Pacific Kiln FlashFire Dewax equipment, follows.

1. Use a sprue/gate wax that melts 10°F (5°C) lower than the part wax. This allows sprues to melt out first, creating a passageway for the pattern wax to flow through.

2. Pour cups should not be placed on the oven floor during dewax. Wax contact with the hot bed or over the sides of the bed can result in fire hazards.



3. Molten wax presents a flame hazard, if not managed properly during dewax. Molten wax should exit the oven through drainage ports in the bed of the FlashFire dewax system.

4. The maximum

recommended temperature for a FlashFire dewax system depends on furnace limitations, process demands and shell composition. FlashFire dewax systems are rated for continuous operation at a given temperature, with occasional increases in temperature to an operating maximum. PKI Standard FlashFire dewax systems are rated for continuous operation at 1800°F (982°C) with an intermittent rating of 2000°F (1093°C).

• Continued on page 4 •

R&R Invests in Manufacturing

Investing with innovation is not just a customer commitment for R&R – it is also an internal commitment for our operations.



This Summer, we are implementing a half million dollar capital improvement project at our Maumee, Ohio manufacturing facility. The powder manufacturing portion of the facility produces millions of pounds of jewelry and solid mold investments every year. This improvement automates a significant

portion of the way mixing equipment is supplied with ingredients.

Our manufacturing employees will see ergonomic benefits associated with automation as well as reduced dust exposure, given the design of the equipment. Benefits are

• Continued on page 3 •



Investing with Innovation™



Equipment For Sale



PBF-75NG

PBF-75NG
PKI New Generation
Wax Burnout Furnace
This unit in your facility
in one month.

KOM-24
PKI Knockout Machine
Immediately available.



KOM-24

To purchase, please contact your
R&R Regional Manager or customer service
at 800.800.7496 today!

Reduce Risk, Increase Efficiency

Pour cups are an integral part of the ceramic shell tree assembly. But, selecting a high-quality, well-manufactured pour cup can actually reduce the risk of casting defects, resulting from cup erosion during a metal pour, and even increase efficiencies in your foundry. Plus, the better the surface quality of the pour cup used, the less opportunity for cup erosion or spalling.

over, rocking or bumping when shells go through burnout or autoclave. An uneven base creates room for motion and potential for scrap – the consistent, even base of a pre-formed pour cup eliminates this potential.

- **Consistent presence of a cup after dewax and burnout.** If you always have a cup, you're always able to direct metal into the tree. The risk of a scrapped tree due to broken shell-formed cups and the danger of pouring a tree with partial shell-formed cups is eliminated.
- **Ease of wax assembly.** Pour cups provide a stable sprue base that can easily rest on a flat surface.
- **Automation efficiency.** The button on the final assembly is of uniform size for handling and

clamping.

Unfortunately, not all pre-formed pour cups are created equal. Surface quality and shape consistency both play a role in eliminating scrap and increasing overall casting yield. If the pour cup has cracks, chips or surface roughness; you've introduced potential for inclusions in the final product. You may also introduce a risk of failure and spill during the metal pour. If the cup is not uniform, instability may reduce casting yield and create automation inefficiencies.

That's why at R&R, we are pleased to offer Schaefer Industries pour cups. These pour cups provide the best possible quality to the investment caster. Every piece produced is 100% visually inspected at various points throughout

• Continued on page 4 •



Schaefer
Pour Cups

Foundries utilizing pre-formed pour cups realize numerous benefits including:

- **Decreased potential for shell inclusion in the final part.** As metal flows through a shell-formed cup, there may be enough turbulence to pull shell into the metal stream, resulting in scrap due to shell inclusions.
- **Decreased risk of tip**



Dave Berta
Product &
Application
Specialist

Dave Berta joined the R&R team in October 1999 as a Lab Technician. He then went on to serve as a Lab Assistant and later moved onto his current role of Product & Application Specialist.

In his current role, Dave is the primary technical contact for all ceramic shell products and is

responsible for internal and external technical support for these products worldwide. Dave also monitors required changes, modifications and improvements to ceramic shell products and their application in the field.

Dave attended the University of Toledo, where he studied Marketing and Sales. He joined R&R because of their excellent reputation in the industry.

Prior to joining the R&R team, Dave worked as a Lab Tech/Product Maker at Canberra

Corp., conducting basic lab testing and manufacturing finished products.

He is an avid golfer, loves football, hockey and classic old movies and is a closet video game player. Dave is married and has an 11 year old daughter and an 8 year old step-daughter. The Montreal Expos offered Dave a minor league baseball contract out of High School, but he turned it down to go to college...“the biggest regret ever!” Dave says. His favorite quote is, “Every man dies, not every man really lives.”

SuspendaSlurry™ material FAQs

- 1. Will there be a problem with sand in the slurry?**
No, this will settle in the bottom of the container as it is introduced due to its weight. This is the same as what happens in a standard slurry tank and you should not see a difference in this slurry.
- 2. Can I add this on top of a Primcote® slurry?**
While the material is fully compatible with PRIMCOTE binder, diluting it will impact the suspension characteristics of the slurry. We recommend that at least 80% of the tank be
- 3. Is SUSPENDASLURRY material compatible with super alloys and stainless steel?**
No, SUSPENDASLURRY material does not work with super alloys and stainless steel.
- 4. What is typical for the number of dip layers for SUSPENDASLURRY material?**
Depending on the size and complexity of your parts, the number of dips can vary. SUSPENDASLURRY material does not require any additional coats over your current system.
- 5. What is typical for dry times for SUSPENDASLURRY material?**
SUSPENDASLURRY material comes complete with a drying indicator to eliminate guesswork and will dry similarly to any colloidal based system.

Manufacturing

· Continued from page 1 ·

not limited to our own team, however. Customers will see improvements in efficiency and capacity as we will be able to run several of our operations concurrently. Improved response times to order demands are an anticipated added benefit to the

project. Automation will also help to eliminate potential opportunities for operator error during the manufacturing process, further ensuring the product consistency customers expect from R&R.

We are dedicated to improving our processes and operations to better serve our customers.

FlashFire Dewax

· Continued from page 1 ·

- 5. Avoid direct burner flame contact with the shell. This contact, or flame impingement, will cause hot spots in the shell. Hot spots in the shell can lead to weak shells and leakers. Burners should always be above the load zone for maximum oxygen efficiency in burnout.
- 6. During the FlashFire dewax process, it is important to maintain an oxygen rich atmosphere in the oven. Approximately 10% excess oxygen is required to burn off wax completely.
- 7. Fire the shells long enough that

all organic materials in the shell, and from the pattern materials, are completely burned out.

- 8. Every FlashFire dewax oven is created to handle a customer-specified wax load. If the oven is loaded with more wax than intended in the original design, performance is compromised. Smoke can indicate that more wax is being processed than the original design anticipated.

Learn more at: www.ransom-randolph.com (Resources > Technical Tips > FlashFire Dewax Method)

Pour Cups

· Continued from page 2 ·

the manufacturing process. Parts are rejected for the slightest flaw to ensure defect-free performance on your foundry floor. Schaefer pour cups are sufficiently dense to resist the thermal shock that occurs when molten metal meets ceramic. Again, reducing the potential failure during a pour.

To trial Schaefer pour cups, please contact your R&R Regional Manager or customer service at 800.800.7496.

Please Join Us!

R&R will be co-hosting an Investment Casting Seminar with Paramelt.

Tuesday, September 1, 2015

Holiday Inn

Nashua, New Hampshire

9:00AM – 3:30PM

Breakfast & lunch will be provided. This is an excellent opportunity to learn new troubleshooting skills,

refresh process control skills and train new employees.

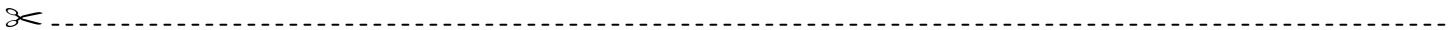
There is no cost to attend!

Seminar topics include:

- Wax Room Best Practices (Wax Room 101)
- Wax Pattern Making – From Art to Science (Wax Injection 101)
- Ceramic Core Fill Materials –

Use & Application

- Refractory Considerations for Investment Casting
- PKI Burnout & Preheat Furnaces for Investment Casting
- Alloy Castability – Best Practices
- Common Casting Defects – Descriptions, Causes & Cures



Attendee Name(s): _____

Company: _____

Address: _____

City: _____ State: _____ Zip: _____

Email(s): _____

Telephone: _____ Fax: _____

RESERVE YOUR SPACE TODAY!

Reply no later than: **Monday, August 24, 2015**

Please return this form to: Alisa Rawski, R&R | Fax: 419.865.9997 | Email: alisa.rawski@dentsply.com