



FOUNDRY INSIGHT

Improving Performance in Production

October 2007

Volume 1, Issue 3

Pyrotek.info

ask the expert...

HAVING TROUBLE MEETING MELT QUALITY GOALS?

Melt quality is possibly one of the most overlooked and misunderstood areas in today's foundry environment. Pyrotek has a wide range of technical support available to help you get to the bottom of your most difficult melt quality issues and make process related improvements that positively influence your bottom line.



Mike Kamin,
Material Science and
Metallurgical Engineer

Mike Kamin sales engineer based out of Pyrotek's Columbia City facility discusses some of the background and essential elements to melt quality and answers a series of questions commonly posed by customers.

Q: What is melt quality?

A: Melt quality means different things to different people. In most cases, foundries are concerned about controlling levels of absorbed hydrogen gas and various types of inclusions. These inclusions can range from simplistic aluminium oxide (or variations containing other elements such as magnesium) to refractory pieces, mould coating flakes, etc.

Q: Why is melt quality important?

A: Although this may seem trivial, we find that many foundries spend countless resources focusing on troubleshooting and problem-solving issues greatly influenced by melt quality. As you might expect, using factual data to help support the decisions you make during a problem solving exercise greatly increases your success rate.

Q: What are the latest melt quality tools available?

A: Pyrotek offers a new tool called MetalVision 20/20. This piece of equipment uses ultrasonics to provide real time measurement of inclusions size and concentration within your molten metal bath.



METAL VISION
20/20 Pyrotek

The equipment is built ruggedly enough to withstand today's harsh foundry environment while maintaining its portability for a wide variety of test locations. Testing is typically carried out at various processing locations, from melting to casting, to provide a real-time overview of your melt quality.

Pyrotek also uses many of today's industry standard tools to assist in melt quality testing. These tools are specifically designed to capture absorbed hydrogen and inclusions levels in molten aluminium.

Q: What does the melt quality evaluation process look like?

A: The process of understanding melt quality can be broken down into several key steps:

Step 1: Understand your defects. Many influences come into play when talking about melt quality. Bottom line is that you must understand your defects to be effective in solving your problem areas. Knowing what type of defects you are dealing with is the most crucial step to implementing value added improvement efforts. Often times scrap issues are being chased that were diagnosed incorrectly from the beginning.

Step 2: Provide a process map of your foundry operation. Know what areas you can impact that may give you the best overall melt quality improvement. Use this process map to concentrate your process learning efforts by prioritizing the largest value-added areas.

Step 3: Use the available tools to study your process. There are many tools available in today's foundry environment to help you understand problem areas within your process. Use your defect types in conjunction with your process map to start your test areas and expand as needed.

Step 4: Use the facts to make educated decisions on process improvements. Using the data gathered from melt quality testing, implement a group to work on problem resolution based on facts rather than opinion or emotion.

Step 5: Substantiate. Re-measure

Ask the Expert- HAVING TROUBLE MEETING MELT QUALITY GOALS?

your success after implementation of each set of improvements. Understanding what changes make positive influences to your overall melt quality is important to making your ongoing efforts strong and effective.

Q: What can Pyrotek do to help me with my melt quality improvement efforts?

A: Pyrotek prides itself in having the global resources to support many of today's aluminium foundry applications. With many years and a variety of experience, we can help to fully understand

process areas that are working well, as well as those which need improvement, to bring bottom line savings to our customers!

Pyrotek offers a full line of melt quality measurement equipment along with a wide array of tools and equipment to help you solve your melt quality concerns. With an in-house laboratory, Pyrotek can be your one stop shop to get even the most detailed metallurgical evaluations carried out. These tools help our customers gain insight as to the type of defects they are dealing with so sound, fact-based improvement

efforts can be constructed.

Q: How can I get started?

A: Talk to your local Pyrotek sales engineer or visit www.pyrotek.info. With coordination of our global resources, we'll be able to help you understand your melt quality challenges and implement value-added changes.

** Mike Kamin holds a Degree in Material Science and Metallurgical Engineering from Michigan Technological University, USA. He has worked in the hot metal industry for nearly 10 years and is part of the Pyrotek melt quality team.*

