



CERAMCOTE™ ZWR DI REFRACTORY COATING

Case Study



Partners for enhanced casting performance

ASK Chemicals CERAMCOTE™ ZWR DI refractory coating makes the difference at Bradken's Amite Foundry & Machine

» Background

A well-established ASK Chemicals customer, Bradken Amite Foundry & Machine manufactures large castings for use in the construction, mining, heavy truck and Naval defense industries. A business unit of Bradken, the company maintains high work volumes – pouring between 54 and 60 tons of steel, and 27 to 30 tons of casting per day – numbers that translate to three heat runs per day with an average heat weight of 61,000 lbs.

These capabilities have led Bradken's Amite Foundry & Machine to become a preferred supplier of frame castings for companies like Caterpillar Trucks.

Yet, even with Bradken Amite Foundry & Machine's many achievements in place, the company's leaders knew that any manufacturing process worth doing is worth doing better, faster and more economically. As a result, they started an internal quality review process that would form the basis for a mutually rewarding partnership with ASK – one that illustrates how we're able to support and sustain the success of our clients across the board.

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>> Objectives

With an eye toward partnering with ASK, Bradken Amite Foundry & Machine sought to review its quality enhancement process, evaluating variables such as coating drying times, moisture control, defect detection, continuing employee education and beyond. From this effort, the company identified several distinct areas of opportunity:

- System improvements to identify coating dryness over the course of multiple applications
- Employing new refractory coatings for better surface finish on castings — lowering “inclusion” defects caused by excess moisture popping off coating layers in multiple applications
- Reducing moisture-caused gas or porosity defects
- Detecting poorly compacted, low-density areas of cores/molds based on slower changes in color
- Enhancing employee education, safety and best practices

Having taken the initiative as far it could internally, the company turned to ASK for assistance in taking action. In the words of Glenn Rhoades, III, technical manager for Amite, the move was well justified:

“When you look at our foundry, we’re here to do two things: produce sand molds and steel,” Rhoades said. “If either of those materials aren’t right, everything we do is a waste. That’s why we brought ASK in – for everything they do well – technical expertise, product knowledge, educational support and much more.”



>> Solutions

As our first order of business, ASK Chemicals sent a team of technicians who conducted on site staff surveys and evaluations of current work practices and processes. From there, we prepared a report that outlined the following recommendations:

- Switch in refractory coating to ASK Chemicals' CERAMCOTE™ ZWR DI refractory coating formulation — a product with a color change feature that transitions from pink when wet to yellow when dry (providing a greater sense of when one application is dry before applying subsequent coats — reducing mistakes caused by moisture being “trapped” under different layers of coating)
- Employ CERAMCOTE™ ZWR DI to decrease the incidence of poor surface finish, gas and porosity-caused problems, and other defects
- Eliminate defects by improving detection of “spongy” areas of cores/molds which tend to hold more water and dry slower
- Implement sand and other performance systems to reduce time spent cleaning, grinding and reworking castings as a way to improve workflow from point A to point B to point C
- Utilize ASK-directed classroom training for floor staff and management (bringing total investment in education to 23 hours per employee)

Just as importantly, ASK became an ongoing partner, **providing an additional step in quality control by periodically conducting evaluations** to assure that all Bradken Amite Foundry & Machine steel castings meet guidelines — all to keep the company moving in a straight line, even as the process itself varies continuously.

>> Results

The most visible outcome of ASK's work with Bradken Amite Foundry & Machine was a much improved flow of product through the shop. In general, our recommendation to go with CERAMCOTE™ ZWR DI refractory coating reduced bottlenecks, lowered the instances of metal penetration, inclusions and rework, and enhanced quality and safety as a whole – differences that translate into the following tangible results:

- CERAMCOTE™ ZWR DI refractory coating reduced the number of application passes, from 4–5 coats to 2–3 coats, saving approximately \$75,000 in raw materials, and in the process, improved surface finishes, and helped employees identify and solve coating problems on the line
- A 50% reduction in lead times, from 16–20 weeks to 8–10 weeks
- CERAMCOTE™ ZWR DI also decreased poor surface finish, gas and porosity-caused problems, and other defects by improving detection of “spongy” areas of cores and molds.

Even better, Bradken Amite Foundry & Machine, along with its parent company Bradken, has been recognized by the American Foundry Society as a winner of the 2007 Millionaires Safety Award – a honor reserved for facilities that reach one million consecutive hours worked free from occupational injury or illness requiring time off. While the credit for this achievement clearly belongs to the people at Amite Foundry, ASK is proud of the role our partnership played in helping to make it happen.

The bottom line for Bradken's Amite Foundry & Machine, as well as our customers, is that ASK contributes to greater competitiveness in the marketplace. And if that sounds like a solid case for contacting us for solutions, it is. We look forward to sharing our expertise with you.

>> About ASK CHEMICALS

ASK Chemicals is one of the largest suppliers of complete solutions and tailor-made consultation services for the foundry industry. The core of our company's activity involves manufacturing all foundry consumables required for the production chain as well as providing optimum technical services in order to perfectly adapt our products to the processes on the customer's premises.

Our wide product range contains binders for all core manufacturing processes, coatings, additives, feeders, filters, release agents, metallurgical products including inoculants, Mg treatment wires, inoculation wires and pre-alloys for iron casting. Core production and prototype development as well as a wide range of simulation services round off what the company has to offer.

Our second business field is "Resins & specialized products" which offers niche solutions for high-quality applications in the fields of paints and coatings, fertilizer coating and manufacturing friction pads and composites. Our almost 30 years of experience in the market and our in-depth knowledge of the field of binder technology are of particular benefit to us here.



This information is based on our current state of knowledge and does not represent assurance of the properties of the products described. We are only liable for product-related advice and information within the scope of duties of disclosure included in collateral contractual agreements unless expressly agreed otherwise. (02/15)

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