



SONO WAVES

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FURNESS-NEWBURGE, INC.

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SPRING INTO CLEANER AIR AND BOTTOM LINE SAVINGS

Install a Pneu-Col^(R) system using AAOP technology to reduce clay and bond usage while improving the air in the foundry and the neighborhood

Visit www.letcast.org to learn about low emission technologies and to read case histories of successes with LET

Install heaters for "Superheated Purge" to use with core blowing systems to reduce cycle time and binder levels while increasing core room efficiency and out of box strength

**MAKE PLANS NOW TO VISIT US AT BOOTH NO. 3160
AT CASTEXPO IN ATLANTA MAY 2008**

**CALL AHEAD FOR AN APPOINTMENT SO WE CAN MEET AND DISCUSS THE
UNIQUE NEEDS OF YOUR FOUNDRY AND START YOUR SPRING SAVINGS!**



Typical PNEU-COL^(R) system shown at FNI in Kentucky

Please call 859-873-0328 to learn about a PNEU-COL^(R) SYSTEM custom designed for your foundry or send an email to one of the addresses given below

Reclaiming Waste Green Sand in Foundries with Novel Ultrasonic-Cavitation of Waste Green Sand (NSF-DMII-GOALI 0700259), Cannon, Lewallen (5/2006-2/2008).

Moving to Sustainability in the Metal Casting Industry (NSF-BE/MUSES-GOALI 0524940), Cannon, Clemente, Considine, Gutowski, Komarneni, Voigt, Headington (9/05-9/09).

NSF-funded research has shown that a novel ultrasonic-cavitation process can reclaim foundry green sand that has been used for molds and cores. This process was tested at Neenah Foundry, Neenah, WI. Specifically, this compact (but fundamentally complex) system blasts the carbon “raincoat” off sand and clay grains so as to restore their ability to affix to one another via water binding. The carbon raincoat comes from re-condensed volatiles that are released when molten metal is poured into green sand molds.

Further, this Pneu-col[®] reclaimer cleaned sand grains well enough for them to be reused as core sand, bound by organic binders. Indeed, on site tests at Neenah showed that full-scale cores could be made with this reclaimed silica sand and that the cast iron products (slip yokes) exhibited as good or better casting quality than when yet unused sand was employed. Neenah has sold these complex slip yokes that were molded with this reclaimed sand for cores (Fox et al. 2007; 2008a,b).

On the basis of these favorable results, the Neenah group has decided to begin feasibility studies for installing this reclamation system at all of its sister foundries, including Neenah Foundry (Neenah, WI—budgeted for FY 2008 start-up), Dalton (Warsaw, IN and Kendallville, IN), Advanced Cast Products (Meadville, PA), Gregg Industries (El Monte, CA), and Deeter Foundry (Lincoln, NB). The installation in WI will cost \$0.3-1 million, and could save \$1-3 million/year. When all US foundries use this, it can save them \$0.05-0.5 billion/year.

We project that the reclamation will diminish green sand purchasing and wasting by 60-90% which amounts to 500-2000 rail cars/year of sand that will no longer need to be hauled to and from the above listed Neenah Enterprises' foundries.. This nurtures more sustainable green manufacturing, important as the Neenah group expands two of its plants.

This research builds on ten years of collaboration among Penn State (and recently MIT), Neenah Foundry, and Furness-Newburge, Inc., the developer of Pneu-Col^(R). The NSF MUSES project also addresses materials and pollution reduction with advanced oxidation and materials substitution (Wang et al. 2007 a, b, c; 2008) and energy-carbon dioxide-mass balance savings (Jones et al. 2007).

Gregg Industries Conversion of High Emission No bake Mold and Core Making to Low Emission Technology Binders and Processes

1. Environmental Benefits

Gregg Industries, El Monte, CA, has a no bake casting line that used phenolic urethane resin for prototype castings and customer casting qualification. Production on this line increased substantially which resulted in increased neighborhood odor complaints. An inorganic highly modified sodium silicate resin was specified to replace the phenolic resin. This resin dramatically reduced smoke and odor from the no bake operation. In addition, the foundry also replaced an odor causing organic core resin with a similar modified silicate core resin from the same supplier. Minor upgrades to the control systems for three core machines were made at a total cost, for all three machines, of less than \$20,000.

2. Non Environmental Benefits

Non-environmental results of the change to the low emission technology resins:

A reduction in binder cost.

A reduction in man hours to produce the cores due to the fact that the majority of the low emission cores do not require a refractory core coating.

A reduction in cleaning room costs because this low emission technology reduced the tendency for veining, an expansion defect.

A continuing decline in casting scrap helped by implementation of this low emission technology.



HAPPY SPRING

Please call to set up an appointment with Jim or Dave in Atlanta or email any of us for general information. We look forward to hearing from you soon by telephone at 859-873-0328 or at the emails below:

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