

## News Release

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### NEW ENERGY SAVINGS ACHIEVED THROUGH COLLOIDAL SILICA BONDED REFRACTORIES

INDIANAPOLIS (September 10, 2007) -- As energy prices soar, one area for potential savings in the iron, steel, glass, ceramics and other metals industries is in the refractory lining of their furnaces, according to Charles Connors, Sr., president of Magneco/Metrel, the world's leading developer of nanoparticulate refractory technology, during the recent annual conference of the Association for Iron and Steel Technology here.

"Monolithic refractories offer several ways to save energy compared to traditional brick, and the newer colloidal silica bonded monolithic refractories, such as Magneco/Metrel's Metpump line, offer further savings over those that are bonded with cement," he said.

He noted that the energy savings begin at the manufacturing level as colloidal silica bonded refractories

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are produced without firing, drying or other energy-intensive processes involved in the production of bricks. Most importantly for the end user, the newer monolithic refractories conserve energy in a number of ways, both before and after installation.

"Unlike brick and mortar, which must be installed by hand, colloidal silica bonded refractory can be pumped or shotcreted to form the furnace lining," Connors explained. "This means the installation process takes fewer man-hours to complete -- cutting downtime to weeks instead of months -- for a savings of both time and energy."

Furthermore, after installation, colloidal silica bonded refractories need no more heat for cure-out than a brick and mortar lining -- and they require substantially less heat energy for cure-out than cement bonded refractories, because there is no water or crystallization in the colloidal silica bonded products.

He pointed out that colloidal silica bonded monolithics can also be applied as repairs to clean brick surfaces and, even here, they demonstrate a savings advantage over brick and cement.

"When a brick lining is about 60 percent worn away, if it is to be replaced by another brick lining, the 40 percent of the brick that is remaining must be torn out and discarded, and the entire lining must be replaced," he said. "This

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essentially throws away the energy that went into producing the discarded bricks, and it uses extra energy to tear out the old bricks and replace them with new ones."

In comparison, when a colloidal silica bonded monolithic lining is 60 percent worn, the surface can be cleaned and the lining can be restored to its original thickness with the addition of the new colloidal silica bonded material, which will bond to the old material.

"This type of bonding cannot be done with cement bonded materials," he emphasized. Most importantly, he noted that colloidal silica bonded monolithics can be matched to the process and region of the furnace where they are used.

"With better refractoriness and hot load strength, the colloidal silica refractories can be used with less cold-face cooling than other, more traditional refractories," he said. "The more heat that can be retained in the process, the more energy can be saved."

He added that colloidal silica bonded monolithics may be used wherever acid or neutral refractories are possible, including very high alumina, all alumino-silicates, silica, zircon and AZS formulations.

"When compared to brick or cement bonded castables, Magneco/Metrel's Metpump refractories exhibit superior hot

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strength, thermal shock and creep resistance properties, excellent erosion and abrasion resistance, high resistance to chemical attack and increased mechanical strength," he said. "All of these factors result in longer life for the furnace lining, and therefore even further energy savings over time."

Magneco/Metrel, Inc. is the world's leading developer and manufacturer of nanoparticulate refractory for the glass, aluminum, copper, ceramic, iron and steel industries. The company is headquartered in Addison, Illinois, and operates facilities in 17 countries worldwide. More information is available online at [www.magneco-metrel.com](http://www.magneco-metrel.com)

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