

slag Successes

News and Information about the Iron and Steel Slag Industry

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Since 1774 slag has been mixing it up with cement. So what's new?

HECKETT MULTISERV HELPS EXISTING CEMENT PLANTS INCREASE CLINKER CAPACITY 5% to 15%

For more than two centuries slag has been a kind of high octane additive in cementmaking. Even before the Declaration of Independence was written, it was assumed you had to first grind the slag into a fine powder and inject it into the flame end of the cement kiln. Because the grinding step is both energy-intensive and costly, few cementmakers used slag. That is until several Texas Industries employees started experimenting with the painstaking grinding process.

Instead of grinding the slag to a powder, 2-inch chunks are tossed into the top of the cement kiln at the start of the process.

Texas Industries, Inc. (TXI) and Chaparral Steel patented the process and named it the CemStarSM process. With the process, slag became more important than ever in the production of

cement. It's simple. Slag increases cement output. That means a lower investment for a higher quality product and increased clinker capacity.

Slag nodules mix with normal cement feedstock. Because the slag has many of the same characteristics of the cement feedstock, and has already been heated, the two materials combine chemically. Steel slag easily mixes and bonds, allowing the CemStar process to produce portland cement in ever greater quantities.

Heckett MultiServ: in the middle of California cement rush!

Heckett MultiServ provides the slag for the CemStar process in California. Cement use is way up, due in part to the nationwide housing boom.

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“We help TXI increase clinker capacity as much as 5% to 15%. Their cement customers get more for their money and with lower CO₂ emissions, the environment wins, too,” commented Mark Christie of Heckett MultiServ.

Less fuel needed means reduced CO₂ emissions

The composition of steel slag is very similar to portland cement clinker. The fuel needed to convert it into clinker is low because most of the required chemical reactions have already taken place in the steel furnace. Adding CemStar to an existing cement plant does not mean additional fuel costs. Bottom line is a big cost savings while realizing all the benefits of increased plant production.

Heckett MultiServ's steel slag has already been subjected to 3000° temperatures, ridding it of impurities. By the time it goes into the CemStar cement process, there are minimal emissions.

Heckett MultiServ customer TXI wins EPA's 1999 Climate Protection Award

From a September, 1999 press release:

“In recognition of CemStar, TXI, a cement and structural steel company, has been selected as a recipient of the 1999 U.S. Environmental Protection Agency's Climate Protection Award.”

“The process ... has the potential to reduce worldwide carbon dioxide emissions by 90 million tons a year and also significantly reduces oxides of nitrogen emissions from cement kilns.”

By injecting steel slag into cement kilns, TXI has seen a 10% increase in production with no plant expansion, no additional CO₂ emissions and no additional energy requirements.

Each ton of slag produces an additional ton of clinker, the main ingredient in portland cement. Steel slag that once sold for \$3 to \$8 a ton is now converted into portland cement that sells for an average of \$70 a ton.

“Being a part of TXI's success with CemStar and its tremendous impact on the reduction of greenhouse gases is a bonus to our business,” Christie added.

Slag in cement a win-win situation

Without a doubt, one industry's waste mixed with another industry's materials has turned a negative into a positive for business and the environment. Now that's a success story.

*This is another Slag Success Story
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