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Color Them Convinced
Granular pigments' benefits are converting some producers

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GOING WITH

Three producers explain why they switched to granular colors

More than 300 concrete producers around the world have shifted to granular pigments since that concrete coloring method was developed just a decade ago by the Brockhues Corp. While powder and liquid colors remain popular with many concrete producers, granular pigments are winning converts.

Why have some producers switched? A few producers who have had long-term experience with granulars say it's because granules' free-flowing attribute speeds batching and facilitates color matching; in addition, their packaging is easy to handle and generates less dust than powder colors. Pavestone Co. was one of the first U.S. producers to adopt granular technology. It installed a system at its Phoenix plant in 1991; today, Pavestone uses granules in six North American locations to color pavers and segmental retaining wall units. Another paver and retaining wall unit producer, Unilock Corp., uses granules at three U.S. plants. CSR America Inc. produces colored concrete block in Las Vegas.

Pavestone's Bob Schlegel, president, and George Gilbert, vice president of operations; Unilock's Bob Moser, senior plant manager of U.S. operations; and CSR-Las Vegas' Jerry Schupbach, operations manager, recently shared their experiences of using granular colors:

How important is color to your business?

Schupbach: CSR has a lot of competition, especially for plain block. We have higher profit margins and less competition in architectural colored



Color is an integral part of the product line for a number of concrete masonry unit producers.

block. Before switching to a granular system, we made two basic colors. Now we offer close to 20 colors and can match colors as required by the architect or builder.

Gilbert: People buy our products because of the aesthetics of design and color. They want to choose from lots of different designs, colors and blends. Color is used in 90% of our paving stones and enhances the value of our product.

What coloring system were you using before?

Schupbach: We previously dumped powdered pigments packed in disposable bags into the mixer. We paid a premium cost to have bags in preweighed sizes for our batches. Even so, we still experienced color variations because you can't put bags into the mixer at the same time in every batch. If a machine operator has a problem and can't get to the mixer on time, the color may mix for 30 seconds in one

batch and three minutes in another. Dumping bags also takes the machine operator away from the job you really want him to do, which is watching the block machine to verify that everything is running smoothly.

Gilbert: Pavestone used powders dispensed by a screw conveyor system with an accuracy of plus or minus one to 1½ pounds. We were looking for something with tolerances a lot tighter than that.

Moser: We had used a bulk powder dispensing system at Unilock. Pigment came in 50-pound bags and had to be unloaded and dumped into the dispensing hoppers by hand. The system was labor-intensive. Plus the powder pigments generated a lot of fugitive dust that became an issue when we were inspected by health and safety people.

Schlegel: One of the least desirable jobs in any concrete plant had been the pigment doser. That guy was always covered with orange or black or whatever color they were in that day.

THE GRAIN

Why did you select granular pigments?

Gilbert: Our No. 1 reason was to increase the plant's cleanliness. When we visited plants that use the system, we didn't see pigment dust lying around and being tracked everywhere. And it works with the mental attitude of the people in the plant. The cleaner the plant is, the cleaner they keep it.

Moser: I agree. Our new pigment storage area is one of the first places we show plant visitors. People say they can't believe it because pigment isn't everywhere.

Gilbert: We also switched to granular pigments because we were hoping for better color dispersion in the mix. Our old method often caused smearing on the paver's side or left little clumps of powder on top of a stone.

Schupbach: We wanted a system that disperses colors more consistently. Resultantly, we have discovered that powder colors may have to mix

longer than granulars to achieve the same ultimate color. We were able to decrease our cycle times with granulars, yet I believe I'm getting all the tinting strength I can out of the color.

Moser: We demand high output, high efficiency and a minimum amount of downtime for maintenance. Our mixers cycle every 90 seconds to two minutes, with pigment batch sizing anywhere from a quarter of a kilogram to 14 kilos. We sat down with a vendor and said, "We're going to have two mixers going every 90 seconds, and we don't want to have to wait for pigment." The granular coloring system hasn't slowed production at all.

In addition, we do a lot of multi-colored or brindled color blending and have had good success in making custom colors. We wanted a system with a lot of options, and we selected a system with 100 different recipes we can program into it.



Bob Moser, Unilock's Chicago-based senior plant manager of U.S. operations.

Did you consider liquid coloring system?

Moser: I didn't because I'm not too keen on liquid systems. I have the impression that they're very equipment-intensive, with lots of pumps and valves. I was just at a meeting where I saw the latest state-of-the-art liquid systems. While they've greatly improved, there are still a lot more moving parts that require maintenance and upkeep. Also, I've been to plants that have liquid systems, and you can see a big stain on the wall or floor from a leaking hose or pump. Everyone we talked to about liquid systems said you need some kind of containment system, "just in case."

Gilbert: My concern with the liquid system was in controlling slump. We make a zero-slump mix, and sometimes the additional water for the liquid makes a batch too wet. When it's rainy and aggregates are wet, you can't add any water at all.

Schupbach: I avoided liquid pigments for weather-related reasons. I have an outdoor plant. Even in Las Vegas we get freezing weather. I would have had to run liquid lines up to 50 yards to get to each of my block machines. I didn't want that because of freezing problems. And during summer, when temperatures get to 115°F, I thought liquids could dry out in the hot sun.



Free-flowing granulated pigments flow as easily as liquids without the dust of powder. The organic binder dissolves easily in a concrete mix's moisture, dispersing color quickly and enhancing dispersion of color into the mix.

What did it take to get the granular system on line?

Gilbert: It wasn't that hard to develop new formulas to match our existing color lines. It was very important to us that our customers wouldn't detect a difference in our product colors.

Moser: I have a six-bag system that makes six pigment colors available. The manufacturer did an excellent job matching our paver colors. However, two of our most popular colors required a special raw material that's not available in the basic four-color pigment system. We wanted to keep our products exactly as we had them, so our vendor custom-made granules to match our special colors.

Gilbert: We installed our granular system as a stand-alone system. When it was time to switch over, we simply shut one off and turned the other on. We didn't have downtime.

Moser: It was two days before we were up and running. The first day, we did calibrations and timing checks to make sure it was delivering the pigment in time to feed two mixers. On the second day, we ran trial batches with everything from half a pound of pigment up to 20 pounds of pigment, checking the system for accuracy. By the end of the day, we had the green light to go into full production.

Is the granular system more expensive?

Schlegel: Granular pigments themselves probably cost a couple of cents more per pound. But you gain labor savings, and it's cleaner, so there are tradeoffs. It is a higher-quality system which, in the long run, is a better value for ourselves and for our customers.

Moser: Our corporate philosophy is, "You get what you pay for." I encourage people to look at maintenance and housekeeping. There are lots of great systems out there that were designed by engineers. But it's the people who run them, maintain them and clean them every day who really know what's going to work. Don't look at just the price—you've got to look at the really big picture.



Unilock's Chicago plant has a low-maintenance granular coloring system that runs continuously for nine months a year and produces little dust.

Gilbert: In our situation, switching to granules has eliminated one to two people from the workforce and reduced waste. There's a waste factor involved with 50-pound pigment bags. You leave X percent in every bag that you just can't get out. Besides, handling a 2,000- or 2,500-pound bag of granules with a forklift is easier than a 50-pound bag with a man.

Moser: We figured one guy was spending four hours a day handling pigments with the dry system. Now we've got it down to 30 minutes a day. And because of the way our dispensing system tracks pigment consumption, we're more accurate in assigning costs per square foot per color. It's also a big tool for forecasting. We can take a look at this data and say, "Compared to last year, we're using a lot more red and brown." The salespeople use this information, too. Every year, there seem to be colors that are more popular than the year before.

Schubach: Compared to what I was doing, granular easily pays for itself in less than a year.

How would you sum up your experience with granular colors?

Schlegel: We're on a perfect-quality, zero-defect mission. Granular pigments are definitely part of the quali-

ty program. We've got six plants using granules, and we have for five or six years now. We think it's a better system.

Moser: Since we switched to granulars, our color consistency, day in, day out, has improved. The solid red I make in March and the one I make in September are virtually identical. Plus, this plant runs 24 hours a day, five or six days a week. We turn our machines on in March, and they essentially don't stop until December. The granular system has worked very well.

Schubach: I've used liquid, I've used powders, but I like this the best. This system has taken care of a lot of problems in our color.

—INTERVIEWED BY MICHAEL CHUSID

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Editor's note: The producers interviewed for this article use the Brockhues granule coloring system marketed in North America by Davis Colors. In March, The Concrete Producer looks at advances in pigment metering equipment for five pigment systems.

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