



## Granufin® color micro-granules

The first dry, micro-granulated color that combines the flowability of liquid with the advantages of powder.

Granufin® free-flowing pigments and the Granumat® concrete color metering system are so innovative, they were granted U.S. patent 4,946,505. Granufin® is the only pigment granule with a binding ingredient that stays intact during transport and metering and then enhances color development when mixed into concrete.

The Granufin® micro-granule and color metering system was invented in 1989 by Brockhues, a German company and leader in supplying European concrete paving material manufacturers. In 1995, Brockhues joined Rockwood Pigments NA, Inc., the parent company of Davis Colors. Granufin® products are available through the Davis Colors' North American distribution system. Together with Hydrotint® liquids and economical powder concentrates, Davis Colors offers every form of color available.

### A Complete System

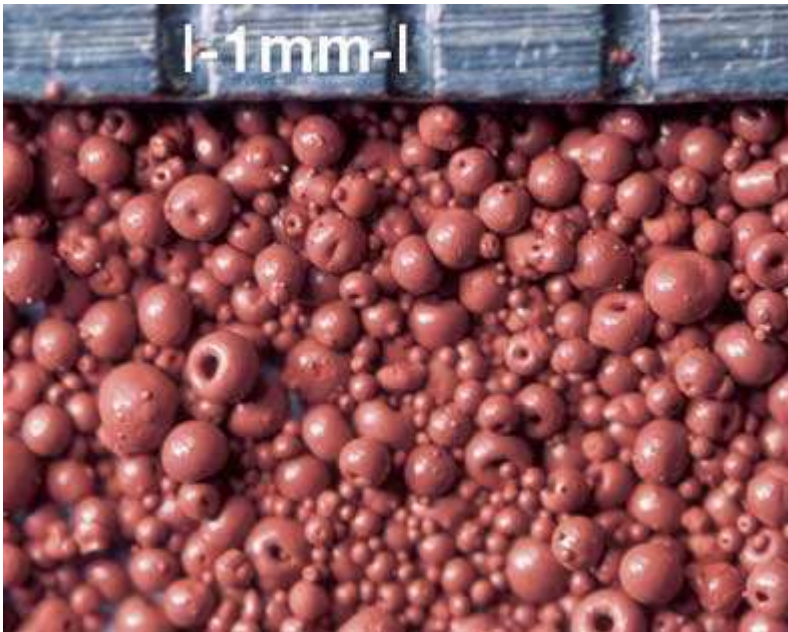
The Granufin®/Granumat® color system includes Granufin® micro-granulated pigment and Granumat® equipment, which automatically weighs and transports pigment from bulk storage directly to the concrete mixer in a completely enclosed automated batching operation. For many concrete producers, automated metering can be a more economical method for producing colored concrete. Granufin® colors are free-flowing, easy to handle and virtually dust-free for a cleaner manufacturing plant. They come in bulk super-sacks weighing between 1,500 to 2,650 pounds to further minimize transportation and handling costs.





## Low-Dust Technology

Granufin® begins with highly concentrated pigments that are turned into a liquid with high-speed grinding equipment that coats individual pigment particles with color-activating agents. The liquid is then sprayed into fine droplets and dried. It is during this spray-drying process that micro-granules are formed and the color-activating agent solidifies, binding individual pigment particles together into nearly perfect spheres with a water-receptive surface that range in size up to 300 microns. When stored and transported, granules stay hard. When wet, they rapidly dissolve into the mix.



## Proven Ingredients

The primary ingredient is concentrated Synthetic Iron Oxide pigment, high-quality Red, Yellow or Black grades that meet or exceed ASTM, DIN and British standards for fade resistance and concrete compatibility. Carbofin® is a granulated carbon made in a proprietary process to prevent carbon fading. Granufin® Magnit D Super is enhanced with Carbofin for extra tinting power. The binder ingredient in all granulated products is a commonly used concrete plasticiser which rapidly breaks down in water and increases tint strength above ordinary powders.

## A Shade for all Uses

Four primary colors are standard: Black, Yellow, Light Red and Medium Red. These can be combined on-site to make a wide spectrum of popular concrete colors. In addition, there is a selected range of brown, buff, gold and tan Granufin® colors available in 55 pound bags as



well as bulk-sacks for clean and convenient handling without automatic systems. Granulated versions of Titanium Dioxide White and Chromium Oxide Green are also available to complete the color palette.

### Consistent Color

Every bulk-sack of Granufin® is shipped with its own inspection certificate verifying color shade and tint strength meet our precise quality standards.

### Double the Density

Granufin® micro-granules pack into a volume that is nearly 1/2 the size of powder pigment, increasing storage space available in your operation.

### Contains no Water

Up until now, the easiest way to automate color metering was to install a liquid color system. With Granufin®, now you can automate without the hassle of making slurry-on-site or purchasing premanufactured slurries which contain up to 40% water. In some zero-slump manufacturing operations, the water added by slurry is enough to cause mix problems. With Granufin® free-flowing granules and the Granumat® metering system you get all the handling advantages of liquid without the added water.

### Color you can rely on

Granufin® by Davis Colors division of Rockwood Pigments, the leading pigment supplier to the concrete industry. We offer automated dispensing equipment, installation and start-up assistance, color formulations to match your product standards or custom color requirements, and ongoing technical and marketing support. Nobody knows concrete color better than Davis Colors™.

Contact Davis Colors™ for complete product specifications and to discuss whether a liquid-based, granulated or concentrated powder pigment system best suits your production requirements. You can call us at one of the numbers listed below or e-mail us.

Measured Values	Specification
Tinting Strength	+ / - 5% (DIN 53237)
Color Accuracy (Delta E)	< / = 1.5 (DIN 53236)
pH	7 - 9 (DIN/ISO 787/9)



Free-flowing, low-dust Granufin® micro-granules