

Uni-Mix® Granular Integral Concrete Colorant

Technical Data Sheet UMGICC-09

FOR PROFESSIONAL USE ONLY. Read all applicable and current product information for your project: Technical Data Sheet (TDS), Color Chart, Installation Guide, Safety Data Sheet (SDS). All information is available for download online at www.butterfieldcolor.com or at 800-282-3388.

MasterFormat™ Guide Specifications, and Butterfield Color Architectural Details and Specifications are available for the specifier/designer. All information is available for download online at www.butterfieldcolor.com or at 800-282-3388.

1. Product Description: Uni-Mix® Granular Integral Concrete Colorant is free-flowing concentrated pigment granules designed to permanently color concrete and other cementitious materials. They can be poured directly into concrete mixes, conveyed by gravity feed or pneumatic equipment, or pre-dispensed into pulpable bags that can later be added directly to the concrete mix as a single unit.

2. Uses: Uni-Mix® Granular Integral Concrete Colorant can be used to color cast-in-place, precast, and dry-cast concrete floor slabs, walls, steps, sidewalks, curbs, columns, arches, blocks, pavers, and other decorative objects.

3. Characteristics / Advantages: Uni-Mix® Granular Integral Concrete Colorant adds color that is weather resistant, UV stable, lightfast, and alkali resistant. It contains no materials that initiate, accelerate, or promote the corrosion of steel, coated metal, plastic, or rubber concrete reinforcements. Uni-Mix® Granular Integral Concrete Colorant will not migrate from standing water, and can safely color concrete fountains, pools, water features, or concrete that will be polished and encounter damp or wet environments.

4. Approvals / Standards: All pigments used conform to the requirements of ASTM C979 Pigments for Integrally Colored Concrete.

5. Chemical Base: Synthetic iron oxide pigments.

6. Packaging: Bulk bags designed for use with a Uni-Mix® Granular Color Center automated dispensing unit are available in the four standard base colors:

Uni-Mix® UG10 Base – Black
Uni-Mix® UG20 Base – Light Red
Uni-Mix® UG25 Base – Medium Red
Uni-Mix® UG30 Base – Yellow

Hundreds of premeasured ready to use colors are available from distributors in pulpable toss-in bags. These are typically packaged so one unit colors one yard of concrete.

7. Appearance / Color: Over 700 tested color formulas are available for immedi-

ate packaging with the Uni-Mix® Granular Color Center delivery system. These include colors depicted on the Uni-Mix® Granular Integral Concrete Colorant color chart, as well as hundreds of colors common to the industry.

8. Shelf Life: Uni-Mix® Granular Integral Concrete Colorant has a 24 month shelf life from date of manufacture.

9. Storage Conditions: Keep dry, moisture free, and below 175°F (80°C).

10. Concreting Guidance: Uni-Mix® Granular Integral Concrete Colorant is designed to have minimal effect on concrete plastic and hardened properties, and to minimally interact with other concrete admixtures. Additional water, about 10% of the Uni-Mix® Granular Integral Concrete Colorant used, may be needed to compensate for water absorbed by the granules. This amount of water will be less if water reducing admixtures are part of the mix design. As all chemical admixture interactions cannot be predicted, always test final mix designs with actual materials to be used, and perform a job site test sections.

11. Recommended Dosage: Color selection will determine the ratio of base colors needed, and color saturation, and intensity will determine the amount of granules required. Typical dosages range between 0.2 to 10.0 pounds of granules per 94 pound sack of cement. If supplementary cementitious materials such as fly ash or blast-furnace slag are used in the mix, their weight must be added to the weight of the cement when determining the correct dosage.

12. Mixing / Preferred Use Procedures: Uni-Mix® Granular Integral Concrete Colorant granules can be introduced at any point in the concrete mixing process, as long as enough mixing and time is given for the color to reach an unchanging uniform appearance. Typically, this will take at least 5 minutes and 130 drum revolutions at mixing speed. Automated delivery systems can be set to introduce granules early in the batching process to minimize dusting. Care must be taken to not allow disintegrating bags or granules to become

hung up on mixing vanes or collect in spaces where the mix has limited motion.

13. Restrictions: Do not use with chloride based accelerators.

14. Factors Influencing Final Color & Appearance: Colors represented on the Uni-Mix® Granular Integral Concrete Colorant color chart represent formulations using medium gray cement and sealed with solvent-based Clear Guard® Cure and Seal. Variations can be expected due to differences in cement, aggregates and method of application. Many things can affect the appearance of color. For best color matching results, a representative job site sample should be cast using materials and finishing techniques that will be used on the project.

Concrete composition variations that can impact color include cement type and color, aggregate selection, and the use of pozzolans such as slag or fly ash. Differences in sealer or curing compound type, such as water or solvent-based, or if no sealer is used, can also influence final appearance.

Finishing techniques will influence final concrete appearance. Different tools such as wood floats, magnesium trowels, hard steel trowels, brooms, and edging tools, will each influence color, surface texture, sealer penetration, and final cured concrete appearance differently. Do not change tool types once work has begun.

Changes in water content and water-to-cement ratio, both in the mix and on the concrete surface during finishing, can influence the final surface color. Mix designs that develop excessive bleed water can float non-uniform cement/pigment ratios, and cause uneven or weak coloring. Once mix designs are established, do not add water to alter concrete plastic properties.

Do not add water to loosen partially cured loads. Do not use "watering" sprinklers as colored concrete cures, or use wet brooms and tools while finishing. Any of these will likely result in inconsistent concrete color.

15. Placement and Finishing Tips: As freshly placed concrete cures, its color will vary with differences in surface mois-

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ture. Concrete curing in shaded areas or in the center of large slabs will surface dry slower than those exposed to sunlight or closer to form edges. This can cause color variations that will often fade with time. Avoid high salt aggregates that can cause efflorescence that can make color irregular. These visual differences can be long lasting, and raise questions about the quality of the concrete placement.

16. Job Site Test Sections: Prior to large scale production, the concrete or cementitious mix design for each color to be produced must be made. Conduct small scale testing to demonstrate concrete from the mix design meets all slump, flow, air content, compressive strength, and any other required concrete specifications.

Prior to general job site use, representative Job Site Test Section(s) or "Mock-Ups" must be produced and approved for each individual concrete color mix design, surface finish/texture, and for each curing compound/sealer combination that will be created. Use Job Site Test Sections to verify entire system suitability including frame/mold and foundation preparation methods, surface concrete specification compliance, finishing techniques, safety procedures, and achieved performance of the fresh and fully cured concrete. When applicable, test completed systems for wet and dry slip resistance. Evaluate polishing or coating application techniques, final color, and visual appearance. Do not proceed with

products, techniques, or finishing systems that do not meet required specifications or meet with site owner approval.

Selected Job Site Test Sections should be in close proximity to the larger job area, and made from the same concrete mix design that will be used on the larger project. Test sections should be sized to be representative of the finished project, and be produced by the same workers who will perform the project installation.

17. Basis of Product Data: Results may differ based upon statistical variations depending upon mixing methods and equipment, temperature, application methods, test methods, actual site conditions and curing conditions.

KEEP CONTAINER TIGHTLY CLOSED. KEEP OUT OF REACH OF CHILDREN. NOT FOR INTERNAL CONSUMPTION. FOR PROFESSIONAL USE ONLY.

For further information and advice regarding transportation, handling, storage and disposal of chemical products, users should refer to the actual Safety Data Sheets containing physical, ecological, toxicological and other safety related data. Read the current actual Safety Data Sheet before using the product. In case of emergency, in U.S. call CHEMTREC at 1-800-424-9300, International 703-741-5970, in Canada call CANUTEC (collect) 613-996-6666.

Prior to use of any Butterfield Color, Inc. product, the user must always read and

follow the warnings and instructions on the product's most current Technical Data Sheet, product label and Safety Data Sheet which are available online at www.butterfieldcolor.com or at 800-282-3388. Nothing contained in any Butterfield Color, Inc. materials relieves the user of the obligation to read and follow the warnings and instruction for each Butterfield Color, Inc. product as set forth in the current Technical Data Sheet, product label and Safety Data Sheet prior to product use.

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