



## Technical Data Bulletin

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### ColorBlend Colors®

Color admixtures used for permanent coloring of concrete and mortars for architectural and decorative work.

**Description:** Integral color admixtures are made from pure mineral oxides for use in Portland cement concrete, mortars and plaster mixes. Our colors are permanent, non-fading and streak free. They can be used for any interior or exterior application. The small particle size disperses quickly into concrete and plasters which becomes an integral part of the mix without the need for any additives. Our product does not impact the strength development of the mix and is free of chlorides and impurities that can affect performance. They meet the specification ASTM C-979 for mineral oxide colors. Our colors are supplied in pre-measured units for accurate dosages of 1 Cu/Yd. in dissolvable bags. Set controls are conveyed to the concrete manufacturer for the adjustments of retarding admixtures and high range water reducing agents. Based on laboratory testing experience in consideration to ambient conditions and mix behavior at placement, mixes meet the provisions of ACI 301.

**Product Composition:** Pure premium iron and chromium mineral oxides are micronized to a very small particles, which are encapsulated in a dispersant binder for rich color and faster distribution throughout the paste. Dosages are highly effective because there are no fillers associated with bleeding and surface efflorescence tendencies. This product is compatible across the board with all known concrete admixtures producers.

**Product Limitations:** Shade variations from color chart chips are the result of variant regional cement or aggregate colors. These variations are easily overcome by the custom adjustment of pigmentation or other color adjustments if needed. Colors for concrete attach to the cement paste; therefore a minimum cement content of at least 5 sacks of Portland cement per Cu/Yd. or higher achieves better density and durability. We employ field technicians to work with the architect and trades to overcome any situation. Setting times and mix behavior are beyond the scope of the color additive. We leave the engineer and concrete supplier to design mixes and adjust accordingly to the specific situation needs for better control.

**Applicable Standards:** Coloring conforms to ASTM C-979, Dept. of Transportation, Standard Building code for color pigments specification to use with or without reinforcement in concrete, grouts and mortars.

**Dosages:** ColorBlend® colors are manufactured in precise weight soluble bags which are readily available for fast shipping nationwide.

All concrete mixes in all of our 64 standard colors are from our current color chart and many other competitor colors. In addition, we can produce custom units in dosages to achieve any desired color based on any special design mix, cement type and/or Pozzolan combination.

**Packaging:** We package each ColorBlend® color unit to the exact color dosage in increments of one cubic yard for easy loading into the mixer. Unit weight is based on concrete cement contents. Higher weight dosages may be provided in 1/2 Cu/Yd. increments for easier handling.

**Shelf Life:** Pure Iron & Chromium Oxides like many minerals do not have an expiration date and colors do not fade or spoil. Moisture is the main concern when storing the product. Store in a dry cool area until ready to use.

**Concrete Production:** Provisions: ACI-301 There is no limitation on how color units are added into the mixing equipment, although it is best to add it at the end once slump range has been established. Mix in the drum for at least 90 revolutions and check for consistent mixing. Use approved NRMCA mixing equipment free of excessive residue and drum fins in good condition.

All loads should be of the same slump, and timely delivered to the jobsite and finished consistently with the same procedures used for all color work. It is recommended that the concrete supplier assigns the same set of trucks to one color throughout the job until that pour is finished.

**Concrete Materials:** Select concrete materials from an approved supplier of concrete aggregates. All aggregates shall meet ASTM C-33, washed free from organic impurities. Portland Cement Gray or White meeting ASTM C150 Type I, II. Air entraining admixtures meeting ASTM C-260 should not exceed 3% entrainment or 5% in freeze thaw regions depending on mix aggregate size. (ACI 21.3R) Water reducing agents meet ASTM C-494, class A or B, Type I & II.

Calcium chloride containing admixes or Fly ash additives should not be used in color mix. Materials should always be maintained from the same sources for mixes to assure color consistency and finish throughout the job.

Slumps for all concrete should not be higher than 5 inches with the exception to when using an approved super plasticizer in difficult to place job situations.

All loads should be of the same slump when using plasticizers.

A pre-construction meeting is advised for all parties involved in the material selection to meet

job production and finish requirements. (ACI bulletins 305R and 306R)

### Sub-grade Preparation & Forming:

**Flatwork:** It is of utmost importance to follow sound construction practices to achieve good results. Use well-graded sand base that is moist prior to the placement. Follow \*ACI guidelines for flatwork preparation, consolidation, finish and curing. Uneven subgrades will result in cracking and early failures under heavy traffic loads.

**Formwork\*:** (Materials meeting ASTM C-171)

**Formwork:** Use properly assembled systems made from architectural concrete liners that are approved for color concrete, they should be clean and oiled with an architectural grade non-staining release agent. Vibration and consolidation should be executed so that no excessive air is entrained and then poured using a continued monolithic motion. It is best to use a trunk or funnel to avoid honeycombs and marble-like joint lines. Do not allow vibrator tip to touch against form walls and never pour when inclement weather is expected. Architectural liners should be carefully selected based on finish specifications. The liner supplier recommendations should be strictly enforced. Also, avoid delays that could produce cold-joints. It is important to pour an entire fully assembled section without breaks.

**Concrete Pumping and conveying:** Concrete pumping equipment should be able to convey color concrete without increasing slumps at the hopper. Priming slurry should also be colored. Color concrete cannot be overwatered beyond 5" slump or re-tempered. Discard any concrete that has begun to hydrate inside the lines and/or in system.

### Flatwork and Special Finishes:

Dry Shake surface color hardeners may be integrated into flatwork as an alternative or an addition to integral coloring. This is to obtain special finishes or highly pigmented applications where a combination of these systems may be specified and can be used in combination with integral color for imprinting patterned finishes. With the addition of Patinas, multicolor antiquing using colored release agents is specifically designed for decorative finishes.

ColorBlend® color shake hardeners, releases, reflective surface additives, special decorative aggregates and finishes are available to obtain the desired look and complement all integral colors or uses for severe traffic. Visit [www.builderscolor.com](http://www.builderscolor.com) for product choices.

**Concrete Consolidation and Finish:** Level concrete using Strikes, Screeds or Darby to level flatwork and embed large aggregate. Use Bull-floats to leave surface paste available for finish.

**Wait for concrete to stop bleeding before finish is applied. Not doing so will result in color variance from losing the surface color pigment away with the bleed water. This also can cause blisters, crazing and resulting finish problems.**

Never sprinkle water on the surface as spots and marks will result when the surface dries. To avoid trowel burns, always work in one direction; careful not to overwork a spot burn. Burns will show as a darker spot after surface dries. Tooled joints should be installed immediately after surfaces are finished. Use proper tools to not damage adjacent finishes.  
(ACI 302 IR Bulletin) [www.concrete.org](http://www.concrete.org).

**Curing and Protection\*:** Standards for Curing and sealing: ASTM C-309, ASTM C-1315. Use a non-wax based surface sealer. Do not use water, curing blankets or any other method except for Builders Color approved chemical systems. Avoid delaying the curing process to prevent surface plastic shrinkage especially in windy conditions. Surface retarders are not recommended since they can produce color changes. Always test a small sample panel prior to using these products in overall placements and only in extreme circumstances. Commence to cure once all of the surfaces have hardened and is safe to walk without marring the surfaces. The first 4-18 hours after placement are critical in producing a defect-free surface. One coat of Cure and Seal should be applied in crossed directions for full coverage. Always cure and seal using an approved chemical liquid membrane type compound supplied for color concrete which does not to promote slippage or provide excessive gloss on textured concrete surfaces.

**Approved products:**

**Low Sheen**, Water based Products:

- ◇ Builders Enviroseal WB Cure/Seal
- ◇ DuraSeal WB (to produce an even sheen without color Enhancement).

**High gloss**, Solvent Based systems:

- ◇ Builders SuperSeal
- ◇ Crystal Gloss

These solvent products will produce a gloss with some surface color enhancement. Urethane grit may be added for slip resistance. Visit our Website [www.builderscolor.com](http://www.builderscolor.com). for technical data on these products.

**Cut Joints and Joint Sealants:** Joints should be at least 1/4 of the thickness in depth by mechanical cutting. Cut joints no later than 24 hours after finish and after concrete curing agent has been installed. Blow debris with compressed air off all joints prior to joint sealants. Fill in all joints with an appropriate joint filler that is able to support the straight edges under traffic and tinted to the same color.  
(Ref: Tremco.com)  
When tooling joints, do not bridge the joint with wire mesh. Cut the mesh and install an appropriately preformed expansion joint product. Leave 1/2 inch to install a joint sealant tinted to a matching color and joint all L shape angles.  
Joint spacing should be every 30 times the slab thickness in one direction.  
(ACI Bulletin 224.3R, AASHTO M-282-9)

**Jobsite Sample Panels:** Produce one sample for each color and each finish specified at least 30 days prior

to acceptance. Color concrete for samples should be representative to the same mix and color supplied from a minimum of a 3-Cu/Yds. yard load. The panel dimensions should be ample enough to demonstrate the desired finished product and kept protected on the jobsite for the duration of the work and for future comparison.

**Precast and Tilt Up Concrete:** All precast color overlays should be wet cast at the plant. Exposed aggregate should be produced through the sand blasting method which is preferred over the surface Retarders method. Tilt up panels should be casted following the procedures of ACI 551. Panels should be produced all monolithic with color throughout their thickness.

**Maintenance:** To remove efflorescence, dirt and atmospheric staining from unsealed color concrete or precast products, we do not recommend the use of harsh acidic cleaners that can etch the surface. Use one of our biodegradable cleaners to remove surface laitance. Clean with a brush or pressure cleaner, set at 1200 psi and rinse with clean water. Un-sealed surfaces may be cleaned and re-coated with one of our clear or colored sealers. Always use our color concrete cure and seal compound to avoid damage to fresh concrete. Call our technical line for more information on choice of products according to the intended service and severity of use.

**Color Inconsistencies and damage:** Weather related problems, lack of timely curing and related mistakes may result in less than uniform color consistent surfaces. These can be easily repaired by using *ColorBlend*<sup>®</sup> supported products such as penetrating stain, surface repair mortars and joint sealants which are all tinted to the same surface color. They are made specifically considering the performance needed to withstand commercial uses and design demands.

**Protection During Construction:** *Keep all traffic off the pavement for at least 24 hours and after joints are installed.*

Never cover color concrete with plastic, plywood or any materials until cure and sealing compound have dried. Install a white uncoated Craft paper at least 6 mills and taped over a 6" lap over the finished surfaces to keep construction dirt off all decorative work. Under severe construction traffic, it may be possible to cover the area after sealing with a non-staining rigid type material over the Craft paper but only after the first 7 days\*.

**Solar Reflectance Index SRI:** Urban heat effect has prompted many communities to address heat generation. Lighter colors will absorb less heat as darker colors will tend to be hotter. Please contact our office to supply an information bulletin on factors for color choices, additives and their SRI values.

**Light effects on concrete surfaces:** What appears to be fading or stains, sometimes can be attributed to light reflecting from organic growth or salt deposits in unsealed concrete. Also, efflorescence can be a major factor that can be overcome by proper curing, sealing surfaces and proper maintenance during use cycles.

**Product Safety:** Avoid breathing in dust and wear eye protection. Provide adequate ventilation. Wash skin and hands prior to handling any foods.

\*Shortcuts in this area are prone to less than a desirable outcome in color and texture uniformity.

Product is not hazardous.  
OSHA (29CFR 1910.1200).

Make cause mechanical irritation with prolonged skin contact.

Keep all products out of reach from children and pets.

Obtain a copy of the product MSDS for more Information on health and safety.

**Warranty:** When product is used according to directions and proper use, the warranty is limited to the purchaser. A refund of the purchase price is allowed if the product is deemed defective at the manufacturer. This product is intended for industrial professional use by competent tradesmen. Builders Construction Products is not liable to the purchaser or any third party for costs of labor, direct or indirect and incidental or consequential damages related to the use or suitability of this product. No other warranties are implied.

