



QC CONSTRUCTION PRODUCTS®

QUALITY ARCHITECTURAL CONCRETE



For Professional Use Only

Product Information Bulletin 22.0107P

Our premium integral coloring product is engineered to provide exceptional pigment dispersion for enhanced color. Superior concrete finishing performance results from a blend of dispersants, conditioners and water-reducing agents that offset water demand caused by pigments.

Uses and Benefits

- These high-strength pigments yield an expansive palette of beautiful colors. QC COLORTECH – E is available in 36 standard colors. Custom colors and color matching are also available.
- QC COLORTECH – E is ideal for ready mixed concrete and all horizontal and vertical applications. This coloring method can be utilized for concrete flatwork applications featuring salt, broom or rotary finishes, as well as a range of other architectural concrete installations.
- QC COLORTECH – E contains engineered colored admixtures that do not require mix adjustments at the ready mixed plant.
- QC COLORTECH – E is a high-performing color that is also easy to handle. Packaged for clean handling and fast batching, installation is easy with one disintegrating bag of QC COLORTECH – E batched for one cubic yard of concrete. (Custom packaging is also available).

Before Any Application

- QC COLORTECH – E is packaged in one-bag-per-cubic-yard increments for specific cement ratios. Make sure to specify the proper cement content when ordering.
- A jobsite sample, using the specified mix design and color, should be done for customer approval. For an accurate color check on a jobsite sample or on any job, the recommended size of the job should be a minimum order of three yards. In order to get an accurate color check, view sample when it has fully cured.
- When used in vertical concrete applications or when special finishes are applied, a sample of QC COLORTECH – E must be cast for color approval using the same material and construction techniques planned for the actual installation. To ensure uniformity on vertical surfaces, a light sandblasting is recommended after the vertical surface has fully cured.

Application

1. For Ready Mixed Application:

- The drum must be cleaned, and approximately two-thirds of the mix water and one-half of the aggregates needed should be added to the drum. Do not use slurry water or reclaimed aggregates. Add the correct number of QC COLORTECH – E bags to the drum and mix at full charging speed for three to five minutes or until all bags break apart and pigment is distributed evenly.
- Add the balance of the ingredients (water, aggregates, cement and admixtures) and mix at a full charging speed for 8-10 minutes (80-100 revolutions). It is the ready mixed supplier's responsibility to make sure bags have fully disintegrated. Failure to follow instructions can result in bags not fully disintegrating.

2. For Central or Premixed Batch Plants:

- Add one-half of the total batch into a clean ready mixed truck drum. Do not use slurry water or reclaimed aggregates. Add the correct number of QC COLORTECH – E disintegrating bags into the drum and mix at a full charging speed for at least three to five minutes.
- Add the remainder of the batch to the drum and agitate at full charging speed until the QC COLORTECH – E has completely dispersed throughout the mix—about 8-10 minutes (80-100 revolutions). It is the ready mixed supplier's responsibility to make sure bags have fully disintegrated. Failure to follow instructions can result in bags not fully disintegrating.

3. Jobsite Loading of Integral Colors:

- When applying QC COLORTECH – E at the jobsite, it is **highly recommended** to open the bag and pour pigment directly into the drum, then discard the bag. Failure to do so may result in improper dispersion which leads to inconsistent color.
- Once pigment has been added, **no** additional water may be added.

4. Type of aggregate, mix design and water content may affect disintegration of bags. Mixing times and procedures are based on best practices. Mixing times and procedures

may vary by region depending on factors mentioned previously (aggregate type, etc.). Before discharging the mix, ready mixed supplier should monitor mix inside the drum to determine that the bags have broken down completely.

5. **For Vertical Applications:** All forms should be cleaned thoroughly prior to use or reuse, and applied release agents should be nonstaining. For best results, forms should be free of cement latents from any prior concrete pour of a different color. Also, vertical wood forms should be made of medium-density overlay plywood. For color uniformity, methods and material used in preparing the forms should be consistent through the completion of the job.

Sandblasting vertical surfaces is recommended to remove minor form marks and any colored residue resulting from water, cement and coloring agents bleeding toward the forms during concrete placement.

6. For sand-blasted horizontal surfaces, exposed aggregate (3/8-inch-size pea gravel) finishes, or typical 3/8-inch-size pea gravel mixes, open QC COLORTECH – E bag and pour in color to ensure proper dispersion.

7. Concrete should be cured in accordance with ACI standards. QC CONSTRUCTION PRODUCTS offers a variety of curing methods that adhere to ASTM C 309 standards for curing architectural concrete. The use of QC COLOR CURE*, QC COLORWAX*, QC CLEAR CURE* and QC CURE AND SEAL SB* (ASTM C 309 and ASTM C 1315) is recommended for curing most new colored architectural concrete flatwork.

Proper curing, along with maintaining a low slump and protecting the surface against water penetration, reduces the possibility of efflorescence. If efflorescence does occur, wait until concrete has fully cured and remove efflorescence using QC CON-CLEAN*. QC CON-CLEAN is a concentrate and must be diluted before use. (Dilute one part QC CON-CLEAN with 20 parts water or six ounces QC CON-CLEAN per gallon of water or one quart QC CON-CLEAN per five gallons water). Follow with a light scrubbing or the use of a low r.p.m. rotary scrubbing machine.

QC CONSTRUCTION PRODUCTS also offers a full range of sealers that enhance and finish QC COLORTECH – E:

- QC CEMSEAL*
- QC PERMASEAL*
- QC VOC 100 WB*
- QC ULTRA SEAL*
- QC SOLVENT SEAL VOC III*
- QC SOLVENT SEAL 18*
- QC SOLVENT SEAL 27*

Additional Considerations For Consistent Color

- Be sure QC COLORTECH – E is packaged for specific mix design.
- Maintain batch-to-batch uniformity.
- Do not batch less than three cubic yards per truckload of QC COLORTECH – E. Less than three cubic yards can affect the final color. This is true of small jobs, jobsite samples and/or clean-up loads.
- Do not batch fractional yard increments (for example, 4.5 yards should be ordered and batched at 5 cubic yards).
- Keep all raw materials, including cement, sand and aggregates, as consistent as possible. Any change can affect color consistency.
- For consistent color, the use of pozzolans or fly ash mixes is strongly discouraged.
- Do not use reactive or expansive aggregates when using QC COLORTECH – E.
- Do not use calcium chloride-based admixtures when using QC COLORTECH – E. Non-chloride admixtures may be used—please consult with admixture manufacturer.
- For fiber-reinforced concrete, add QC FIBERS* after the color load has been thoroughly mixed. This reduces the potential for fiber/color balling.
- Ensure slump remains consistent and does not exceed five inches.
 - Maintain the same water/cement ratio.
 - Wash out all drums before loading to keep slumps consistent.
 - Minimize driver-added water.
 - Clean back fins with a minimum amount of water while paying careful attention not to substantially increase slump.
 - Too much water or the addition of water at the job site can cause inconsistency of color and a “washed-out” appearance.

- Required higher slumps should be achieved by using water-reducing or plasticizing admixtures and NOT by adding water because this will adversely affect the color.
- Concrete should be batched, placed, cured and finished in accordance with ACI (American Concrete Institute) standards.

Additional Considerations For Concrete Contractors Using QC COLORTECH – E

- Good basic concrete placement procedures are vital to the success of any job where integrally colored concrete is being used.
- Place concrete on damp yet well-drained substrate that has been thoroughly compacted.
- Being careful not to overwork the material, tamp and/or vibrate the concrete, screed, then wood-float to finished grade. Avoid the use of magnesium floats that can entrap bleed water.
- Provide adequate and uniform texture for appearance and slip resistance.
- Finish edges first, and finish all surfaces within the same approximate time frame. Care should be taken not to trowel-burn edges.
- Practice proper curing procedures. Lack of proper curing is the number one reason for inconsistent concrete color. While QC offers several different curing compounds (see all available curing compounds under the “Application” section), QC COLOR CURE* is recommended because this cure and sealer conforms to ASTM C 309 and is tinted to match the integral color used. A finish coat of QC COLOR CURE* may be used if desired.
- In the event a curing compound cannot be used, the use of a nonwrinkled, nonmembraned kraft curing paper may be considered. Use according to manufacturer instructions.
- Do not place concrete over mud, ice, frost or freestanding water.
- Do not add water to partially discharged loads, and do not allow slump to vary from batch to batch. Ensure slump remains consistent and does not exceed five inches.

Maintenance

- Maintenance will vary depending on a number of factors, including volume and intensity of traffic, geographic location, ultraviolet light exposure and weather conditions.
- It is strongly recommended that a routine maintenance schedule for all colored concrete be followed so that surfaces maintain a high quality appearance. Every 18-36 months, or as required by volume and intensity of traffic, colored concrete installations should be inspected, cleaned and resealed.

Limitations

- QC CONSTRUCTION PRODUCTS has found that certain iron oxide pigment colors can cause self-leveling overlays to cure improperly, or set prematurely. It is not perfectly clear why these issues occur, so QC CONSTRUCTION PRODUCTS cannot guarantee the results or performance of self-leveling overlays using this product. Contact the manufacturer of the self-leveling material for coloring and dosage rate information. *Always create mock up samples and perform strength tests prior to project application.*
- Inconsistencies in jobsite conditions, concrete mix design, slump, curing methods, finishing practices, and sealers may produce variations in the color of the finished product.
 - Integrally colored concrete tends to be limited to earth tone colors rather than lighter, more pastel colors and is not as brilliant as color-hardened surfaces.

Shelf Life and Storage

QC COLORTECH – E has a shelf life of one year. Store in dry conditions.

Package Sizes

- Packaged for clean handling and fast batching, installation is easy with one disintegrating bag of QC COLORTECH – E batched for one cubic yard of concrete.
- Custom packaging is also available upon request.

Applicable Standards

1. LEED Qualified.
2. QC COLORTECH – E meets the following ASTM standards:
 - QC COLORTECH – E pigments meet or exceed ASTM C 979.
 - QC COLORTECH – E may be used in conjunction with admixtures conforming to ASTM C 494, Types A, B, D and F.
 - QC COLORTECH – E is also compatible with air-entrained admixtures conforming to ASTM C 260.
3. As formulated water-reducing admixtures, QC COLORTECH – E conforms to the following specifications:
 - ASTM C 494
 - AASHTO M194
 - CRD-C 87
4. As formulated coloring agents, QC COLORTECH – E conforms to the following specifications:
 - ASTM C 979

5. QC COLORTECH – E meets the requirements of the Uniform Building Code and the Standard Building Code for use in reinforced and prestressed concrete.

QC CONSTRUCTION PRODUCTS should be contacted about approvals in specific jurisdictions. Professional concreting standards and practices, including those published by the American Concrete Institute (ACI), the Portland Cement Association (PCA) and the National Ready Mixed Concrete Association (NRMCA), should be followed.

Specifications

For specification assistance for QC COLORTECH – E and other QC products, please contact QC CONSTRUCTION PRODUCTS.

Product Handling

For handling and use, consult the corresponding Material Safety Data Sheet before using product.

Warranty

QC COLORTECH – E, a proprietary product, is warranted to be of uniform quality within manufacturing tolerances. Since control is not exercised over its use, no warranty, expressed or implied, is made as to the effects of such use. Seller’s and manufacturer’s obligation under this warranty shall be limited to refunding the purchase price of that portion of the material proven to be defective. The user assumes all other risks and liabilities resulting from use of this product. If you have any questions, please contact QC CONSTRUCTION PRODUCTS.

*PLEASE REFER TO CORRESPONDING PRODUCT INFORMATION BULLETIN FOR TECHNICAL AND APPLICATION DATA.

www.qcconstructionproducts.com

For complete information on all QC products—including product information catalogs, product brochures, color charts, technical specifications, sales aids and more—contact QC CONSTRUCTION PRODUCTS.

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