



QC Heavy-Duty Color Hardener

Product Information Bulletin 17.0906P

QC HEAVY-DUTY COLOR HARDENER

Uses and Benefits

QC HEAVY-DUTY COLOR HARDENER is an excellent hardener for surfaces which require increased impact resistance, such as parking structures, streets, warehouses, loading docks, shipping/receiving areas, distribution centers, shopping centers, amusement parks, convention centers and sports centers.

QC HEAVY-DUTY COLOR HARDENER is an excellent hardener for concrete that has been properly air-entrained, surfaces in cold, harsh climates exposed to freeze-thaw cycles.

QC HEAVY-DUTY COLOR HARDENER is an excellent hardener for interior surfaces exposed to heavy daily wear and/or high-impact use.

QC HEAVY-DUTY COLOR HARDENER is an excellent hardener for colored, imprinted concrete flatwork and a variety of architectural concrete treatments.

■ With its blend of select and gradated aggregates, architectural cements and plasticizers, surfaces treated with QC HEAVY-DUTY COLOR HARDENER are substantially harder and more wear-resistant than concrete not treated with heavy-duty color hardener.

■ Coverage rates for QC HEAVY-DUTY COLOR HARDENER (detailed in “Coverage Guide” section) will result in up to 50% greater thickness compared to use of metallic hardeners due to difference in densities.

■ Made with emery aggregates, QC HEAVY-DUTY COLOR HARDENER is non-rusting and can be used in wet environments, unlike metallic hardeners.

■ The synthetic iron oxide pigments used in QC HEAVY-DUTY COLOR HARDENER produce brilliant, streak-free, non-fading, and as requested, light-reflective surfaces that offer excellent resistance to ultraviolet light.

■ Used in conjunction with QC RELEASE POWDER*, QC HEAVY-DUTY COLOR HARDENER is the preferred product for creating vibrant colors for imprinted/textured concrete.

■ To produce enhanced and richer effects, white-based QC COLOR HARDENERS can be excellent base choices for the application of QC PATINA STAIN*.

■ Due to extensive quality control measures in product manufacturing, QC HEAVY-DUTY COLOR HARDENER is designed to produce uniformity of color without color drifts.

Applicable Standards

■ ASTM C979 for color stability.

■ ASTM C109 for compressive strength of 12,000 PSI in 28 days.

■ ASTM C944 for abrasion resistance.

■ Emery used in QC HEAVY-DUTY COLOR HARDENER rates 8/9 on the Moh Hardness Scale. (As comparison, this scale rates diamonds at 10 for hardness.)

Preparation

1. Good subgrade preparation is essential. Subgrade must be well drained. To create uniform load-bearing characteristics and to reduce cracking, subgrade should be graded at a uniform thickness. Subgrade should be moist, completely consolidated, and free of frost. If necessary, the subgrade should be dampened with water in advance of concreting. Concrete should not be placed over free-standing water or over areas that are muddy, frozen or soft.

2. Good concrete mix design is essential. Concrete should contain a minimum of 5-1/2 sacks of cement per cubic yard of concrete. All aggregate must be non-reactive. Water content should be at minimum, and the slump should not exceed four inches. A normal or retarded-set, water-reducing admixture may be used. An air-entraining admixture complying with ASTM C260 is recommended in all concrete flatwork that will be subject to freeze/thaw cycles. The concrete mix must not contain any admixture or additive that contains calcium chloride. During cold weather, a non-chloride accelerator may be used. No high-range water reducing admixtures (superplasticizers) should be added unless QC is consulted. Mixes containing fly ash may be more difficult to finish.

3. Good concrete pouring practices are essential. Weather conditions should be considered during application. Follow ACI standards for installation, especially in extremely hot or cold weather conditions. Concrete mix should be controlled to provide good batch-to-batch uniformity. Concrete should be placed and spread so that it completely fills space inside the forms. Concrete should be consolidated by vibrating to create a suitable surface for finishing. If tamping is done, it should be kept to a minimum and concrete closest to the forms should be spaded. Before the appearance of bleed water, screed and wood-float the surface to the finished grade.

4. Before applying QC HEAVY-DUTY COLOR HARDENER, a job site sample using the specified mix design, tools and construction techniques is recommended. If in doubt about application methods, consult QC CONSTRUCTION PRODUCTS.

5. It is recommended that a pre-site meeting take place to include the proper authorities and to ensure site conditions are met.

Application

1. Once concrete reaches the point where no bleed water remains on the surface, QC HEAVY-DUTY COLOR HARDENER should be evenly hand broadcast or mechanically applied on the surface.

2. QC HEAVY-DUTY COLOR HARDENER is usually provided in two shakes, with two-thirds of the product being applied in the first shake and one-third of the product being applied in the second shake (while also holding back a small amount for touch-up work).

3. After the first shake has been uniformly applied and has absorbed water from the slab, float the surface. Wood floats are recommended during this first application.

4. Apply the second shake perpendicular to the first application in a uniform manner. Magnesium or fiberglass floats may be used after the second application, providing *all* bleed water has left the surface.

5. Saw cuts should be made as soon as possible without disturbing the joint edges.

6. Care should be taken to prevent hard-steel trowel burns, especially at tooled joints and edges.

7. In dry, hot or windy conditions, the use of an evaporation retardant/finishing aid may be considered.

8. Alternative Application for Large Areas: A mechanical spreader and a power-troweling machine may be used. The mechanical spreader, equipped with an adjustable flow, should spread between one-half pound to one pound of hardener per square foot. The power-troweling machine, equipped with float blades, should work the hardener shakes into the surface of the plastic concrete. Float blades should be removed during final troweling.

Application to Vertical Surfaces

1. QC HEAVY-DUTY COLOR HARDENER may be used to finish vertical surfaces such as curbs or the faces of step risers, but the product is not designed for use on large areas of vertical surfaces.

2. A “plaster mix” of QC HEAVY-DUTY COLOR HARDENER may be used when doing steps or other vertical surfaces. To create this mix during the final set stage of the concrete, add only enough water to QC HEAVY-DUTY COLOR HARDENER to achieve a workable consistency. Then apply the “plaster mix” to the vertical surface while the concrete is fresh and finish as normal.

Curing and Sealing Concrete

1. For curing concrete treated with QC HEAVY-DUTY COLOR HARDENER, choose from a variety of QC cures appropriate to the project’s needs: QC CLEAR CURE*, QC CURE & SEAL SB*, QC COLOR CURE* or QC COLORWAX*. QC CLEAR CURE* and QC COLOR CURE* conform to ASTM C309. QC CURE AND SEALS SB* conforms to ASTM C1315.

2. If further protection is needed or a membrane-forming cure is not appropriate, then new, non-wrinkled, non-staining, reinforced, kraft-curing paper may be used.

3. For sealing concrete, choose from a variety of QC sealers appropriate to project’s needs: QC CEMSEAL*, QC SOLVENT-BASED SEALERS*, QC CEMGUARD* or QC SURPRO SB* or WB*.

Maintenance

■ It is highly recommended to develop and follow a routine maintenance schedule for all colored concrete so that it maintains a top-quality appearance. Every 18-36 months, colored concrete installations should be inspected, cleaned and resealed as required by the local conditions. Cleaning and resealing schedules will depend on a number of factors including, but not limited to, volume and intensity of traffic, maintenance procedures and weather.

Limitations

■ Inconsistencies in job site conditions, finishing practices and curing methods may produce variations in the color of the finished product.

■ All aggregates in the concrete substrate must be non-reactive.

■ Application of product must follow minimum rates under the coverage guide or else slip and abrasion resistance will be compromised.

■ To achieve maximum slip resistance (i.e. ramps, wet areas, etc.), expose aggregates in QC HEAVY-DUTY COLOR HARDENER to a light sandblast or acid wash.

■ As the color-hardened surface is exposed to normal wear, darker colored aggregates may become more apparent on the surface. In architectural concrete applications, this wear is more common when lighter colors are used and is considered desirable. However, if this kind of wear is not desired, it is recommended that darker colors be used.

Coverage Guide

■ Actual coverage may vary depending on color choice, application method, and other local conditions.

■ **Minimum Coverage for Any Color** - 1 to 1.5 pounds of QC HEAVY-DUTY COLOR HARDENER per square foot for all colors.

■ Light-reflective white or light colors may require more material than above guide for adequate coverage.

Package Sizes

QC HEAVY-DUTY COLOR HARDENER comes in 60-pound plastic-lined bags. Also available in 60-pound pails at an additional charge.

Shelf Life

QC HEAVY-DUTY COLOR HARDENER has a shelf life of one year if stored in dry conditions.

Colors

■ QC HEAVY-DUTY COLOR HARDENER is available in 42 standard colors (same colors as QC COLOR HARDENER colors), a wide range of custom colors, and in light-reflective white.

■ This product is also available in natural gray.

■ QC HEAVY-DUTY COLOR HARDENER can be color-matched to and used along side QC COLOR HARDENER: use QC HEAVY-DUTY COLOR HARDENER in selected areas where heavy traffic is expected and use QC COLOR HARDENER in separate areas where a surface hardener is needed but where traffic or impact does not warrant a heavy-duty hardener.

■ QC HEAVY-DUTY COLOR HARDENER can be color-coded (safety red, caution yellow, etc.) to provide visual safety cues for institutional or industrial applications.

Product Handling

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

Warranty

QC HEAVY-DUTY COLOR HARDENER is warranted to be of uniform quality within manufacturing tolerances. Since no control is exercised over product use, no warranty, expressed or implied, is made 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 liability resulting from the 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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