# Color Surface Treatment for Pavements (CST)

**DESCRIPTION.** Under this work, the Contractor shall furnish and apply CST at the location and in accordance with patterns as specified on provided Work Orders or Plans or as ordered by the Engineer and in conformance with these specifications.

**MATERIALS.** The CST shall be capable of application on new and existing asphalt and Portland cement concrete surfaces, and shall:

- Be VOC compliant and lead chromate free.
- Not contain 0.1% or more of any chemical listed by the International Agency for Research on Cancer (IARC), the National Toxicology Program (NTP), or regulated by the US Occupational Safety and Health Administration (OSHA) as a carcinogen.
- Conform to current Federal, State and Local air pollution regulations, including those for the control (emission) of volatile organic compounds (VOC).
- Be packaged and stored in accordance with the manufacturer's instructions and requirements for shelf life and storage conditions in original unopened containers. Shipping documents and containers shall have identification numbers or batch dates for confirmation of when products were manufactured, clearly labeled as to the type material and the ratio of the components to be mixed by volume as well as showing resin or hardener components, brand name, name of manufacturer, lot or batch number, temperature range for storage, expiration date and the quantity contained. Include any special instructions regarding mixing and the Material Safety Data Sheets. This information shall be made available for inspection at any time.
- Be colored green for bicycle lanes, red for bus lanes, or truffle for plazas as specified on provided Work Orders or Plans. Colors for each work type shall be approved by the Engineer prior to the material purchase by the Contractor.
- Friction aggregate shall include only calcined bauxite, corundum, or alternate equal anti-skid aggregate approved by the Engineer.
- Aggregate used shall have a minimum hardness value of 8.0 per Mohs Hardness Scale or alternative aggregate to be approved by the Engineer and be uniformly applied – providing a surface friction value >60 BPN (ASTM E303) over the entire surface.
- Friction aggregate size shall be between 0.8-1.2mm for bicycle facilities and 1.0-3.0mm for bus facilities and walking facilities.

**APPROVED MATERIALS.** Only products with a Manufacturer's certification that the product meets the requirements of this specification, or a Product approved equal as determined by the Engineer, are deemed acceptable for use. All materials shall be pre-approved by Engineer prior to purchase.

**CONSTRUCTION DETAILS.**

**General.** CST shall be placed as shown on the Contract or Work Order Documents or as ordered by the Engineer.

Before any surface treatment work is begun, a schedule of operations shall be submitted for the approval of the Engineer and his/her authorized representative. At least five (5) days prior to starting application, the Contractor shall provide the Engineer with the color manufacturer's written instructions for use and provide DOT Inspectors access to aggregate for random testing. These instructions shall include, but not be limited to, material mixing ratios and application temperatures.

When CST is applied under traffic, the Contractor shall provide all necessary flags, markers, signs, etc. in accordance with the MUTCD to maintain and protect traffic, and to protect marking operations and the markings until thoroughly set.

The Contractor shall be responsible for removing, to the satisfaction of the Engineer, all tracking marks and spilled CST applied in unauthorized areas such as utilities, drainage structures, curbs and manhole covers.

**Atmospheric Conditions.** CST shall only be applied during conditions of dry weather and on dry pavement surfaces. At the time of installation the pavement surface temperature shall be at or above manufacturer recommendations.

**Surface Preparation.** The Contractor shall clean the pavement and existing durable markings to the satisfaction of the Engineer. At the time of application, all pavement surfaces and existing durable markings shall be free of oil, dirt, dust, grease and similar foreign materials.

**Application Equipment.** Per manufacturer's instructions. No CST product shall be spray-applied without prior written approval from the Engineer.

**Application.** CST shall be placed at the width, thickness, and pattern designated by the Contract Documents. Surface treatment operations shall not begin until applicable surface preparation work is completed and approved by the Engineer, and the atmospheric conditions and pavement surface temperature are acceptable to the Engineer. The applied film thickness shall be as per manufacturer recommendations.

**Defective Results.** CST, which after application and curing is determined by the Engineer to be defective and not in conformance with this specification, shall be repaired. Repair of defective CST shall be the responsibility of the Contractor and shall be performed to the satisfaction of the Engineer as follows:

1. Insufficient film thickness:

   Repair Method: Prepare the surface of the CST to the satisfaction of the Engineer. Clean and prepare surface. Repair shall be made by reapplying CST over the cleaned surface in accordance with the requirements of this specification at the full thickness.

2. Uncured or discolored CST and/or insufficient bond (to pavement surface or existing durable marking):

   Repair Method: The defective CST shall be completely removed and cleaned to the underlying pavement surface to the satisfaction of the Engineer.

   After surface preparation work is complete, repair shall be made by reapplying CST over the cleaned pavement surface in accordance with the requirements of this specification.

3. Insufficient coefficient of friction as determined by the Engineer:

   Repair Method: The defective CST shall be removed and cleaned to the underlying pavement surface or re-coated with CST and friction aggregate – with both repair method and method approved by the Engineer.

After surface preparation work is complete, repair shall be made by reapplying CST over the cleaned pavement surface in accordance with the requirements of this specification.

Other defects not noted above, but determined by the Engineer to need repair, shall be repaired or replaced as directed by and to the satisfaction of the Engineer.

All work in conjunction with the repair or replacement of defective color shall be performed at the Contractor's expense.

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**Personal Protective Equipment.** Follow all exposure, respiratory and personal protective equipment controls, handling and safety precautions and spill and disposal procedures as identified by safety data sheets (SDS), labels and other manufacturer's recommendations for the products used.

**WORK ZONE TRAFFIC CONTROL (WZTC).** The Contractor is responsible for ensuring appropriate WZTC in compliance with the MUTCD appropriate for the dry time of the selected material applied. The Contractor is responsible to ensure adequate WZTC to prevent those walking, skating, bicycling, and driving from coming into contact with applied material that is still capable of being tracked. The Contractor shall be liable for such tracking and property damage should it occur.

**METHOD OF MEASUREMENT**. The quantity for payment, in square feet of CST, shall be computed within the payment lines shown on the plans, Work Order, or as otherwise ordered in writing by the Engineer.

**BASIS OF PAYMENT.** The accepted quantities of CST will be paid for at the contract unit price, which shall include the cost of furnishing all labor, materials and equipment to satisfactorily complete the work. The cost of removal of concrete curing compounds and existing pavement markings will be paid under the Water Blasting for Surface Preparation & Marking Removal item and is not included in this item.

***Payment will be made under:***

| **Item** | **Pay Unit** |
|---|---|
| Color Surface Treatment for Pavements (CST) | Square Feet |

**Color Surface Treatment for Pavements (CST)**

| Product | Manufacturer | Contact Information | Approved Aggregate | Approved Facilities |
|---|---|---|---|---|
| ColorSafe | Transpo Industries | 20 Jones Street<br>New Rochelle, NY 10801<br>800-321-7870<br>transpo.com | Calcined bauxite/Corundum | Bus/Bike/Walking Facility |
| CycleGrip MMAX | Ennis-Flint | 115 Todd Court<br>Thomasville, NC 27360<br>336-475-6600<br>ennisflint.com | Corundum | Bus/Bike/Walking Facility |
| Safe-T-Grip | Epoplex | 1000 East Park Avenue<br>Maple Shade, NJ 08052<br>800-822-6920<br>epoplex.com | Bauxite/Granite (Mix) | Bus/Bike/Walking Facility |
| High Friction Surface Treatment | Ruby Lake | 493 State Route 28<br>Richfield Springs, NY 13439<br>607-435-8158<br>rubylakeglass.com | Bauxite/Recycled Glass (Mix) | Bike/Walking Facility |
| Safetrack SC | Stirling Lloyd | Rockwell Road, Building A,<br>Newington, CT 06111<br>860-666-5008<br>northamerica.stirlinglloyd.com | Calcined bauxite | Bus/Bike/Walking Facility |
| Endurablend | Pavement Surface Coatings, LLC | 81 Ball Road<br>Mountain Lakes, NJ 07046<br>866-215-6120<br>Pavementsurfacecoatings.com | Calcined bauxite | Bike/Walking Facility |
| WeTraffic 491/492 | Alt Global | 12 Dwight Place<br>Fairfield, NJ 07004<br>973-287-6158<br>www.Altglobal.com | Calcined bauxite | Bus/Bike/Walking Facility |
| Streetbond 250/220 | GAF | 1 Campus Drive<br>Parsippany, NY 07054<br>www.streetbond.com | Calcined bauxite | Bus/Bike/Walking Facility |