DMS-8111, Anti-Graffiti Coatings

Overview

Effective Date: August 2004 – August 2007. (Refer to 'Archived Versions' for previous versions).

This Specification governs and defines anti-graffiti coatings, which are coatings applied to substrates to facilitate the removal of graffiti.

Described below are the approval process, material requirements, sampling and testing, and labeling of 2 types:

1. Type I - Sacrificial
2. Type II - Permanent.

Bidders' and Vendors' Requirements

Before any bid is considered, the materials proposed for submission are to be of manufacture and product code or designation shown on the Material Producer List (MPL).

Material Producer List

The Materials and Pavements Section of the Construction Division (CST/M&P) maintains the MPL of all materials conforming to the requirements of this Specification. Materials appearing on the list of pre-approved anti-graffiti coatings require sampling and testing before use. "Tex-736-I, Sampling Structural Coatings," describes the sampling procedure.

Establishment of Quality

Pre-approval Process

Submit a 1-qt. sample of the material to the Texas Department of Transportation, Construction Division, Director of Materials and Pavements Section, 9500 Lake Creek Parkway, Austin, Texas 78717.

The Department will evaluate, at no cost to the supplier, 1 formulation per supplier in accordance with this Specification's requirements. A Material Safety Data Sheet that complies with OSHA's Hazard Communication Standard 29 CFR 1910.1200 must accompany the sample.

The material will be appended to the list of pre-approved products if approved for use by the Department.

The supplier will be charged $250 per sample for any additional samples necessary to establish quality. Accompany these additional samples with a written request for evaluation and a cashier's check for $250, made payable to the “TxDOT Fund.”

Formulation Changes

The Department will allow one submission per year of a reformulation of a pre-approved product at no cost to the supplier. Any change in formulation detected without notifying the Department will be cause to withdraw pre-approval. The Department reserves the right to perform any test to determine if an unapproved reformulation has been made.

A supplier who has had a pre-approved product withdrawn due to unapproved formulation changes, bears all re-approval costs of $250 per sample. The Department will not accept samples in less than 6 mos. from the date the pre-approval was withdrawn.

Except for transition periods not to exceed 3 mos., a supplier may not supply more than 1 pre-approved formula per type of coating at the same time.

Sampling and Testing

The Department reserves the right to conduct random sampling of pre-approved, certified materials for testing and to perform random audits of test reports. Department representatives may sample material from the manufacturing plant, the project site, and the warehouse. The Construction Division, Materials and Pavements Section (CST/M&P) reserves the right to test samples to verify compliance with this Specification. In case of variance, the Department’s tests will govern.

Costs

The Department will normally bear the costs of sampling and testing passing materials.

The Contractor or supplier will bear the costs of sampling and testing of failing materials. Costs of sampling and testing of failing materials will be assessed at the rate established by the Director of CST/M&P in effect at the time of testing. Deduct amounts due the Department for conducting such tests from partial or final payments on direct purchases by the State.

The Contractor or supplier may be required to reimburse the Department for the costs of storage, handling, or both of material failing to meet Specification requirements.

Material Requirements

All anti-graffiti coatings must meet the specific requirements for each type of coating. Requirements for anti-graffiti coatings, which are proprietary in nature, do not relieve the manufacturer or the Contractor of any obligations relating to patents, nor does it give the manufacturer the right to infringe on patents.

Anti-graffiti coatings may be used for above grade concrete, concrete block, exposed aggregate concrete, brick, stonework, painted steel, or aluminum substrates. No deleterious reaction by the anti-graffiti coating with any of the above substrates is allowed.

The applied coating must produce a firm, continuous, uniform film that is free of pinholes, cracks, or other film defects and exhibit satisfactory adhesion. The consistency must be such that the coating can be satisfactorily applied by spray, roller, or by brush at atmospheric and material temperatures above 50°F without thinning. When applied properly to vertical surfaces, the material must not sag, disintegrate, check, peel, crack, or otherwise not form a uniform coating during the required curing period. Primers, when recommended by the manufacturer, must be the same formulation and type as that pre-approved by CST/M&P.

Type I - Sacrificial

- General
  - Type I coating systems are sacrificial coatings that require a pressurized water wash for graffiti removal. Pressure wash requirements must not exceed 1,500 psi and 180°F. The coating must protect the substrate from damage during the pressure wash.
  - Type I coatings must be clear or translucent.
- Specific
  - When tested in accordance with "Tex-890-B, Determining the Graffiti Resistance of Anti-Graffiti Coatings," Type I coating will resist graffiti staining.
  - The density will not vary by more than plus or minus 0.1 lb. per gallon from the density of the evaluation sample.
  - Match the infrared spectra of the coating to that of the evaluation sample.
  - The percent solids will be within 2.0 percentage points of that established on the evaluation sample.
  - Dry times for a 3-mil wet film are for set-to-touch, 1 hr. maximum and for dry through, 4 hr. maximum.
  - No skins, agglomerates, or other undesirable particles, as determined by the last paragraph of the procedure in "Tex-805-B, Detecting Undesirable Particles in Coatings and Coating Vehicles," are allowed.

Type II - Permanent

- General
  - Type II coatings are chemically resistant coatings that allow removal of the graffiti with solvent or chemical graffiti removers. No damage or pigment loss is allowed when graffiti removers, solvents, or both are used.

- When tested in accordance with ASTM "D 4752, Test Method for Measuring MEK Resistance of Ethyl Silicate (Inorganic) Zinc-Rich Primers by Solvent Rub," a properly applied coating will withstand a 50 double-rub methyl ethyl ketone (MEK) rub test with a resistance rating of at least 4. The exception is taken to use this test on coatings other than ethyl silicate zinc-rich primers.
- Unless otherwise shown on the plans, the color of Type II anti-graffiti coatings must be Federal Standard 595B, color number 35630. When other colors are shown on the plans, the color of the Type II coating must match the color standard supplied by the Engineer.

♦ Specific

- The densities for the base and cure components of the anti-graffiti coating must not vary more than ±0.1 lb. per gallon from the densities established on the evaluation samples.
- Match the infrared spectra of the base and cure components to those of the evaluation samples.
- The percent solids of the base and cure components must be within 2.0 percentage points of that established on the evaluation samples.
- The cured coating will resist graffiti staining, when tested in accordance with "Tex-890-B, Determining the Graffiti Resistance of Anti-Graffiti Coatings."
- The cured coating must have a minimum sag resistance of 4 mils.
- Dry times of a 3-mil wet film of the coating are for set-to-touch, 4 hr. maximum and for dry through, 24 hr. maximum.

Tests

Make consistency, drying, and density (gallon weight) determinations on coatings at 25°C (77°F). Measure the consistency with a Krebs-Modified-Stormer Viscometer in accordance with ASTM "D 562, Consistency of Paints Using the Stormer Viscometer."

Determine:

♦ density in accordance with ASTM "D 1475, Density of Liquid Coatings, Inks, and Related Products"

♦ percent solids in accordance with ASTM "D 2369, Volatile Content of Coatings"

♦ dry times in accordance with ASTM "D 1640, Drying, Curing, or Film Formation of Organic Coatings at Room Temperature."

Obtain infrared spectrum using "Tex-888-B, Obtaining the Infrared Spectrum of Organic Materials."

Container and Markings

Packaging

Ship materials in suitable strong, well-sealed containers that meet federal requirements and that are sufficiently sturdy to withstand normal shipping and handling.

Labeling

Label the finished product containers and cases with a durable label, legibly printed with the following:

- manufacturer's name
- product designation, including component part
- batch number
- date of manufacture and
- net volume.

Label the sides of containers and cases with labels that are sufficiently moisture resistant to withstand outdoor storage for a minimum of 1 yr. For easy identification, place the containers with the labels to the outside when the finished product is palletized.

Archived Versions

The following archived versions of "DMS-8111, Anti-Graffiti Coatings," are available:

- 8111-0803 for the Specification effective August 2003 through July 2004.