

DMS-8320, Vinyl, Non-reflective Decal Sheeting

Overview

(Formerly D-9-8320, Vinyl, Non-reflective Decal Sheeting).

Effective Date: August 1998 – April 2003.

This specification shall govern for the materials, composition, quality, sampling, and testing of non-reflective decal sheeting.

Bidders' and/or Suppliers' Requirements

All prospective bidders and/or suppliers are notified that, before any bid is considered, it shall be a material of manufacture and product code or designation shown on the list of approved materials covered by this specification and maintained by the General Services Division (GSD) of TxDOT.

Payment

Payment for all materials under this specification shall be in accordance with the conditions prescribed in the contract awarded by the State.

Prequalification and Performance History

Establishment of Performance History

Prospective bidders and/or suppliers who desire to establish performance history for materials governed by this specification, should contact the Texas Department of Transportation, Director of General Services Division, 125 East 11th Street, Austin, TX 78701-2483.

Prequalification

A sample roll of material shall be submitted for prequalification purposes.

Prospective bidders and/or suppliers will be notified, after their material has been evaluated, as to the conformance with requirements of this specification.

Re-evaluation

When, in the opinion of the Director of CST/M&P, changes have been made in the composition and/or manufacturing process of a prequalified material, a re-evaluation of the performance may be required.

TxDOT may conduct additional tests to identify changes in the material.

Changes that are detected in composition and/or manufacturing process, which have not been reported by the manufacturer, may be cause for removal of that material from the list of prequalified materials.

Sampling and Testing

Sampling and testing shall be in accordance with *CST/M&P Manual of Testing Procedures*.

Costs of sampling and testing are normally borne by TxDOT; however, the cost of materials failing to conform to the requirements of this specification shall be borne by the contractor or supplier.

Costs of sampling and testing of failing material shall be assessed at the rate established by the Director of CST/M&P and in effect at the time of testing.

Amounts due TxDOT for conducting such tests will be deducted from partial or final payments on purchases by the State.

Manufacturers' Requirements

The manufacturer of vinyl, non-reflective decal sheeting shall comply with all of the following requirements. Failure to comply with the requirements of the specification may be cause for removal from the approved list, maintained by GSD.

Material Requirements

The sheeting supplied to the State shall conform to the requirements of this specification for a minimum of one year. The outer surface of the sheeting as exposed shall be smooth.

Film Characteristics

- ◆ Tensile and Elongation
 - The numerical sum of the tensile strength per 25.4 millimeter (one [1] inch) of width and the percent elongation of the material shall not be less than 105 metric (85 English).
 - Furthermore, the tensile strength shall not be less than 25 Newtons (5.0 pounds - force) and the numerical value of the percent elongation shall equal or exceed the numerical value of the tensile strength.
 - Tensile and elongation shall be tested in accordance with ASTM D 882.
- ◆ Workability

- The integrity of the film shall be such that when the sheeting is cut or trimmed in a normal manner with a razor knife, the film shall not crack, flake, nor chip on either side of the trim/cut line.
- ◆ Temperature Stability
 - At any combination of temperatures from 10 to 38 °C (50 to 100 °F) and relative humidity from 20 to 90 percent, the sheeting will permit cutting.
- ◆ Chemical Resistance
 - The surface of the sheeting shall be chemical resistant to the extent that there will be no surface change when wiped with a soft, clean cloth dampened with VM&P naphtha, mineral spirits, gasoline, mild soaps, or mild detergents.
- ◆ Mildew Resistance
 - The sheeting shall evidence no fungus growth when tested by Federal Test Method 6271.1, “Mildew Resistance,” under the following conditions: the test specimens shall be leached with water before inoculation, the test organism shall be pullularia pullulans, and the length of the incubation period shall be 21 days.
- ◆ Binder Material
 - The binder material shall consist of a vinyl.
 - In addition infrared and x-ray spectra of the material, (test methods "Tex-888-B, Obtaining the Infrared Spectrum of Organic Materials" and "Tex-896-B, Qualitative and Semi-Quantitative Analysis of Crystalline Material by X-ray Diffraction"), must match the spectra on file at CST/M&P.

Adhesive

Sheeting shall be precoated with a pressure-sensitive adhesive.

No additional coats of adhesive shall be required to affix the reflective sheeting to a painted or unpainted substrate.

- ◆ Protective Liner
 - A protective liner shall be attached to the adhesive to protect its adhesive qualities until the time of application of the sheeting.
 - The protective liner, attached to the adhesive, shall be easily removed by peeling, without soaking in water or other solvents and after accelerated storage for four hours at 66 °C (150 °F) with a 1.13 kilogram weight and with a 25 by 25 millimeter base (2.5 pounds of weight per square inch).
- ◆ Required Adhesion
 - Sheeting applied (according to manufacturer’s instructions) to clean, smooth, paintable surfaces, shall adhere so securely, at temperatures from -7 to 79 °C (-20 to 175 °F), that it is impossible to peel or pull material from the adhering surfaces in pieces containing areas greater than 1290 square millimeters (two [2] square inches).

- The applied sheeting shall be aged 36 hours at 60 °C (140 °F) and allowed to cool at room temperature for 12 hours before testing adhesion characteristics.
- ◆ Stain Resistance
 - The adhesive shall have no staining effect on the reflective sheeting or the substrate.

Durability

- ◆ Resistance and Exposure
 - The sheeting shall show no cracking, crazing, blistering, chalking, or dimensional change after Weather-Ometer (Atlas, Sunshine Type) exposure for 1200 hours and exterior exposure of at 45 degrees for 18 months or at 90 degrees for five years.
 - Exposure shall be in an Atlas Weather-Ometer utilizing a 18-102 cam, in accordance with ASTM G 23, Method 1, Type EH.
 - Exterior exposure shall be facing south at TxDOT's exterior exposure test site in Austin, Texas or other locations as deemed necessary by the Director of CST/M&P.

Color and Gloss

The color of the sheeting shall be black with reflectance (Y) no greater than 2.0 as determined by Test Method "Tex-839-B, Determining Color in Reflective Materials."

The sheeting face shall have a 85-degree gloss meter rating of no less than 35 both before and after Weather-Ometer and exterior exposure as determined by ASTM D 523.

Packaging

The material shall be packaged in containers that will permit normal shipping and storage without the material sustaining damage or becoming difficult to apply.

Roll material shall contain no more than three (3) splices per 46 meters (50 yards), linear measurement. The length of the roll core shall not be less than the width of the material. The ends of the material shall be cut square with an overlap splice of 10 millimeters \pm four (4) millimeters (3/8 inch \pm 1/8 inch) in width.