
DMS-8320, Vinyl, Non-reflective Decal Sheetting

Overview

Effective Date: May 2003 – July 2004

This Specification governs for the materials, composition, quality, sampling, and testing of non-reflective decal sheetting.

Bidders' and Suppliers' Requirements

Before any bid is considered, it must 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 Department's General Services Division (GSD).

Payment

Payment for all materials under this Specification will be in conformance with the conditions prescribed in the Contract awarded by the State.

Prequalification and Performance History

Establishment of Performance History

Contact the Texas Department of Transportation, Director of General Services Division, 125 East 11th Street, Austin, TX 78701-2483, to establish performance history.

Prequalification

Submit a sample roll of material for prequalification purposes. The Materials & Pavements Section of the Construction Division (CST/M&P) will notify prospective bidders and suppliers after evaluation of material in accordance with specified requirements.

Re-evaluation

Report changes in the composition or in the manufacturing process of any material to CST/M&P. Significant changes reported by the manufacturer, as determined by the Director of CST/M&P, may require a re-evaluation of performance.

The Department reserves the right to conduct whatever tests are deemed necessary to identify a prequalified material and to determine if a change has been made in composition, manufacturing process, or quality, which may affect its durability or performance.

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

Sampling and Testing

The Department will sample in accordance with "Tex-720-I, Sampling Reflective Sheeting, Vinyl Nonreflective Decal Sheeting, and Colored Transparent Film," and will test in accordance with the methods listed in 'Material Requirements.'

Costs of sampling and testing are normally borne by the Department; however, the costs to sample and test materials failing to conform to the requirements of this Specification are borne by the Contractor or supplier. This cost will be assessed at the rate established by the Director of CST/M&P and in effect at the time of testing.

Amounts due the Department will be deducted from monthly or final estimates on Contracts or from partial or final payments on purchases by the State.

Manufacturers' Requirements

Provide vinyl, non-reflective decal sheeting that complies with all of the following requirements. Failure to comply with these requirements may be cause for removal from the approved list.

Material Requirements

The sheeting supplied to the State must conform to the requirements of this Specification for a minimum of 1 yr. The outer surface of the sheeting as exposed must be smooth.

Film Characteristics

- ◆ Tensile and Elongation
 - The numerical sum of the tensile strength per 25.4 mm (1 in.) of width and the percent elongation of the material must not be less than 105 m (85 English).
 - Furthermore, the tensile strength must not be less than 25 Newtons (5.0 lb. force) and the numerical value of the percent elongation must equal or exceed the numerical value of the tensile strength.
 - Tensile and elongation will be tested in accordance with ASTM "D 882, Standard Practice for Rubber Conditioning for Low-Temperature Testing."
- ◆ Workability

- The integrity of the film must be such that when the sheeting is cut or trimmed in a normal manner with a razor knife, the film must not crack, flake, nor chip on either side of the trim/cut line.
- ◆ Temperature Stability
 - The sheeting must permit cutting at any combination of temperatures from 10 to 38°C (50 to 100°F) and relative humidity from 20 to 90%.
- ◆ Chemical Resistance
 - The surface of the sheeting must 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 must evidence no fungus growth when tested by Federal Test Method 6271.1, "Mildew Resistance," under the following conditions: the test specimens will be leached with water before inoculation, the test organism will be pullularia pullulans, and the length of the incubation period will be 21 days.
- ◆ Binder Material
 - The binder material must consist of a vinyl.
 - In addition infrared and x-ray spectra of the material ("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 must be precoated with a pressure-sensitive adhesive.

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

- ◆ Protective Liner
 - A protective liner must 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, must be easily removed by peeling, without soaking in water or other solvents and after accelerated storage for 4 hr. at 66°C (150°F) with a 1.13 kg weight and with a 25 mm by 25 mm base (2.5 lb. of weight per sq. in.).
- ◆ Required Adhesion

- Sheeting applied (according to manufacturer's instructions) to clean, smooth, paintable surfaces, must 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 mm² (2 in.²).
 - The applied sheeting will be aged 36 hr. at 60°C (140°F) and allowed to cool at room temperature for 12 hr. before testing adhesion characteristics.
- ◆ Stain Resistance
- The adhesive must have no staining effect on the reflective sheeting or the substrate.

Durability

- ◆ Resistance and Exposure
- The sheeting must show no cracking, crazing, blistering, chalking, or dimensional change after Weather-Ometer (Atlas, Sunshine Type) exposure for 1,200 hr. and exterior exposure of at 45 degrees for 18 mos. or at 90 degrees for 5 yr.
 - Weather-ometer exposure will in accordance with ASTM "G 153, Standard Practice for Operating Enclosed Carbon Arc Light Apparatus for Exposure of Nonmetallic Materials," using Exposure Cycle 1 (18 min. for water spray in every 120 min. of light exposure).
 - Exterior exposure will be facing south at the Department'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 must be black with reflectance (Y) no greater than 2.0 as determined by "Tex-839-B, Determining Color in Reflective Materials."

The sheeting face must have an 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, Standard Test Method for Specular Gloss."

Packaging

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

Roll material must contain no more than 3 splices per 46 m (50 yd.), linear measurement. The length of the roll core must not be less than the width of the material. Cut the ends of the material square with an overlap splice of 10 mm ± 4 mm (3/8 in. ± 1/8 in.) in width.

Archived Versions

Archived versions of "DMS-8320, Vinyl, Nonreflective Decal Sheeting" are available through the following links:

Click on [8320-0898](#) for the specification effective August 1998 through April 2003.