DMS-8393, Point-of-Sale Motor Vehicle Validation Stickers for Windshields and License Plates

Overview

Effective Dates: August 2004 – August 2007.

This Specification governs for the materials, composition, quality, services, sampling, testing, and prequalification procedures of materials necessary for production of point of sale (POS) nonreflective and reflective windshield validation stickers and license plate validation stickers.

Bidders' and/or Suppliers' Requirements

Before any bid is considered, prospective bidders and/or suppliers must submit materials that perform satisfactorily in the POS dispensing system proposed, as demonstrated to the designated persons at the Vehicle Titles and Registration Division (VTR) of the Department.

The supplier will be responsible to the State of Texas for losses incurred due to any consistent sticker failures or inability to withstand outside environmental exposure and cleansing agents during the validation stickers' service life covered after application.

Payment

Payment for all materials and services under this Specification will 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 a performance history for materials governed by this Specification, must contact VTR at the Texas Department of Transportation, Vehicle Titles and Registration Division, 125 East 11th Street, Austin, Texas 78701-2483.

The prospective bidder and supplier must submit technical data describing the characteristics of all materials proposed. They must also supply a minimum of 50 samples of the completed sticker produced by the proposed POS dispensing system to be used for prequalification testing.

After material evaluation, prospective bidders and suppliers will be notified whether their material conforms to the requirements of this Specification.

Prequalification

Prequalification testing will include exposure in a 60°C (140°F) oven and exposure in an Atlas Type Weather-ometer. The Weather- ometer exposure will be done according to ASTM "G 153, Practice for Operating Enclosed Carbon Arc Light Apparatus for Exposure of Nonmetallic Materials" using Exposure Cycle 1 (18 minutes for water spray in every 120 minutes of light exposure). The exposure in the 60°C (140°F) oven will be for 200 hrs. The exposure in the Weather- ometer for non-reflective stickers will be for 840 hrs. The exposure in the Weather- ometer for reflective stickers will be for 1200 hrs.

Prequalification will not be granted until successful completion of all requirements.

Re-evaluation

When planning to change the composition or the manufacturing process, the supplier must notify the Department. The Department will notify the supplier if a re-evaluation of the material is required.

When, in the opinion of the Director of the Materials and Pavements Section, Construction Division, significant changes have been made in the composition or manufacturing process of a prequalified material, a re-evaluation of the performance may be required.

The Department may conduct additional tests to identify changes in the material. Failure to report changes to the composition or manufacturing process may be cause for removal of that material from the prequalified materials list.

Periodic Evaluation

The Department reserves the right to periodically evaluate the performance of materials. Samples for periodic evaluation of performance will be selected at random from materials submitted on State purchase orders.

Failure of materials to comply with the requirements of this specification, because of periodic evaluation, may be cause for removal of those materials from the prequalified materials list.

Sampling and Testing

Sampling may be taken at the production facility, a storage facility, or may be taken from a POS machine during operation. A designated Department employee or someone authorized by the Department will take samples. The Department will determine the sampling rate, which may vary.

Costs of sampling and testing are normally borne by the Department; however, if the materials fail to conform to the requirements of this Specification, the costs must be borne by the supplier. Costs will be $250 per test.

Amounts due the Department for conducting such tests will be deducted from partial or final payments on direct purchases by the State. If this is not applicable, the supplier must submit a cashier's check to VTR for $250 made payable to the "TxDOT Fund."

Testing for acceptance of materials submitted on a purchase order will only be considered on those materials that have been prequalified by the criteria established by this Specification and placed on the prequalified materials list.

Material Requirements

All materials must meet all requirements of this Specification except when there are specific requirements shown for a particular material.

General Requirements

All sheet or roll type materials received must be free of ragged edges, cracks, blisters, and all foreign materials such as sawdust or flakes and chips of plastics, paper, etc.

All materials required to produce completed validation stickers must withstand normal printing operations required by the POS system to produce validation stickers acceptable to the Department. The printing must be permanent and unalterable.

The stickers must incorporate a repetitive security feature to discourage removal and reuse of the sticker unless otherwise specified.

The stickers must not curl, wrinkle, fade, discolor, delaminate, or change dimensions after Weather-Ometer exposure, 60°C (140°F) oven exposure, or after exposure to over-the-counter glass cleaners or other commonly used cleaning agents.

Inks on the sticker portion must not fade for a period of 36 mos. after applying, when applicable. The ink must not dissolve or fade when exposed to common household cleaners, soap and water, or common car care cleaning products. The forms must feed correctly and allow the toner and inks to adhere adequately. The forms must not degrade print quality or damage the printer due to chemical residue. The glue liners must not lift during printing and cause printer jams or damage to the printers or mailing equipment. Sticker manufacturing must preclude the glue oozing from under the liner and causing damage to the POS equipment.

The base film must consist of a clear and transparent film, a pressure-sensitive adhesive, and an adhesive-protective liner.

The nonadhesive side of the film must be such that it can be readily printed on.

- Protective Liners
  - The liner must be of such transparency that 6 mm (1/4 in.) printing in black, dark blue, and dark red ink on the back of the base film is readily legible (20/20 vision) at 0.9 m (3 ft.), when backed with white paper in a normally illuminated 580 lumen/m^2/m^2 (50-foot candles, per square foot) room, or the liner must have an opening exposing the nonadhesive area, not exceeding 3-3/8 in. x 2-1/4 in., needed for printing.
  - The physical characteristics of the liner must be such that, when it is cut and the base film is bent along that cut with the liner to the outside of the bend, the corner will become free from the adhesive or it can be easily separated with a fingernail.
- Adhesive
  - The adhesive must be a pressure-sensitive type that will allow repositioning of the sticker, before application using pressure to the back of the sticker.
  - Upon removal of the sticker following exposure, any adhesive residue left on the windshield or license plate must be easily removed by rubbing with the thumb, a dry cloth, or by using a common household glass cleaner and cloth.
  - The adhesive must be such that the corner of the base film can be lifted readily with a fingernail sufficiently enough to grasp between the finger and thumbnail to remove the sticker in one piece.

The above characteristics must be retained for a minimum of 36 mos. storage between 16 and 32°C (60 and 90°F) and humidity less than 90%. Since this requirement is of such long duration, the supplier must agree to replace all stickers that fail this requirement if more than 1.0% of the completed stickers fail this requirement to the extent that they are not useable.

Retroreflective Materials for Reflective Windshield and License Plate Validation Stickers

- General
  - The reflective sheeting must be similar in day color and reflected night color.
  - The POS system must readily print on the sheeting surface and must be compatible with transparent and opaque color inks that the sheeting manufacturer furnishes and recommends.
- Thickness
  - Variance in sheeting thickness (sheeting, less adhesive) must not exceed plus 0.0381 mm (0.0015 in.) or minus 0.0127 mm (0.0005 in.) from the thickness of the sheeting submitted and prequalified under this Specification.
  - Total thickness of sheeting, adhesive, and protective liner must not exceed 0.305 mm (0.012 in.) unless otherwise approved by VTR.
- Weight
  - Base weight of protective liner paper must be 36 kg (80 lb.) ±5%, unless otherwise approved by VTR.

- Color
  - The diffuse (daytime) and reflected (nighttime) color of the sheeting surface must conform to a standard color sample acceptable to the purchaser or his agent before the start of production.
  - When required and properly covered with a single coat of protective finish clear, the supplier must warrant the color fastness of the inks used for the prescribed service life of the respective sticker.
  - After printing with transparent ink, the sheeting must have similar diffused and reflected color.
  - Determine color according to "Tex-839-B, Determining Color in Reflective Materials."
- Photometrics
  - The unprinted reflective sheeting must have the minimum brightness values, as shown, expressed as lumens, per lux, per square meter (candlepower, per foot-candle, per square foot) of material. Listed in the table is data for white and yellow only. VTR may require retroreflective sheeting with other colors, which will be specified if needed.
  - Conduct measurements according to "Tex-842-B, Measuring Retroreflectivity."

Minimum Brightness Values

	White				Yellow			
Divergence Angle	**.2**		**.5**		**.2**		**.5**	
Incidence Angle	**Specific Intensity: lm/lx/m^2 (cp/ftc/ft^2)**							
–4°	628	(50.0)	377	(30.0)	439	(35.0)	188	(15.0)
30°	314	(25)	138	(11)	188	(15)	113	(9.0)
50°	44	(3.5)	25	(2.0)	38	(3.0)	31	(2.5)

- Security Marks
  - Provide sheeting, approved by the Department, with integral security marks, which would make unauthorized sticker reproduction unlikely and/or extremely difficult if attempted.
  - For ease in discernability, the security marks must be spaced no farther than 19 mm (3/4 in.) center to center from each other.
  - The marks must have an area of at least 129 mm^2 (0.2 in.^{2}) and must be reverse printed containing at least 60% reverse printed area
  - The marks must be readily discernible when viewed under diffuse daylight conditions at a distance of 1.8 m (6 ft.).
  - Security markings must be discernible when holding a sample at 0.6 m (2 ft.) from the eyes and viewed by the retroreflected light of a standard "D" cell flashlight, held between the eyes at nose level.

- Security markings must not be reproducible in other finished reflective sheeting without destruction of their reflective properties.
- Security markings must not be removable by chemical or physical means from the face of the retroreflective sheeting or a finished validation sticker, applied or unapplied, without causing irreparable damage of the reflective properties.

♦ Other Characteristics

- Precoat the reflective sheeting with a pressure sensitive, permanent-bond adhesive on its back and attach a protective liner to the adhesive.
- The liner must be of a material consistent in quality with thickness not to exceed 0.127 mm (0.005 in.) unless otherwise approved by VTR.
- The liner must be detachable from the adhesive by peeling without the necessity for soaking in water or solvents.
- The liner must remain easily removable from the adhesive after accelerated storage of four hours at 66°C (150°F) under a weight of 17 kPa (2.5 lb. psi).
- The adhesive must be of such quality that license plate stickers may be easily applied while the license plates are attached to the vehicles.
- The adhesive must have no staining effects on the reflective material and must permit application to the prescribed surfaces at temperatures of 0.6°C (33°F) and above.
- If the adhesive runs, melts, or exudes from the sheeting edge within 18 mos. after the sheeting purchase, the supplier will be liable for all losses by furnishing replacement sheeting for the defective material.
- After printing, the opaque or transparent ink must exhibit no significant color change or any deterioration when exposed for 1200 hrs in an Atlas Weather-Ometer as specified for prequalification.
- Opaque and/or transparent inks furnished with the sheeting material must be compatible for use with the sheeting supplied and must be of a type recommended for use with the POS equipment.
- VTR will determine color selection of inks.
- Finish coatings for stickers that are to normally be exposed in use for six years or more must not become brittle, flaky, discolored, or acquire a chalky-powdery exposed surface after 1200 hrs Atlas Weather-Ometer exposure.

Completed License Plate Validation Stickers

Completed stickers must conform to the following requirements:

♦ Stickers applied to the surface of a clean license plate, which meets the requirements of "DMS-8390, Materials for Motor Vehicle License Plates," must show no tendency to peel, curl, delaminate, shrink, fade, or surface chalk when exposed for 1200 hrs in a Weather-Ometer.

- After application to the prescribed license plate surface, the sticker must be easily cleaned by washing with water and mild detergent for removal of normal dirt and soil accumulation.
- The protective, clear-coated surface of the sticker must also be sufficiently solvent-resistant to permit cleaning with solvents and other alcohol and oil based products normally used to remove road tars and grit without appreciable change or damage being done to the protective quality of the sticker surface. The ink must not dissolve or fade when exposed to common household cleaners, soap and water, or common car care cleaning products.
- The supplier must warrant the sheeting materials to not fade, disintegrate, peel back, or fall off the license plate surface for six years after application. They must be vandal-proof to the extent that any attempt to remove an applied sticker will cause irreparable damage to the body of the sticker.
  - The sticker must become adhered by placing it upon the surface of a license plate or upon the surface of a previously applied license plate validation sticker and rubbing with moderate pressure.
  - A validation sticker applied to any clean Texas license plate surface or to any previously applied Texas validation sticker must remain in place, complete and intact for the life of the license plate issue.
  - After aging for 48 hrs. at 24°C (75°F), the applied sticker must resist shocking off when struck with a spatula at a temperature of –23°C (–10°F).

Archived Versions

The following archived versions of "DMS-8393, Point-of-Sale Motor Vehicle Validation Stickers for Windshields and License Plates" are available:

- 8393-0702 for the specification effective July 2002 through April 2003.
- 8393-0503 for the specification effective May 2003through July 2004.