**SPECIFICATION FOR PRECLEAR LICENSE PLATE SHEETING**

3M™ Preclear Reflective License Plate Sheeting Series 4770T

March 2020

SP 4770T

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SECTION I - GENERAL

This specification shall cover the materials, performance characteristics, quality, and testing of retroreflective sheeting and support services necessary to produce finished license plates.

1. DESCRIPTION:
   1. The retroreflective license plate shall consist of retroreflective (hereinafter referred to as “reflective” only) sheeting laminated to a chemically treated, or conversion coated, aluminum substrate that is then embossed and message roll coated according to the sheeting manufacturer’s recommendations.
   2. The reflective sheeting shall consist of lens elements enclosed within a transparent resin and shall have a pre-coated pressure sensitive adhesive backing protected by a removable liner. The pre-printed design, in the reflective sheeting, shall be buried below the sheeting surface to insure reliable long-term durability.
   3. The reflective sheeting shall contain a range of tamper-resistant security marks that can help authorities assure authenticity, defend against counterfeiting, and provide product traceability. These shall include:
      1. Identifying marks for purposes of on-vehicle traceability, warranty enforcement, and anti-counterfeiting in accordance with these specifications. The warranty marks shall be buried below the sheeting surface for durability and shall incorporate the sheeting manufacturer’s production run number that designates the source of manufacture, year of manufacture, and specific lot from which the material was supplied. The warranty marks shall not interfere or detract from the graphic design or reduce sheeting brightness and shall be durable for the service life of the license plate.
      2. Security marks that appear three-dimensional, running from the top to the bottom of the plate or from the left to the right side of the plate. The security marks shall consist of a double sine wave pattern where one wave appears to float above and one wave appears to float below the directional warranty image of the reflective sheeting. The virtual security thread shall be durable for the service life of the license plate.
         1. To assure effective identification, the warranty marks shall be approximately 1.125 inches in diameter on standard 6” x 12” plates and shall be of a design mutually agreed upon by the state and the sheeting manufacturer. The sheeting manufacturer may vary the number, design and placement of the marks for motorcycle or smaller license plate sizes.
         2. The three-dimensional security mark shall be verifiable under both daylight and retroreflected light, shall not interfere or conflict with the plate design, aesthetics, or legibility, and shall not alter sheeting colors or reduce sheeting brightness below minimum specified brightness levels when measured in accordance with ASTM E808 and ASTM E809.
         3. The three-dimensional security mark shall be visible in the unprinted areas of the plate from within a standard police vehicle under high beam headlight illumination, as well as outside of the vehicle, on a license plate properly affixed to the vehicle’s designated mounting area, from an approximate distance of 0 to 50 feet (0 to 15 meters) at a head-on viewing angle. The two sinusoidal wave images shall be visibly distinct from an approximate distance of 0 to 20 feet (0 to 6 meters). The three-dimensional security mark shall not be visible when viewed at an angle greater than 45 degrees from the head-on viewing position.
   4. Pre-printed reflective sheeting shall conform to the design, colors and sheeting type as approved by the state and reflective sheeting manufacturer. When using white background sheeting, all graphic inks shall be transparent to facilitate similar daytime/nighttime color perception.
   5. In addition to a square foot price for pre-printed reflective sheeting, each bidder shall include pricing of unprinted white reflective sheeting (annual and multi-year) and any colored sheeting offered. The specifications contained herein shall apply to all standard size plate classifications and are inclusive of all special category plates issued by the state wherein reflective material is requested.
2. PREQUALIFICATION

Before any bid is considered, the sheeting manufacturer shall meet the following criteria:

* 1. To assure high quality license plate performance, durability, and service, the successful sheeting manufacturer shall provide the state with proof of successful license plate manufacturing in other states. The sheeting manufacturer shall:
     1. Show evidence of successful manufacture and application of preprinted license plate sheetings, thinners, and roll coat inks as parts of a totally integrated license plate system.
     2. Provide state-of-the-art application equipment at no charge, as a fundamental component of a totally integrated license plate system. The successful bidder shall show manufacturing experience in other states.
     3. Provide a list of equipment and flow diagrams with the bid.
     4. Provide a list and qualifications of experienced, full-time graphic design, customer service, technical service, and sales service personnel.
     5. Provide expert installation service; provide immediate toll-free calls to technical service and, if required, on-site technical service at no charge.
     6. Provide next day delivery of stocked equipment parts and provide customer with a detailed list.
     7. Ship sheeting rolls via “bulk-pack” configurations of multiple rolls, for example, 12 rolls per layer, for ease of handling in the tag shop.
     8. Conform to all performance requirements of this specification as specified in Section II and as tested by the state-designated testing lab.
     9. Provide quality warranty bond for the value of the contract for the duration of this issue. The sheeting manufacturer shall also provide buried directional warranty marks in the sheeting in accordance with Section I.A.3, in order to facilitate on-vehicle traceability and warranty enforcement.
     10. Supply one 300-ft. roll of sheeting printed with a graphic design used in the state to demonstrate the sheeting manufacturer’s production capability in providing special graphic designs.
     11. Supply a minimum of one finished license plate sample for each license plate design for regular and special issue plates, currently used by the state, to ensure compatibility with color, print resolution, and other visual aspects. The incumbent sheeting manufacturer may use samples previously manufactured for distribution to the state’s motorists.
     12. Supply evidence of successfully supplying reflective sheeting and equipment to another state of a comparable motor vehicle population in a total license plate reissue.
     13. Prior to contract award, install application and registry equipment at the license plate manufacturing location and demonstrate, over a period of 60 days and using reflective sheeting provided by the sheeting manufacturer, that the equipment meets these specifications.
  2. The sheeting manufacturer will provide all necessary samples for the agency or their designated testing facility to certify the material compliance with these specifications. At the request of the agency, the sheeting manufacturer may also be required to compensate the agency or their testing agents for the cost of any material testing.
  3. Ensure that the plants where all license plate sheetings and roll coat inks purchased by the state are manufactured are certified to meet ISO 9001-2008.
  4. The sheeting manufacturer shall submit technical data exhibiting characteristics of all materials proposed. Information submitted shall include detailed processing conditions for each phase of license plate manufacture. Such information shall also include times and temperatures required for curing roll coat pastes used in the production of completed license plates.
  5. Sheeting manufacturers failing to conform to any of these prequalification requirements shall be disqualified.

1. PERIODIC EVALUATION

The state reserves the right to periodically evaluate the performance of materials. Samples for periodic evaluation of performance shall be selected at random from materials submitted on state purchase orders. Failure of materials to comply with the requirements of this specification shall be cause for removal of the sheeting manufacturer.

1. TECHNOLOGICAL IMPROVEMENTS

The existing sheeting manufacturer may, with agreement of the state, incorporate technological improvements that better optimize the license plate production process and/or license plate performance.

SECTION II - PERFORMANCE STANDARDS

1. LICENSE PLATE SHEETING
   1. Substrate

The sheeting shall be laminated to properly conversion coated aluminum substrate recommended by the conversion coating material manufacturer.

* 1. Daytime Color

Through instrumental color testing, the daytime color of the reflective sheeting shall conform to color requirements as determined spectrophotometrically in accordance with ASTM E1164 and E1349, utilizing either 45/0 or 0/45 degree illumination/viewing conditions as described in E1164 and E1349 for retroreflective materials. Chromaticity and the Luminance Factor based on CIE tristimulus values for the 2 observer and illuminant D65 shall be calculated in accordance with ASTM E308.

The color specification limits for white license plate sheeting are listed on the following chart. (See Appendix I for other sheeting colors.)

COLOR SPECIFICATION

Chromaticity Coordinates and Minimum Luminance Factors

|  |  |  |  |
| --- | --- | --- | --- |
| Pairs | White  Corner Points | | Minimum  Luminance Factor |
| x | y | Y% |
| 1 | .355 | .355 | 42 |
| 2 | .305 | .305 |
| 3 | .285 | .325 |
| 4 | .335 | .375 |

* 1. Adhesive and Protective Liner
     1. The precoated adhesive shall form a durable bond to flat conversion coated license plate surfaces.
     2. The protective liner attached to the adhesive shall be removable by peeling without soaking in water or other solvents and shall be easily removed after accelerated storage for four hours at 150 F (66 C) under weight of 2.5 lbs. per square inch (1.14 kg per 6.45 sq. cm).
     3. The liner shall be non-printed to permit reuse.
  2. Roll Coating
     1. The reflective sheeting shall be roll coated and compatible with transparent and opaque colors manufactured by the sheeting manufacturer.
     2. The sheeting manufacturer shall supply roll coat inks that meet state and federal VOC regulations.
     3. The roll coat ink shall be durable for the service life of the license plate and shall not fade, crack, or peel from the surface of the license plate.
  3. Inventory Control

To assist the license plate tag shop with inventory control, the sheeting manufacturer shall mark the sheeting with an integral, directional image that incorporates the lot number.

1. FINISHED LICENSE PLATES

Test panels shall be prepared in accordance with Section III, Para. A.

* 1. Retroreflectivity Characteristics

The coefficient of retroreflection for the sheeting shall be measured on sheeting as supplied and shall have the following minimum values at 0.2 observation angle, expressed as candlepower per foot-candle per square foot (candelas per lux per square meter) of material. Measurements shall be conducted in accordance with ASTM E810, “Standard Test Method for Coefficient of Retroreflection of Retroreflective Sheeting”. Measurements on reflective sheeting with a preprinted graphic design shall be taken on unprinted sheeting areas.

Minimum Coefficient of Retroreflection, RA, for new sheeting

|  |  |  |  |
| --- | --- | --- | --- |
| Color | Observation Angle1 | RA [cd/lx/ m2] | |
| **Entrance Angle2** | |
| -4º | 40 º |
| White | 0.2º | 50 | 16 |
| Yellow | 0.2º | 25 | 10 |
| Orange | 0.2º | 25 | 10 |
| Lemon-Yellow | 0.2º | 25 | 10 |
| Gold | 0.2º | 25 | 10 |
| Green | 0.2º | 18 | 7 |
| Blue | 0.2º | 18 | 7 |
| Red | 0.2º | 9 | 3 |

* 1. Resistance to Accelerated Weathering

The sheeting shall be weather resistant and show no appreciable discoloration, crazing, cracking, blistering, lifting, or dimensional change and the surface shall continue to be essentially smooth to provide direct application of validation stickers. Weather resistance shall be determined after the following accelerated weathering tests:

* + 1. Laboratory testing – 2,000 hours in Xenon arc weatherometer using ASTM G155 – Cycle 1. Samples shall maintain 70% of retroreflective table values shown in II, B. 1.
    2. Outdoor accelerated testing – Samples shall be placed in a 24-month unprotected outdoor exposure, facing the equator, and inclined 45 degrees from the vertical. Retroreflective measurements, taken after cleaning, shall result in 70% or more retention of the table values shown in II, B. 1.
  1. Rainfall Performance

The average coefficient of retroreflection, determined from measurements taken from at least three different locations on a flat, clean, finished license plate test panel, prepared per Section III.A and totally wet by rain, shall not be less than 90 percent of the values specified above. Photometric performance during rainfall shall be determined as follows: test set- up and procedure for rainfall performance can be found in ANSI/ISEA 107-2010 Appendix A, Method of Measuring Wet Performance of Retroreflective material.

* 1. Daytime/Nighttime Color

To assist in positive daytime/nighttime identification of license plates, the perceived color of the reflective background of the sheetings, including any pre- printed design, shall be similar in daylight and by illumination at night.

* 1. Flexibility - Embossing
     1. The sheeting shall, when correctly applied to treated aluminum, conform to the minimum/maximum tolerances for embossing and/or debossing dies as used by the manufacturing facility that supplies finished plates to the state and as recommended by the sheeting manufacturer.
     2. Finished, embossed/debossed license plates shall show no appreciable wrinkling, cracking, or squirming at or around embossed/debossed areas.
  2. Cleanability
     1. Finished license plates, manufactured in accordance with the recommendations of the reflective sheeting manufacturer, shall be easily cleansed of normal dirt accumulation by washing with water and mild detergent. Test panels shall be sprayed with water-suspended soils collected from the underside of vehicle fenders, mixed with water in the proportion of five pounds (2.27 kg) of soil to one gallon (3.78 liters) of water, and poured through a paint strainer.
     2. The mixture shall then be sprayed onto the panel while particles are in suspension. After the panel is thoroughly dry, it shall be cleaned by washing with a mixture of water and mild detergent, rinsed with clean water, and wiped dry for examination. The panel shall show no appreciable difference when compared to a new clean panel.
  3. Solvent Resistance
     1. License plate panels prepared per III.A shall be sufficiently solvent resistant to withstand exposure to mineral spirits, turpentine, toluene, xylene, and methyl alcohol without dissolving, wrinkling, puckering, blistering, or edge lifting.
     2. Test panels shall be 1” x 6” strips cut from license plate blanks. Strips of the license plate shall be immersed vertically in a container with 4 inches of each solvent separately, at room temperature. Solvents and immersion times shall be as follows:
        1. Mineral spirits and turpentine - immersed for 10 minutes.
        2. Toluene, xylene, and methyl alcohol - immersed for 1 minute.
     3. At the end of the immersion time, remove the samples from the containers and allow to dry before examining for any wrinkling, puckering, blistering, edge lifting, or dissolving of the sheeting and adhesive. Failure of samples shall be cause for rejection.
  4. Gasoline Resistance
     1. Finished license plates shall be sufficiently gasoline resistant to withstand exposure to gasoline when tested as follows.
     2. Test panels shall be immersed in a commercially available unleaded gasoline for a period of one minute. After removal from the gasoline the test panels will be air-dried. The test panels shall show no evidence of dulling, whitening, softening, puckering, blistering, crinkling, or dissolving of the exterior film, inks, or adhesive, or separation from the aluminum substrate.

SECTION III - TEST PANELS AND QUALITY CONFORMANCE

1. TEST PANELS
   1. Finished license plate test panels 6” x 12” (15.2cm x 30.5cm) must be provided for testing and evaluation within ten (10) calendar days if required by the state, and shall be produced of the same materials, on the same equipment and by the same general processes of substrate preparation, laminating, embossing or debossing, roll coating, and oven drying as the production plates, in accordance with the sheeting manufacturer’s recommendations. Note the following test panel exceptions for II. B. (1, 3, 7, 8) testing.
   2. Special test panels for photometric, cold weather resistance and solvent resistance testing shall be produced as above, except that they shall not be embossed or debossed (for ease of testing) and they shall not be roll coated. These test panels must be cured for a minimum of 25 minutes at 260 F (to simulate oven drying) and must be conditioned for at least 24 hours at 72  4 F (22  2 C) and 50%  2% relative humidity prior to testing.
2. QUALITY CONFORMANCE

Failure of the reflective sheeting to meet any requirement specified herein shall be cause for refusal to accept materials until evidence has been provided by the sheeting manufacturer that corrective action has been taken to eliminate deficiencies.

SECTION IV - WARRANTY

1. The reflective sheeting manufacturer (“Manufacturer”) shall warrant (“Warranty”) that, for the number of years (“Warranty Period”) as given in the following table, measured from the license plate (“Plate”) fabrication date (“Fabrication Date”) the prismatic license plate sheeting (“Sheeting”) imaged as recommended by the Manufacturer shall:
   1. Remain legible by resisting excessive fading, cracking, blistering or peeling, and,
   2. The unprinted areas[[1]](#footnote-1) of the Sheeting applied on a Plate shall retain a coefficient of retroreflection as given in the following table.

Table 3. Sheeting Colors and Warranty Period

|  |  |  |
| --- | --- | --- |
| **Base Sheeting Color** | **Retained Coefficient of**  **Retroreflection\* [cd/lx/ m2]** | **Warranty Period (Years)** |
| **White** | 18 | 5 |
| **Yellow** | 18 | 5 |
| **Lemon Yellow** | 18 | 5 |
| **Gold** | 18 | 3 |
| **Orange** | 18 | 3 |
| **Blue** | 18 | 2 |
| **Green** | 18 | 2 |
| **Red** | 6 | 1 |

*\*All measurements are at .2 degrees observation angle and -4 degrees entrance angle. All measurements shall be made after cleaning the Plate according to the Manufacturer recommendations and in accordance with ASTM E810 “Standard Test Method of Coefficient of Retroreflective Sheeting,” except that the coefficient of luminous intensity shall be determined in accordance with ASTM E808-01 Para. 3.2.2 and ASTM E809-02 Para. 12.3.*

1. The Manufacturer may have the following Warranty terms and conditions.
   1. A failure to meet the Warranty must be solely the result of design or manufacturing defects in the Sheeting and not of (a) outside causes including improper fabrication, handling, maintenance, or installation; (b) use of roll coat pastes or overlay films and sheetings not listed herein; (c) exposure to temperatures beyond the Manufacturer’s recommendations; (d) use of a reflective sheeting applicator, stretch control mechanism, brake table, or corresponding registry feed controls not provided and installed by the Manufacturer; (e) failure of Plate substrate; (f) exposure to chemicals, abrasion, or damage from fasteners used to mount the Plate; (g) collisions, vandalism, malicious mischief; (h) or an act of God.
   2. The Plate must have a clear record of the Fabrication Date either on the Plate or in an auditable records database and records must be maintained showing that the profile setting and procedures used in the production of the Plate were according to the Manufacturer’s recommendations.
   3. Sheeting must be processed in accordance with all of the Manufacturer’s application procedures found in their product bulletins, information folders, manufacturing manuals, Digital License Plate System User Manual, and technical memos (which shall be furnished upon request), including the appropriate use of components listed in this product bulletin and recommended application equipment.
   4. Claims made under this Warranty shall be honored only if the Manufacturer is notified of a failure within 30 days, reasonable information requested by the Manufacturer is provided, and the Manufacturer is permitted to verify the cause of the failure.
2. The Manufacturer shall furnish the below exclusive limited remedy.

If the Sheeting on a Plate is shown to not meet the Warranty during the Warranty Period, the Manufacturer’s sole and exclusive remedy is, at the Manufacturer’s option, to replace the Plate, or reimburse the Plate’s issuing agency (“Agency”) up to a maximum of $5.00 per Plate. Reimbursement to the Agency shall be in dollars and/or materials, as determined by the needs of the Agency. Replacement Sheeting shall carry the unexpired Warranty Period of the Sheeting it replaces.

1. The Manufacturer may have the following disclaimer.

THE WARRANTY SHALL BE MADE IN LIEU OF ALL PREMIUM OR ADDITIONAL WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTY OR CONDITION OF MERCHANTABILITY, OR FITNESS FOR A PARTICULAR PURPOSE, OR ANY IMPLIED WARRANTY ARISING OUT OF A COURSE OF DEALING OR OF PERFORMANCE, CUSTOM OR USAGE OF TRADE.

1. The Manufacturer may offer the following limitation of liability.

Except for the limited remedy stated above, and except where prohibited by law, the Manufacturer shall not be liable for any loss or damage arising from the product, whether direct, indirect, special, incidental, or consequential damages (including but not limited to lost profits, business, or revenue in any way), regardless of the legal theory asserted including Warranty, contract, negligence, or strict liability.

SECTION V - SUPPORT SERVICES

1. PLATE DESIGN SERVICE
   1. The reflective sheeting manufacturer shall maintain a full-time professional design service to assist the state in creating a license plate of high legibility, recognition, and desired aesthetics. This service shall include the following:
      1. A minimum of three, full-time graphic designers to provide and assist the agency with:
         * Consultation and advice concerning all aspects of license plate design including custom colors and optimizing plate message readability.
         * The design of electronic and printed proofs for agency review and approval.
         * Security image design.
      2. A telephone response to agency inquiries within four business hours by an experienced graphic designer.
      3. A standard operating procedure describing the design process from initial agency suggestions, to samples, to the production of new designs. A document verifying the existence of and adherence to this process shall be included in the bid submission.
      4. The expertise and capability to design for the agency’s preferred print technology (including rotogravure, thermal transfer, ink jet, and silk screening).
      5. Capability, upon request, to provide customers with recommendations for optimizing OCR read.
   2. Consistency of printing and roll coat inks must be maintained throughout the contract period. The sheeting manufacturer must provide for and maintain a compatible color match to existing and/or selected designs by the state. The sheeting manufacturer shall be required to furnish sheeting based on the current license plate design/format or any approved state design. Failure to match and maintain colors in accordance with this section shall be cause for contract cancellation.

The sheeting manufacturer shall provide a sample of existing general issue designs in use by the state on finished plates and all special design plates issued and still active in the state. The incumbent sheeting manufacturer may use samples previously manufactured for distribution to the state’s motorists.

* 1. Supply of these sample plates is required with a bid submission or bid will be disqualified.

* 1. Special-plate-category designs shall be provided in standard roll form so that they can be manufactured into finished plates by the same process and on the same machinery as used for the basic design(s) covered by this contract. The successful bidder must be able to provide these designs in quantities as limited as one 300-ft. roll of material. Any variance in price related to volume or the number of colors used in a particular design must be noted in the sheeting manufacturer’s bid.
  2. The state reserves the right to redesign any or all of the plates required under these specifications during any resulting contract period.
  3. All artwork for graphic license plate designs given to the sheeting manufacturer by the agency in fulfillment of this contract shall be the property of the agency. Per a written request from the agency, this artwork shall be returned to the agency within two weeks of the termination or expiration of the contract. Internal artwork developed by the sheeting manufacturer to prepare the agency’s graphic design for the sheeting production e.g. color changes, formatting, remains the property of the sheeting manufacturer.

1. TECHNICAL SERVICE
   1. License Plate Materials and Manufacturing Equipment
      1. The sheeting manufacturer shall, without additional cost, provide the license plate manufacturing shop with expert technical service and product information until the shop operating personnel are able to manufacture quality license plates. A list of expert technical service personnel, their qualifications, and their experience must be provided.
      2. To ensure continued quality license plate manufacture, the sheeting manufacturer shall provide the state license plate manufacturing facility with on-site technical service.
      3. The sheeting manufacturer shall provide a response plan and a dedicated customer contact responsible for ensuring that issues are handled consistently, escalated appropriately, and tracked thoroughly. This written plan should thoroughly detail elements of this system that shall include at a minimum the following:
2. An 800 number call center that ensures immediate, but no later than 1 hour from call, customer contact support 24 hours a day.
3. 4 stage severity scale from total customer facility shutdown to simple customer technical inquires with appropriate technical response timelines.
4. A process and time line using overnight shipping for delivery of in stock replacement parts.
5. A process and time line using overnight shipping for ordered replacement parts.
6. Telephone support to state personnel during installation of parts.
7. A process and timeline for resolution of software issues.
8. On-site expert technical service response within 2-5 business days, depending on severity level.
9. EQUIPMENT
   1. The sheeting manufacturer shall provide the necessary equipment for the intended contract period to laminate unprinted or pre-printed sheeting to the substrate inclusive of, but not limited to, the graphic reflective sheeting applicator, including stretch control mechanism and corresponding registry feed controls. The sheeting manufacturer shall certify and show proof that the above equipment is performing as required in a minimum of five other license plate manufacturing sites.
   2. All required training shall be completed and equipment installed and operational within thirty (30) days of notice of award of contract. Installation and training shall be acceptable upon consistently running the required line(s) at representative speeds not to exceed 100 strokes per minute with a rejection rate of 2% or less. The acceptability of the blanks shall be determined by the issuing agency in conjunction with the license plate plant management.
   3. If the application and registry control equipment is not installed in the time and manner as specified above or if any sheeting or ink fails to meet specifications, the entire order is subject to cancellation and the agency reserves the right to purchase all sheeting and ink covered by the order from an alternate source, with the defaulting sheeting manufacturer reimbursing any cost differential.
   4. The sheeting manufacturer shall provide a list of available stocked parts to the license plate manufacturing shop. In event of equipment failure the sheeting manufacturer shall ship stocked replacement parts by express carrier within 24 hours of notification.
   5. The successful sheeting manufacturer will reimburse the cost of any waste materials, including metal and sheeting generated because of installation and testing of application and registry equipment, to the state.
   6. Upon expiration of the existing contract, the existing sheeting manufacturer's equipment shall be removed within thirty (30) days unless an extension of the sheeting contract has been negotiated with the sheeting manufacturer.

SECTION VI - PACKAGING AND SHIPPING

To ensure easy access and proper inventory control, the reflective sheeting shall be shipped in bulk packages. To prevent roll damage, each pallet of bulk packages shall be designed to prevent double stacking by the shipper. Production run sequence numbers that correspond to the materials contained therein shall be affixed to the outside of each shipping package. Each roll shall be additionally designated by a core identifier stamped or affixed with a permanent label to the inside of each roll core. A shipping or packaging list shall be affixed to one box on a pallet identifying all production runs contained within the shipment.

SECTION VII - DELIVERY SCHEDULE

All deliveries shall be provided F.O.B. to the state’s designated point of delivery. The first expected delivery of reflective sheeting shall be not later than 45 days following official notification of contract award, initial order, and receipt of state approved artwork. All subsequent orders shall be F.O.B. destination with expected delivery within 30 days after receipt.

SECTION VIII - ACCOUNTABILITY

The sheeting manufacturer shall be accountable for all sheeting from the place of manufacture to the point of delivery. All over-run materials remaining in the manufacturer’s possession after discontinuation of any design or the contract’s cancellation shall be destroyed and used for no other purpose.

SECTION IX - PROCESSING

1. The reflective sheeting processing shall be in accordance with the recommendations of the sheeting manufacturer. All processing procedures for reflective material, thinners, solvents, and inks must be compatible, or made compatible at the sheeting manufacturer’s expense, with equipment and procedures currently employed by the state.
2. The sheeting manufacturer shall periodically properly remove all thinners and roll coat ink at the sheeting manufacturer’s cost. In addition, the sheeting manufacturer shall arrange recycling of sheeting liner used in the production of license plates.
3. The sheeting manufacturer shall be required to deliver, free of charge, all thinner and inks on an “as needed” basis. Delivery in the amounts required must be completed within fifteen (15) days after receipt of order.
4. The contract shall be for projected volumes, which are estimates only. The contract shall be for actual amounts ordered during the selected contract production period. Delivery schedules and quantities must be coordinated with the state’s designated sheeting manufacturer.

APPENDIX I

COLOR SPECIFICATION

Chromaticity Coordinate

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Color | Corner x | Points y | Luminance Factor  Y% |
| 1. | White | .355 | .355 | 42 Min. |
|  |  | .305 | .305 |  |
|  |  | .285 | .325 |  |
|  |  | .335 | .375 |  |
| 2. | Yellow | .465 | .534 | 28-38 |
|  |  | .427 | .483 |  |
|  |  | .487 | .423 |  |
|  |  | .545 | .454 |  |
| 3. | Lemon Yellow | .455 | .455 | 40-45 |
|  |  | .514 | .485 |  |
|  |  | .440 | .558 |  |
|  |  | .395 | .508 |  |
| 4. | Orange | .505 | .354 | 14-24 |
|  |  | .550 | .412 |  |
|  |  | .600 | .360 |  |
|  |  | .478 | .385 |  |
| 5. | Blue | .181 | .069 | 11-20 |
|  |  | .270 | .220 |  |
|  |  | .230 | .250 |  |
|  |  | .103 | .246 |  |
| 6. | Green | .210 | .275 | 15-25 |
|  |  | .280 | .385 |  |
|  |  | .180 | .520 |  |
|  |  | .080 | .310 |  |
| 7. | Red | .613 | .297 | 5-10 |
|  |  | .636 | .364 |  |
|  |  | .558 | .352 |  |
|  |  | .708 | .292 |  |
| 8. | Gold | .435 | .465 | 15-35 |
|  |  | .475 | .420 |  |
|  |  | .420 | .370 |  |
|  |  | .385 | .420 |  |

1. Areas of the sheeting without preprinted graphics or customer digitally printed graphics. [↑](#footnote-ref-1)