American Traffic Safety Materials, Inc.

AMERICAN TRAFFIC SAFETY MATERIALS, INC.™
1117 SERIES
E.C. (Electronically Cuttable) Transparent Overlay Film

PRODUCT DESCRIPTION:

American Traffic Safety Materials, Inc.'s™ ***EC Transparent Overlay Film*** is a solventless sign fabricating film that's fast, versatile, pressure sensitive, and is a state-of-the-art alternative to silk-screening or cut-out lettering. It also is a very cost effective way to produce small quantities of signs.

American Traffic Safety Materials, Inc.™ offers our EC Overlay Films on paper liner and polyliner. Our ***1117 Series Vinyl EC Transparent Overlay film*** is electronically cuttable, and is known for its user friendliness when weeding out the letters and applying the film to the reflective sheeted sign blank. It is fully repositionable until it has been pressurized by your hand or squeeze roller.

- ***EC Transparent Overlay Film*** is the industry's answer in providing solventless transparent imaging material to be used with durable reflective sheeting. ***EC Film*** is more economical to use than silk-screen inks or cut-out lettering for short run sign-making applications. Unlike screened signs, EC Film requires no rack or drying time. EC Film takes advantage of your existing sign shop equipment investment any usually does not require and additional equipment purchases.

A SOLVENTLESS SYSTEM FOR A SAFER WORKPLACE

EC Film is designed to match the durability performance of screen process inks without hazardous fumes and solvents. As studies show, fumes from screening inks and solvents are sometimes a very real safety problem for sign shop employees. That's why some state and local government agencies are adopting laws prohibiting the use of

inks and solvents in sign shops. With the growing environmental awareness of screening inks, solvent fumes and the disposal of them, there is a need for a safer method of sign production. ***American Traffic Safety Materials, Inc.*** ™ has just such a system. EC Transparent Overlay Film is pre-coated with a pressure sensitive adhesive for safer and easier sign production. There are no fumes from silk-screening inks or solvents so the workplace is more environmentally safe for your employees.

AMERICAN TRAFFIC SAFETY MATERIALS, INC.™
1117 SERIES
ECTransparent Overlay Film

American Traffic Safety Materials, Inc.'s™ EC Transparent Overlay Film is the clear choice for cost-effective sign production. The transparent 3 Mil thick, adhesive backed EC film is specially designed for use on your existing computerized electronic cutting systems. It can be used to create signs in far less time than conventional techniques. ***American Traffic Safety Materials, Inc.'s***™ EC film helps you produce more creative and accurate signs and logos at a lower cost than cutting out lettering from higher priced reflective materials.
Computerized cutting systems also give you the ability to create standard spacing between characters with great accuracy. So, you can save time and produce better looking signs.

EC Transparent Overlay Film also saves you money on inventory. Available in all standard traffic sign colors and purple, it can be applied over all grades of ***American Traffic Safety Materials, Inc.'s***™ Reflective sheeting, and other supplier's reflective sign sheeting materials that are approved by ASTM D4956. Your budget dollars can be stretched by stocking different colors of EC films instead of large quantities of more costly reflective sheeting, therefore reducing your inventory costs.

American Traffic Safety Materials, Inc.'s™ ***EC Film*** is more durable than most silk-screening inks. The EC Film durability matches your existing reflective sign material durability statement up to 10 years which is based on the color and type of reflective sheeting. EC Film resists peeling more effectively and is less susceptible to vandalism than cutout letters. Since it is only 3 mil in thickness, dirt cannot settle on the upper edges of letters and deteriorate the adhesive. The thin EC film is invisible to vandals and is the cutting edge of sign shop technology. The additional coverage of the EC Transparent Overlay Film also protects the reflective material it is placed upon.

AMERICAN TRAFFIC SAFETY MATERIALS, INC.™
1117 SERIES
EC Transparent Overlay Film

SPECIFICATIONS:

1.0 SCOPE

This document covers flexible, transparent, durable films designed to be applied to retroreflective materials for the creation of traffic control signs and devices.

2.0 APPLICABLE DOCUMENTS

The following documents, of the issue in effect on the date of invitation for bids or request for proposal, form a part of this specification to the extent specified herein:

2.1 B209

Specifications for aluminum and aluminum alloy sheet and plate.

2.1.2 D523

Standard method for testing for specular gloss.

2.1.3 D4956

Standard specification for retroreflective sheeting for traffic control.

2.1.4 E284

Standard definition of terms relating to appearance of materials.

2.1.5 E308

Computing the colors of objects by using the CIE System.

2.1.6 E810

Standard test method for coefficient of retroreflection of retroreflective sheeting.

2.1.7 E1164

Standard practice for obtaining spectrophotometric data for object-color evaluation.

2.2 CIE Publication Number 39-2, recommendation for surface colors for visual signaling.

3.0 DESCRIPTION

EC Transparent Overlay Films shall consist of durable, transparent, colored films coated with a transparent pressure sensitive adhesive protected by a removable paper or clear liner. The films are designed to be cut on knife over roll sprocket fed, friction fed and flat bed electronic cutting machines. The films shall be available in standard traffic colors, are dimensionally stable, and are designed to optimally cut, weed, lift, and transfer. The use of Electronic Cuttable Films will not require the using agency to release any volatile organic compounds.

4.0 TEST METHODS:

4.1 TEST CONDITIONS Unless otherwise specified herein, all applied and unapplied test samples and specimens shall be conditioned at the standard conditions of 73° ± 3°F (23° ± 1.5°C) and 50% ± 5% relative humidity for 24 hours prior to testing.

4.2 TEST PANELS Unless otherwise specified herein, tests are to be performed using test panels, the specimens of retroreflective and/or overlay film(s) shall be applied to smooth aluminum cut from ASTM B-209 Alloy 5052-H36, 5052-H38, 5154-H38, or 6061-T6 sheets on 0.020 inch (0.051 cm), 0.040 inch (0.102 cm), or 0.063 inch (0.160 cm) thickness. The aluminum shall be degreased and lightly acid etched before the specimens are applied. The specimens shall be applied in accordance with the recommendations of the reflective sheeting and EC Film manufacturer(s).

5.0 PHYSICAL REQUIREMENTS

5.1 COLOR REQUIREMENTS When EC Transparent Overlay Film is applied to retroreflective sheeting, the resulting color of the composite sheeting will conform to ASTM D-4956 and AASHTO M268 specifications.

5.1.1 COLOR TEST: Conformance to color requirements shall be determined by instrumental method in accordance with ASTM E1164 on sheeting applied to aluminum test panels. The values shall be determined on a Hunterlab Labscan 60000/45 Spectrocolorimeter with option CMR559 (or approved equal 0/45 (45/0) instrument with circumferential viewing (illumination). Computations shall be done in accordance with ASTM E308 for the 2 observer.

5.2 COEFFICIENT OF RETROREFLECTION When EC Transparent Overlay Film is applied to retroreflective sheeting, the composite will conform to the percentage retained of the minimum coefficient of retroreflection specified by the using agency and the manufacturer for the retroreflective sheeting when retroreflective is screen processed. The coefficient of retroreflection shall be determined in accordance with ASTM E810.

5.2.1 UNITS Coefficients of retroreflection R shall be specified in units of candelas per foot candle per square foot (candelas per lux per square meter).

5.2.2 The observation angles shall be 0.2° and 0.5° unless otherwise specified.

5.2.3 The entrance angles shall be - 4° and 30° unless otherwise specified.

5.2.4 Retroreflective sheetings with datum marks shall be tested in the orientation specified by the manufacturer. If no datum mark is supplied, the sheeting shall be rotated to determine the minimum which shall be reported without averaging.

5.3 SPECULAR GLOSS The EC Transparent Overlay Film shall have an 85 specular gloss of not less than 50 when tested in accordance with ASTM D523.

5.4 PROCESSING AND CUTTABILITY The EC Transparent Overlay Film shall permit cutting, weeding, masking with transfer tape, lifting, and application to retroreflective sheeting when used in accordance with manufacturer's recommendations at **temperatures between 65° and 95°F (18.3° and 35°C**) and relative humidity's between 30% and 70%. The film shall lay flat with minimal edge curl and be dimensionally stable.

5.5 ADHESIVE LINER The protective liner attached to the adhesive shall be removable by peeling before application. The liner shall have a controlled release from the adhesive coated film sufficient to allow cutting without the film popping off from the liner while still allowing the liner to easily be peeled from the film.

5.5.1 PUNCHED Film with punched edges for use on sprocket fed knife over roll cutters is available in a variety of patterns and on a variety of material widths.

5.6 RESISTANCE TO ACCELERATED OUTDOOR WEATHERING When EC Transparent Overlay Film is applied to retroreflective sheeting, the surface of the film shall be weather resistant and show no appreciable cracking, blistering, crazing, or dimensional change after 2 years unprotected outdoor exposure, facing the equator and inclined 45 from the vertical. Following weather exposure, panels shall be washed in a 5% HCL solution for 45 seconds, rinsed thoroughly with clean water, blotted dry with a soft clean cloth and brought to equilibrium at standard conditions. After cleaning, the coefficient of retroreflection shall not be less than the value specified by the using agency for the retroreflective sheeting when the retroreflection sheeting is screen processed.

5.6.1 Show no appreciable evidence of cracking, scaling, pitting, blistering, edge lifting or curling or more than 1/32 inch (0.08 cm) shrinkage or expansion.

5.6.2 Show "Good" color fastness or better when tested as in 5.7.

5.6.3 Retained reflectivity shall be the same as the using agency specification for screen processed retroreflective sheeting of the type being tested.

5.6.4 The EC Transparent Overlay Film shall not be removable from the retroreflective sheeting without damage. Retroreflective performance measurements made after weather exposure shall be made only at angles of .02° observation and - 4° entrance angles. Where more than one panel of a color is measured, the coefficient of retroreflection shall be the average of all determinations.

5.7 COLORFASTNESS One Specimen, exposed and prepared as specified in 5.6 shall be wet out with a mild detergent and water solution and compared with a similarly treated unexposed specimen under natural (north sky) daylight or artificial daylight having a color temperature of 7600k. The colorfastness shall be evaluated as follows:

EXCELLENT - NO PERCEPTIBLE CHANGE IN COLOR
GOOD - PERCEPTIBLE BUT NO APPRECIABLE CHANGE IN COLOR
FAIR - APPRECIABLE CHANGE IN COLOR

Appreciable change in color means a change that is immediately noticeable in comparing the exposed specimen with the original comparison specimen. If closer inspection or a change of angle of light is required to make apparent a slight change in color, the change is not appreciable.

5.8 GENERAL CHARACTERISTICS AND PACKAGING

5.8.1 ROLL GOODS When supplied as roll goods, the EC Transparent Overlay Film shall be of good appearance, free from ragged edges, cracks, and extraneous materials. The maximum number of splices in each roll shall be three per 50 yards of material. Splices shall be butted. The sheeting shall be packed snugly in corrugated fiberboard cartons, in accordance with commercially accepted standards. Each carton shall clearly stipulate the brand, quantity, size, lot or run number, and color. Stored under normal conditions the EC Transparent Overlay Film as furnished shall be suitable for use for a minimum period of one year.

5.8.2 SIGN FACES When supplied as a finished sign face or mounted sign, the sign face, made of EC Transparent Overlay Film and retroreflective sheeting, shall comply with the appearance, specification, and good workmanship designated by the using agency for sign faces constructed of screen processed retroreflective sheeting for the same type.

6.0 PERFORMANCE REQUIREMENTS AND OBLIGATIONS

6.1 CERTIFICATION The film manufacturer shall, upon request, submit with each lot or shipment, a certification which states that the material supplied will meet all of the requirements listed herein.

6.2 FIELD PERFORMANCE REQUIREMENTS When EC Transparent Overlay Film is applied to retroreflective sheeting, both materials applied in accordance with the manufacturer's recommendations, shall as a composite perform with the same effective performance life as the using agency specifies for that type of retroreflective sheeting when screen processed. The composite sign will be considered unsatisfactory if it has deteriorated due to natural causes to the extent that:

1. The sign is ineffective for its intended purpose when viewed from a moving vehicle under normal day and night driving conditions or:

2. The coefficient of retroreflection is less than the minimums specified by the using agency for the retroreflection sheeting when screen processed and aged for the same period as listed above.

6.3 ELECTRONIC FILM MANUFACTURER'S REPLACEMENT OBLIGATION: Where it can be shown that retroreflective traffic signs with EC Transparent Overlay Film supplied and used according to the film manufacturer's recommendations have not met the performance requirements of section 6.2, the film manufacturer obligation shall not exceed the replacement of the E.C. Film. The manufacturer will require the purchase date and application date of the E.C. Film and the sign installation date.

6.4 GOVERNMENT USING AGENCY OBLIGATION: The using agency shall be responsible for requiring dating of all signs at the time of application. That date constitutes the start of the field performance obligation period.

7.0 EQUIPMENT: The manufacturer supplying the Electronic Cuttable Film requirement shall not be required to provide service on film cutting or application equipment not of their manufacture.

7.1 COMPLIANCE: Failure to comply with the requirements and schedules of 7.0 shall be
cause for cancellation of contract.

7.2 THIS SPECIFICATION AND WARRANTY SUPERCEEDS AND REPLACES ANY AND ALL PREVIOUS WARRANTIES EFFECTIVE JANUARY 11, 1997.

AMERICAN TRAFFIC SAFETY MATERIALS, INC.™
SERIES 1117 - TRANSPARENT OVERLAY FILM
RECOMMENDED APPLICATION PROCEDURE

This is a reverse weed application!

- Enter text and cut film per your plotter's operating instructions.

- Remove excess film, and leaving behind what is to be applied to the reflective sheeted blank.

- Mask the overlay film, using premask application transfer tape. It is recommended to use paper premask tape to assure the EC overlay film does not stretch during repositioning.

- ***American Traffic Safety Materials, Inc.'s***™ EC Film is designed for flat sheeting applications, without surface irregularities.

- The use of an adjustable pressure laminator with a pressure gauge is recommended. **The recommended lamination pressure for *American Traffic Safety Materials, Inc.'s*™ EC Transparent Overlay Film is 80lbs.**

- These application procedures assure that the material will be warranted for the life of the reflective sheeting it is placed upon (7 years for Engineer Grade and up to 10 years for High Intensity, and Microprismatic sheeting).

- Unless specifically noted in writing, the warranty is voided if the EC Film is not used on ASTM D-4956 approved materials.