

## **Reflective Sign Sheeting**

Reflective sheeting for signs, barricades, reboundable drums, cones, and other traffic control devices shall meet the requirements of this document. Reflective sheeting is classified according to the performance characteristics given in ASTM D 4956, including supplementary requirement S2, and any exceptions and/or additions included herein. Some standard sheeting types have been modified to reflect Minnesota requirements. Only Mn/DOT approved reflective sign sheeting is allowed for use. The Approved Products List and Product Qualification Process can be accessed on the Traffic Engineering website at <http://www.dot.state.mn.us/products/signing> .

- A** Sign Sheeting Type I (Typically used for highway signing, construction zone devices, and delineators). This sheeting shall meet the performance requirements of ASTM D 4956 for Type I sheeting.
  
- B** Sign Sheeting Type III.
  - 1.** Sign Sheeting Type III (Typically used on rigid substrates). This sheeting shall meet the performance requirements of ASTM D 4956 for Type III sheeting.
  
  - 2.** Sign Sheeting Type III MC (Typically used for traffic cones). This sheeting shall conform to the performance requirements of ASTM D 4956 Type III material. The reflective sheeting shall have an identification mark on the surface. This mark shall signify that the sheeting meets all requirements of this specification. The identification mark shall not interfere with the functioning of the sheeting, but shall be visible to inspectors day and night without the use of special devices. This sheeting shall display the international worker symbol, in a repeat pattern, to permit this visual verification. This repeat pattern shall be such that any 100mm x 100mm (4 inch by 4 inch) square piece of this sheeting shall contain at least one full symbol. Impact resistance shall conform to the requirements of ASTM D 4956 with the additional requirement that the material shall be tested at both 0°C (32° F) and 22° C (72° F).
  
  - 3.** Sign Sheeting Type III MD (Typically used on reboundable plastic drums, weighted channelizers, and yellow cylinder style delineators). The white and yellow sheeting shall conform to ASTM D 4956 Type III material. The orange sheeting shall conform to the requirements of ASTM D 4956 Type III fluorescent material. Impact resistance shall conform to the requirements of ASTM D4956 with the additional requirement that the material shall be tested at both 0°C (32° F) and 22° C (72° F).
  
  - 4.** Sign Sheeting Type III MT (Typically used on tubular markers). This sheeting shall meet the performance requirements of ASTM D 4956 for Type III sheeting. The reflective sheeting shall have an identification mark on the surface. This mark shall signify that the sheeting meets all requirements of this specification. The identification mark shall not interfere with the functioning of the sheeting, but shall be visible to inspectors day and night without the use of special devices. This sheeting shall display the international worker symbol, in a repeat pattern, to permit this visual verification. This repeat pattern shall be such that any 100mm x 100mm (4 inch by 4 inch) square piece of this sheeting shall contain at least one full symbol. Impact resistance shall conform to the requirements of ASTM D 4956 with the additional requirement that the material shall be tested at both 0°C (32° F) and 22° C (72° F).

## **C** Sign Sheeting Type VI

1. Sign Sheeting Type VI (Typically used for temporary roll-up signs). This sheeting shall conform to the performance requirements of ASTM D 4956 Type VI fluorescent material.

## **E** Sign Sheeting Type VII

1. Sign Sheeting Type VII (Typically used for rigid substrate construction signing and barricade faces). This sheeting shall conform to the performance requirements of ASTM D 4956 Type VII material.
2. Sign Sheeting Type VII MD (Typically used on reboundable plastic drums, weighted channelizers, and cylinder style delineators). The white sheeting shall conform to the performance requirements of ASTM D 4956 Type VII material. The orange sheeting shall conform to the requirements of ASTM D 4956 Type VII fluorescent material. Impact resistance shall conform to the requirements of ASTM D 4956 with the additional requirement that the material shall be tested at both 0°C (32°F) and 22°C (72°F).
3. Sign Sheeting Type VII MF (Typically used for rigid substrate construction signing requiring added emphasis). This sheeting shall conform to the performance requirements of ASTM D 4956 Type VII fluorescent material.

## **F** Sign Sheeting Type IX.

1. Sign Sheeting Type IX (Typically used for highway signing, markers, and delineators). This sheeting shall conform to the performance requirements of ASTM D 4956 Type IX material.
2. Sign Sheeting Type IX FL Yellow-Green and Yellow (Typically used for signs warning of non-motorized traffic, no passing zone pennants, hazard markers, chevrons, clearance markers, and culvert markers). This sheeting shall conform to the performance requirements of ASTM D 4956 Type IX fluorescent material.

## **Warranty Requirements**

The reflective sheeting manufacturer shall provide the following warranties to the Department on their products:

1. Type IX Sheeting (Permanent Use) – 12 year warranty with 7 years being 100% full replacement covering all material and labor costs associated with fabrication and installation of the sign or device, and the final 5 years being 100% sheeting replacement.
2. Type IX FL Sheeting (Permanent Use)– 10 year warranty with 7 years being 100% full replacement covering all material and labor costs associated with fabrication and installation of the sign or device, and the final 3 years being 100% sheeting replacement.
3. Type III Sheeting (Permanent Use) - 10 year warranty with 7 years being 100% full replacement covering all material and labor costs associated with fabrication and installation of the sign or device, and the final 3 years being 100% sheeting replacement.

4. Prismatic and Rollup Sign Sheeting (Work Zone Use) – 3 year full replacement warranty covering all material and labor costs associated with fabrication of the sign or device.

The warranty shall cover the loss of retroreflectivity, loss of colorfastness, cracking and any other conditions inherent to the sheeting including inks and overlay film that causes it to be ineffective in providing the direction to the motorists as intended.

Minimum values of retroreflectivity maintained during the warranty period shall be the same as those required for the maintained coefficient of retroreflection values as indicated in 3352 of the 2005 Standard Specification for Construction.

Loss of colorfastness is considered to have occurred if the color of the sheeting is not within the color specification limits defined in the 2005 Standard Specifications for Construction during the warranty period.

Applicable warranties for sign sheeting shall be turned over to the Department. The Department shall be named obligee on all manufacturers' warranties. Failure to honor the terms of these warranties shall be just cause for removal of product(s) from the Department's Approved Product List.