# 3M
# Vinyl Roll Up Sign Sheeting

## Series RS30

**Product Bulletin RS30** **July, 2004**

Replaces PB RS30 dated December, 2003

## Description

3M™ Vinyl Roll Up Sign Sheeting Series RS30 consists of retroreflective microprisms formed on a flexible glossy and UV-stabilized polymeric film, designed for the production of roll up traffic control signs used in work zones and emergency traffic control. This sign sheeting is designed to provide higher nighttime sign brightness. Series RS30 sheeting has a protective film on the face side. The protective film must be removed before screen processing and is recyclable as classified under SPI Code 1. If the protective film remains on the surface prior to screen processing Series RS30 sheeting does not require solvent cleaning or wiping prior to screen processing. Series RS30 is backed with a heavy duty vinyl coated fabric.

| Color | Product Code |
|---|---|
| White | RS30 |
| Fluorescent Pink | RS33 |
| Fluorescent Orange | RS34 |

## Prismatic Roll Up Sign Sheeting Requirements

The prismatic retroreflective sheeting used for roll up construction sign blanks shall consist of a high gloss transparent UV-stabilized film bonded to a layer of cube corner prisms and backed with heavy duty vinyl coated fabric. The prismatic roll up sign sheeting shall meet the following specifications:

1. Tensile Strength: 2600 PSI minimum (ASTM D-882)
2. Modulus of Elasticity: 1600 PSI minimum (ASTM D-882)
3. Flexibility: After conditioning a 1" x 6" sample for 24 hours at 73 ± 3˚F (23 ± 2˚C) and 50 ± 5% relative humidity, bend in one second around 1/8" (3.2mm) mandrel with gray side facing the mandrel. There shall be no cracking or crazing.
4. Impact Resistance Conditioning: Condition the samples of sealed roll up sign at 73 ± 3˚F (23 ± 2˚C) and 50 ± 5% relative humidity for 24 hours prior to testing.

   Ambient Temperature Impact Resistance: Subject the sheeting to the impact of a 4 lb. (1.82 kg) weight with a 5/8 inch (15.8mm) diameter rounded tip, dropped from the height necessary to generate an impact of 100 inch - lb. as per ASTM D4956. The sheeting shall show no cracking or delamination outside the actual area of impact.

   Cold Temperature Impact Resistance: Subject the sheeting to the impact of a 4 lb. (1.82 kg) weight, with a 5/8" (15.8 mm) diameter rounded tip, dropped from the height necessary to generate an impact of 100 inch - lb. as per ASTM D4956. The sheeting shall show no cracking or delamination outside the actual area of impact.
5. Solvent Resistance: Series RS30 sheeting will not dissolve or pucker when wiped with a soft cloth containing mineral spirits, turpentine, methanol, VM&P Naphtha, or aqueous HCI (5%) or NaOH (5%).
6. Color: The color shall conform to daytime color requirements in Table A when tested in accordance with test methods specified in ASTM E-810 and reported in terms of the CIE 1931 Standard Colorimetric System for Standard Illuminant D65.

**Table A - Color Specification Limits** (Daytime)**
**Chromaticity Coordinates**

| Color | 1 | | 2 | | 3 | | 4 | | Reflectance Limit Y (%) |
|---|---|---|---|---|---|---|---|---|---|
| | x | y | x | y | x | y | x | y | Min. |
| White | .303 | .300 | .368 | .366 | .340 | .393 | .274 | .329 | 30.0 |
| Fluorescent Pink | .450 | .270 | .590 | .350 | .644 | .290 | .536 | .230 | 25.0 |
| Fluorescent Orange | .583 | .416 | .535 | .400 | .595 | .351 | .645 | .355 | 25.0 |

**The four pairs of chromaticity coordinates determine the acceptable chromaticity on the CIE diagram.

7. Retroreflectivity: When tested in accordance with ASTM E-810 the welded sign blank material shall have the following minimum values of coefficient of retroreflectivity:

| | | (cd/lux/m²) | |
|---|---|---|---|
| Color | Observation Angle (˚) | Entrance Angle (-4˚) | Entrance Angle (30˚) |
| White | 0.2 | 250 | 95 |
| | 0.5 | 120 | 50 |
| Fluorescent Pink | 0.2 | 160 | 100 |
| | 0.5 | 100 | 40 |
| Fluorescent Orange | 0.2 | 200 | 100 |
| | 0.5 | 90 | 34 |

8. Accelerated Weathering: Retention of 50% of reflective intensity minimum requirements after 250 hours when tested in accordance with ASTM G23 Type E or EH with humidity off.

## Fabrication Guidelines

**A.** As supplied, 3M™ Vinyl Roll Up Sign Sheeting Series RS30 includes a plastic protective film which must be removed prior to fabricating the sign. The protective film can be easily lifted by bending the sign at a corner or seam. Screen processing should be completed within 24 hours of removing the plastic film.

**Note:** Removal of the protective film may generate static electricity and should not be done in the presence of flammable solvents.

**B.** Series RS30 sheeting is designed for sewing or riveting corner pockets or snaps. Cross brace supports can then be used in conjunction with portable sign stands. All corner pockets and washers should be nylon, rubber, or plastic materials. Avoid using hardware or mounting brackets with sharp edges.

**C.** Separate overlay (copy/symbol) pieces can be attached to roll up signs using 3M Dual Lock™ Reclosable Fastners SJ3543 Type 250 Stems or 3M Scotchmate™ Hook and Loop Fastening Systems SJ3526 Loop with SJ3527 Hook. Prepare the sheeting surface by cleaning with an IPA (alcohol) cleaning spray to remove dirt and other surface contaminants. Peel the protective liner off the fastener and apply with firm roll down pressure to assure complete adhesive contact on the sheeting. Apply at temperatures above 68˚F.

If the product is expected to perform in environments below 20˚F, sewing of the overlay pieces using an industrial sewing machine is highly recommended.

**D. Screen Processing**

Screen processing should be done within 24 hours of removing the protective film. The off contact screen process method is the preferred screening method for roll up sign sheetings. The screening table must be perfectly flat. When screening the roll up sheets, hold the sheets in place using a vacuum table or if a vacuum table is not available, the sheets can be held in place on a non-porous table surface using a thin, uniform layer of low tack pressure sensitive adhesive. The screen mesh size should be in the PE 157 - PE 175 range of monofilament fabric. A sharp squeegee of medium or hard rubber is recommended.

Stenciling the process colors or use of other screen fabric mesh sizes may not produce satisfactory color or durability and are not recommended.

**NOTE:**

3M™ Process Color 1805 Black is the recommended process color for Series RS30 roll up sign sheeting. Use 3M Thinner CGS-50 for thinning the 1805 process color. For a full color palette, 3M™ Process Color Series 990 may also be used on series RS30 sheeting. These process colors must be coated with 3M™ Scotchlite™ Screen

Printing Glass Clear 4430R. The 4430R can be applied after 2 hours of drying of series 990 ink. Screen printed sheets must be dry for 24 hours (on drying rack) before rolling up or attaching the pockets.

See Product Bulletin 1800 or call 3M Technical Services at 1-800-553-1380.

**D. Storage**

Unprocessed sheeting should be stored in a cool, dry area, preferably at 65˚-75˚F (18˚-24˚C) and 30-50% relative humidity, and should be used within one year after the purchase.

**Unprocessed sheets** should be **stored flat** as packaged and supplied. The protective film should remain on the sheeting until it will be processed.

See Information Folder 1.11 for details of storage and packaging. Finished roll up signs should be stored dry and rolled up properly per sign manufacturer specifications.

## Health and Safety Information

Read all health hazard, precautionary and first aid statements found in the Material Safety Data Sheet (MSDS), and/or product label of chemicals prior to handling or use.

## General Performance Considerations

The durability of RS30 sign sheeting will depend upon preparation, compliance with recommended application procedures, geographic area, exposure conditions, and maintenance. Maximum durability of RS30 sheeting can be expected in applications subject to vertical exposure when processed according to 3M recommendations provided in Information Folder 1.7.

## 3M Literature Reference

**Screen Processing**

| | |
|---|---|
| 3M™ Process Colors | PB 1800 |
| 3M™ Process Colors | PB 990 |
| 3M™ Process Colors | PB 4400 |
| 3M™ Process Colors Application Instruction | IF 1.8 |

**Application**

| | |
|---|---|
| Cutting, Matching, Premasking & Prespacing Instructions | IF 1.10 |
| Sign Base Surface Preparation for Reflective Sheeting Application | IF 1.7 |

**Storage and Packaging**

| | |
|---|---|
| Storage Maintenance and Removal Instructions | IF 1.11 |

**FOR INFORMATION OR ASSISTANCE CALL:**
**1-800-553-1380**

**Fax-on-Demand in the U.S. and Canada:**
**1-800-887-3238**

**Internet:**
**www.3M.com/tss**

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