JISLON®

Road Traffic Safety Products
Product Manual
vol. 3

-3- Dimensional Road Marking
Solidsheet

SEKISUI JUSHI CORPORATION
-3- Dimensional Road Marking
Solidsheet

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Solidsheet

[ Characteristics ]

Solidsheets cause drivers to slow down by using a 3-dimensional obstacle effect.

- Principles of the 3-dimensional effect are demonstrated by a 3 color combination of flat sheets.
- Concerning 3-dimensional shapes and color, we selected the most effective ones of samples after our various tests.
- Solidsheets have a great effect on drivers to reduce their speed.
- Solidsheets optionally contain reflective glass beads, giving high night time visibility.
- Solidsheets are thermoplastic flat sheets and can be easily installed using primer and burner.
- Mainly used for narrow roads going through housing areas.

[ Product line up ]

Mountain type L, S

2 sizes are available. (L size, S size)
Install L size only or L and S size combination.
(Only S size installation is not effective.)
Mountain-type has a deceleration effect on the driver driving at about 40km/h (25mph) and under.
Block type

This type has an effect on making a narrower looking lane to drivers and causing them to reduce their speed.
This type is effective in separated lanes.
To maximize their effect, at least 5 sets* per installation are needed.
(*1 set : right and left pattern)
Compared with Mountain type, this type can be installed in higher speed roads.

Notch type

This type has an effect on making a narrower looking lane to drivers and causing them to reduce their speed.
This type is effective in separated lanes.
To maximize their effect, at least 5 sets* per installation are needed.
(*1 set : right and left pattern)
Compared with Mountain type, this type can be installed in higher speed roads.
Solidsheet

**Thunder type**

This type has an effect on making a narrower looking lane to drivers and causing them to reduce their speed.
This type gives strong visual impact to drivers.
This type is effective in separated lanes.
Compared with Mountain type, this type can be installed in higher speed roads.

**Cross-mark type**

This type is effective in cross section without any traffic light.
**Solidsheet**

### Specifications

<table>
<thead>
<tr>
<th>Item</th>
<th>Dimension</th>
<th>Packed per</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mountain type L</td>
<td>1450(4.76&quot;) x 600(1.97&quot;)</td>
<td>5 pcs</td>
</tr>
<tr>
<td>Mountain type S</td>
<td>1040(3.41&quot;) x 450(1.48&quot;)</td>
<td>8 pcs</td>
</tr>
<tr>
<td>Block type</td>
<td>3000(9.84&quot;) x 300(0.98&quot;)</td>
<td>8 pcs</td>
</tr>
<tr>
<td>Notch type</td>
<td>3000(9.84&quot;) x 300(0.98&quot;)</td>
<td>5 pcs</td>
</tr>
<tr>
<td>Thunder type</td>
<td>3600(11.81&quot;) x 600(1.97&quot;)</td>
<td>5 pcs</td>
</tr>
<tr>
<td>Cross-mark type</td>
<td>3300(10.83&quot;) x 3300(10.83&quot;)</td>
<td>1 pc</td>
</tr>
</tbody>
</table>

### Instruction manual

#### 1. Installation process

1. **Marking out**

   Decide position, and mark out the road surface.

   Make accurate markings corresponding to road surface shape / curve.

2. **Painting *primer***

   **Painting primer** on the road surface.

   In advance, be sure to completely remove any dust, moisture, oil, etc. from the road surface.

   After that, paint the special primer on the marked road.

*The component of the primer.*

<table>
<thead>
<tr>
<th>Chemicals</th>
<th>CAS No.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chloroprene</td>
<td>9010 - 98 - 4</td>
<td>10 ~ 15</td>
</tr>
<tr>
<td>Phenolic resin</td>
<td>9003 - 35 - 4</td>
<td>5 ~ 10</td>
</tr>
<tr>
<td>Toluene</td>
<td>108 - 88 - 3</td>
<td>65 ~ 70</td>
</tr>
<tr>
<td>Hexane</td>
<td>110 - 54 - 3</td>
<td>10 ~ 15</td>
</tr>
<tr>
<td>Ethyl acetate</td>
<td>141 - 78 - 6</td>
<td>5 ~ 10</td>
</tr>
</tbody>
</table>

* CAS No. means Chemical Abstract Services.
Solidsheet

3. Positioning

Positioning the sheet
After solvent of primer has vaporized, put the sheet precisely in position.
Combine the sheets in accord with the drawing.

4. Heating to adhere

Heating the sheet
In the beginning, heat the sheet with a low flame and allow the air out from sheet’s center.
Next, turn the gas up and melt the sheet with sufficient heating.
(Move gas burner back and forth to heat the sheet uniformaly.)
If you spray glass beads on the sheets after heating, it will enhance nighttime reflection.

5. Cooling to finish

Cooling to finish
Allow the sheets to completely cool.
(Under the high temperature conditions of summer days, cool the sheets by spraying with water.)

II. Special attention at installation

- Do not install Solidsheets when the road surface is wet.
- Avoid installing Solidsheets when the temperature is below 5 °C (41F).
- Arrange the sheet in accordance with the drawing.
- Allow each sheet to overlap by about 5mm (1/5").
Solidsheet

How to judge whether the Solidsheet was correctly heated

<table>
<thead>
<tr>
<th>Sketch</th>
<th>Situation of surface</th>
<th>Figure</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>It is starts to stick, but not yet sufficiently.</td>
<td><img src="image.png" alt="Figure A" /></td>
</tr>
<tr>
<td>B</td>
<td>Insufficiently adhesion, due to air bubble.</td>
<td><img src="image.png" alt="Figure B" /></td>
</tr>
<tr>
<td>C</td>
<td>The bubble has burst, adhesion not good.</td>
<td><img src="image.png" alt="Figure C" /></td>
</tr>
<tr>
<td>D</td>
<td>Almost good, the Solidsheet feels dry and sticks to the surface.</td>
<td><img src="image.png" alt="Figure D" /></td>
</tr>
<tr>
<td>E</td>
<td>Good, the Solidsheet is dry, the bigger pinholes are closed, there are many small pinholes on the sheet surface.</td>
<td><img src="image.png" alt="Figure E" /></td>
</tr>
</tbody>
</table>

[ Product test data ]

I. Measuring data by portable skid tester (BPN)

<table>
<thead>
<tr>
<th></th>
<th>DRY</th>
<th>WET</th>
</tr>
</thead>
<tbody>
<tr>
<td>The pavement surface of ASPHALT</td>
<td>90 ~ 95</td>
<td>70 ~ 75</td>
</tr>
<tr>
<td>-3-Dimensional Solidsheet (JISLINE-S)</td>
<td>60 ~ 65</td>
<td>45 ~ 50</td>
</tr>
</tbody>
</table>

* 24th December 1996
98309487. 5

II. Concerning durability of -3-Dimensional Solidsheet

Testing of the -3-dimensional Solidsheet on the actual road is difficult, because of the reasons given below. Therefore we advise an abrasion test; for which we give values below.

1. The exact position on the road has of course influence on the durability:
   a – if it is in a curve.
   b – if it is uphill, downhill or an inclined angle.
   c – if it is on an accelerating or braking point such as a crossroads.
2. The situation on the each road may be different:
   a – is it horizontal.
   b – is it uneven.
   c – is there sand or moisture on the surface.

3. The traffic conditions may differ:
   a – what is the number of vehicles passing over it?
   b – how many trucks are passing?
   c – what is their speed?

4. Other influences such as climate, rainfall, snowfall etc.

**III. Abrasion test (by TABER abrasion tester)**

This test gives an indication of the abrasion by using sandpaper over the sheet surface.

<table>
<thead>
<tr>
<th>Materials</th>
<th>Quantity by abrasion</th>
</tr>
</thead>
<tbody>
<tr>
<td>3-Dimensional Solidsheet</td>
<td>30 (mg / 200 times )</td>
</tr>
</tbody>
</table>

![Diagram]

Size of sample
100mm x 6mm

A: Sandpaper
B: Sample
C: Turn-table
After installing our "Solidsheet", the numbers of traffic accidents were greatly reduced.

**Number of traffic accident**

<table>
<thead>
<tr>
<th></th>
<th>Object A</th>
<th>Object B</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Person</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>4 months before installation</strong></td>
<td>49</td>
<td>22</td>
</tr>
<tr>
<td><strong>4 months after installation</strong></td>
<td>18</td>
<td>14</td>
</tr>
</tbody>
</table>

A : Numbers of traffic accidents at an intersection without traffic lights.
B : Total number of traffic accidents.

During 4 months before installation (From Feb./’96 to May/’96 in Japan)  
During 4 months after installation (From Feb./’96 to May/’96 in Japan)
1. Mountain type
2. Block type

Type 1
Type 2
Type 3
Type 4

3000 (9.84’)
300 (0.98’)

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3. Notch type

Type.1

Type.2

Type.3

Type.4

3000 (9.84’)

300 (9.87)
4. Thunder type

[Diagram showing different types of warning signs with dimensions: 3600 (11.81') and 600 (19.7')]
5. Cross-mark type
[ Color variation ]

JISLINE S -DX- Color Sheet

- JS White 1
- JS Red 1
- JS Brown 1
- JS Green 1
- JS Blue 1
- JS Yellow 1
- JS Blue 2
- JS Green 2

Types:
- Mountain Type
- Cross-Mark Type
- Thunder Type
- Notch Type
- Block Type

SEKISUI JUSHI CORPORATION
Solidsheet

[ Locations ]

Before installation in Edmonds in WA State (U.S.A.)

After installation in Edmonds in WA State (U.S.A.)
Wateringen (The Netherlands)

Sliedrecht (The Netherlands)
Six-Eight Enterprises LLC
5803 176 th Drive S.E., Snohomish, WA 98290
TEL: 425-879-0049  FAX: 425-261-1032
www.sixeightenterprises.com

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