Low VOC Tapes with Acrylic Adhesive
98010LVC  99015LVC

Product Data Sheet

Date: September 2022
Supersedes: July 2016

Product Description

3M™ Low VOC Tapes with Acrylic Adhesive 98010LVC and 99015LVC are designed for automotive interior applications on commonly used foam substrates, such as PU Ester and EPDM, as well as high surface energy (HSE) and low surface energy (LSE) substrates. The pure acrylic adhesive on both thin bonding tapes is designed to be low fog and low emission as determined by the JAMA and VDA278 test methods used by Automotive OEM’s and tier suppliers.

98010LVC is a 100 µm low VOC scrim reinforced transfer tape that provides good dimensional stability for large area lamination. 99015LVC is a 150 µm low VOC double coated tape with tissue carrier for ease of handling during lamination and excellent die-cutting characteristics.

Construction Information

<table>
<thead>
<tr>
<th>Product</th>
<th>Adhesive Caliper (mm)</th>
<th>Liner Type</th>
<th>Liner Thickness (mm)</th>
<th>Liner Color and Print</th>
</tr>
</thead>
<tbody>
<tr>
<td>98010LVC</td>
<td>0.10 mm</td>
<td>90 g Densified Kraft paper</td>
<td>0.08 mm</td>
<td></td>
</tr>
<tr>
<td>99015LVC</td>
<td>0.15 mm</td>
<td>90g Densified Kraft paper</td>
<td>0.08 mm</td>
<td></td>
</tr>
</tbody>
</table>
Product Testing

JAMA Low VOC Results (examplary)
Tested by: SGS Institut Fresenius GmbH

<table>
<thead>
<tr>
<th>Substance</th>
<th>98010LVC Measured VOC (µg/specimen)</th>
<th>99015LVC Measured VOC (µg/specimen)</th>
<th>VOC Targets (µg/specimen)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Formaldehyde</td>
<td>0.12</td>
<td>0.08</td>
<td>&lt;0.3</td>
</tr>
<tr>
<td>Acetaldehyde</td>
<td>0.04</td>
<td>0.04</td>
<td>&lt;0.3</td>
</tr>
<tr>
<td>Toluene</td>
<td>0.08</td>
<td>0.05</td>
<td>&lt;0.3</td>
</tr>
<tr>
<td>Ethylbenzene</td>
<td>&lt;0.04</td>
<td>&lt;0.04</td>
<td>&lt;0.3</td>
</tr>
<tr>
<td>Xylene (o-,m-,p-)</td>
<td>&lt;0.04</td>
<td>&lt;0.04</td>
<td>&lt;0.7</td>
</tr>
<tr>
<td>Styrene</td>
<td>&lt;0.04</td>
<td>&lt;0.04</td>
<td>&lt;0.3</td>
</tr>
<tr>
<td>Tetradecane</td>
<td>&lt;0.04</td>
<td>&lt;0.04</td>
<td></td>
</tr>
<tr>
<td>Di-n-butyl phthalate</td>
<td>&lt;0.04</td>
<td>&lt;0.04</td>
<td>Report</td>
</tr>
<tr>
<td>Di-2-ethylhexyl phthalate</td>
<td>&lt;0.04</td>
<td>&lt;0.04</td>
<td>Report</td>
</tr>
<tr>
<td>Benzene</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Acrolein</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

Test method:
Sample Size: 100mm×100mm
Heating condition: 149°F (65°C) for 2 hours
Gas trapping volume: 4L with Tedlar bag (10L)
Absorption pipe: Tenax-TA (for volatile carbon oxide), DNPH cartridge (for aldehydes)
Absorb air in Tedlar bag with each absorption pipe after heating and measure with gas chromatograph
Mass spectrometer or high speed liquid chromatography

Product Testing

VDA 278 Test Results (examplary)
Tested by: SGS Institute Fresenius GmbH

<table>
<thead>
<tr>
<th>Test Parameter</th>
<th>98010LVC</th>
<th>99015LVC</th>
</tr>
</thead>
<tbody>
<tr>
<td>VOC</td>
<td>16</td>
<td>18</td>
</tr>
<tr>
<td>FOG</td>
<td>89</td>
<td>110</td>
</tr>
</tbody>
</table>
Typical Physical Properties and Performance Characteristics

I. Adhesion Peel:
AFERA 5001/ ASTM D-3330 (Modified: 2 mil aluminum foil backer), Peel Speed = 300 mm/min

a. Metal (Stainless Steel)

<table>
<thead>
<tr>
<th></th>
<th>20 min dwell</th>
<th>72 hours dwell @ 70°C</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>90° Peel</td>
<td>180° Peel</td>
</tr>
<tr>
<td>98010LVC</td>
<td>11 N/25 mm</td>
<td>22 N/25 mm</td>
</tr>
<tr>
<td>99015LVC</td>
<td>15 N/25 mm</td>
<td>34 N/25 mm</td>
</tr>
</tbody>
</table>

b. Polypropylene

<table>
<thead>
<tr>
<th></th>
<th>20 min dwell</th>
<th>72 hours dwell @ 70°C</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>90° Peel</td>
<td>180° Peel</td>
</tr>
<tr>
<td>98010LVC</td>
<td>5 N/25 mm</td>
<td>4 N/25 mm</td>
</tr>
<tr>
<td>99015LVC</td>
<td>7 N/25 mm</td>
<td>7 N/25 mm</td>
</tr>
</tbody>
</table>

c. ABS

<table>
<thead>
<tr>
<th></th>
<th>20 min dwell</th>
<th>72 hours dwell @ 70°C</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>90° Peel</td>
<td>180° Peel</td>
</tr>
<tr>
<td>98010LVC</td>
<td>4 N/25 mm</td>
<td>10 N/25 mm</td>
</tr>
<tr>
<td>99015LVC</td>
<td>5 N/25 mm</td>
<td>34 N/25 mm</td>
</tr>
</tbody>
</table>

Temperature Resistance
Long term (days, weeks): 90°C
Short term (minutes, hours): 120°C
II. Static Shear Strength (minutes), ASTM D-3654

Size: 25mm x 25 mm
Weight: 500 grams

Dwell time: 24hr @ RT (tested at 70°C)

<table>
<thead>
<tr>
<th></th>
<th>98010LVC</th>
<th>99015LVC</th>
</tr>
</thead>
<tbody>
<tr>
<td>SS</td>
<td>10,000</td>
<td>10,000</td>
</tr>
</tbody>
</table>

III. Fogging (Photometric method)

The effect of fogging condensate on the glass plate is determined by measuring the 60° specular gloss. The 60° specular gloss for the same glass plate that is free from fogging condensate and carefully cleaned before the test is used as a reference value. The higher value indicates less fogging.

<table>
<thead>
<tr>
<th></th>
<th>98010LVC</th>
<th>99015LVC</th>
</tr>
</thead>
<tbody>
<tr>
<td>SAEJ1756</td>
<td>92%</td>
<td>94%</td>
</tr>
</tbody>
</table>

Environmental Performance

Humidity Resistance – High humidity has a minimal effect on adhesive performance. Bond strength (is generally higher/shows no significant reduction) after exposure for 7 days at 32°C and 90% relative humidity.

Bond Build-up - The bond strength of 3M™ Low VOC tape increases as a function of time and temperature on high energy surfaces.
Application Ideas

- Automotive interior bonding
- Door trim and door bolster attachment
- Foam, flock and felt for BSR applications
- Gaskets and seals
- Headliner component and shade attachment
- Acoustic/Thinsulate™ attachment

Storage & Shelf Life

Store at 16-25 °C and 40-65 % relative humidity in original carton out of sunlight.

If stored properly, product retains its performance and properties for 18 months from date of manufacturing.

Precautionary Information

To request additional product information or to arrange for sales assistance, call......
Address correspondence to: 3M

For Additional Information

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Address correspondence to: 3M

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98010LVC, 99015LVC
September 2022

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