# Low VOC Tapes with Acrylic Adhesive

98010LVC • 99015LVC

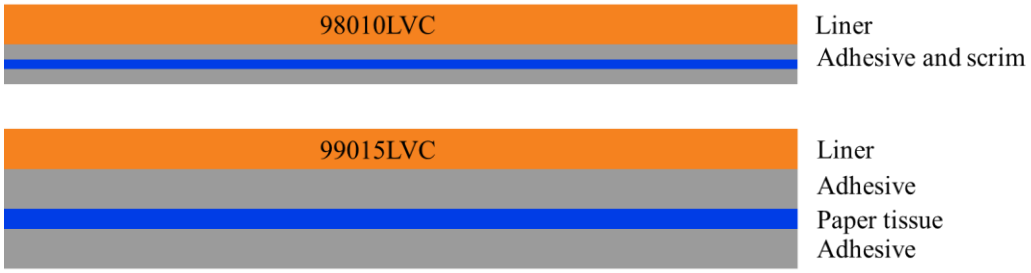
**Preliminary Technical Data Sheet** **April 2016**

**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 to meet the VOC requirements set forth in the JAMA and VDA278 test methods used by Automotive OEM's and tier suppliers.

98010LVC is a 3.9 mil (0.10 mm) low VOC scrim reinforced transfer tape that provides good dimensional stability for large area lamination. 99015LVC is a 5.9 mil (0.15 mm) low VOC double coated tape with tissue carrier for ease of handling during lamination and excellent die-cutting characteristics.

**Construction Information**



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**Construction Information (cont.)**

| Product | Adhesive Caliper mils (mm) | Liner Type | Liner Thickness mils (mm) | Liner Color and Print |
|---|---|---|---|---|
| **98010LVC** | 3.9 mils (0.10 mm) | 58# Densified Kraft | 3.2 mils (0.08 mm) |  |
| **99015LVC** | 5.9 mils (0.15 mm) | 58# Densified Kraft | 3.2 mils (0.08 mm) |  |

Note: The following technical information and data should be considered representative or typical only, and should not be used for specification purposes.

**Product Testing**

## JAMA Low VOC Results

**Tested by: SGS Institut Fresenius GmbH**

| Substance | 98010LVC Measured VOC (µg/specimen) | 99015LVC Measured VOC (µg/specimen) | VOC Targets (µg/specimen) |
|---|---|---|---|
| Formaldehyde | **0.12** | **0.08** | **<0.3** |
| Acetaldehyde | **0.04** | **0.04** | **<0.3** |
| Toluene | **0.08** | **0.05** | **<0.3** |
| Ethylbenzene | **<0.04** | **<0.04** | **<0.3** |
| Xylene (o-,m-,p-) | **<0.04** | **<0.04** | **<0.7** |
| Styrene | **<0.04** | **<0.04** | **<0.3** |
| Tetradecane | **<0.04** | **<0.04** | **Report** |
| Di-n-butyl phthalate | **<0.04** | **<0.04** | **Report** |
| Di-2-ethylhexyl phthalate | **<0.04** | **<0.04** | **Report** |
| Benzene | **N/A** | **N/A** | **N/A** |
| Acrolein | **N/A** | **N/A** | **N/A** |

**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**

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**Product Testing**

## VDA 278 Test Results

**Tested by: SGS Institut Fresenius GmbH**

| | 98010LVC | 99015LVC |
|---|---|---|
| **Test Parameter** | **Measured value (µg/g)** | |
| **VOC** | **16** | **18** |
| | **15** | **13** |
| **FOG** | **89** | **110** |

**Typical Physical Properties and Performance Characteristics**

**I.** Adhesion Peel: ASTM D-3330 (Modified: 2 mil aluminum foil backer)
Peel Speed = 12 ipm (300 mm/min)

**a. Metal (Stainless Steel)**

| | 20 minute dwell | | 72 hour dwell @ 158ºF/70ºC | |
|---|---|---|---|---|
| **Product** | **90º Peel** | **180º Peel** | **90º Peel** | **180º Peel** |
| **98010LVC** | 40 oz/in<br>11 N/25 mm | 80 oz/in<br>22 N/25 mm | 106 oz/in<br>29 N/25 mm | 79 oz/in<br>22 N/25 mm |
| **99015LVC** | 55 oz/in<br>15 N/25 mm | 121 oz/in<br>34 N/25 mm | 129 oz/in<br>36 N/25 mm | 112 oz/in<br>31 N/25 mm |

**b. Polypropylene**

| | 20 minute dwell | | 72 hour dwell @ 158ºF/70ºC | |
|---|---|---|---|---|
| **Product** | **90º Peel** | **180º Peel** | **90º Peel** | **180º Peel** |
| **98010LVC** | 18 oz/in<br>5 N/25 mm | 17 oz/in<br>4 N/25 mm | 18 oz/in<br>5 N/25 mm | 16 oz/in<br>4 N/25 mm |
| **99015LVC** | 24 oz/in<br>7 N/25 mm | 24 oz/in<br>7 N/25 mm | 19 oz/in<br>5 N/25 mm | 25 oz/in<br>7 N/25 mm |

**c. ABS**

| | 20 minute dwell | | 72 hour dwell @ 158ºF/70ºC | |
|---|---|---|---|---|
| **Product** | **90º Peel** | **180º Peel** | **90º Peel** | **180º Peel** |
| **98010LVC** | 14 oz/in<br>4 N/25 mm | 35 oz/in<br>10 N/25 mm | 49 oz/in<br>14 N/25 mm | 46 oz/in<br>13 N/25 mm |
| **99015LVC** | 18 oz/in<br>5 N/25 mm | 124 oz/in<br>34 N/25 mm | 67 oz/in<br>19 N/25 mm | 126 oz/in<br>35 N/25 mm |

**d. Polycarbonate**

| | 20 minute dwell | | 72 hour dwell @ 158Fº / 70ºC | |
|---|---|---|---|---|
| **Product** | **90º Peel** | **180º Peel** | **90º Peel** | **180º Peel** |
| **98010LVC** | 59 oz/in<br>16 N/25 mm | 94 oz/in<br>26 N/25 mm | 56 oz/in<br>16 N/25 mm | 91 oz/in<br>25 N/25 mm |
| **99015LVC** | 87 oz/in<br>24 N/25 mm | 128 oz/in<br>36 N/25 mm | 42 oz/in<br>12 N/25 mm | 128 oz/in<br>36 N/25 mm |

## II. Static Shear Strength (minutes), ASTM D-3654

Size: 1" x 1"
Weight: 500 grams

| | Dwell 24hr @ room temp (tested at 70ºC/158ºF) | |
|---|---|---|
| | **98010LVC** | **99015LVC** |
| **SS** | 10,000 | 10,000 |

## III. Fogging (Photometric method)

The effect of fogging condensate on the glass plate is determined by measuring the 60º specular gloss. The 60º 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.

| | Testing Results | | | |
|---|---|---|---|---|
| | **98010LVC** | | **99015LVC** | |
| | **1 hour** | **16 hours** | **1 hour** | **16 hours** |
| **SAEJ1756** | **92%** | **94%** | **97%** | **98%** |

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**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 90°F (32°C) and 90% relative humidity.

**Bond Build-up -** The bond strength of 3M™ Low VOC Adhesive 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

**Master Width**

| Product | Master Width Sizes |
|---|---|
| **98010LVC** | 1000mm, 1372mm, 1500mm |
| **99015LVC** | 1000mm, 1372mm, 1500mm |

More sizes may be available. Please call 800-362-3550 or talk to your local 3M representative for more information.

**Storage**

It is suggested that products are stored at room temperature conditions of 70°F (21°C) and 50% relative humidity. Out of direct sunlight.

**Shelf Life**

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

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## Recognition/Certification

**TSCA:** This product is defined as an article under the Toxic Substances Control Act and therefore, it is exempt from inventory listing requirements

**MSDS:** 3M has not prepared a MSDS for this product which is not subjected to the MSDS requirements of the Occupational Safety and Health Administration's Hazard Communication Standard, 29 C.F.R.1910.1200(b)(6)(v). When used under reasonable conditions or in accordance with the 3M directions for use, this product should not present a health and safety hazard. However, use or processing of the product in a manner not in accordance with the directions for use may affect its performance and present potential health and safety hazards.

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## Technical Information

The technical information and other statements contained in this document are based upon tests or experience that 3M believes are reliable, but the accuracy or completeness of such information is not guaranteed. It has been prepared from testing that was performed using standard test methods, and tested equipment that is calibrated in compliance to ISO9001 and operated by trained professionals in controlled environments. The data should be considered representative or typical only and should not be used for specification purposes.

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Many factors beyond 3M's control and uniquely within user's knowledge and control can affect the use and performance of a 3M product in a particular application. Given the variety of factors that can affect the use and performance of a 3M product, user is solely responsible for evaluation the 3M product and determining whether it is fit for a particular purpose and suitable for user's method of application.

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ISO 9001

This Industrial Adhesives & Tapes Division product was manufactured under a 3M quality system registered to ISO 9001 standards.

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