March, 2009

3M™ Destructible Acetate Label Product FA112

Product Description

3M™ Destructible Acetate Label Product FA112 offers consistent, high quality film that fractures when attempting label removal from many surfaces. This acetate label utilizes 3M™ Adhesive P1212, which is a high clarity general purpose acrylic emulsion for use on overlamination and decorative films that exhibits good initial tack, excellent die cutting properties, minimal cold flow, and good UV resistance.

Product Features

- Adhesive dry ingredients are listed by FDA as indirect food contact additives when used in food packaging with minimum opportunity for exposure. See 21 CFR 175.105.
- Meets CONEG requirements.
- Liner is designed for high-speed die cutting and matrix stripping. Not recommended for sheet on press applications.
- The destructibility of the label depends upon adequate adhesion of the label to the substrate. A sufficient bond may not develop on all surfaces due to low surface energy, contaminated, or textured surfaces (see Application section for some suggested techniques). It is important to determine the suitability of the product in the intended application by carefully pretesting with application surfaces and real life conditioning.
- The primary function of the product is to produce a tamper-indicating label or seal by causing the label to fracture when removal from the substrate is attempted. Since no tamper-indicating feature is 100% tamper-proof, careful consideration must be taken when designing labels and seals. When the consequences of tampering could be severe, such as loss of life of significant monetary loss, these products are not recommended to be the sole means of package or product tamper indication. In these instances, additional methods in combination with the labels should be considered so that the tamper-indicating features are commensurate with the requirements of the application.
Technical Information Note

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

Construction Tested

Adhesion properties determined per TLMI Method using 1.0 mil polyester with 0.9 mil of adhesive on a polished stainless steel panel.

Typical Physical Properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Facestock</td>
<td>Clear Destructible Acetate</td>
</tr>
<tr>
<td>Facestock Thickness</td>
<td>0.051 mm (2 mil)</td>
</tr>
<tr>
<td>Adhesive</td>
<td>P1212 Perm. 18</td>
</tr>
<tr>
<td>Liner</td>
<td>50# SC semi-bleached super calendered kraft sheet</td>
</tr>
<tr>
<td>Liner Thickness</td>
<td>0.079 mm (3.1 mil)</td>
</tr>
<tr>
<td>Adhesive Coat Weight</td>
<td>1.58 to 1.93 g/100 in²</td>
</tr>
</tbody>
</table>

Convertability

3M™ General Purpose Acrylic Adhesive P1212 is designed to be compatible with a variety of print methods and indoor end use applications. Adhesive processing issues are not anticipated when proper roll tensions, handling and storage conditions are used. Please refer to the die cutting/converting section of this data page or the “Guide to Converting and Handling Label Products” technical bulletin for additional information.

Note

Calipers are nominal values

Typical Performance Characteristics

<table>
<thead>
<tr>
<th>Property</th>
<th>Values</th>
<th>Method</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Application</td>
<td>5 to 49 °C</td>
<td>40 to 120 °F</td>
<td></td>
</tr>
<tr>
<td>Temperature</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Service Temperature Range</td>
<td>-29 to 60 °C</td>
<td>-20 to 140 °F</td>
<td></td>
</tr>
<tr>
<td>180° Peel Strength</td>
<td>5.28 N/cm</td>
<td>48 oz/in</td>
<td>12 in/min, 1 in wide sample</td>
</tr>
<tr>
<td>Loop Tack</td>
<td>3.16 N/cm</td>
<td>28.8 oz/in</td>
<td>12 in/min, 1 in wide sample</td>
</tr>
<tr>
<td>Shear</td>
<td>3 hr</td>
<td>TLMI</td>
<td>0.25 in² x 500g</td>
</tr>
<tr>
<td>Release Range</td>
<td>15 to 50 g/2 in</td>
<td>TLMI</td>
<td>180° removal, 300 in/min</td>
</tr>
</tbody>
</table>
Environmental Performance

Not intended for outdoor applications or for use in areas of constant exposure to water or strong chemicals. It is recommended that polyester identification material or laminating films be used for these applications.

Handling/Application Information

Application Ideas

Packaging seals, calibration seals, asset labels.

Application Techniques

• Ensure that all corner radii are 5 mm or greater.
• Gutter between labels in the machine direction should be at least twice the width in the cross direction to avoid waste skeleton breaks.
• Long labels should lead with the shorter dimensions.
• Label shape should be as simple as possible, i.e., squares, rectangles or circles. T-shapes, tadpole, or butterfly shapes are possible but reduced running speeds may be necessary to facilitate matrix stripping.

Printing

This film should be printable via various print techniques including flexography, hotstamp, letterpress, and screen printing. Whenever printing 3M™ Acetate Label Products for the first time, with a different ink system, or on a new machine, we strongly recommend carrying out proofing trials to validate ink adhesion and durability prior to a full production run.

Converting

Die-cutting: Due to the fragile nature of the facestock, special handling (wider label matrix and wider edge trim to aid matrix stripping) should be considered when designing and processing fragile labels. For specific tips, see the IATD Technical Bulletin “Die-cutting Fragile Label Stocks.” The manufacture of this film notes that:
• Flatbed or rotary dies can be used but be sure that a prepress die cutting trial is performed prior to running production.
• A stripping roller performs better than a stripping bar.
• Assist rollers may alleviate breaks at high speed due to the flexing of the die cylinder.
• Low temperatures increase the brittleness of the film and are to be avoided during die cutting.

Dispensing: The fragile facestock may present some difficulties in automatic dispensing. Testing with the intended application equipment and actual product samples are recommended before use.

Storage and Shelf Life

Store under normal conditions of 70°F (21°C) and 50% relative humidity. To minimize the effects of humidity on the products, package the die-cut and printed stock in polyethylene bags. Low density polyethylene (2-4 mils) can help prevent humidity penetration.

To obtain best performance, use this product within one year from the date of manufacture.

Industry Specifications

FDA 21 CFR 175.105
Meets CONEG requirements
Family Group

<table>
<thead>
<tr>
<th></th>
<th>FA102</th>
<th>FA112</th>
</tr>
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<td>White Destructible Acetate</td>
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<td>0.051</td>
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<td>0.079</td>
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References
1. Safety Data Sheet

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

Technical Information
The technical information, recommendations 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.

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