Washable adhesive for labels
Enabling PSA label and PET bottle recycling

Washable pressure sensitive adhesive (PSA) requirements:
- Good adhesion to a variety of substrates
- Excellent visual appearance
- Moisture resistant (condensate water)
- Easy converting and processing
- Coating with diverse techniques
- Globally available
- Suitable for caustic wash recycling according to APR

After the washing process, the adhesive INVISU™ 7007 from Dow will be dispersed into small particles in a caustic bath allowing separation of the label film from the bottle. The label facestock film made from biaxially oriented polypropylene (BOPP) will float and the bottle PET flakes will sediment, while the dispersed adhesive particles will be coagulated and separated with other water contaminants from the water. (Additional Dow washing process improvement additives can be recommended.)

Dow’s INVISU™ 7007 washable adhesive for PSA labels enables separation of all components in the structure for later recyclability.
INVISU™ 7007 adhesive properties

The washable adhesive INVISU™ 7007 coated with 17 gsm on treated BOPP film shows 100% washability, down from 85 °C, tested according to APR protocol for PET bottles. The performance will vary based on the type of labeled PET substrate and label type PE vs BOPP.

Adhesive characteristics:
- Solid content = 58%
- pH = 7.5-8.5
- Brookfield viscosity LV 2@30 at 25 °C = 676 mPa.s
- Brookfield viscosity LV 3@30 at 25 °C = 740 mPa.s

Adhesive performance will vary based on the facestock, primer and adhesive coat weight.

<table>
<thead>
<tr>
<th>FTM test according to FINAT</th>
<th>INVISU™ 7007 17 gsm</th>
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<tbody>
<tr>
<td>Tests from glass plates</td>
<td></td>
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<tr>
<td>FTM2; 90° peel adhesion 20 min</td>
<td>N/inch</td>
</tr>
<tr>
<td>FTM2; 90° peel adhesion 24 hrs</td>
<td>N/inch</td>
</tr>
<tr>
<td>FTM9; loop tack</td>
<td>N/inch²</td>
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<tr>
<td>FTM8; shear resistance 1&quot;x1&quot;/kg</td>
<td>hrs</td>
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<td>Tests from HDPE plates</td>
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AF: adhesive failure
CF: cohesive failure

About Dow

Dow (NYSE: DOW) combines global breadth; asset integration and scale; focused innovation and materials science expertise; leading business positions; and environmental, social and governance (ESG) leadership to achieve profitable growth and deliver a sustainable future. The Company’s ambition is to become the most innovative, customer centric, inclusive and sustainable materials science company in the world. Dow’s portfolio of plastics, industrial intermediates, coatings and silicones businesses delivers a broad range of differentiated, science-based products and solutions for its customers in high-growth market segments, such as packaging, infrastructure, mobility and consumer applications. Dow operates 104 manufacturing sites in 31 countries and employs approximately 35,700 people. Dow delivered sales of approximately $55 billion in 2021. References to Dow or the Company mean Dow Inc. and its subsidiaries. For more information, please visit www.dow.com or follow @DowNewsroom on Twitter.