With more than 60 years of history in the extrusion coating & laminating (EC&L) marketplace, Dow Packaging & Specialty Plastics is committed to providing innovative products, technical expertise, and developmental facilities to solve the industry’s most challenging needs.

The EC&L market remains a packaging solution focus and an area poised for continued growth as global brand owners continue to choose aseptic cartons, stand-up pouches, and paper as packaging media over glass, metal, and rigid containers. As consumers drive toward more sustainable solutions, Dow is proud to offer everything from basics to breakthroughs and be your total solutions provider.
A Portfolio of Products to Answer Your Extrusion Coating and Laminating Needs

Dow offers an extensive and ever-widening range of product choices. From applications that demand cost efficiency to those that require the very best seal integrity, Dow has solutions to deliver the performance you want across a variety of extrusion coating and laminating end uses.

As the key building block for the extrusion coating market, Dow’s LDPE products offer a strong balance of processability, sealability, barrier, and cost.

AGILITY™ Performance LDPE Resins are Dow’s newest addition to a growing family of performance LDPEs designed to meet the future needs of the packaging industry. Dow has integrated this advanced LDPE technology with its expanding global manufacturing footprint to provide a future platform for the demanding needs of the extrusion coating and laminating markets. This game changing technology received a special recognition in 2016 in the market disruptor category by R&D 100.

AGILITY™ Performance LDPE resins are specifically designed to allow for:
- Higher Coating Speeds: Exceeding 2500 ft/min
- Thinner Coat Thicknesses: <0.25 mil
- Excellent Adhesion
- Global Availability

The draw down and processing of AGILITY™ LDPE grades have improved performance to traditional autoclave resins at a given Melt Index (MI) so when choosing an AGILITY™ product, select one with ~1/2 the MI value of the autoclave incumbent grade.

Table 1: Overview of AGILITY™ Performance LDPE & Autoclave LDPE Extrusion Coating Grades*

<table>
<thead>
<tr>
<th>Commercial Products</th>
<th>Melt Index dg/min</th>
<th>Density g/cm³</th>
<th>Applications</th>
</tr>
</thead>
<tbody>
<tr>
<td>AGILITY™ EC 7000 Performance LDPE</td>
<td>3.9</td>
<td>0.919</td>
<td>Multifunctional Tubular for Flexible Packaging, Cups, and Cartons</td>
</tr>
<tr>
<td>AGILITY™ EC 7080 Performance LDPE</td>
<td>8.0</td>
<td>0.918</td>
<td>Super High Speed Tubular for High Line Speed &amp; Light Coating Weights</td>
</tr>
<tr>
<td>DOW™ LDPE 5004i</td>
<td>4.2</td>
<td>0.924</td>
<td>Autoclave for Cups and Cartons</td>
</tr>
<tr>
<td>DOW™ LDPE 5005</td>
<td>5.7</td>
<td>0.921</td>
<td>High Line Speed Autoclave for Cups and Cartons</td>
</tr>
<tr>
<td>DOW™ LDPE 722</td>
<td>8.0</td>
<td>0.918</td>
<td>Flexible Packaging Autoclave</td>
</tr>
<tr>
<td>DOW™ LDPE 4010</td>
<td>10.0</td>
<td>0.917</td>
<td>Flexible Packaging Autoclave</td>
</tr>
<tr>
<td>DOW™ LDPE 4012</td>
<td>12.0</td>
<td>0.918</td>
<td>Flexible Packaging Autoclave</td>
</tr>
<tr>
<td>DOW™ LDPE 4016</td>
<td>16.0</td>
<td>0.919</td>
<td>High Speed Autoclave for High Line Speed and Light Coating Weights</td>
</tr>
</tbody>
</table>

*Data per Dow testing. Typical properties, not to be construed as specifications. Additional information available upon request.

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DMDA 8810 (11 MI, 0.950d) is an HDPE resin used in extrusion coating when applications require higher WVTR performance, improved temperature resistance, and resistance to oils and grease.

Among the family of DOWLEX™ Polyethylene Resins, DOWLEX™ 3010 (5.4 MI, 0.921d) stands out as one of the most widely used LLDPEs in extrusion coating. In addition to improved sealing performance, this grade offers twice the tear strength and abrasion resistance compared to LDPE.

Figure 1: Comparative Heat Seal Performance*

![Figure 1: Comparative Heat Seal Performance](image)

Figure 2: Comparative Hot Tack Performance*

![Figure 2: Comparative Hot Tack Performance](image)

*Data per Dow testing. Typical properties, not to be construed as specifications. Additional information available upon request.

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ELITE™ Enhanced Polyethylene (EPE) Resins are typically used as a blend component with LDPE to reduce heat seal initiation temperature and increase hot tack. If you want to reduce the heat seal initiation temperature, increase the hot tack strength and improve the overall performance of your traditional LDPE coatings/laminations, consider adding 10-50% ELITE™ 5815 resins to your formulation.

**Table 2: Properties, Features, and Applications – ELITE™ EPE and AFFINITY™ POP Resins**

<table>
<thead>
<tr>
<th>Product</th>
<th>Melt Index/Density</th>
<th>Features/Applications</th>
</tr>
</thead>
<tbody>
<tr>
<td>ELITE™ 5815</td>
<td>15.0/0.910</td>
<td>Blend with LDPE for Improved Sealability</td>
</tr>
<tr>
<td>AFFINITY™ PT 1450G1</td>
<td>7.5/0.902</td>
<td>Fully Formulated for High Seal Strength and Hot Tack</td>
</tr>
</tbody>
</table>

AFFINITY™ Polyolefin Plastomers have been the industry’s leading high-performance sealant resin for over 20 years. Consider using AFFINITY™ PT 1450G1 when your application demands excellent seal strength and low temperature sealability while also providing outstanding tear, abrasion, and environmental stress crack resistance.

**Table 3: Select AMPLIFY™ TY Functional Polymers**

<table>
<thead>
<tr>
<th>Product</th>
<th>Melt Index</th>
<th>Adhesion</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>AMPLIFY™ TY 1355</td>
<td>6.8</td>
<td>PA, EVOH, PE, Paper</td>
<td>Fully Formulated for Extrusion Coating</td>
</tr>
<tr>
<td>AMPLIFY™ TY 1451</td>
<td>1.7</td>
<td>Ionomers, PA, EVOH, PE</td>
<td>Fully Formulated for Blown Film High Performance; Versatile</td>
</tr>
<tr>
<td>AMPLIFY™ TY 1052H</td>
<td>1.2</td>
<td>PA, EVOH, PE, PP</td>
<td>Concentrate</td>
</tr>
</tbody>
</table>

AMPLIFY™ Functional Polymers compose a portfolio of diverse resins used in a wide variety of applications, including sealants and tie layers.

AMPLIFY™ TY Functional Polymers encompass a wide range of tie layer resins for the barrier packaging market. Table 3 presents a few of our most common tie layers for the film and extrusion coating market. Visit our web site at www.dowpackaging.com to examine the complete portfolio.

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*Data per Dow testing. Typical properties, not to be construed as specifications. Additional information available upon request.*

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AT PACK STUDIOS-FREEPORT, THE EC LINE FEATURES A NORDSON EDI ULTRAFLOW V-L ADJUSTABLE COEX FEEDBLOCK.
The Value of Pack Studios for Extrusion Coating & Laminating Development

One of the ways Dow showcases its innovative culture is through Pack Studios – a leading comprehensive application development resource for the packaging industry. For Dow customers around the world, working with the Packaging & Specialty Plastics business offers preferential access to this next-generation collaborative network and an ever-growing list of physical locations.

With the help and support of Dow’s marketing, technical service, and R&D teams, the experience starts with collaborative technology sessions to develop new concepts. Those concepts can be realized at on-site fabrication facilities. Fabricated structures can then be benchmarked on commercial-scale packaging equipment. Lastly, samples can be tested in our physical and analytical labs and can even undergo sensory testing.*

We know that shortened product life cycles bring significantly more pressure for the industry to bring new packaging designs to market faster than ever. With Pack Studios, what used to take months can now be done in days – all of this to provide you a competitive edge in the marketplace.

The Latest Technology to Keep You Ahead

Pack Studios physical facilities currently include seven locations on five continents, four of which include industry-scale extrusion coating lines:
- Freeport, Texas, U.S.A.
- Horgen, Switzerland
- Shanghai, China
- Singapore

Recent upgrades to Freeport’s Egan Davis-Standard/Black Clawson Extrusion Coating/Extrusion Lamination equipment include the following components and benefits:

**Nordson EDI 36” Autoflex™ VI LH40 EPC Die**
- Offers ability to replicate edge bead reduction technology
- Provides motorized deckle system

**Nordson EDI Ultraflow™ V-L Adjustable Co-Extrusion Feedblock**
- Produces multi-layer structures for a variety of customer applications
- Validates tie layer capabilities

**NDC Infrared Engineering INC Reflective Gauge System**
- Improves auto-die control system
- Offers ability to see discreet layers in a co-ex structure

The EC resources available through Pack Studios touch on development options across numerous markets:
- Board Coating
- Carpet Backing
- Foil Laminations
- Food Packaging
- House Wrap
- Lamination Film
- Paper Coating
- Release Liners
- Tarps

*Sensory Science Labs available at Freeport and Horgen locations

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Let’s Get Rolling

There’s never been a better time to make Dow your source for products, technologies, and know-how as you strive for better, faster, more efficient ways to meet the demands of today’s packaging marketplace.

To learn more about working with Dow on your next extrusion coating or laminating project, contact your Dow sales professional or Technical Service & Development representative, or use the information on the back cover of this document. We look forward to working with you and creating solutions for better packaging.
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c. use as a critical component in medical devices that support or sustain human life; or

d. use specifically by pregnant women or in applications designed specifically to promote or interfere with human reproduction.

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