Let’s mix it up.
Discover the answer to improving your rotational molding applications.
Fresh perspectives. **New potential.**

**Put a new spin on rotational molding**

Long-lasting and lightweight. Strong and sustainable. Rotomolders are being pushed and pulled in many different directions to create products that satisfy competing demands. Overcoming those challenges isn't always easy.

RESILITY™ Innovative Rotomolding Resins were developed to help you explore new potential and create solutions for the most difficult challenges.

**Selecting the right materials**

Extraordinary results require extraordinary materials – using the right ones goes a long way. RESILITY™ Innovative Rotomolding Resins – a diverse roster of polyethylene- (PE-) based solutions – were developed to offer long-lasting performance, improved processing, outstanding aesthetics, and a greater potential for differentiation through:

- Excellent UV & weathering protection
- Bright white & vibrant colored parts
- Fast cycle times & wide processing windows
- Exceptional resin stability
- Increased regrind incorporation capacity
- Reduced plate out
- Downgauging/lightweighting
- Alternative, proven material options

**Good looks that last**(1)

Exposure to the elements, especially the intense rays of the sun, are forces that can rapidly deplete the vibrant colors and lifetime performance of rotomolded products.

RESILITY™ resins deliver a greater ability to withstand weathering and deterioration than conventional materials thanks to UV stability**(2)** ratings of UV20 and higher. In addition, improved gas fade resistance supports the resiliency of white during pulverization, rotomolding, and storage.

**Easier, faster processing**(1)

These next-generation solutions offer up to 30 percent wider processing windows with the flexibility to optimize temperatures and cycle times. Along with exceptional stability, this creates the potential for increased productivity, reduced scrap rates, and lower overall production costs. Other advantages include faster bubble removal (which also contributes to improved low-temperature performance) and reduced reduced plate out to help minimize downtime.

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**(1)** Typical values, not to be construed as specifications. Users should confirm results by their own tests.

**(2)** The addition of a UV stabilization package to a resin does not completely eliminate the effects of UV exposure. The sole intent is to slow down the rate at which these effects occur. Actual results may vary depending on application and other factors such as resin color, transparency, and additives. Therefore, actual end-use testing is recommended.
Soft touch. Strong possibilities.

This is not “your father’s” rotomolding resin. XUS 58441.00 Experimental Soft Touch Copolymer\(^1\) is an innovative elastomeric material that combines soft touch and feel with a UV20+ rating\(^2\) and exceptional impact, slip, and abrasion resistance. These attributes – along with easy processing, ambient pulverization capabilities, and outstanding color stability – make an ideal choice for grips, non-slip surfaces, toys, furniture, and any other application that can benefit from enhanced tactility and durability.

Table 1 lists key benefits XUS 58441.00 offers in comparison to a typical commercially available MDPE.

Figure 1 takes a closer look at impact resistance, showing how parts molded with XUS 58441.00 can absorb more energy and displace further before failing than the MDPE tested. And while our unique, soft touch offering works great as a standalone substrate, it can also help increase softness and impact resistance in blends with MDPE (Figure 2).

Table 1: Comparison of XUS 58441.00 and typical MDPE\(^ {1,2} \)

<table>
<thead>
<tr>
<th>Key Properties</th>
<th>Typical MDPE</th>
<th>XUS 58441.00(^1) Experimental Soft Touch Copolymer</th>
<th>XUS 58441.00(^1) Implication</th>
</tr>
</thead>
<tbody>
<tr>
<td>Melt Index (g/10 min)</td>
<td>5.2</td>
<td>5.0</td>
<td>Familiar processing reduces learning curve for molders</td>
</tr>
<tr>
<td>Density (g/cc)</td>
<td>0.935</td>
<td>0.887</td>
<td>Significantly softer than PE</td>
</tr>
<tr>
<td>Melting Temperature (°F)</td>
<td>256</td>
<td>246</td>
<td>Similar, lower melt temperature allows blending with PE</td>
</tr>
<tr>
<td>Coefficient of Friction</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Static</td>
<td>0.23</td>
<td>1.01</td>
<td>Enhanced grip and slip resistance</td>
</tr>
<tr>
<td>Kinetic</td>
<td>0.20</td>
<td>0.83</td>
<td></td>
</tr>
<tr>
<td>Shore D Hardness</td>
<td>55.9</td>
<td>30.2</td>
<td>Significantly softer than PE</td>
</tr>
<tr>
<td>Flexural Modulus at 1% Secant (psi)</td>
<td>95,000</td>
<td>6,800</td>
<td>Significantly more flexible than PE</td>
</tr>
<tr>
<td>ARM Impact Mean Failure Energy (ft-lbs.)(^4)</td>
<td>180</td>
<td>&gt;230</td>
<td>Exceptional impact resistance</td>
</tr>
</tbody>
</table>

Figure 1: Instrumented dart impact performance comparison of XUS 58441.00 and typical MDPE\(^ {1,2} \)

Figure 2: Impact modification of XUS 58441.00 in blends with typical MDPE\(^ {1,3,4} \)

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\(^1\) If products are described as “experimental” or “developmental”: (1) product specifications may not be fully determined; (2) analysis of hazards and caution in handling and use are required; (3) there is greater potential for Dow to change specifications and/or discontinue production; and (4) although Dow may from time to time provide samples of such products, Dow is not obligated to supply or otherwise commercialize such products for any use or application whatsoever.

\(^2\) The addition of a UV stabilization package to a resin does not completely eliminate the effects of UV exposure. The sole intent is to slow down the rate at which these effects occur. Actual results may vary depending on application and other factors such as resin color, transparency, and additives. Therefore, actual end-use testing is recommended.

\(^3\) Typical values, not to be construed as specifications. Users should confirm results by their own tests.

\(^4\) Plaques rotomolded to 0.25 inch and tested via ARM standard method at -40°C.
Focused on sustainability

Moving toward a more circular economy is a priority for rotomolders, thanks to growing demand for products made with sustainable materials and practices.

Long-term durability and color fastness help products made with RESILITY™ resins last for generations and stay out of landfills. The inherent strength and toughness of these PE-based materials also create opportunities to increase sustainability, including downgauging for reduced material usage and part weight, and transportation costs/ emissions. Refer to Table 2 for a list of RESILITY™ resins and typical applications.

Best of all, when they finally reach the end of their useful life, products made with RESILITY™ resins can be easily recycled in existing PE recycling streams.

Table 2: Preferred resins for rotational molding applications

<table>
<thead>
<tr>
<th>GRADE(S)</th>
<th>MELT INDEX (g/10 min)</th>
<th>DENSITY (g/cc)</th>
<th>PRODUCT GROUP</th>
<th>AGRO/INDUSTRIAL</th>
<th>CHEMICAL STORAGE TANKS</th>
<th>PORTABLE WATER TANKS</th>
<th>INTERMEDIATE BULK CONTAINERS</th>
<th>INDUSTRIAL PRODUCTS</th>
<th>RECREATION/TOYS</th>
<th>PLAYGROUND EQUIPMENT</th>
<th>HOUSEWARES</th>
<th>CONSUMER GOODS</th>
<th>MARINE PRODUCTS</th>
<th>DUCTWORK</th>
<th>FOOD CONTAINERS</th>
</tr>
</thead>
<tbody>
<tr>
<td>RESILITY™ DPDB-3170 NT 7</td>
<td>7</td>
<td>0.935</td>
<td>MDPE</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>RESILITY™ DPDB-3162 NT 7</td>
<td>6.2</td>
<td>0.940</td>
<td>MDPE</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>RESILITY™ DPDB-3152 NT 7</td>
<td>5.2</td>
<td>0.935</td>
<td>MDPE</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
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<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>RESILITY™ DPDB-3135 NT 7</td>
<td>3.5</td>
<td>0.938</td>
<td>MDPE</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>RESILITY™ DPDB-3220 NT 7</td>
<td>2</td>
<td>0.942</td>
<td>HDPE</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>XUS 58441.00 Experimental Soft Touch Copolymer(2)</td>
<td>5</td>
<td>0.887</td>
<td>Elastomer</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

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Innovation, accelerated.

Collaborate. Innovate. Accelerate.

These three words sum up Pack Studios, a network of technical experts, equipment, and testing capabilities. Access to world-class resources and industry-leading equipment at nine locations around the world helps you shrink the go-to-market journey and accelerates the process of turning ideas into reality.

Let’s give it a whirl!

Advanced technologies – including RESILITY™ Innovative Rotomolding Resins – are helping rotomolders tap into the potential to create products that do more without using more, more easily.

Ready to get started? Visit dow.com/rotomolding or contact a Dow representative today for more information!

For more information about Dow, visit www.dow.com/about. To contact a Dow representative, visit, www.dow.com/contact.

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