Innovative soft touch elastomer for rotomolding

XUS 58441.00 Experimental Soft Touch Copolymer

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2024 Rotoplas, September 25th

The next generation of advanced rotational molding options

XUS 58441.00 Developmental Soft Touch Polymer[1] offers:

- Soft touch and feel
- Abrasion resistance
- Slip resistance or grip
- Impact resistance
- UV20+
- Color stability
- Ease of processing
- Ambient pulverization

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[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.

Distinct physical properties

Comparison of XUS 58441.00 and Typical MDPE[1,2]

Key properties	Typical MDPE	XUS 58441.00 Experimental Soft Touch Copolymer[1]	XUS 58441.00 Implication[1]
Melt Index (g/10 min)	5.2	5.0	Familiar processing reduces learning curve for molders
Density (g/cc)	0.935	0.887	Notably softer than polyethylene (PE)
Melting Temperature (°F)	256	246	Lower melt temperature, compatible with PE molding
Coefficient of Friction Static Kinetic	 0.23 0.20	 1.01 0.83	Enhanced grip and slip resistance
Shore D Hardness	55.9	30.2	Notably softer than PE
Flexural Modulus at 1% Secant (psi)	95,000	6,800	Notably more flexible than PE
ARM Impact Mean Failure Energy (ft.-lbs.)[4]	180	>230	Exceptional impact resistance

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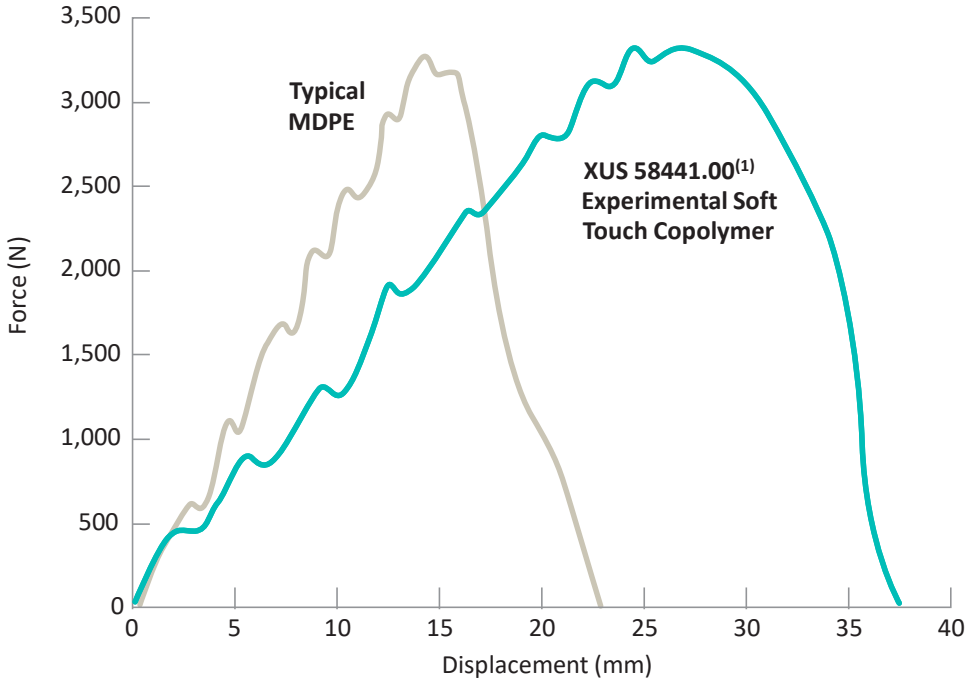
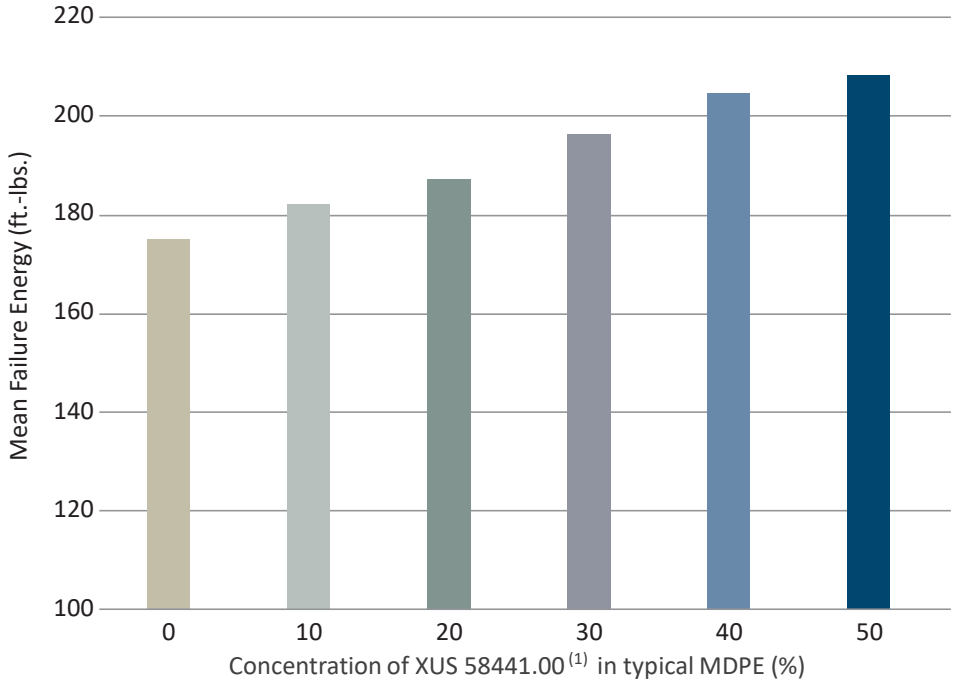
[2] Typical values, not to be construed as specifications. Users should confirm results by their own tests.

Impact enhancement

Instrumented Dart Impact Performance Comparison of XUS 58441.00 and Typical MDPE[1,2]



Impact Modification of XUS 58441.00 in Blends with Typical MDPE[1,2,3]



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(3) Plaques rotomolded to 0.25 inch and tested via ARM standard method at -40°C.

Ease of pulverization

Typical Processing Parameters	XUS 58441.00 Experimental Soft Touch Copolymer[1,2]
Run Temperature (°F)	175
Output Rate (lbs./hr.)	900
30 Mesh	0.4
35 Mesh	17
40 Mesh	19.2
60 Mesh	39.6
80 Mesh	16.4
100 Mesh	6.5
PAN	0.6
Bulk Density (g/100 cc)	31.1

airforce™ by Orenda

Pulverizer: Orenda AirForce AF HID-500
Screen: 30 mesh
Blades: 525 mm disk at 0.015 inch gap
Ambient Temperature: 71°F
Set Temperature: 131-181°F
Feed Rate: 31-57
Motor Load: 75%

Image courtesy of Orenda.

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Benefits of Orenda AirForce technology[1]

1) Orenda's AirForce technology has been found to produce quality powder from XUS 58441.00[2] with high output rates. This helps avoid cryogenic grinding.

2) The AirForce pulverizer has a mill design that efficiently and continuously cools both the rotating and stationary disks, and holds them at ambient temperature. This virtually eliminates the bonding of the pulverized material to the disks.

3) The air introduced in the mill moves in one direction and cools the freshly pulverized material with ambient temperature air.

4) Because the pulverized material reaches melting temperature and is then rapidly cooled, the particles generated exhibit nice morphology and good flow properties.

5) Because there are no high-temperature surfaces, contact of the resin with surfaces does not typically cause degradation or generate contamination.

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Key differentiation from alternative materials

Comparison of XUS 58441.00 and Competitive Soft Touch Resins[1,2]

Differentiating Factor	XUS 58441.00 Experimental Soft Touch Copolymer[2]	Typical EVA	Typical PVC (Plastisol)
Ambient Pulverization?	Yes	No	No
Compatible with PE?	Yes	No	No
Special Equipment Necessary?	No	Yes	Yes
Safety Concerns?	No	No	Yes – off-gas during molding
Integrity of Physical Properties in Elevated Outdoor Temperatures	Excellent	Good	Poor
Shore D Hardness	30.2	36	20
Typical Capital Investment Required	None	$X	$3X

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Summary

XUS 58441.00 Soft Touch Copolymer[1] is:

- An innovative, high-quality, pulverizable, and recyclable[2] material that supports development of differentiated furniture, toy, recreation, transportation, and storage products.
- A versatile, “plug-and-play” option that allows rotomolders to cultivate enhanced user experience by custom tailoring softness and haptics to address specific needs.
- Helping expand the possibilities of rotational molding.

Visit us in Booth 619 for more product information – including demonstration samples.

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[2] In locations with appropriate recycling programs.

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