



Plastics Technology®

JULY 2026 № 7 VOL 72



Scan to Renew Your
Free Subscription

Top Class Automotive Molding

*Class A Interior and Exterior
Production at Axiom*

- 8 No PFAS, No Problem for New Cast-Film Die Design
- 18 Defining Packing & Holding Pressures & Times in Molding
- 26 Resin Drying Tips for Hot, Wet Summer Months

POLYMER RESOURCES LTD., FARMINGTON, CONNECTICUT

Switch to Batch Mixer Yields 'Perfect Blends' for This Compounder

Replacing a ribbon blender with a rotary batch mixer helped Polymer Resources cut blend times 30% and eliminate compound contamination.

A leading compounder of engineering thermoplastics switched

By Jim Callari
Editorial Director

from a ribbon blender to a rotary batch

mixer and realized an immediate decrease in contamination and cleaning time. The move also resulted in a more than 30% decrease in the time it takes to complete a batch.

Polymer Resources Ltd. supplies a wide range of engineering resins, including polycarbonate (PC), acrylonitrile butadiene styrene (ABS), PC/ABS, polyetherimide (PEI) and various nylons. It operates two facilities: Its Farmington, Connecticut, headquarters specializes in highly specified custom-color resins, while its Rochester, New York, plant also focuses on highly specified dark-colored resins, recycled grades and advanced research and development.

Polymer Resources runs both single- and twin-screw compounding lines in Farmington. To ensure that all compounds from a single production run are identical in color, melt properties and mechanical performance, they are often blended following extrusion and pelletizing.

"We're very quality-focused, and the color and other properties need to be spot on," says Cole Accardi, lead process engineer. "If we have an 80,000-lb run, the color could drift slightly from the beginning to the end of the run." Post-blending ensures absolute consistency of color and properties throughout the order, he explains.

The compounder used a ribbon blender for post-blending for years, but noticed cross-contamination because operators could not clean the blender thoroughly, notes Accardi.

While ribbon blenders are still used elsewhere in the plant, Accardi was hunting for a mixer that minimized or eliminated heat and shear. "If we introduce heat and shear, we can generate dust and affect color changes, especially with lighter colors," he explains. "If we mix a white compound in a ribbon blender a bit too long, it may begin to yellow."



Internal flights direct blended material toward and through a plug-gate valve with no stratification into a Gaylord on a scale. Source: Munson Machinery

Accardi and his colleagues ultimately replaced the ribbon blender in September 2025 with a 140-cubic-foot capacity Rotary Batch Mixer, model 700-TS-140, from Munson Machinery. It has no agitators and thus no internal shafts or bearings. Instead, its horizontal vessel rotates on external trunnion rings located at each end.

Pelletized compounds are discharged into Gaylord containers. At the end of a production run, the contents of each container are tested to assess uniformity of all properties. If variations are detected, the

containers are forklifted to the post-blending area.

Here, a box dumper unloads the entire contents of each container into a portable stainless steel hopper of equivalent capacity. A forklift operator then raises the hopper to a stand above the mixer's stationary inlet. While the mixer rotates, the operator opens the hopper's knife gate, allowing full discharge into the mixing vessel, where mixing flights create a gentle four-way, tumble-turn-cut-fold mixing action that achieves total batch uniformity in two to three minutes.

As the vessel continues to rotate, material is discharged through a pneumatically actuated plug-gate valve into a box situated on a scale below. The steady flow of material enables operators to achieve accurate fill weights, says Accardi. Once all compounds from a production run are blended and quality tested, the boxes are sealed for shipment.

The mixer has reduced material losses, lowered the risk of contamination and shortened blend times compared to the ribbon blender, according to Accardi. "With ribbon blenders, you don't get all the material out because there's a dead zone underneath the ribbon where material just sits, whereas the Munson evacuates the entire batch and is devoid of crevices that can trap pellets," he says.

"Right off the bat, we were getting perfect blends in two minutes," adds Accardi. "And we no longer have any reported issues of contamination." PT