Milliken presents

Flint Hills Resources' New PP Impact Copolymer for TWIM Packaging Uniquely Combines Impact, Flow and Stiffness Using Milliken's DeltaMax™ Performance Modifer

Strong growth in the thin-wall injection molded (TWIM) packaging industry is being propelled by consumers' enthusiasm for online grocery shopping and concerns about environmental impacts, together with manufacturers' efforts to drive down costs. Lightweight yet strong and stiff TWIM containers effectively protect foods, conserve space during storage and shipping, and reduce raw material usage.

To successfully optimize the performance of TWIM packaging, especially refrigerated containers, Flint Hills Resources, a leading U.S. polypropylene (PP) manufacturer, developed its new AP5195-LV PP impact copolymer. This product surpasses incumbent PP materials by delivering superior impact strength, high melt flow and good stiffness simultaneously, without traditional trade-offs among these properties. Key to Flint Hills Resources' achievement is DeltaMax™ performance modifier from Milliken & Company's Chemical Business.

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At Pack Expo 2021 in Las Vegas, Sept. 27-29, Milliken will feature in booth #SU-8037, sample TWIM containers molded from Flint Hills Resources' new AP5195-LV PP impact copolymer featuring Milliken's DeltaMax performance modifier.

"The balanced performance of Milliken's additive technology enhances the resin architecture of our new AP5195-LV PP impact copolymer," said Pierre Donaldson, director of polypropylene R&D for Flint Hills Resources. "By excelling in impact, melt flow and stiffness, our novel PP material can make it easier for converters to produce strong yet lightweight packaging, boost productivity, and reduce energy and plastic use to support environmental efforts. This new grade is an important addition to our portfolio and represents another major milestone in our successful collaboration with Milliken."

According to Mordor Intelligence, the thin-wall packaging market was valued at $38.58 billion in 2020 and is expected to reach $55.92 billion by 2026, at a CAGR of 6% over the forecast period of 2021-2026. The injection molding segment holds the largest share of thin-wall packaging. Thin-wall designs offer packaging manufacturers important benefits of reduced material usage, lighter weight and lower overall part costs. Also, TWIM packaging takes up less floor space during storage and transport, and less shelf space in stores.

Three-way Boost in Performance

Flint Hills Resources' AP5195-LV PP impact copolymer features an impressive notched Izod impact strength of 1.7 ft*lb/in, melt flow rate of 100 and stiffness of 212 kpsi. These numbers translate into practical benefits. For example, a high melt flow rate supports thin-wall designs and increases throughput while reducing energy use. Also, high impact strength at low temperatures enables refrigerated packaging to withstand accidental drops by consumers or workers. Finally, high stiffness allows packages to be stored, transported and shelved in taller stacks to conserve space. Competitive materials that excel in one or two of these areas often fall short in the others.

The new innovative grade can be used for food contact applications as it complies with the U.S. Food and Drug Administration (FDA) requirements. It's a good candidate for refrigerated packaging such as large yogurt cups, and dip and deli salad containers.

Conservation of Raw Materials and Energy

Milliken's performance modifier helps Flint Hills Resources' new product address strong and increasing consumer demand for improved environmental aspects of packaging. The high melt flow properties of the AP5195-LV PP impact copolymer allow converters to use less energy in the molding process. Furthermore, the ability to mold thin-wall packaging with excellent strength and stiffness helps reduce the consumption of raw materials.

"As one of the first resin suppliers to utilize our newest performance modifier, Flint Hills Resources is again applying its trademark creativity and formulation capabilities to advance the state of the art, this time with a PP impact copolymer offering a unique combination of desirable properties," said Brian Burton, regional director of sales for Milliken. "During our decade of collaboration, we've witnessed first-hand the company's leadership in resin development. With the introduction of this new AP5195-LV PP impact copolymer, the packaging industry stands to benefit in multiple ways."

For more details and information please contact us or visit us online at ***chemical.milliken.com***

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