

Milliken presents

At PRSE 2021, learn how Milliken's additive solutions boost recycling & the circular economy

Milliken & Company supports the plastics recycling industry with advanced polymer additives that allow for the increased use of recycled content by improving the properties of recycled polypropylene (rPP) itself. You can learn by visiting Milliken during the Plastics Recycling Show Europe (PRSE) 2021, Nov. 4-5 in Amsterdam.

As a globally recognized leader in additives and colorants, Milliken offers many ways to improve your resin formulations, compounds and end products. It will be showcasing its broad portfolio at PRSE on Stand H21 and offering access to the vast technical knowledge of its various subject matter experts.

At the show learn more from Milliken about the following products and initiatives:

- **DeltaMax® Performance Modifiers for PP used by converters processing recycled polypropylene (rPP) or impact copolymer (ICP) resins ,**
- **A soon-to-be-launched concentrate used to create controlled rheology grades of recycled PP that improves the resin's properties,**
- **Partnership with PureCycle Technologies to purify recycled PP,**
- **Engagement with HolyGrail 2.0, Europe's Digital Watermark Project.**

Enhancing PP's properties

Milliken's DeltaMax Performance Modifiers for polypropylene help contribute to a circular economy by enhancing the impact strength and melt-flow properties of rPP resins, blends and PP impact copolymers. DeltaMax can raise melt flow by as much as five times while maintaining impact and stiffness properties. This allows converters to increase operating efficiencies and create more innovative part designs with easier flow through molds.

DeltaMax technology is highly effective in modifying post-consumer and post-industrial recycled resins. It elevates impact strength and melt flow to the same levels as – or better than – those of virgin resin. This enables compounders and converters to incorporate up to 100% recycled PP without sacrificing performance or processing.

Controlled rheology

Stop by the stand to learn about the latest addition to the Milliken portfolio – a concentrate used to create controlled rheology (CR) grades of polypropylene that extends and improves the resin's characteristics. Controlled rheology PP is produced by promoting controlled chain scission of PP (both virgin and recycled) to yield a product with a lower molecular weight (MW) which results in a higher melt flow index (MFI). The result is an easier, more consistent flow. Resin producers, injection molders and extruders should experience improved processability when using this concentrate.

Partners in the cause

Milliken is passionate about helping to drive recycling and the circular economy but knows it cannot do it alone. Success in this area requires partnerships and collaboration. One such example is Milliken's ongoing work with PureCycle Technologies, which began early in 2019. PureCycle's patented recycling process, developed and licensed by Procter & Gamble Co., separates color, odor and

other contaminants from plastic waste feedstock to transform it into virgin-like PP. Milliken, whose additives will play a critical role in reinvigorating recycled polypropylene, has formed an exclusive supply relationship with PureCycle to help solve the plastics end-of-life challenge.

Additionally, Milliken's Chemical Division has joined the Digital Watermarks Project, a large-scale initiative testing the viability of digital watermarking technologies for the accurate sorting of plastics. The project was part of HolyGrail 1.0, a pioneering initiative facilitated by the Ellen MacArthur Foundation that brought together brand owners, retailers, recyclers, packaging producers and sorting technology providers from across the plastics value chain to investigate ways to improve the sorting of post-consumer plastics. HolyGrail 2.0, the 2nd iteration facilitated by AIM, the European Brands Association, will take this initiative to the next stage by validating the concept and the technology on a semi-industrial scale. The project is due to report on its findings in mid-2022.

Constantly pushing forward

Milliken continues to showcase its work to enhance plastics with care by helping customers create longer-lasting products that are easier to recycle. It continues to develop and refine additives that help to overcome the limitations of recycled polypropylene, to enable its broader use in more applications.



DeltaMax® performance modifiers for recycled polypropylene



Recycled polypropylene pellets.



HolyGrail 2.0 and Hyperform® HPN® for polypropylene – towards a green future and a plastics circular economy.



HolyGrail 2.0 and Millad® NX® 8000 ECO – towards a truly circular economy.



Learn about all these products and more from Milliken experts at PRSE 2021. Milliken's technical innovations that enhance recycling, reduce overall waste and lower greenhouse gas emissions are supporting government and industry efforts to create a circular economy for plastics. Be sure to stop by **Stand H21** to start the conversation that can help to improve your sustainability and produce better overall end results. Learn more at chemical.milliken.com

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