



» SOLUTION BULLETIN

CycleWorks™ Innovation Center Testing & Evaluation Facility to Explore Real-world Recycling in a Research Environment

CycleWorks™ serves as a collaboration platform for value chain partners to advance mechanical plastic recycling. It conducts cutting-edge research to solve fundamental issues in mechanical recycling. CycleWorks can develop recycling-friendly product solutions to increase the recyclability of plastic products and, by understanding the chemistry of polymers in the mechanical recycling process, can provide data to help develop new and unique polymer formulations.

THE IMPORTANCE OF PLASTICS FOR PACKAGING

Compared to alternative materials, plastic is one of the most sustainable materials available for packaging applications. It is widely used to manufacture films, bags, trays, bottles, and containers, and it has excellent overall properties such as impact and tensile strength, clarity, processability, colorability, and durability.

For these reasons plastics for packaging play an important role in everyday life, however, due to the high volume and rather short usage life of plastic packaging items, they require appropriate management, especially at the end of their life.

Optimization of the plastic recycling process along the value chain is therefore of the highest importance and will foster a circular economy that helps to achieve the plastic industries' sustainability targets.

ISSUES WITH POST-CONSUMER RECYCLATES (PCR)

Very often post-consumer recyclates (PCRs) are not of a good enough quality to withstand efficient processing, nor can they offer long-term stability for high-value or high-performance end applications.

Some key issues with PCR include degraded mechanical properties, inconsistent and gray coloration, unpleasant odors, or missing food contact approvals. These issues can lead to “downcycling” of the material to a low-value application.

LOOKING AT RECYCLING THROUGH THE LENS OF SCIENCE

The CycleWorks Innovation Center is a fully functioning recycling mini plant in Milan, Italy.

A dedicated team is able to scientifically investigate details of the recycling process, understand the degradation and behavior of polymers, and develop the right additive and color masterbatches to increase the performance of PCRs and guarantee high recyclability of the final article.

Based on their findings, the team can also help to solve key issues in the process and provide input on how to achieve higher recycling rates.

WHAT IT DOES

- Works according to recycling protocols
- Simulates grinding, washing, conversion, and re-extrusion
- Performs testing on final products such as bottles, sheets, films, or test bars
- Applies in-depth analytical investigations

KEY BENEFITS

- Provides a portfolio of solutions that are field-tested for recycling
- Can run recycling trials according to standard recycling protocols
- Helps enable customers' recyclability and sustainability goals
- Screens and evaluates additive and colorant systems in the recycling process
- Supports R&D work to solve major issues in the recycling process
- Provides a collaboration platform for customers and value chain partners
- Advances the circular economy



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