



ExxonMobil, Cyclyx, Sealed Air, and Ahold Delhaize USA collaborate to create a circular food packaging waste solution



Food-grade packaging



Certified polymers



Consumer waste



Advanced recycling

The Challenge

An important challenge facing the food industry regarding plastic waste is creating a circular economy for plastics in applications where packaging materials have strict safety and performance requirements for food protection and distribution. Recovering these essential packaging materials requires innovative recycling solutions beyond traditional mechanical recycling.

The Solution

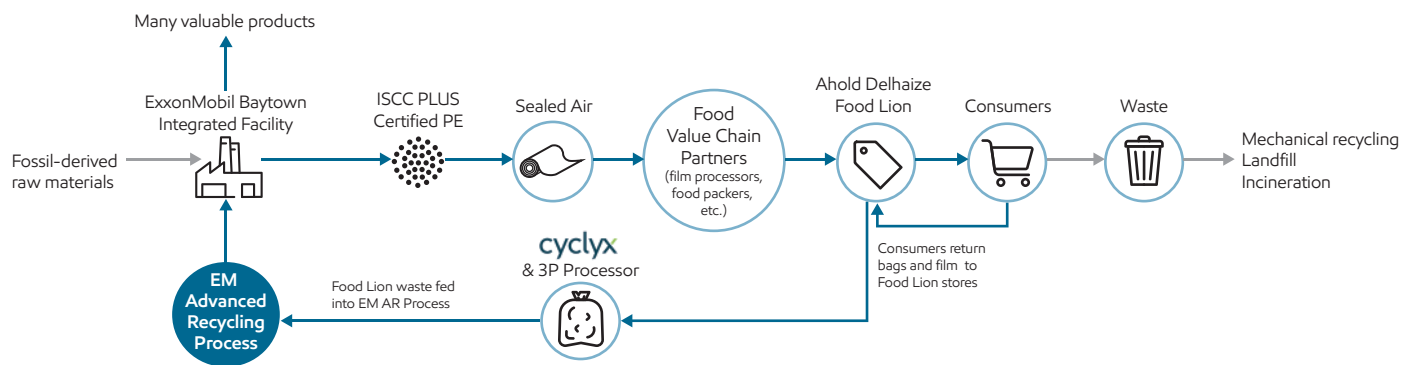
Industry leaders across the value chain — ExxonMobil, Cyclyx International, Sealed Air, and Ahold Delhaize USA — are collaborating on an advanced recycling initiative, the first of its kind in the U.S. The project collects flexible plastic packaging from grocery stores that are broken down via advanced recycling into feedstocks that can be attributed (via mass balance) to certified-circular polymers which can then be used to create new food-grade packaging. The project, which was announced in April 2022 and is expected to scale over time, has resulted in circular polymers used in select packaging of the Nature's Promise antibiotic-free fresh poultry across all Ahold Delhaize USA brands.

The collaboration aims to increase the use of plastic packaging that has reached end of life by validating the technical and economic viability of a circular system based on advanced recycling technology and mass balance accounting. The project also helps divert used flexible plastic packaging from landfills, while supporting the safety and quality of packaged foods.

Sealed Air, Cyclyx, and ExxonMobil achieved certification through the International Sustainability and Carbon Certification (ISCC) PLUS process. ISCC PLUS is widely recognized by industry as an effective system to certify the circularity of products based on advanced recycling via mass balance accounting of plastic waste.

- Select Food Lion stores are the collection point for used plastic packaging materials, including shopper bags brought to the stores by customers and plastics used along the food value chain like pallet shrink wrap in the back of stores. Ahold Delhaize USA, the fourth largest grocery retail group in the nation, operating more than 2,000 stores and 22 distribution centers across more than 20 states, is the parent company for Food Lion.
- Cyclyx International, a joint venture between Agilyx Corporation and ExxonMobil, is responsible for sorting and pre-processing waste packaging materials from Food Lion stores, before delivering them to ExxonMobil's Baytown, Texas facility for advanced recycling. During the sorting process, materials that are suitable for mechanical recycling remain on that path, while difficult to recycle plastics are sent to ExxonMobil.
- ExxonMobil's Exxtend™ technology for advanced recycling breaks down these plastic materials to their molecular level so they can be attributed via mass balance accounting to certified-circular polymers, such as Exceed™ S, Exceed™ XP, Exceed™, and Enable™ performance polyethylene (PE) resins, and other valuable products.
- Sealed Air converts the certified-circular polyethylene resins into food-grade flexible film used to package the Nature's Promise fresh poultry. Sealed Air is leading the packaging industry by showing how high-performance packaging materials can be designed for recycling.

Circular polyethylene value chain



The Results

Collaboration is key in bringing advanced recycling solutions to scale, and each player in this project brought a unique perspective and expertise to bear.

- Ahold Delhaize USA leveraged its expertise engaging employees and consumers to help make recycling flexible plastic packaging an easy choice that brings sustainability benefits.
- Cyclyx International delivered an innovative approach to feedstock management and as well as a critical interface between Ahold Delhaize USA's retail locations and ExxonMobil's petrochemical facility.
- ExxonMobil leveraged its Exxtend technology for advanced recycling to process difficult-to-recycle plastic waste and provide a reliable source for high-performance, certified-circular polymers.
- Sealed Air applied its innovation in sustainability, automation, and digital technology to identify a flexible packaging solution to help the customer, Ahold Delhaize USA, meet its sustainability goals.

The collaboration is opening new recycling possibilities and paving the way for industry to continue supplying high-performance polymers to help protect perishable foods while supporting the circular economy.

About ExxonMobil Polyethylene

ExxonMobil's polyethylene portfolio offers converters and brand owners an extensive range of performance polymers as well as specialty co-polymers and additional polyethylene grades for numerous applications. Our performance polymer flagship brands deliver superior mechanical performance and unparalleled properties.

With critical properties such as strength, durability and toughness, ease of sealing, and outstanding optics, our leading-edge polyethylene formulations help create, protect, and promote products throughout the packaging, agriculture, industrial, personal care, and hygiene markets. From store shelves, to harvesting, to shipping, to the factory, products made with our performance polymers can help reduce risk of waste, breakage, and spoilage across the value chain.

About Sealed Air

Sealed Air is in business to protect, to solve critical packaging challenges, and to make the world better than we find it. Its automated packaging solutions systems create a safer, more resilient, and less wasteful global food supply chain, enable e-commerce, and protect goods transported worldwide.

Its globally recognized brands include CRYOVAC® brand food packaging, SEALED AIR® brand protective packaging, AUTOBAG® brand automated systems, BUBBLE WRAP® brand packaging, SEE™ Touchless Automation™ solutions, and prisma™ smart packaging and digital printing.

Sealed Air's operating model, together with its industry-leading expertise in materials, engineering, and technology, create value through more sustainable, automated, and digitally connected packaging solutions. Sealed Air is leading the packaging industry in creating a more environmentally, socially, and economically sustainable future and has pledged to design or advance 100% of its packaging to be recyclable or reusable and to incorporate an average of 50% recycled or renewable content into solutions by 2025, with a bolder goal to reach net-zero carbon emissions in its global operations by 2040.

About Ahold Delhaize USA

Ahold Delhaize USA, a division of Netherlands-based Ahold Delhaize, is the parent company for Ahold Delhaize's U.S. companies, including its local brands, Food Lion, GIANT Food, The GIANT Company, Hannaford and Stop & Shop; Retail Business Services, a U.S. support services company providing services to the brands; Peapod Digital Labs, its digital, commercial and e-commerce engine; and ADUSA Supply Chain companies. When considered together, the local brands of Ahold Delhaize USA comprise the largest grocery retail group on the East Coast and the fourth largest grocery retail group in the nation, operating more than 2,000 stores and 22 distribution centers across more than 20 states and serving millions of omnichannel customers each week.

About Cyclyx

Cyclyx International, LLC ("Cyclyx") is a post-use plastic feedstock management company working with industry participants to develop innovative recycling solutions for all types of post-use plastics. The company's mission is to increase the recycling rate of plastics from 10% to 90% by using Cyclyx's expertise in understanding the chemical composition of post-use plastic in collaboration with industry partners to create a new, innovative supply chain. Cyclyx was founded by Agilyx Corporation ("Agilyx"), a leader in advanced chemical recycling, together with ExxonMobil Chemical Company, one of the largest chemical companies in the world. Cyclyx has been formed to be a consortium-based entity and since its founding there have been a growing number of companies joining its membership.

Cyclyx brings innovation to feedstock management, which is a key limiting factor in today's plastic recycling industry. Its integrated comprehensive approach combines: robust set of technologies; feedstock management system; data analytics; and, predictive modelling for custom feedstocks.

Exxtend™
Recreated to create

What some might see as solutions that will only happen in the future, ExxonMobil Exxtend™ technology for advanced recycling is possible today, through our innovative and reliable products, collaborative approach, technology leadership and support, and our unmatched global supply and resources. Contact your ExxonMobil representative and start experiencing tomorrow's advanced recycling technology today.

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