
Advanced Recycling Technologies (ARTs) are essential to ensuring that plastics stay out of the environment, while also creating new products and economic growth opportunities that benefit society. ARTs can help create a “circular economy” in which materials are repurposed after use rather than disposed.

What is Advanced Recycling?
ARTs is the latest step change in recycling, and refer to a number of technologies in use across the United States that transform hard-to-recycle plastics like plastic film, textiles and building materials that would otherwise end up in the landfill. While mechanical recycling uses processes that retain plastic resin, ART typically alters the physical form of used plastics, either by dissolving them with chemicals or using heat to break them down into their original components.

How do Advanced Recycling Technologies work?
ARTs use various processes to convert post-use plastics into their original building blocks, polymers, and feedstocks. The resulting product is then used to make new plastic materials, fuel or other household products.

Environmental Benefits
In addition to diverting plastics from landfills, ARTs emit fewer emissions than other traditional recycling methods. Pyrolysis can reduce CO2 emissions by about 50% compared to incineration of the same materials. According to a study by Argonne National Laboratory, making ultra-low sulfur diesel fuel from used plastics could decrease the consumption of water by 58% and the use of traditional energy sources by 96% compared to producing the product from traditional materials.

Economic Opportunity
In a 2019 report, investment firm Closed Loop Partners found that ARTs could yield up to $120 billion in potential revenue based on demand for advanced recycling products. Companies already purchasing the products from advanced recycling or that have announced agreements to do so include Gatorade, H&M, L’Oréal, Procter & Gamble, PepsiCo, and Unilever. In November 2020, Michelin and Pyrowave announced that they would partner to fast-track the use of chemical recycling technologies in Canada to create an outlet for hard-to-recycle plastics, like flexible plastic packaging.