



Exxtend™ technology for advanced recycling

Advanced recycling: Helping address automotive plastic waste

The challenge

End-of-life plastic from the automotive industry presents a complex challenge for recycling and waste management systems. Modern vehicles are composed of approximately 10% plastic by mass—a figure that continues to rise¹. With each vehicle containing over 400 pounds of plastic on average², the industry generates an estimated 5.6 million tons of plastic waste annually³ globally. This waste stems from several key sources:

- **Manufacturing and dealership waste:** Includes not just reusable containers and clear film, but also a wide variety of plastic packaging made from different resins in various formats. This limits practical recycling opportunities based on low quantities of single commodity types and high level of sorting required at the plant to source separate. Plants typically do not have space or staff to perform this level of sorting. Markets for mixed plastics are the most likely pathway for these materials.
- **Collision debris:** Accidents can result in fragmented and heterogeneous plastic parts that are hard to collect and process⁴.
- **End-of-Life Vehicles (ELVs):** Contribute large volumes of degraded and contaminated plastics that can be difficult to recover in usable form.

Additionally, the existing waste collection infrastructure for automobiles is fragmented, leading to further challenges. These factors and the complex supply chain make the effective recycling of automotive plastics both urgent and complex.

The solution

ExxonMobil is taking a proactive approach to this challenge through a comprehensive strategy centered on collaboration, innovation, and its proprietary Exxtend™ technology for advanced recycling. The company is working closely with Original Equipment Manufacturers (OEMs) to understand the specific types and sources of plastic waste generated throughout a vehicle's lifecycle. By characterizing this waste—from manufacturing scrap to ELV components—ExxonMobil can evaluate its potential as feedstock for advanced recycling via take-back programs. We are assessing pilot programs that are underway to process automotive plastic waste and explore scalable, efficient recycling solutions.

A key component of this initiative is ExxonMobil's collaboration with Cyclyx, a joint venture focused on developing cost-effective, commercial recycling pathways tailored to the unique properties of automotive plastics. Together, these efforts, along with mechanical recycling solutions, aim to divert plastic waste from the automotive sector that might otherwise have gone to landfill and support the transition to a more circular economy.

The benefits

Addressing automotive plastic waste requires a shift in mindset—from viewing it as a disposal problem to recognizing it as a valuable resource. Rather than ending up in landfills, these materials can be remanufactured into new, high-quality products such as fuel, lubricants and plastics. By unlocking the hidden value in automotive plastics and investing in advanced recycling technologies, the automotive and polymers industries can transform waste into opportunity. Collaboration across the value chain—among manufacturers, recyclers, and policymakers—is essential to realizing this potential.

ExxonMobil and advanced recycling

ExxonMobil has announced plans to invest over \$200 million to expand its advanced recycling capabilities at its Baytown and Beaumont facilities in Texas. In April 2025, the company launched its second advanced recycling unit in Baytown, which has the capacity to process up to 80 million pounds of plastic annually, effectively doubling ExxonMobil's existing advanced recycling capacity. Looking ahead, ExxonMobil aims to significantly scale its efforts by constructing additional units, with the goal of achieving a global advanced recycling capacity of 1 billion pounds per year⁴.

1 Chemistry and Automobiles: Driving the Future, American Chemistry Council

2 More Plastics Used in Automobiles, Improving Fuel Efficiency, Safety and Performance, American Chemistry Council

3 Automotive Waste: Challenges and Sustainable Solutions, Auto World Journal

4 U.S. Environmental Protection Agency (EPA). According to their page on the Sustainable Management of Construction and Demolition (C&D) Materials, C&D debris often includes a wide variety of materials such as plastics, which can be bulky, mixed, and difficult to sort and recycle

Contact us for more information: exxonmobilchemical.com/exxtend

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