Sustainable Materials Innovation: Plastics Project

Materials | Worldwide

Quick Overview

Help support the advancement of bio-based biodegradable materials.

This project involves implementing a set of trials to: produce materials (with the same properties as plastics) that come from renewable, bio-based feedstock; scale new recycling technologies; and build a circular value chain to keep more sustainable materials in play.

Why This Project Matters

- Throughout their lifecycle, plastics have a significant carbon footprint and emit 3.4% of global greenhouse gas emissions, which is more than the aviation industry or international shipping industry.
- 99% of plastic is sourced from fossil fuels and only 9% is recycled globally—with almost 70% sent to landfills or incinerated and about 6% leaked into the environment.
- Almost half of plastic waste comes from plastic packaging. Conventional plastics (e.g. polyolefins) were designed for durability not end-of-life (EoL). This makes these plastics inherently inefficient to deconstruct and recycle.
- Even when plastic can be recycled, it is most often downcycled to lower-quality applications, limiting the viability of circular models.

Expected Results

The trial results aim to demonstrate the performance of the new materials and recycling technologies and address key performance issues, with the goal of enabling them to scale and eventually replace the conventional plastics value chain.

Companies Committed

The following entities teamed up through the BOTTLE Consortium to develop a novel, lower-emissions recycling technology for mixed polyester plastics (EstercycleTM), which includes PET as well as a mix of bio-based, biodegradable plastics.

Collaboration Opportunities

To scale a value chain for more sustainable plastics, collaboration from signatory companies is needed in several areas.

1 **Application trials**
Help test bioplastics in more applications—from food to personal care to logistics packaging and more.

2 **Collection trials**
Participate in the collection of mixed bioplastics and other polyesters for recycling from consumers.

3 **Sortation trials**
Work with material recovery facilities, secondary sort facilities, and technology providers to sort and aggregate mixed bioplastics.

4 **Recycling trials**
Co-invest in lower-carbon recycling technologies or provide feedstock samples to support demonstration trials.

5 **Material production trials**
Become a research and development or investment partner to invent and scale new biobased material formulations.

Goal

Realize a future where plastics are low-carbon, fully circular, and result in reduced harm to the environment.

Join This Project

Scan the QR code or visit amzn.to/plasticsinnovation to let the Pledge team know you are interested in this project. Have questions? Contact us at wws-strategicprojects@amazon.com.

Interested in addressing plastic in your supply chain? Consider a bioplastics trial in applications, collection, sortation, recycling, and material production.

The Big Picture

The Climate Pledge launched a series of collaborative projects to help tackle some the planet's biggest climate change challenges alongside the best in the business. These joint action projects bring signatories together to enable and scale a solution that aligns with the pillars of the Pledge and leads to measurable results.

Learn more at theclimatepledge.com/jointaction.

The Pledge

The Climate Pledge is a commitment to reach net-zero carbon emissions by 2040. It brings the world's top companies together to accelerate joint action, cross-sector collaboration, and responsible change.

Learn more at theclimatepledge.com.

BOTTLE Consortium

BOTTLE™ is a U.S. Department of Energy multi-organization consortium focused on developing new chemical upcycling strategies for today's plastics and redesigning tomorrow's plastics to be recyclable-by-design.

Learn more at bottle.org.