

Chemical Recycling in Brief

26 May 2021

In 2018, 9.4 million tonnes of plastic postconsumer waste were collected in Europe to be recycled (inside and outside the EU)¹. Almost 80% was treated in Europe to produce about 5 million tonnes of recyclates².

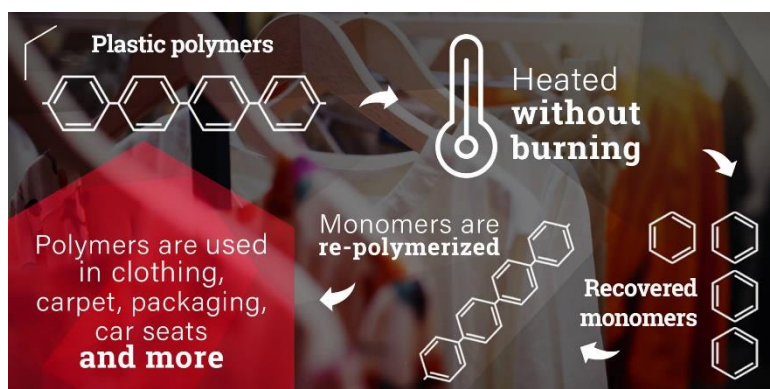
The Green Deal is at the heart of the EU's ambitions of becoming climate neutral and circular. To meet these ambitious objectives, plastic waste needs to be captured as a valuable resource and turned into new products. This transitioning from a linear economy to a circular economy requires different recycling technologies.

Chemical recycling is a promising technology

Chemical recycling complements other plastic recycling options like mechanical and dissolution recycling. It is capable of processing plastic waste which would otherwise end up in incineration or landfill. It delivers significant quantities of recycled material with virgin plastic properties. This technology also enables the recyclate to be increasingly used in demanding applications, such as food contact.

Chemical recycling turns plastic polymers back into their original molecules so they can be processed and used again and again. There are different chemical recycling technologies, not just one – e.g. pyrolysis, gasification, depolymerisation. European legislation does not allow for waste processed for use as fuels by chemical recycling technologies to be considered recycling.

This infographic shows how plastics can be chemically recycled in an oxygen-free environment³:



© Plastics Industry Association

What is still needed to ramp up chemical recycling

There are a number of ongoing projects in the plastics and recycling industries to make this technology more widespread. As it is the only sensible method of recycling for certain plastics,

¹ [Plastics – The Facts 2020](#), PlasticsEurope

² [The Circular Economy for Plastics – A European Overview](#), PlasticsEurope

³ [Recycling 101 - Plastics Industry Association](#)

Editors' note

PlasticsEurope is the pan-European association of plastics manufacturers with offices across Europe. For over 100 years, science and innovation has been the DNA that cuts across our industry. With close to 100 members producing over 90% of all polymers across Europe, we are the catalyst for the industry with a responsibility to openly engage with stakeholders and deliver solutions which are safe, circular and sustainable. We are committed to implementing long-lasting positive change.

it must be further developed; sizeable investments are still needed to fully capture the value of this technology. This also requires a harmonised and strong policy and regulatory framework, as well as more public-private partnerships.

PlasticsEurope announces a significant increase in planned chemical recycling investment: from 2.6 billion Euros in 2025 to 7.2 billion Euros in 2030 with 44 planned projects in 13 EU countries. The production of recycled plastics is estimated to increase to 1.2Mt in 2025 and 3.4 Mt in 2030. With this planned contribution of 1,2 Mt of recycled plastics produced through chemical recycling by 2025, PlasticsEurope plays a leading role in delivering on the European Commission's Circular Plastics Alliance target of 10 Mt recycled plastics used in European products by 2025. Conversion to feedstock represents 80% of the planned capacities.

Chemical recycling enables a second life for all types of waste

Some of our recent member chemical recycling activity in Europe includes:

- waste turned into cheese packaging and fridge components ([BASF](#))
- [Dow](#) to receive supply of recycled feedstocks made from plastics waste from Mura's first-of-its-kind plant in Teesside, UK, supplying major brands across the globe with sustainable plastic products.
- mattresses turned into new ones ([Covestro](#)). Watch this 60 second video on [Closing the Loop for Polyurethane Mattresses](#).

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