



“SPIRIT” Sustainable Plastics Industry Transformation

Roadmap
March 2022



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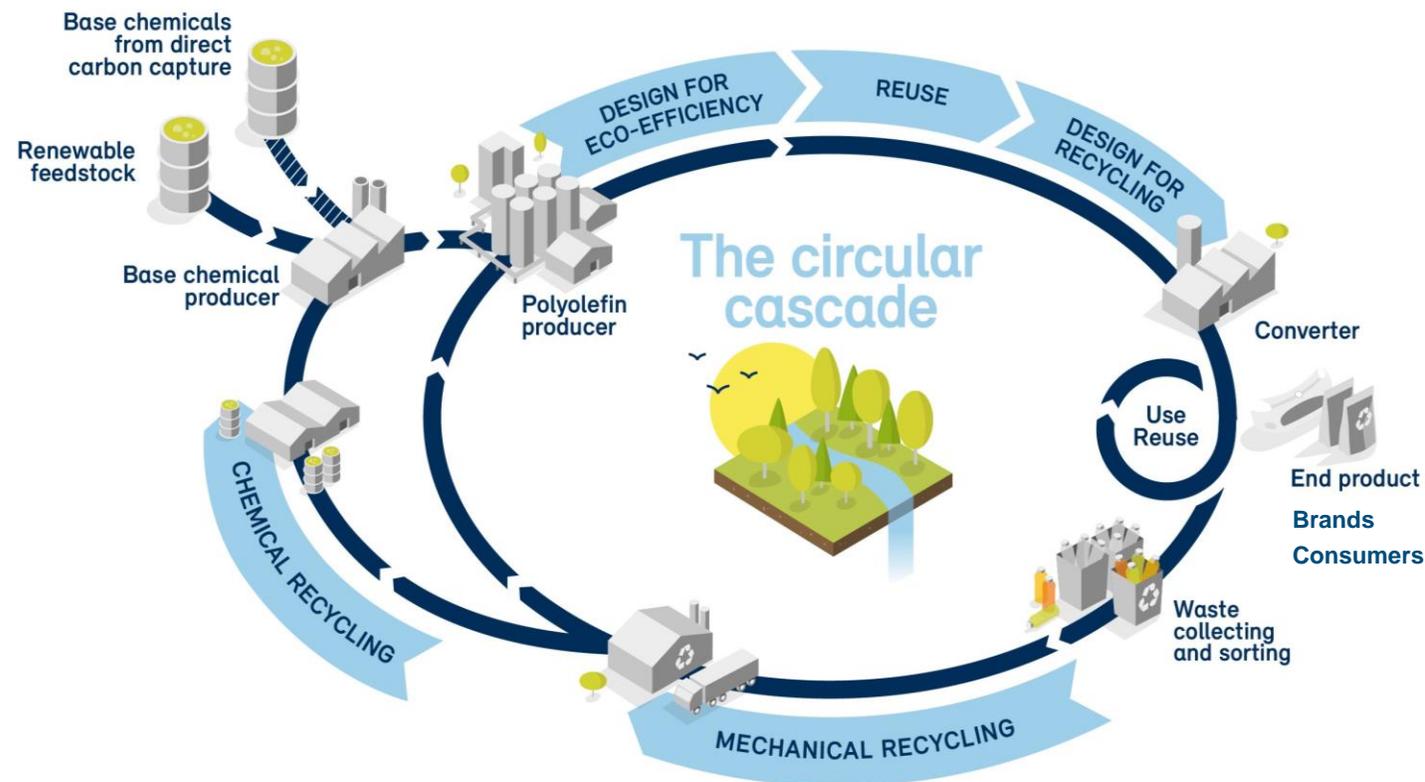
Funded by the European Union –
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Plastics are irreplaceable materials of modern society enabling growth, but their production and end-of-life is not sustainable today

Plastics are versatile materials and have many superior properties like durability, formability and light-weight. For example, plastics secure clean water, healthcare, safe and effective food-chain, reduce food waste, and enable downgauging, clean energy and electrification.

The objective is to transform the entire plastics value chain **sustainable**, addressing the three key industry challenges together with ecosystem partners:

1. Transform the fossil feedstock into renewable and recycled feedstock
2. Establish efficient systems for the large-scale mechanical and chemical recycling
3. Carbon neutral production of plastics



Infrastructure



Healthcare



Consumer products



Mobility



Energy

Focus / development areas

Area	Renewable feedstock	Circular plastics	CO ₂ reduction	Enablers for green transition
Ambition	Transform plastics feedstock from fossil to renewable/recycled	Quantum leap in plastics recycling – minimise incineration and maximise material to material recycling	Carbon neutral production of plastics	Shaping the market to create pull for circular products
“Topics”	<ul style="list-style-type: none"> • Mapping of various renewable feedstock alternatives, including on-purpose production and CCU (e.g. alcohols, gasification, CO₂ derivatives, etc.) • Opportunity assessment of identified renewable feedstock • Concept and portfolio development for renewable feedstock, including production technologies, pre- and post-treatments, logistics and infra • Testing the processing of renewable / recycled feedstock • Development of analytical methods for new feedstock 	<ul style="list-style-type: none"> • Mapping the raw material potential of plastic waste vs. recycling capacity • Explore plastics recycling value chain and business model; from plastic waste collection to sorting and extrusion • Identification of current bottle necks in mechanical recycling • Concept development for chemical recycling technology including pre- and post-treatment and logistics • Integrated mechanical/chemical recycling approach • Quality of recycled plastics 	<ul style="list-style-type: none"> • Evaluate the effect of renewable / recycled feedstock to furnaces • Evaluate other alternative routes to by-pass furnaces • Develop new furnace concepts like electrification, H₂ firing and efficiency improvements to establish furnace road map • Methane valorisation concepts • Evaluate CO₂ capture (CCS/CCU concept) • Evaluate H₂ and electricity concepts and infra (renewable energy, electricity grid, etc.) 	<ul style="list-style-type: none"> • Develop circular product offering to meet value chain demands: Design for recycling, recycled content and reduced CO₂-footprint • Development of analytical methods for circular products and their raw materials. • Development of environmental product declarations of circular products • Market shaping and ecosystem development for circular products, including new business models like reuse and recycling concept developments • Advocacy in standardisation and regulatory areas – topics like mass balance, recyclability, recycled content, ecolabels, etc.
Cross-cutting topics: new business models, digitalisation solutions, emerging technologies, piloting, analytical methods				