



## BioICEP

The Bio Innovation of a Circular Economy for Plastics (BioICEP) represents a collaborative effort between Europe and China, strategically aimed at alleviating the environmental impact of plastic waste. To address diverse mixed plastic pollution scenarios, specific partners have been meticulously chosen, each possessing the required expertise and facilities for essential technical advancements. By taking guidance from nature, our team of experts are developing new next-generation green technologies to degrade and digest polluting plastics and then regenerate them as new alternative bioplastics. The process begins by using a sequential approach, starting with mechanical/green chemical technologies, which simulate natural weathering and arthropodal dismantling activities. This is followed by accentuated microbial and biocatalytic treatments, to yield effective depolymerised waste plastic feedstocks. Revalorisation using virgin-to virgin loops, bioprocessing and fermentation as new eco-polymers and eco-products provides routes to continuous sustainable plastic circularity. These new bioplastics will be fully sustainable and can be readily biologically recycled and regenerated as new bioplastics in a continuous loop akin to biological systems within the natural environment. The BioICEP ethos thus fosters circularity akin to nature where materials are continuously repurposed providing a key template for plastic's circularity. These new plastic products are targeted to be used in plastic packaging.

