

REFUCOAT



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POLICY BRIEF

This document puts forth three key policy recommendations from the REFUCOAT project. European, national and regional policymakers are invited to reflect on how they can be integrated into policy and implemented on the ground.

About REFUCOAT

Over half a century ago, plastic brought a revolution to the food industry. This innovative multi-layered packaging could keep out gas and moisture and prevented food products from going bad. The primary objective was longer shelf life and food safety.

However, the rise of multi-layered packaging material came with a huge economic and environmental burden, mainly because the packaging material is multi-layered with non-renewable sources (e.g. aluminium), difficult to recycle and it has high recycling costs.

REFUCOAT takes on the challenge to provide safe foods, reduce the environmental impact and help save our planet by developing bio-based, fully recyclable packaging solution for chicken, breadcrumb and crisps, to replace non-renewable packaging that is currently being used by most retailers.

The project will develop fully recyclable/biodegradable films and trays following these two approaches:

- New coatings developments -Hybrid coating with improved barrier properties and antimicrobial/gas barrier coating for crisps and breadcrumbs based on PGA (polyglycolic acid)
- New material development, PHA (polyhydroxyalkanoate) with improved water vapor barrier for chicken trays.

REFUCOAT Recommendation 1: Increased sustainability throughout the entire plastic supply chain

The EU Bioeconomy Strategy and its Action Plan aim to pave the way to a more innovative, resource-efficient and competitive society that reconciles food security with the sustainable use of renewable resources for industrial purposes, while ensuring environmental protection. One of the suggested action items of the plan in order to do this is to [promote and develop standards, labels and market uptake of bio-based products](#). In order to boost market uptake and consumer confidence, it is necessary to use multiple instruments.

REFUCOAT Recommendation 2: Improve recycling processes in Europe

Researchers estimate that more than 8.3 billion tonnes of plastic has been produced since the early 1950s. [About 60% of that plastic has ended up in either a landfill or the natural environment](#). The main issues complicating plastic recycling are the quality and price of the recycled product, compared with their unrecycled counterpart. Plastic processors require large quantities of recycled plastic, manufactured to strictly controlled specifications and at a competitive price. Also, the diversity of the raw material complicates the recycling process, making it costly and affecting the quality of the end product. For example, [polylactic acid \(PLA\) is a bioplastic that is potentially recyclable but for which no separate recycling stream yet exists](#), whereas, the corresponding sorting technology is already available. Higher proportions of bio-based plastics in post-consumer waste would encourage the establishment of separate bioplastic recycling streams, as they would become economically feasible. In consequence, [the demand for recycled plastics accounts for only 6% of plastics demand in Europe](#).



Recommended action:

REFUCOAT is recommending to introduce a mandatory self-assessment process for sustainability for industrial production companies along the whole value chain from raw material production/providers/selection/validation up to final products and customer service. Its aim is two-fold: the optimisation of processes on the one hand and the market boost and awareness raising among consumers on the other hand. The following self-assessment criteria can be considered: LCA (life-cycle assessment), including environmental, social and economic LCA, traceability of raw materials, waste management, energy and water consumption. Once an organisation performs this assessment it can be given a grade of sustainability ([equivalent to the EU Energy Label](#)). Companies would be encouraged to improve and optimise their processes in order to improve grading over time. The mandatory self-assessment could be performed by external experts or internal staff with necessary expertise.

Recommended action:

- A. Currently plastic recycling rates vary significantly throughout the EU member states. Half of the plastic collected for recycling is exported to be treated in countries outside the EU. Reasons for the exportation include the lack of capacity, technology or financial resources to treat the waste locally. REFUCOAT recommends that the process for plastic recycling is standardised and rules are unified all over Europe. This includes the way waste is collected, sorted, the types of materials that are being recycled as well as the evaluation of the quality of the materials. Particular attention needs to be paid to raising awareness among consumers about recycling processes through labelling schemes that clearly indicate how different parts of food packaging should be disposed of. Consumer awareness and educational campaigns could be promoted in local communities.
- B. Mechanical recycling (where plastic is washed, ground into flakes, melted by extrusion and re-granulated) is the most used method for recycling in Europe. However, it has its disadvantages. [For instance it works for pure plastic types like PET bottles or PE flexible packaging, whereas composite, dirty materials usually get incinerated](#). It is necessary to invest in the research of alternative recycling strategies that are able to find solutions for multi-layer and thermoset plastics. Research funders are encouraged to put out calls for research groups and industry to work together in order to develop novel recycling methods. Moreover, better recycling may be achieved by the development of new packaging materials that can be easily recycled like the ones developed by REFUCOAT.

REFUCOAT Recommendation 3:

Investment in biomass and bio-based industries

Step 1 of the Action Plan from the EU Bioeconomy Strategy aims to strengthen and scale-up the bio-based sectors, unlock investments and markets. In an effort to tackle plastic pollution in European seas and oceans, the action will mobilise the key actors in the plastics value chain to support the development of substitutes to fossil resources, in particular bio-based, recyclable and marine biodegradable substitutes for plastic. One of the challenges related to this is that currently the bioplastics industry hardly receives any subsidies at European level compared to that of the energy sector, for example. Moreover, the current CO2 certificates are very low in price, so they do not serve as a motivator for the industry to make a shift from fossil-based to bio-based products.



Recommended action:

- A. A number of actions are recommended in order to promote and increase the capacity of biomass technology for the EU to become a global leader in climate protection and greenhouse gas emissions reduction targets. More specifically, REFUCOAT advocates for an increased amount of bio-based material in the packaging industry. To achieve this, the price for biomass needs to go down and there should be a quota system for the amount of bio-based material in packaging products. Another way would be to offer subsidies for the use of non-fossil raw materials.
- B. It is necessary to promote and enable development of technologies using bio-based materials. Moreover, for the bioplastics industry to continue growing, it is important that it maintains access to sustainably grown biomass and that more land is dedicated to biomass cultivation for the use in materials production, in an appropriate way.



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