



CIMPA POLICY BRIEF

Packaging and Packaging Waste Regulation

Introduction: turning multilayer plastic waste stream into a fully circular model.

CIMPA is an EU funded H2020 project aiming at developing a recycling value chain for post-industrial and post-consumer multilayer films from food and agricultural applications. CIMPA proposes innovative solutions including a circularity strategy for new packaging designs, the development of new technologies for sorting different films, together with mechanical and physical (dissolution) recycling processes. Furthermore, decontamination and upgrading processes are applied to produce quality material from waste which will be suitable to close the loop.

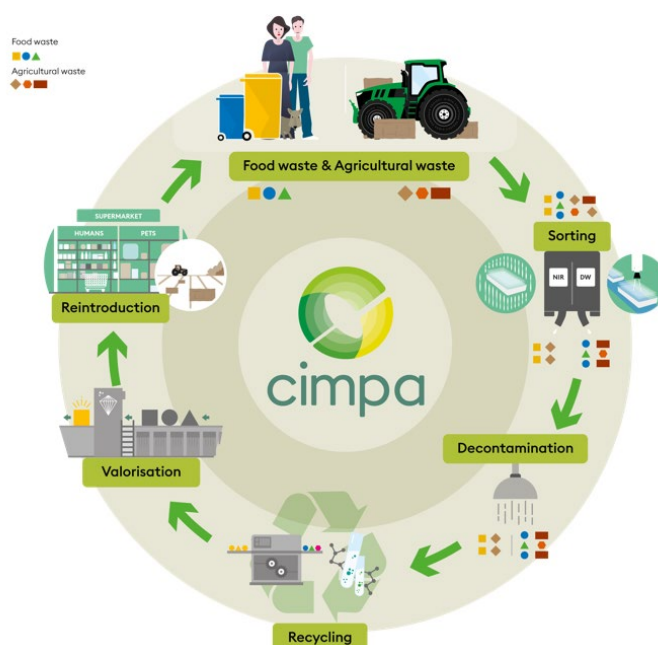


Figure 1. CIMPA's value chain for multilayer films recycling

CIMPA brings together 13 partners from 5 countries (France, Belgium, Spain, the Netherlands, and Finland), covering the whole value chain of the sorting, separation, recycling, and manufacturing of multilayers materials.

By turning the multilayer plastic waste stream into a fully circular model, CIMPA innovative solutions can play a key role in achieving the EU's sustainability targets set under the EU Green Deal¹ and the Circular Economy Action Plan².

As part of the EU's transition to a circular economy, the European Commission published a proposal for a Regulation on Packaging and Packaging Waste (PPWR) in November 2022. **This paper outlines CIMPA's position on the proposed EU-wide rules on packaging, with a focus on key measures such as the recyclability criteria, recycled content target and digital watermarks.**

¹ https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/european-green-deal_en

² https://environment.ec.europa.eu/strategy/circular-economy-action-plan_en



Key points

-  Harmonized packaging rules across Europe are essential to preserve a smooth functioning of the internal EU market and ensure a high level of circularity of packaging.
-  To make all packaging recyclable by 2030, the first step of the value chain must be addressed. When it comes to the design of flexible plastic packaging, mono material structure should be preferred. However, when highly demanding properties are needed, and therefore mono material structures do not suffice, specific recycling paths should be followed.
-  Recycled content targets are needed to stimulate the usage of recycled materials in new products. For food contact materials, they will be achieved through investments in R&D to improve the recycling capacity in Europe
-  Including digital marking technologies in the legislation is key to facilitate the sorting of complex materials and to deliver food-grade recyclates.

Background & Legal Instrument

As part of the project activities, CIMPA published an interim [report on legislative and pre-normative actions](#) which offers a panoramic description of the legislative context as well as the standardization landscape for multilayer plastic films. It addresses the EU and national legislation in particular in France, Spain, the Netherlands and Finland, having impacts on multilayer films circularity, from their design to their end-of-life management and recycling. An overview of the relevant standards and technical bodies for the CIMPA project is also included.

The findings in this report reflect the current discrepancies among different national measures such as the tax on virgin plastic, the packaging labelling requirements, the definition of recyclability, etc. Consequently, it highlights the need for harmonized EU rules to preserve a smooth functioning of the internal EU market as well as high level of circularity of packaging and plastic products placed across the EU.

The CIMPA partners welcome the EC's proposal for a regulation on Packaging and Packaging Waste and supports the legal form of a Regulation instead of a Directive. This will ensure a harmonized implementation and enforcement of the new rules, which are essential to preserve a smooth functioning of the internal market as well as high level of circularity of packaging products placed across the EU.

Making all packaging recyclable by 2030

The CIMPA partners also welcome the introduction of a harmonized definition of recyclable packaging (Article 6) and would like to stress the importance of developing design for recycling criteria and assessing recyclability of the different recycling options at scale.



To prepare and design the next generation of 100% recyclable multilayers, CIMPA is implementing a collaborative recycling-by-design methodology. This is based on concatenated data from sorting, recyclability, decontamination and upgrading, to identify designs compatible with advanced sorting and recycling, relying on actors from the whole value chain as well as influential and important stakeholders.

One of the latest results of the project is the report [“D1.2: Circularity by design guidelines for the next generation of recyclable films capable of substituting today’s difficult to recycle multilayers”](#). This report includes a mapping of the existing European guidelines and recommendations to design flexible plastic packaging considering the results obtained in the CIMPA project.

When it comes to the design of flexible plastic packaging, mono material structure should be preferred. However, when highly demanding



Figure 1. CIMPA’s guidelines on circularity by design

properties are needed, other resins such as EVOH or specific PA may be used. To keep the value of these multilayer materials, particular recycling paths should be followed, and new structures should be created with sustainable secondary raw material.

For this purpose, CIMPA partners have studied 4 streams of flexible multimaterial polymers (see table 1) and the proposed recycling path. CIMPA sorting trials have demonstrated that the combined deployment of the NIR technology developed by the company PELLENC ST and the Digital Watermarking (DW) technology developed by Filigrade (CurvCode) enables effective sorting of complex multi-layer materials. However, until now the recycling paths have only been applied to virgin and post-industrial materials. The results with real packaging waste will become available during the upcoming months.

MULTILAYER STRUCTURE	RECYCLING PATH	
PE/EVOH/PE stream	Sortable by DW	Mechanical recycling
PE/PA streams	Sortable by NIR	Mechanical recycling
PE/PET stream	Sortable by NIR	Mechanical recycling Physical recycling
Metalized or metal laminated polyolefin structure	Sortable by NIR – induction separation	Physical recycling (dissolution)

Table 1. Multilayer structures studied in the CIMPA project.

CIMPA calls for promoting measures aiming at improving design for recycling during the packaging product’s development, with preference towards sorting and recycling techniques with the lowest environmental footprint (see figure 2). In the CIMPA project, mechanical recycling will be preferred over physical recycling whenever possible due to its better

environmental impact. Around 70% of simple multilayers will be able to be recycled in this way. Physical (dissolution) recycling should be applied in those cases where the quality of the material from mechanical recycling is insufficient for re-use in packaging.

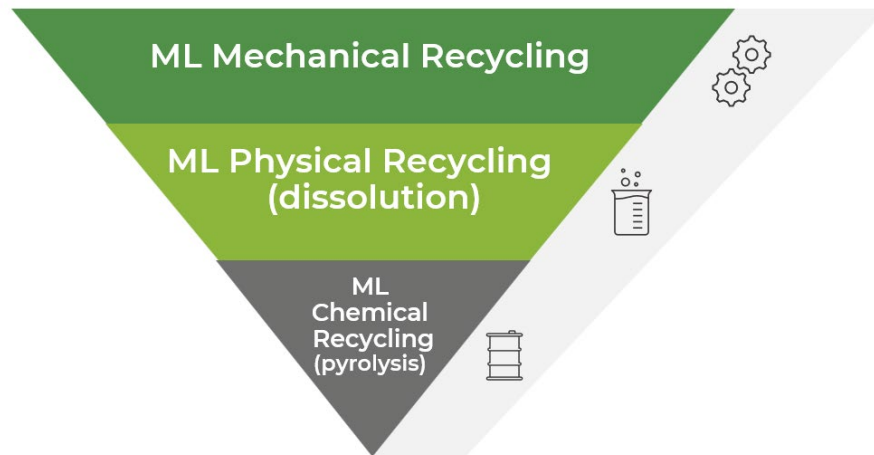


Figure 2. Recycling hierarchy for multilayers (ML)

Finally, CIMPA partners emphasise that chemical recycling technologies should only be used in cases where no alternative recycling processes with a lower environmental impact are available

The CIMPA consortium encourages the Commission to transfer CIMPA's results and work to the development of the design of recycling criteria and the methodology to assess if packaging is recycled at scale, through delegated acts.

In order to accelerate the transition to a circular economy for plastics, all plastic packaging should comply with design for recycling criteria as soon as possible, and support for investment should be provided in order to scale up recycling technologies.

Recycled Content for plastic packaging

CIMPA seeks the reintroduction of recycled materials into industrial processes and aims to demonstrate the reusability of recycled materials for agricultural films and food packaging.

The CIMPA partners support the introduction of recycled content targets for plastic packaging (Article 7), as a key measure to reward recycling environmental benefits to stimulate the usage of recycled materials in new products. Recycled content targets will be achieved through investments in Research & Development to improve the recycling capacity in Europe.

However, to increase the use of recycled materials for food contact packaging and achieve the recycled content target of 10% by 2030, investments and innovation needs to take place at an accelerated pace. Collection remains an essential first step to enable the attainment of recyclability and recycled content targets. High collection rates are essential to supply the recycling industries with the required raw materials. This can be achieved by setting collection targets for all kinds of packaging. In addition, sorting plays a fundamental role to identify and



separate the different polymers and materials into specific waste streams. Thus, quality input can be provided to the recycling process leading to higher quality recycled materials.

In combination with NIR techniques, a digital coding technology ('digital watermarks' - nearly invisible to the human eye) containing relevant data (e.g. film composition, polymer grades, film producer etc) has been tested through the CIMPA project. This combination is key to sort multilayer materials and to sort food vs non-food packaging, which will enable to produce food safe recycled granulates.

Furthermore, CIMPA believes that all packaging materials should follow the same rules for food contact applications to ensure the safe use of packaging and the minimum volume required to develop a new stream.

Labelling, marking and Digital Watermarks

Regarding the labelling of packaging (Article 11), **CIMPA partners support the development of an implementing act to establish the conditions for identifying the material composition of packaging by means of digital marking technologies**, that should be adopted by the Commission.

By inserting digital watermarks into new packaging, recycling plants will be able to sort food grade packaging as input for recyclers to make food-safe recycled granulate. This would help to meet the recycled content targets for food packaging while complying with EFSA requirements.



Figure 3. CIMPA's consortium

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