



HOUSEHOLD  
PACKAGING AND PAPER

TOGETHER,  
LET'S MAKE THINGS  
HAPPEN

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# DEVELOPING RECYCLING OF EPS HOUSEHOLD PACKAGING

## Roadmap

September 2025

## An uncertain regulatory environment and challenges with collection, sorting, and recycling

### The Climate and Resilience Law, PPWR and DADDUE Law

Article 23 of the Climate and Resilience Law stipulated that, as of 1 January 2025, “packaging fully or partly made of non-recyclable styrenic polymers or copolymers (such as polystyrene) that cannot be included in a recycling stream shall be prohibited”.

Under the European regulatory framework introduced by the Packaging and Packaging Waste Regulation (PPWR), which entered into force on 11 February 2025 and will be applicable as of 12 August 2026, deadlines for recyclability shall apply from 2030.

To comply with the PPWR, Article 37 of the French DADDUE law of 30 April 2025, containing various provisions adapting French legislation to the European Union regulatory framework, repeals Article 23 of the French Climate and Resilience Law. Under this legislation, the recyclability requirement for styrenic packaging shall now be applicable with effect from 2030.

### The special case of expanded polystyrene packaging (EPS)

EPS household packaging currently accounts for nearly 15% of styrenic household packaging placed on the market, amounting to approximately 15,000 tonnes. This resin is commonly used in the household appliance sector for cushioning large equipment items and stacking them at logistics sites.

To date, recyclable alternatives do not meet technical and economic requirements for this type of packaging (in terms of reduced weight, cost and impact strength).

### Yellow bin system underperforming on EPS household packaging

For over a decade, the yellow bin system has undergone substantial changes driven by moves to simplify consumer sorting in the French regions (modernisation of sorting centres, promotion of new sorting practices at local level) and the introduction of the development stream to which all PS packaging should be channelled.

Despite significant efforts at all levels (regional collaborations, investment, a public communication campaign, new sorting info label), we have concluded that, under the yellow bin system, this type of packaging does not meet the necessary conditions for its recyclability to be validated in accordance with the provisions of Article R.541-221 of the French Environmental Code, since:

- Consumers sort less than 20% of EPS packaging using the yellow bin;
- It has not been proven that sorting centres are able to capture and appropriately separate over 50% of EPS packaging sorted by consumers;
- It has not yet been proven that EPS packaging mixed with other types of PS can be recycled in the new PS household packaging recycling stream.

**With just 1,200 tonnes sorted annually at present**, the yellow bin system alone is not currently sufficient to meet recycling requirements for all EPS household packaging.

## Challenges faced at all stages of the downstream process

Through studies, observations, and interviews, we have identified the following barriers:

### → Challenges in terms of consumer sorting

Most **inserts included in household waste are large** (used for refrigerators, washing machines, televisions, etc.), raising challenges in terms of consumer sorting. Sorting bins and containers are not well suited to packaging of this size, leading to various consequences: consumers neglect to sort it, items are left at the foot of the bin/container, the sorting bin becomes overloaded (no space for other packaging), inserts break up into small pieces (making them difficult to process at sorting centres).

Simplified sorting instructions introduced over 10 years ago have only recently been applied in some local areas. Therefore, sorting of EPS packaging **has probably not yet become ingrained in households' sorting habits**.

### → Multiple issues at sorting and secondary sorting centres

Consumers do not systematically separate all elements of the packaging used for their equipment. **On arrival at sorting centres, large EPS inserts are found nested inside large cardboard boxes**, which prevents the recovery and recycling of both the EPS and the cardboard boxes.

Conversely, **smaller, non-nested inserts break up** during various logistics stages between their disposal in the yellow bin and arrival on conveyors. On one hand, their sorting potential can be quite unpredictable, and on the other, the EPS is transformed into small beads, which causes anomalies: disruption of other streams, static electricity, and bead volatility.

By the end of the sorting and secondary sorting stages, captured EPS is contaminated, its quality has deteriorated, and quantities are very low, with 1,200 tonnes output from the process per year.

### → No guarantee of full recycling

At the end of the sorting process, the degraded EPS has no outlet of its own. Only recycling solutions that involve mixing it with other PS packaging may be considered. However, recyclers currently only accept minimal proportions of EPS (<5%).

**Given all the challenges outlined above, we felt it necessary to develop alternative and complementary solutions to the yellow bin system based on an existing though currently limited range of practices, potentially combining:**

- **A collection system tailored to consumer habits** for this packaging that comes in specific sizes and is purchased less frequently (than e.g. food packaging);
- **A requirement for sorting at source to preserve the quality** of material and its appeal to recyclers;
- The use of proven, industrial-scale **recycling solutions for unmixed EPS**.

## A roadmap for household EPS packaging with 4 key components

**Overall objective: to provide a variety of collection and recycling systems enabling an EPS recycling rate > 50% to be consolidated in the medium term.**

### Developing collection at waste and recycling centres

This means rolling out EPS collection via dedicated collection areas in waste and recycling centres, a well-known system with relatively high national coverage. These spaces are well equipped for sorting large items of waste that are not part of everyday waste.

In 2023, Citeo launched an **experimental standard** with 13 local authorities that have implemented this type of collection system in order to evaluate the results, opportunities and barriers to developing this already fairly widespread service (15% of waste and recycling centres in France are already equipped for EPS collection).

The initial findings are encouraging, with more than 600 tonnes collected at 200 waste and recycling centres (representing 4% of such facilities in France). Before the experimental standard has run its full course, we are aiming to set out a roll-out plan for this type of collection, along with associated support measures, in consultation with the relevant stakeholders.

### Developing distributor take-back on delivery

This entails the collection of EPS inserts when distributors, and large specialist retailers in particular, take back packaging for delivered products. EPS packaging is sorted and consolidated by distributors themselves or operators working on their behalf before being sent for recycling.

A **pilot study** was launched in 2024 with major distributors and producers to assess the performance of this type of collection. While the initial findings have revealed that this solution offers good potential, there is a lack of clarity with regard to recycled quantities. The roll-out of the professional packaging EPR scheme with effect from 2026 should provide opportunities to deploy this type of collection and ensure better traceability.

### Continuing to improve EPS waste capture at sorting centres via the yellow bin system

Collection via yellow bins is not well suited to this type of packaging, and as yet, no single solution has been identified that can be applied at the 120 or so sorting centres to improve capture within a time frame compatible with targets.

However, for packaging sorted using the yellow bin, **Citeo intends to continue efforts to improve the overall performance of packaging capture at sorting centres** in the coming years, in particular **through dedicated calls for projects** that have been issued since 2024, and through its discussions with operators to ensure that such packaging is appropriately directed to the development stream. Citeo will also encourage contracted recyclers to **develop solutions for recycling EPS mixed with other PS** in the development stream.

## Encouraging eco-design with a focus on three key areas

R&D work is focused on three key areas: state-of-the-art of plastic foam recyclability, combating fragmentation through design, and researching alternatives, including fibrous materials. Our teams regularly consult with packaging engineers in France, Europe, and around the world to understand constraints and support efforts to reduce the environmental impact of EPS packaging. **A technical guide** has been drawn up to explain the current situation regarding the recyclability of inserts and work in progress.

**In conclusion, Citeo is fully committed to identifying solutions for EPS packaging and is counting on the support of all its stakeholders: clients, federations, local authorities, waste management operators, and packaging manufacturers.**

**Our approach, which combines several complementary collection systems with measures on reduction at source, provides an opportunity to realistically aim for a recycling rate >50% in the medium term, thereby ensuring the long-term viability of EPS in household packaging.**