



Consequences if replacing single-use plastic pallet wrapping with reusable alternatives

European Plastic Converters (EuPC) is an established trade association representing the plastics converting industry at the European level. It brings together all actors involved in plastic converting, from packaging to building & construction, automotive, and more, to collaborate on regulatory, research, and development issues. EuPC serves as the professional representative body of plastics converters in Europe, covering all aspects of the plastics converting industry, including recycling.

The European plastics industry plays a significant role in Europe's economy by enabling innovation, enhancing resource efficiency, and creating jobs. More than 1.6 million people are employed in approximately 50,000 small and medium-sized companies within the converting sector, generating an annual turnover of €260 billion.

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Introduction

In the context of the EU Packaging and Packaging Waste Regulation (PPWR), the plastics converting industry fully supports the goal of a circular, sustainable and competitive economy. However, the reuse targets in Article 29 §1-3 for plastic pallet wrapping raises serious concerns about **environmental issues, economic constraints, technological readiness, operational impact across multiple sectors and impact on the internal market.**

To better understand the implications of the re-use targets, EuPC commissioned **two independent studies**, one comparative life cycle assessment and one economic impact study (examining the transition across eight critical industries: agriculture, milk, water, glass, cement, construction, retail, and plastics).

The life cycle assessment

The comparative life cycle assessment was done by the Institute for Energy and Environmental Research (IFEU) in Heidelberg¹. It uses a robust Life Cycle Assessment (LCA) methodology in line with ISO 14040 and 14044 standards and was critically reviewed by a panel of four experts.

The assessment includes 5 single-use and 3 reuse transport packaging systems:

¹ "Comparative life cycle assessment of various single-use and reuse transport packaging. Analysis of single-use stretch wrap, stretch hood and shrink hood in comparison to single-use paper stretch, single-use and reuse cardboard boxes, reuse sleeves and reuse plastic boxes", IFEU, Report nr 30-7822, Heidelberg, March 21st 2025
Avenue de Cortenbergh 71 - B-1000 Brussels • Phone: +32 (0)2 732 41 24 • Fax: +32 (0)2 732 42 18
info@eupc.org • www.plasticsconverters.eu





- **Single-use systems:** plastic stretch wrap, stretch hood, shrink hood (all with 0%, 35%, and 65% post-consumer recyclate), paper stretch and single-use cardboard box.
- **Reuse systems:** plastic boxes (with and without lids) with 80% PCR, reusable PET sleeve also tested with 65% PCR, and reusable cardboard box with 88% PCR.

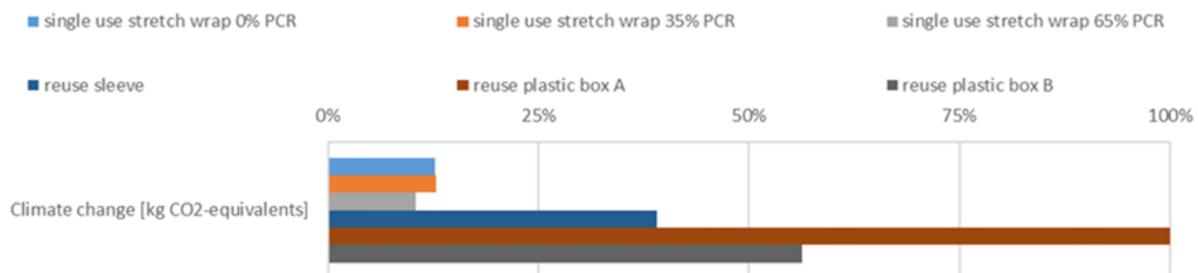
The study analyses seven different applications that pose different challenges for transport packaging, such as very light but large volume goods (cardboard boxes) or heavy compact goods (cement sacks) as well as very fragile goods (new glass bottles). Not all alternatives to plastic pallet wrappings were possible to use for all applications due to e.g. pallet stability or hygiene requirements, or protection against humidity and weather.

The data describing the packaging systems (weights and packaging patterns) were determined specifically for each application field as part of a standardised and certified EUMOS² test procedure for safe logistics and therefore have a high degree of validity and accuracy.

The study shows that for all application fields examined **the single-use plastic pallet wrappings have advantages over the reuse transport packaging in all the environmental impact categories analysed if the PCR content is at least 35%, which will be the case in 2030 when Art. 29 (1-3) will be implemented.**

All results include a **safe load test according EUMOS 40509 standard** (European Safe Logistics Association) to ensure the necessary load security of each combination (packaging system / packed product). This determined the realistic quantity of packaging weight required which is also the basis of the LCA calculation.

Also, replacing the current 35% stretch Hood with the reusable sleeve in the application field of cement bags will increase greenhouse gas emissions by 300%, by 400% if it is reusable plastic box B, and by 700% if it is reusable plastic box A.



² EUMOS standards are setting the benchmark for safe logistics <https://eumos.eu/quality-standards/>
Avenue de Cortenbergh 71 - B-1000 Brussels • Phone: +32 (0)2 732 41 24 • Fax: +32 (0)2 732 42 18
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Impact on climate change

The life cycle assessment did not aggregate the results into a single-score evaluation as this imply value judgments and loss of information. EuPC has however specifically analysed the data on **climate change** because of the ambition EU has to become the first climate-neutral continent.

For example replacing the stretch wrap (35% PCR) with the reusable sleeve will increase the greenhouse gas emissions by 470%, and with one of the plastic boxes with 1750%. In examples with water and CSD bottles respective buckets the differences in climate change are slightly lower. Switching to the reusable sleeve will increase the greenhouse gas emissions with respectively 31% and 46%, and switching to plastic box A leads to an increase of 620%.

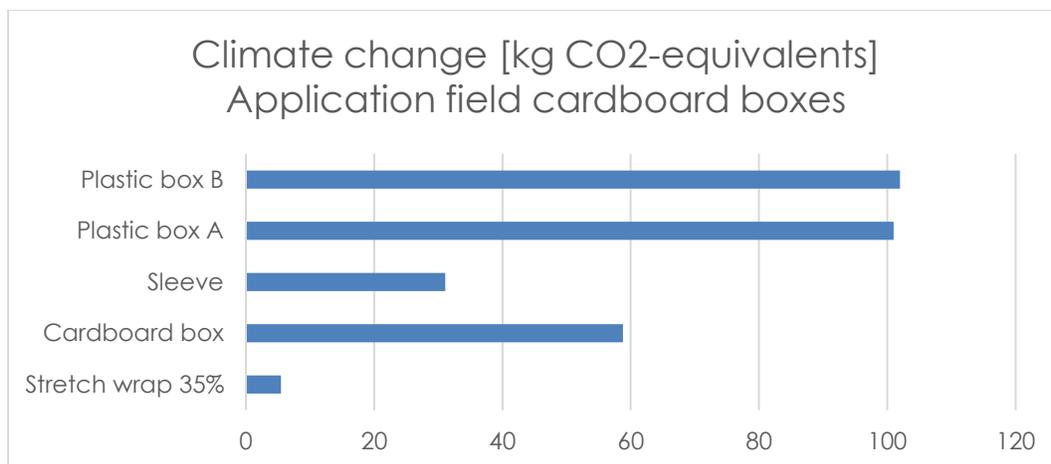


Figure 1: Impact of climate change between the different transport packaging systems for the application field cardboard boxes.

Conclusions and Policy Implications

This study delivers a clear message: **reuse is not the more sustainable option a for transport packaging and promoting the most effective solutions for circularity could align better with EU objectives** — especially when environmental performance is measured holistically through the life cycle. In the case of the investigated transport packing solutions and application fields, reuse systems, **result in higher environmental burdens**, require **more resources**, and are **less efficient logistically** than advanced single-use plastic alternatives.

The study calls for:

- **Evidence-based application of reuse obligations**, ensuring LCA results guide regulatory measures.
- **Recognition of the best overall environmental outcome provided by plastic single-use flexible formats**





- Recognition of the **value of PCR content** in reducing carbon footprints of plastics.
- **Flexible implementation of Article 29 of the PPWR**, avoiding blanket reuse mandates that fail to account for sector-specific and environmental realities.
- Promotion of **recyclability, PCR use, and material efficiency** as practical and impactful sustainability measures.

The economic impact study

The economic impact study was completed by RDC Environment³. It evaluates the transition from current single-use plastic pallet wrapping systems (e.g., stretch wraps, stretch hoods or shrink hoods) to the most feasible reusable alternatives based on the specific requirements of in eight important sectors: agriculture, milk, water, glass, cement, construction, retail, and plastics —each represented by a specific product.

The study focuses on the analysis on the long-term cost when reusable solutions is assumed to exist, but is also discusses qualitatively the transition costs in the short to medium turn (15 years). The data was principally collected via site visits and interviews across the eight sectors.

If implemented without adjustment, these rules risk:

- Undermining **EU industrial competitiveness of the eight sectors assessed**
- Increasing **operational inefficiencies**
- Failing to deliver the **environmental benefits** they aim to achieve due to system duplication and inefficiencies

Indeed, across the EU and for the considered sample of supply chains only, **the total estimated annual cost impact for shifting from the existing single-use solutions to reusable alternatives exceeds €4.9 billion for the sole eight sectors**, with some sectors—such as retail (tissue boxes in the report) and empty glass containers—facing cost increases of up to 8.3% and 15.9% of product value respectively. Even in less affected sectors such as plastics, the cumulative effect remains non-negligible. This cost assessment takes into account the costs of: packaging (including the return costs for reusable options, such as logistics, cleaning and managing the reuse systems), storage, palletisation, pallet wrapping, transport, depalletization and waste management.

The report finds that moving to **the reusable alternatives will result in additional costs** per product unit even **in the long-term**, shown in figure 2. The higher cost is primarily driven by:

- The cost of the reusable packaging itself

³“Economic impact of switching to reusable options for pallet wrapping”, RDC Environment, Brussels, March 2025
Avenue de Cortenbergh 71 - B-1000 Brussels • Phone: +32 (0)2 732 41 24 • Fax: +32 (0)2 732 42 18
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- The additional machines needed for the automated end of line
- The impact of a reduction of products per pallet

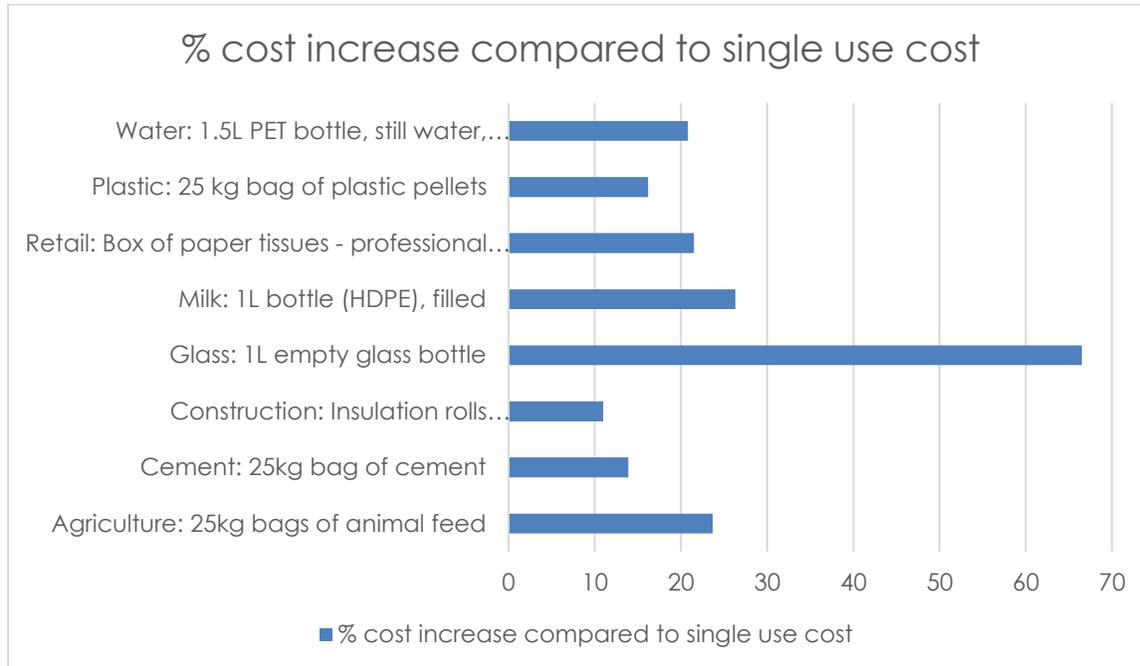


Figure 2: The the long-term percentage increase in cost when switching to the reusable alternatives in the different sectors.

Co-existence of both single-use and reusable systems

It should be highlighted that all economic operators **exporting** outside the European Union **will have to maintain the optimized single-use palletising systems currently in force throughout the world, which will require the simultaneous and costly maintenance of two production line ends**. This will not contribute to improving the EU's competitiveness but increase the cost of EU exported products.

Also economic operators only operating on the internal market may need to have dual systems depending on the combination of packaging solutions used and whether the customers are located in the same member state or not. This will weaken the internal market contrary to one of the EU Commission's priorities.

Moreover, **automated, standardised reusable systems for pallet packaging do not appear to exist today** for many product types. From an industrial standpoint, the market is not ready—yet the regulation imposes targets that could take effect as soon as 2030.





Conclusion and support for excluding plastic pallet wrapping from re-use targets in PPWR

Based on robust independent evidence, EuPC urges the European Commission and Member States to recognize that high-performance single-use plastic pallet wrapping, particularly when incorporating recycled content, offers a proven and scalable circular solution.

Based on the finding of the two studies:

- 1. Single-use plastic pallet wrappings have the lower environmental impact compared to reusable alternatives and other single-use solutions:** The life cycle assessment shows that the single-use plastic pallet wrappings have lower environmental impact than the reusable transport packaging and the other single-use solutions for all application fields examined, especially if the PCR content in the plastic wrapping is at least 35% which will need to be the case by 2030.
- 2. Single-use plastic pallet wrappings are recyclable, adaptable and optimized:** They are suitable for recycling and provide valuable secondary raw material while the content of recycled plastic from post-consumer plastic waste (PCR) is steadily increasing. Compared to all other options, single-use plastic pallet wrappings are also optimized packaging, transparent when needed, and easily adaptable to all types of goods and logistic systems. This adaptability has a direct effect on the results of both LCA and economic constraints study since it contributes to deliver the highest number of products transported by kilometre.
- 3. Re-use targets will increase costs for transporting products:** Changing from single-use plastic pallet wrappings to reusable alternatives will certainly entail large costs in the short to medium term for the transition, but it will also increase costs in the long-term as shown by the economic impact study for 8 sectors, with a surcharge of c.a. 5 billion per year. It will also increase the cost of exporting products from EU undermining EU competitiveness.
- 4. Lack of technological readiness:** Automated, standardised reusable systems for pallet packaging do not appear to exist today. Because of the lack of technological readiness economic operators will not be able to implement reusable solutions by 2030 —expected by PPWR.

We call for a delegated act under Article 29 (18a and 18c) of the PPWR to exempt pallet wrapping (stretch film, stretch hood, shrink hood), without time limitations, from reuse targets, ensuring that regulation supports environmental performance without undermining competitiveness or logistics efficiency.

Only through collaborative, evidence-based policymaking can we achieve a circular transition that balances environmental integrity, industrial competitiveness, and social responsibility.

