# Recyclable plastic trays outperform laminated paperboard in environmental impact, new study finds



Research conducted by students from the North East Masters of Science and Engineering programme has unveiled a compelling case for recyclable plastic trays as a significantly more environmentally friendly alternative to traditionally used laminated paperboard trays in food packaging. This revelation comes at a crucial time when the food packaging industry is under increasing scrutiny regarding its environmental impact.

The study highlights the limitations of merely reducing plastic content in packaging. It underscores that recyclability is a far more pressing concern given the alarming statistics surrounding food wastage. The Waste and Resources Action Programme (WRAP) revealed that the UK disposed of approximately 10.7 million tonnes of food in 2021, with 60% of this waste generated at the household level. Much of the spoilage can be attributed to inadequate storage solutions, emphasising the necessity for effective packaging.

Neil Shackleton, a packaging expert and founder of sustainability consultancy Medoola, articulated that a holistic approach to material selection is vital. “There is no single one size fits all in terms of materials,” he stated. He advocates for the optimal use of materials to enhance shelf life—a critical factor in reducing food waste. Rigid and semi-rigid plastic packaging, he argues, may often provide a better sustainability profile for perishable goods than their alternative paper-based counterparts.

Data from Valpak’s PackFlow Refresh 2023 Report further supports this notion, indicating that a remarkable 63% of rigid consumer waste plastic packaging is now being recycled in the UK, while the recycling rates for composite fibre-based packaging hover near zero. This disparity raises important questions about the sustainability claims of alternative materials.

The Green Alliance’s Plastic Promises Report amplifies concerns regarding consumer-driven pressures forcing supermarkets and fast-moving consumer goods (FMCG) companies to abandon plastic packaging. Interviews with category representatives from major supermarkets revealed an unsettling reality: the shift away from plastic is often not aligned with environmental benefits. In many instances, alternative materials may inadvertently increase carbon footprints, largely due to inadequate recycling frameworks.

The comparative life cycle analysis conducted in the study examined two prevalent forms of food packaging: fully recyclable trays crafted from 85% recycled polyethylene terephthalate (rPET) and laminated paperboard trays composed of 80% less plastic yet made from virgin materials. Despite the misleading narrative around reducing plastic content, the paperboard trays, due to their composition, face significant recycling challenges, ultimately resulting in heightened carbon emissions linked to raw material extraction and processing.

Conversely, trays made from rPET emerge as champions of sustainability. They not only produce significantly less CO2 compared to their laminated counterparts but also sidestep the complexities associated with the manufacturing of paperboard trays, which often involve energy-intensive processes. Crucially, the rPET trays are fully recyclable, lessening reliance on virgin materials and minimising plastic waste.

“The research suggests that simply reducing plastic use is not enough—consideration of recycled content, recyclability and carbon emissions is crucial,” stated the lead researcher. Emphasising the importance of a circular economy, the team urges stakeholders in the industry to prioritise packaging materials designed for recycling over those that merely seek to diminish plastic usage.

Backing these findings is a consortium of businesses within the food packaging industry, identified as RPETS, which has called upon brands, retailers, and policymakers to shift their focus towards fully recyclable packaging solutions. Jonny Catto, managing director of iPac Packaging Innovations, highlights a widespread misconception regarding plastics: “Recyclable plastics like rPET are part of the solution, not the problem.” He argues that we must pivot the conversation away from simplistic narratives about reducing plastics towards improving recycling infrastructures and educating consumers.

Echoing this sentiment, Jeff Brunskill, managing director of Pakway, remarked that the study serves as a crucial wake-up call for the industry. “We need solutions that actually work in real-world recycling systems—not just packaging that appears sustainable on the surface,” he asserted.

As the call for sustainable packaging grows louder in light of increasing consumer and regulatory pressures, the findings of this research present a strong case for a strategic reevaluation of material choices in the food packaging sector. Ultimately, the evidence suggests that a shift towards effective recycling and sustainability-focused practices can play a pivotal role in addressing both environmental concerns and food waste challenges.

## Reference Map:

* Paragraph 1 – [[1]](https://industrialnews.co.uk/recyclable-plastic-trays-more-environmentally-friendly-than-laminated-paperboard-packaging/?utm_source=rss&utm_medium=rss&utm_campaign=recyclable-plastic-trays-more-environmentally-friendly-than-laminated-paperboard-packaging)
* Paragraph 2 – [[1]](https://industrialnews.co.uk/recyclable-plastic-trays-more-environmentally-friendly-than-laminated-paperboard-packaging/?utm_source=rss&utm_medium=rss&utm_campaign=recyclable-plastic-trays-more-environmentally-friendly-than-laminated-paperboard-packaging), [[2]](https://www.wrap.org.uk/resources/report/packflow-refresh-2023-reports)
* Paragraph 3 – [[3]](https://www.valpak.co.uk/news/valpak-shows-shift-from-plastic-to-paper-packaging), [[6]](https://www.foodanddrinktechnology.com/news/43390/2022-is-on-track-for-highest-ever-volume-of-uk-plastic-packaging-waste-recycling-says-valpak/)
* Paragraph 4 – [[1]](https://industrialnews.co.uk/recyclable-plastic-trays-more-environmentally-friendly-than-laminated-paperboard-packaging/?utm_source=rss&utm_medium=rss&utm_campaign=recyclable-plastic-trays-more-environmentally-friendly-than-laminated-paperboard-packaging), [[4]](https://www.letsrecycle.com/news/valpak-packflow-2023-most-materials-see-decline-since-2019/)
* Paragraph 5 – [[5]](https://www.mrw.co.uk/news/valpak-shows-shift-from-plastic-to-paper-packaging-02-08-2024/), [[6]](https://www.foodanddrinktechnology.com/news/43390/2022-is-on-track-for-highest-ever-volume-of-uk-plastic-packaging-waste-recycling-says-valpak/)
* Paragraph 6 – [[1]](https://industrialnews.co.uk/recyclable-plastic-trays-more-environmentally-friendly-than-laminated-paperboard-packaging/?utm_source=rss&utm_medium=rss&utm_campaign=recyclable-plastic-trays-more-environmentally-friendly-than-laminated-paperboard-packaging)
* Paragraph 7 – [[1]](https://industrialnews.co.uk/recyclable-plastic-trays-more-environmentally-friendly-than-laminated-paperboard-packaging/?utm_source=rss&utm_medium=rss&utm_campaign=recyclable-plastic-trays-more-environmentally-friendly-than-laminated-paperboard-packaging), [[5]](https://www.mrw.co.uk/news/valpak-shows-shift-from-plastic-to-paper-packaging-02-08-2024/)
* Paragraph 8 – [[3]](https://www.valpak.co.uk/news/valpak-shows-shift-from-plastic-to-paper-packaging), [[6]](https://www.foodanddrinktechnology.com/news/43390/2022-is-on-track-for-highest-ever-volume-of-uk-plastic-packaging-waste-recycling-says-valpak/)
* Paragraph 9 – [[1]](https://industrialnews.co.uk/recyclable-plastic-trays-more-environmentally-friendly-than-laminated-paperboard-packaging/?utm_source=rss&utm_medium=rss&utm_campaign=recyclable-plastic-trays-more-environmentally-friendly-than-laminated-paperboard-packaging)

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## Bibliography

1. <https://industrialnews.co.uk/recyclable-plastic-trays-more-environmentally-friendly-than-laminated-paperboard-packaging/?utm_source=rss&utm_medium=rss&utm_campaign=recyclable-plastic-trays-more-environmentally-friendly-than-laminated-paperboard-packaging> - Please view link - unable to able to access data
2. <https://www.wrap.org.uk/resources/report/packflow-refresh-2023-reports> - The Waste and Resources Action Programme (WRAP) has released the 'PackFlow Refresh 2023' reports, detailing the amount of packaging placed on the UK market in 2022 and projecting future trends. The reports cover materials such as paper, card, glass, aluminium, steel, plastic, and wood, highlighting a general decline in packaging volumes since 2019. Notably, the UK's domestic recycling of plastic packaging has increased steadily since 2011, surpassing the amount of plastic waste exported for the first time in 2012.
3. <https://www.valpak.co.uk/news/valpak-shows-shift-from-plastic-to-paper-packaging> - Valpak's 'PackFlow Refresh 2023' report, commissioned by WRAP, indicates a shift from plastic to paper packaging in the UK. The report estimates that the amount of paper packaging placed on the market in 2022 has increased relative to plastic packaging. Additionally, UK domestic recycling of plastic packaging has increased steadily since 2011, with 2021 seeing a significant jump, and 2022 on track to be the highest volume UK plastic reprocessing year ever.
4. <https://www.letsrecycle.com/news/valpak-packflow-2023-most-materials-see-decline-since-2019/> - Valpak's 'PackFlow Refresh 2023' reports, in collaboration with WRAP, reveal a decline in packaging volumes for most materials since 2019. The reports estimate that UK plastic packaging placed on the market in 2022 is 2,082k tonnes, a decrease of 208k tonnes from 2019. The recycling rate for plastic packaging is estimated at 44%, with UK domestic recycling of plastic packaging having increased steadily since 2011, surpassing the amount of plastic waste exported for the first time in 2012.
5. <https://www.mrw.co.uk/news/valpak-shows-shift-from-plastic-to-paper-packaging-02-08-2024/> - Valpak's 'PackFlow Refresh 2023' report, commissioned by WRAP, indicates a shift from plastic to paper packaging in the UK. The report estimates that the amount of paper packaging placed on the market in 2022 has increased relative to plastic packaging. Additionally, UK domestic recycling of plastic packaging has increased steadily since 2011, with 2021 seeing a significant jump, and 2022 on track to be the highest volume UK plastic reprocessing year ever.
6. <https://www.foodanddrinktechnology.com/news/43390/2022-is-on-track-for-highest-ever-volume-of-uk-plastic-packaging-waste-recycling-says-valpak/> - Valpak reports that 2022 is on track to be the highest volume UK plastic reprocessing year ever, potentially reaching over 600,000 tonnes of plastic reprocessed in the UK if current volumes are maintained. This follows a significant increase in UK domestic recycling of plastic packaging since 2011, with 2021 seeing a 33% increase compared to 2019.
7. <https://www.sustainabilitymea.com/wood-and-aluminum-surpass-plastic-and-glass-packaging-sales-new-report-reveals/> - A new report reveals that wood and aluminium packaging have surpassed plastic and glass in sales. The report projects two scenarios for 2028: one where all packaging materials are subject to recycling obligations, estimating POM at 2,166,000 metric tonnes, and another excluding certain drink containers, estimating POM at 1,759,000 metric tonnes. The UK's domestic plastic packaging recycling rate in 2022 was estimated between 44% and 62%, depending on the measurement point.