

RECOUP Packaging Team *Round Up*

Over the past year, the landscape of packaging design and recyclability has certainly evolved, driven by new policies and a growing emphasis on sustainability. Topics from past and present concerning pack design and recyclability will no doubt be back in the spotlight when the modulated fees and Recyclability Assessment Methodology (RAM) comes into play encouraging the design of packaging that has a small environmental impact. Here is a rundown of some key challenges and successes.

Material Substitutions

In 2022 RECOUP published a document on material switching and its effect on recyclability. The document looked at current trends particularly for food packaging.

Many brands have shifted from straightforward recyclable options to more complex multi-material and laminated packaging. While these innovations may enhance functionality (like improved barrier properties), they often complicate recycling processes.

With plastic being increasingly viewed as problematic, numerous supermarkets and brands are setting ambitious targets to reduce or eliminate plastic packaging. However, switching materials requires careful analysis to ensure they can still be labelled recyclable.

Many packaging formats tout recyclability

but pose challenges in practice, particularly when it comes to fibre and paper packaging, often containing other laminated materials.

The debate over what constitutes sustainable packaging is multifaceted. Different stakeholders may focus on various metrics, such as energy use in production, transportation emissions, renewable sources, or end-of-life impacts. The assumption that new and improved packaging formats are automatically better can be misleading. Each material and design must be assessed holistically to determine its true environmental impact.

As brands navigate these challenges, it is essential to strike a balance between innovation and recyclability. Sustainable packaging solutions must be clear, effective, and aligned with consumer behaviours to achieve environmental benefits.

Who's got beef!

There was one packaging switch that made the headlines in 2023/2024, and that was for fresh minced beef.

The once clear mono PET tray with top film was replaced with a Polyethylene (PE) film that contained Polyamide (PA) and, according to all recyclability guidelines, this mix is unrecyclable.

To add to the confusion flexible materials and films such as this packaging are not yet collected kerbside and usually have on pack instructions to ask the consumer to take to supermarket front of store collections.

However, the presence of PA in the PE film poses challenges for recyclers. Many facilities may struggle to process these materials together, leading to potential waste and contamination in recycling streams.

The change in packaging altered the visual effect of the product with consumers commenting on appearance and quality of the product looking less desired.

Following this switch, many retailers quickly adopted similar packaging changes, which reflected the trend towards flexible packaging. However, it also raises questions about the collective understanding and commitment to sustainability within the industry.

To date most retailers have moved to recyclable formats of the new mince beef packaging which excludes the PA content. Most have opted for the vacuum packaging, with the flow wrap version proving too thin for transit causing leakages.

Paper

Throughout 2023/2024 there have been a variety of new packaging formats on the market replacing plastic as the main material, particularly paper.

Breaded chicken and fish moving into plastic laminated cardboard trays, with a plastic top film, cereals and coffee moved to paper bags, and some beverages moving into paper laminated bottles.



Looking at the Pinot Grigio wine bottle pictured as an example this contains:

- Paper bottle
- Aluminium screw cap with aluminium break ring
- Plastic neck cuff
- Plastic bag in bottle

All needs separating by the consumer after use and before disposal. An excessive use of over packaging and materials all to disguise a plastic bag in a paper case.

There are mono PET wine bottles on the market which are recyclable and less likely to create litter or contamination in other material streams during the recycling process.

Richard Cham, Technical Manager at RECOUP recently posted on LinkedIn his findings from a laboratory pulping test of laminated paper, it made for some 88 interesting comments and received 7 reposts and 59 likes.

“All this talk of brands moving their produce and meat products to a new and wonderful paper packaging, one which reduces plastic waste, whilst maintaining recyclability got me curious.

One great thing about having a lab able to do pulping tests, is the fact I can do pulping tests... So, I did.

Using an anonymously donated pack, we removed a 10x10 cm sample and put it through a pulp test.

Amazingly it pulped relatively easily, the image shows all the products captured after vacuum filtration of the pulp. We removed the pulp cake and plastic and returned the unpulped flakes to wash them again until we were happy we had removed as much fibre as possible.

Turns out that the pulp cake on the left makes up only around 67% of the weight, so only 67% of the pack is recyclable.

The paper flakes (some still retaining the PE) were coated in ABA polymers to provide a moisture and oil resistant coat, on both the inside and outside, with the PE flakes coming to around 12% of the total mass of the pack.

Question now is, with this much plastic and coated paper, is this still considered recyclable in general kerbside paper collections or not?”



Post taken from LinkedIn 9th September 2024

https://www.linkedin.com/posts/richard-cham-595283104_all-this-talk-of-brands-moving-their-produce-activity-7237106199131770880-AXHO?utm_source=share&utm_medium=member_desktop

Small Plastic Items

Small plastic packaging continues to be a focus within the industry. RECOUP frequently answer questions relating to small items and how they would behave during sorting. There have been many discussions and meetings with industry experts on the topic.

The same issues remain with small plastic items, UK material recovery facilities (MRFs) operate with a standard size sorting process of between 40-50mm. Small plastic items often fall below this threshold, making them difficult to capture during sorting. This results in substantial amounts of material being lost, particularly when mixed with other contaminants like broken glass.

Adapting MRFs to effectively sort smaller plastics would require significant redesign and financial investment. Current systems are not equipped to handle this material fraction efficiently.

Other issues include the quality of small plastics, once they are extracted from glass they consist of different grades and types of plastics which diminishes their value making it economically unfeasible for further processing.

Advances in sorting technologies, including artificial intelligence and robotics, show promise for improving the capture rates of small plastics in MRFs. These technologies can potentially enhance the efficiency and accuracy of sorting processes, making it easier to identify and separate small plastic items. As these technologies develop, assessments and trials will be conducted to evaluate their effectiveness in capturing smaller materials. This could lead to improved recycling rates for small plastic items.

Plant Pots - A Success Story

Since 2018 RECOUP has worked together with the Horticulture Trades Association (HTA), plant pot manufacturers and waste management companies to highlight the value in Polypropylene plant pots and support the campaign for kerbside recycling. This has included extensive testing, meetings and forums, webinars, case studies and site visits.

It was great to recently hear that from 2026 all plastic, non-black plant pots will be included in kerbside recycling across England as part of simpler recycling introduced by DEFRA.

This is a big step for the HTA, and all involved whom have worked together to make this a success.

RECOUP will continue to work with the HTA and wider horticultural industry to push for Plant Pots to be included in communications to households so there can be no confusion.

The full article can be found here: <https://hta.org.uk/news/hta-campaign-success-with-plant-pots-accepted-in-kerbside-recycling-from-2026>

The RECOUP Laboratory

The RECOUP laboratory, managed by Richard Cham, Technical Manager at RECOUP has developed rapidly in the last 12 months. There are a variety of tests that can be carried out to determine how packaging would behave and if it is suitable for mechanical recycling.

These tests include Near-infra red optical (NIR) and Fourier-transform infrared (FTIR) polymer detection. NIR provides instantaneous readings of material types, helping to quickly identify the polymers present in packaging.

FTIR provides a more detailed analysis of the molecular structure of materials, allowing for a deeper understanding of their properties and potential recyclability. The laboratory conducts fibre loss and wash tests for adhesives and labels using testing protocols accredited from Recyclass and Petcore Europe.

The development of the laboratory has expanded the services RECOUP can offer providing quicker turnaround times for reporting results. This improvement enhances the support offered to both members and non-members, allowing them to make informed decisions about packaging design and materials.

The RECOUP laboratory will be crucial as the industry continues to evolve and adapt to new sustainability standards and consumer expectations.

Black Plastic

In 2017 RECOUP set up the Black Plastic Packaging Forum, it consisted of RECOUP members and other stakeholders to address the challenges posed by black plastic packaging. It was recognised that black plastic has a place, particularly if the product includes recycled material. It is appreciated that, for this reason, the packaging industry worked together with the recycling industry to accelerate the solutions for sorting plastic containing carbon black pigment.

At that time black plastic for food packaging was prevalent on the shelves and was often used to pack luxury food items. Black plastic packaging, like most plastic packaging, is technically recyclable and there are five key steps to recycling: disposal, collection, sorting, reprocessing, and end markets. Only when an item passes through all these steps and becomes a commodity of value again can it

be genuinely classified as recycled.

The challenges with black plastic packaging were during the sorting stage of the recycling process. Black plastic packaging is typically coloured using carbon black pigments. Because this pigment absorbs Infra-Red light, the packs are not detected, and therefore not sorted, by standard NIR sorting equipment used widely in UK MRFs.

The Forum came up with three solutions to help tackle the challenge with black plastics.

- Follow design for recycling guidelines
- Detectable pigments - black plastic containing no carbon pigment
- Sorting centre of excellence – The introduction of AI

Today the reduction of black plastic in food packaging is visible with brands choosing clear or different coloured materials to remain sustainable.

The RECOUP packaging team continue to provide technical support and analysis of packaging for members and non-members. This work along with other research projects is vital for improving recyclability and the use of materials in packaging.

The Recyclability by Design publication written by RECOUP to assist designers of packaging when making choices about materials and how this can affect recyclability has been updated for 2024.

To download the new version of the guidelines, please visit:
<https://www.recoup.org/our-work/packaging-recyclability-and-design/>

For more information about how the RECOUP Packaging Team can support you please get in touch with a member of the team:

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