Rigid Plastics Recyclability Case Studies

A project to identify and showcase good practice of design for recyclability of rigid plastic packaging (pots, tubs, trays) and non-drinks bottles on the UK market.

Assessment of recyclability

The case studies are presented to showcase rigid plastic packaging, currently on the UK marketplace, that is ideal for recycling.

By highlighting specific examples with explanations of why they are recyclable, WRAP aims to encourage consideration of recyclability during the design process. This will help to maximise recycling of plastic packaging on the UK market back into virgin replacement resins.
Guiding Principles
Pack assessments have been carried out using WRAP guidelines. The guidelines have been based on the best currently available information and may change in the future to reflect further developments in the recycling industry.

Primary Principles
Where there is clear evidence that the environmental benefit of including a certain component, article or additive outweighs the environmental benefit of recycling, that benefit should take priority over this guidance when informing pack design.

Use as few components, polymer types and materials as possible.

The packaging must be fit for purpose. It must deliver the product from producer to retailer to consumer in such a way that the product is fit for use or consumption as intended.

Recyclability Categorisation Matrices
The matrix relating to each of the main polymers are based on cross referencing the various pack components against ideal, not ideal or detrimental classifications. The main polymers are polyethylene terephthalate (PET), polypropylene (PP), polyethylene (PE), and polystyrene (PS). The case studies outlined in this pack have been rated as ideal.

<table>
<thead>
<tr>
<th>Ideal</th>
<th>Not Ideal</th>
<th>Detrimental</th>
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<tr>
<td>Generally the material is compatible with or separable from the main material and is acceptable in industrialised recycling processes in large volumes.</td>
<td>Use of material in general is undesirable and could cause severe recycling issues if used in large volumes. Under certain specific conditions the material may be recyclable, but this would need to be confirmed with the appropriate recycling organisations and/or recyclers.</td>
<td>Material is generally not compatible with or separable from the main material in current industrialised recycling processes and will therefore cause severe recycling issues / cause rejection of recyclate if present even at low volumes.</td>
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B&Q TRADE BOX 1000 MULTIPURPOSE TWIN THREAD SCREW
4mm x 30mm
The hardware is packaged in a clear PP pot with handle, with a PP lid, and a PP label.

**Polymer of main component:** PP

**Packaging Recyclability**
The tub used has no laminates or additional barriers.

The PP tub is clear. Clear or natural items can be sorted separately to mixed colours, with clear or natural material commanding a potentially higher value.

A PP label is used.

Label coverage is less than 60%, which will help to ensure that the tub is correctly detected and sorted.

*This is an example of packaging that is suitable for recycling and not an endorsement of the product. Other packs on the market may also be good for recycling.*
**Boots body lotion cocoa butter 390ml**
The pack is a clear HDPE bottle with a PP cap, and LDPE label.

**Polymer of main component:** PE

**Packaging Recyclability**
The bottle used has no laminates or additional barriers.

The bottle is clear. Clear or natural items can be sorted separately to mixed colours, with clear or natural material commanding a potentially higher value.

A PE label is used.

Label coverage is less than 60%, which will help to ensure that the bottle is correctly detected and sorted.

Boots has developed a tool to assess the sustainability of its products and packaging including consideration given to recyclability.

*This is an example of packaging that is suitable for recycling and not an endorsement of the product. Other packs on the market may also be good for recycling.*
**Boots Botanics nourishing body oil 150ml**
The pack is a clear rPET bottle with a PP cap, and LDPE label.

**Polymer of main component:** PET

**Packaging Recyclability**
The bottle used has no laminates or additional barriers.

The bottle is a natural / white colour. Clear or natural items can be sorted separately to mixed colours, with clear or natural material commanding a potentially higher value.

A PE label is used.

Label coverage is less than 60%, which will help to ensure that the pot is correctly detected and sorted.

*This is an example of packaging that is suitable for recycling and not an endorsement of the product. Other packs on the market may also be good for recycling.*
Boots foam bath 750ml
The pack is a clear PET bottle with a PP cap, and PP label.

**Polymer of main component:** PET

**Packaging Recyclability**
The bottle used has no laminates or additional barriers.

The PET bottle is clear. Clear or natural items can be sorted separately to mixed colours, with clear or natural material commanding a potentially higher value.

A PP label is used.

Label coverage is less than 60%, which will help to ensure that the pot is correctly detected and sorted.

This is an example of packaging that is suitable for recycling and not an endorsement of the product. Other packs on the market may also be good for recycling.
**Boots Softening Shower Gel 300ml**
The pack is a clear PET bottle with a PP cap, and LDPE label.

**Polymer of main component:** PET

**Packaging Recyclability**
The bottle used has no laminates or additional barriers.

The PET bottle is clear. Clear or natural items can be sorted separately to mixed colours, with clear or natural material commanding a potentially higher value.

A PE label is used.

Label coverage is less than 60%, which will help to ensure that the pack is correctly detected and sorted.

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This is an example of packaging that is suitable for recycling and not an endorsement of the product. Other packs on the market may also be good for recycling.
The Co-operative Food snack pack grapes
The grapes are packaged in a clear PET tray.

**Polymer of main component:** PET

**Additional Packaging**
Clear top seal film, printed label.

**Packaging Recyclability**
The tray used has no laminates or additional barriers.

The PET tray is clear. Clear or natural items can be sorted separately to mixed colours, with clear or natural material commanding a potentially higher value.

No label on pack. The label is adhered to top film.

The top film is PET and removes cleanly.

*This is an example of packaging that is suitable for recycling and not an endorsement of the product. Other packs on the market may also be good for recycling.*
**The Co-operative Food Takeaway beef in black bean sauce 340g**
The takeaway meal is packaged in a clear PP tray.

**Polymer of main component:** PP

**Additional Packaging**
Clear top seal film and printed card sleeve.

**Packaging Recyclability**
The tray used has no laminates or additional barriers.

The PP tray is clear. Clear or natural items can be sorted separately to mixed colours, with clear or natural material commanding a potentially higher value.

The card sleeve is completely removed before use, therefore not part of the discarded plastic pack. Also there is no adhesive residue and the PET top film removes cleanly.

*This is an example of packaging that is suitable for recycling and not an endorsement of the product. Other packs on the market may also be good for recycling.*
Morrisons M Blueberries
The blueberries are packaged in a clear PET tray.

**Polymer:** PET

**Additional Packaging**
Clear top seal film with a printed label.

**Packaging Recyclability**
The tray used has no laminates or additional barriers.

The PET tray is clear. Clear or natural items can be sorted separately to mixed colours, with clear or natural material commanding a potentially higher value.

No label on the pack. The label is adhered to the top film.

The top film is PET and removes cleanly.

*This is an example of packaging that is suitable for recycling and not an endorsement of the product. Other packs on the market may also be good for recycling.*
Morrisons M Kitchen Beef & Ale Potato Rosti for 1
The Potato Rosti is packaged in a clear PP oval tub, with a clear PP lid.

**Polymer:** PP

**Additional Packaging**
Reverse printed card sleeve.

**Packaging Recyclability**
The tray used has no laminates or additional barriers.

The tray and lid are clear. Clear or natural items can be sorted separately to mixed colours, with clear or natural material commanding a potentially higher value.

The card sleeve is completely removed before use, therefore not part of the discarded plastic pack. Also there is no adhesive residue.

*This is an example of packaging that is suitable for recycling and not an endorsement of the product. Other packs on the market may also be good for recycling.*
**Morrisons M Savers Styling Gel 300ml**
The gel is packaged in a clear PET tub with a white PP cap and PE label.

**Polymer of main component:** PET

**Packaging Recyclability**
The tub used has no laminates or additional barriers.

The PET tub is clear. Clear or natural items can be sorted separately to mixed colours, with clear or natural material commanding a potentially higher value.

The label is PE, which would be separated from the PET during float / sink sorting. Label coverage is less than 60%, which will help to ensure that the pot is correctly detected and sorted.

The cap is PP, which would be separated from the PET during float / sink sorting.

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*This is an example of packaging that is suitable for recycling and not an endorsement of the product. Other packs on the market may also be good for recycling.*
Tesco seedless red grapes
The grapes are packaged in a clear APET (amorphous polyethylene terephthalate) tray.

Polymer of main component: PET

Additional Packaging
The product and tray are wrapped with a printed polypropylene flow-wrap film.

Packaging Recyclability
The tray has no laminates or additional barriers.

The APET tray is clear. Clear or natural items are likely to be sorted separately to mixed colours, with clear or natural material commanding a potentially higher value.

"The packaging meets expectation in that it holds and protects the grapes using minimal layers of packaging. By using fit for purpose and simple packaging, and recognising that a complex barrier laminate is not required, we have packaging that is as recyclable as we can make it, whilst not causing any potential contamination issues in the established recycling chain.

The pack also includes storage instructions for the customer, so providing information on how best to maintain the life of the product and minimising food waste."

Dr Mark Caul, Technical Manager for Packaging, Tesco

This is an example of packaging that is suitable for recycling and not an endorsement of the product. Other packs on the market may also be good for recycling.
**Waitrose cooks ingredients – ‘a good handful of’ Lemon & Pepper**
The dry product is packaged in a clear PP pot & separate PP lid, with a PP label.

**Polymer of main component:** PP

**Packaging Recyclability**
The pot used has no laminates or additional barriers.

The pot is clear. Clear or natural items can be sorted separately to mixed colours, with clear or natural material commanding a potentially higher value.

A PP label is used.

Label coverage is less than 60%, which will help to ensure that the pot is correctly detected and sorted.

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