



Olivia Howes explores what happens to the items you put in your recycling bin, what we get wrong and why the UK needs to improve its recycling efforts

We still have a long way to go in terms of how much of our household waste is recycled. In 2020, the UK target was to recycle 50% of household waste. England, Northern Ireland and Scotland missed this, with rates of 44%, 49.1% and 41% respectively. Wales is a stellar exception, with a 56.5% household recycling rate and overall recycling rate of 65.4%. In fact, Wales is the third-best recycler in the world.

At the heart of the struggle with recycling is a tangled story of outdated council infrastructure and waste facilities, a reprocessing system that made it more profitable to export some

materials, and a booming market for ever more complicated composite packaging that can't be broken down again, such as pet food pouches or toothpaste tubes. Add local inconsistencies on what's collected and it's created widespread confusion.

It's also crucial to continue to push for the removal of unnecessary packaging. 'Reduce' needs to come before 'reuse', both of which are preferable to 'recycle'. Some materials – especially paper and plastic – can only be recycled a finite number of times before they're useless. So even with recycling in place, using these products in manufacturing will require new material at some stage.

The responsibility for changing packaging lies largely with the makers and sellers of goods – a challenge in a retail system built for single-use. But we as consumers can and do play our own role. We can demand change, and choose better options where they already exist: for example, buying loose fruit and vegetables, using refill stations, and choosing recyclable materials when they're available.

Change is on the horizon. There are policies in the pipeline, such as

consistency in collection, in which all councils will have to collect the same materials, including food waste. Plus, Extended Producer Responsibility (EPR) will push the costs of dealing with packaging back on to manufacturers. These bring reasons to hope that the UK's recycling efforts are improving.

Read on to find out what is actually recycled, what you really shouldn't put in your recycling bin and how packaging and recycling is changing.

Council recycling

Much of what's recycled in your area is down to your local authority. This has led to discrepancies in what's collected, often due to a lack of local recycling facilities. Some councils take Tetra Pak (commonly used in juice cartons), plastic bags and textiles; some don't even collect glass. Some 49% of English councils don't have any kind of food waste collection.

With that variety comes huge differences in household recycling rates – from St Albans (64.2%) right down to Barrow-in-Furness (17.9%). Of the 10 English local authorities with the worst household recycling

rates in 2020-21, five of them are London boroughs; Birmingham, Liverpool and Nottingham also feature. Lower recycling rates are often associated with high-density urban areas, and social deprivation.

It's different in Wales: councils largely follow a standard blueprint to collect the same materials and often collect them separately, which tends to lead to a higher recycling quality, and food waste collection is mandatory. There's been significant investment in recycling infrastructure and communication to citizens. Three of the five Welsh councils with the top rates of municipal recycling collect non-recyclable household rubbish (known as residual waste) every three weeks as a minimum – Conwy's every four. Less frequent rubbish collections, coupled with more frequent recycling and food waste collections, drives up recycling rates.

We're promised that consistency in collection is coming in England and should lessen confusion, improve infrastructure and lead to better recycling rates. But it's been subject to delays, and the finer details of how it will work are still not known. ➔



Plastic

Plastic has become an environmental enemy and not without some cause. But sometimes it's the best option for packaging. Plus, the carbon impact of producing it and transporting it can often be lower than that of other materials.

A project run earlier this year, the Big Plastic Count, found that the average UK household disposes of 66 pieces of plastic every week. That's 100 billion pieces of plastic a year across the country. And plastics recycling charity Recoup found that only 41% of plastic that households dispose of is collected for recycling.

Technically, all plastic can be recycled at least once, but some types are easier than others. Flexible plastics such as plastic bags and wrapping are now collected by supermarkets (all either have full roll-outs or large trials), but only a small amount is currently collected and there are limited end markets for it. It can't be turned back into food packaging because of safety regulations, and it has to be recycled at specialist plants. Relatively new chemical recycling (which breaks plastics down so the end product can be treated as virgin plastic) is promising, but large-scale viability is yet to be proved.



- Rinse and crush bottles and screw the lids back on; they're too small to be recycled loose. Labels can be left on if they don't cover the whole bottle.
- Normal black plastic can't be seen by sorting machines. Since we reported on this, most manufacturers now use black plastic that sorters can detect, or they have moved to clear plastic.

ILLUSTRATION: GUILHERME HENRIQUE

THE MOST COMMON TYPES OF HOUSEHOLD PLASTIC



1 HDPE used for plastic milk bottles

High-density polyethylene is very recyclable. It's the highest-value plastic on the market and around 78% of bottles are collected for recycling. Natural HDPE is turned back into milk bottles, while coloured HDPE (a mix of food and non-food grade) is likely to become other things such as pipes or building materials.



2 PET soft drinks/ water bottles

These have a recycling rate of around 76%. It's now common to see packaging that's 100% recycled PET (or rPET). A new plastic packaging tax penalises manufacturers that use less than 30% recycled plastic. It's working, but it has also pushed recycled plastic prices up as manufacturers try to get their hands on the limited amounts available.



3 Yoghurt pots, tubs and plastic trays

These are often made of polypropylene (PP), which is widely collected. It can't be turned back into food packaging because of food safety regulations. This means your yoghurt pot may end up being used in a bin, gardening materials or clothing fibres. So while it's recycled once, it's unlikely to be recycled again after that.



4 Plastic bags and wrapping

This is normally either low-density polyethylene (LDPE) or it falls into the 'other plastics' category. It's still rare to find soft plastic recycled at the kerbside, but you can now take plastic bags and wrapping to collection points at most supermarkets. Some also take cat food pouches, crisp packets, chocolate and biscuit wrappers.

➔ **The export issue**

Another part of the problem is that we don't have the infrastructure in the UK to recycle everything ourselves. This applies to all materials but particularly plastic, paper and aluminium.

Financially, our current system favours export. If a tonne of recycling material is sold to a reprocessor in the UK, it is sorted and reprocessed to remove contaminants. The price paid for that material is for the adjusted weight. So if the reprocessor can only recover 80% of the total for recycling, they only get 80% of the value. But if they sell abroad, they're paid for the full weight of the material, including contamination, with little follow-up on what happens to the waste.

Small amounts of contamination or 'non-target materials' are to be expected, but this system also allows unscrupulous waste management companies to send bales of material with high levels of contamination or non-recyclable material abroad. This is known as waste crime. The Environment Agency recently fined a Kent-based materials recovery facility for attempting to send plastic knowingly contaminated with nappies, condoms and textiles to Turkey. A National Audit Office report

said that the system was 'open to fraud and error'.

Until 2018, China received nearly half the world's recyclable waste, but it and other countries have banned imports of plastics and many other waste materials in response to high levels of fraud.

Most of the UK's plastic exports now go to Turkey, followed by the Netherlands and Poland. But a Greenpeace report found that Turkey has a recycling rate of just 12% (including its domestic waste) indicating it 'lacks the infrastructure to cope' with 'all of its imported waste'.

In some positive news, 2021 marked the first year that more plastic was recycled within the UK than exported (53% vs 47%). There's widespread recognition in the industry that the UK needs to be recycling more of its own waste rather than sending it abroad.

The new EPR legislation should reduce the amount of exported waste further, with more investment in infrastructure and more onus on manufacturers to ensure packaging is dealt with responsibly. Yet implementation of EPR has been delayed until 2024 and won't be fully operational until 2027. ●



Glass

Glass is fully and infinitely recyclable, and more than 80% of glass recycling happens in the UK. Nearly 69% of glass bottles and jars placed on the market were recycled in 2021.

A typical glass container won't contain 100% recycled glass. For colour and composition consistency, manufacturers add virgin material. Green wine bottles contain around 68% recycled material; for clear bottles it's only around a third.

Recycled glass is called cullet, and it melts at a lower temperature than new glass, making it cost effective and lower impact. But as it's so heavy to transport, its distribution still uses a lot of carbon, so its use as a plastic replacement is limited.

In fact, a report by Imperial College London and Veolia calculated that if all plastic bottles used globally were made from glass instead, the additional annual carbon emissions (87.4Mtonnes of CO₂eq) would equal that of 22 coal-fired power plants.



- Don't recycle broken glass at home: it's dangerous for collectors. Also keep drinking glasses, Pyrex, flat glass or light bulbs out of your recycling bin. They'll not melt in the furnace and can cause expensive damage or affect the end product.
- Some councils say to keep lids on glass jars; others ask you to take them off. In doubt, leave lids on – they'll be removed when it's sorted.



Metal

Aluminium is used in items such as drinks cans and foil, and steel is used for most tinned foods. They have very good recycling rates and are high-value materials.

The charity Waste & Resources Action Programme (Wrap) estimated in 2018 that more than 80% of consumer aluminium packaging was recycled. The consumer recycling rate for steel is 100%, because steel is recovered from general waste and incineration even when consumers don't put it in their recycling bin.

In the recycling plants, steel is picked up by magnets above the conveyor belts that move the waste through the sorting plant. Aluminium is usually picked by eddy currents (a kind of reverse magnetism) that separate it from other materials.

Aluminium can be endlessly recycled and it's beneficial both economically and environmentally to use recycled material over virgin metals.



- Collect steel metal caps, like those on beer bottles, in a steel can such as a baked bean tin and squash the lid on top so they won't be lost during the recycling process.
- Our snapshot research into councils found that some do not accept foil. But if yours does, the foil should be clean and ideally scrunched into a ball that's tennis-ball-sized or larger.



Paper

Paper and card make up the biggest percentage of what a material recovery facility sorts. Around 80% of UK-made paper is made of partly recycled content. But the number of UK paper mills has fallen in recent years, and we exported 68% of our waste paper and card in 2021.

Paper can be recycled around six times before the fibres get too short to be used. Their last uses are recycled toilet paper, kitchen towel and egg boxes.

Tetra Pak cartons are mostly made of paper. There's only one factory in England (in Stainland, West Yorkshire) that can break them down into their component parts, so not all councils collect them.

Carton fibre from Tetra Pak can be turned into the paper lining for a type of plasterboard, while the plastic and aluminium is incinerated and used to generate energy. Tetra Pak is working on local recycling solutions and alternative materials.



- Whether to recycle takeaway pizza boxes is a common question. According to Recycle Now you can recycle them as long as they're clear of all food – grease spots are fine.
- Remove sticky tape from wrapping paper if you can, because too much can cause problems with the sorting machinery. Envelopes with plastic windows are generally OK.



Food waste

Some 70% of the UK's annual 9.5m tonnes of total food waste is from households.

In 2018, a third of household food waste ended up in sewers or landfill, where it releases harmful emissions. Nearly half went to energy recovery or landspreading; 20% was composted or anaerobically digested – the best way to deal with food waste – in which food is broken down by micro-organisms into biogas (for electricity) and digestate (for fertiliser).

Cathy Cook, chair of the Local Authority Recycling Advisory Committee, says collecting food waste is necessary for local authorities to hit recycling targets, but it's not without its challenges, including take-up by households.

Hearteningly, the 607 Which? members we surveyed who have access to a food waste service are largely using it. Only 7% said they put food waste in their household waste bin, with a further 15% using their own home compost instead.



- If you line your food caddy with a liner, use a compostable one unless your council specifically requests otherwise. Even though the bags are removed at the plant, fragments contaminate the resulting compost or fertiliser with plastic.
- All food waste can go in the food waste bin, although liquids (not oil) should go down the sink.

THE LABELS TO LOOK FOR

Mandatory labelling telling you what to do with packaging should arrive in 2027. Which? has called for it since August 2018.

Current labelling is still confusing. We asked 1,097 members in July about different packaging symbols: 48% thought the Green Dot logo meant an item can be recycled, but it only means the manufacturer has complied with packaging waste legislation.

32% thought the compostable seedling logo meant packaging was recyclable, but compostable products contaminate recycling and should go in general rubbish.

The best label to look for is the OPRL label: the green 'Recycle' version means 75% or more of UK local authorities must collect and recycle it. 'Don't Recycle' means less than 50% of local authorities collect it, so yours may still be able to. Check the Recycle Now website to see what your council allows.

Soft plastic packaging may be labelled 'recycle with bags at large supermarkets'. Other wrapping may not carry the label yet but should still be recyclable at stores. The Terracycle scheme for crisp packets has ended – take to a participating supermarket instead.



WHAT NEEDS TO CHANGE

Makers, sellers, authorities and end users all have their part to play in ensuring that materials are made and recycled properly



1 Manufacturers

It's vital that unnecessary packaging is eliminated from packaging design and that the focus is on using materials that are truly and widely recyclable. Extended Producer Responsibility (EPR) will bring in the 'polluter pays principle': manufacturers will bear the full cost of recovery of the packaging they place on the market. Packaging that is not truly recyclable will be subject to higher disposal fees. The plastic packaging tax should mean more and more recycled material is used in packaging.



3 Central, devolved and local governments

These need to deliver, without further delays, consistency in collection, EPR and deposit return schemes – the first one is due to start in Scotland in August 2023. Deposit return schemes could particularly improve 'on-the-go recycling'. Consistency in collection needs to be coupled with investment in communication to householders so that people better understand what they can and can't recycle. A consistent and clear approach to mandatory labelling is also key.



2 Retailers

Shops have a big role to play. A 2021 Environmental Investigation Agency (EIA) report noted that while all 10 major supermarket chains have plastic reduction targets, some of them only focus on their own-brand items – supermarkets need to be pressuring branded suppliers too. Fruit and veg should be sold loose where possible. The market for refillable goods is still small, but it's mostly been limited to localised trials. Government-mandated targets could make larger roll-outs more achievable.



4 Consumers

We can all help too – by avoiding packaging where it's possible to do so, and committing to actually reusing 'reusable' items such as coffee cups and bags. The EIA report found that almost 57 'bags for life' were bought per household in a year – the thick, heavy plastic equals a heavy carbon cost. Reuse glass rather than recycling it if you can. And don't be tempted to do what's called 'wishcycling': putting things that can't be recycled – especially batteries – in the recycling bin.



TAKE CARE WHEN RECYCLING AT HOME

OLIVIA HOWES, WHICH? SENIOR RESEARCHER

In researching this feature, I visited a plastics recycling facility (PRF) owned by Viridor. Standing on a vertiginous platform looking down at the criss-crossing maze of conveyors, machines and people building bales of material, I was impressed by the scale of the operation. The plant makes a huge effort to recover as much material as possible; it has to for the endeavour to make economic sense.

The charity Wrap found that 16.6% of what arrives at an MRF (materials recovery facility) are contaminants or what's known as 'non-target materials', but seeing this statistic reflected in real life was a surprise. This PRF was taking in materials that had already been sorted once, but there was still plenty that shouldn't be there – I saw Wellington boots, clothing and toys.

The manager showed me a shed that's used to store all the batteries they find – chests heaving with tablets and smartphones and bins full of power tools and children's toys. All of them were items that people have chucked into recycling bins with little thought to what might happen to them. Lithium-ion batteries are a serious fire risk for recycling plants; they regularly cause whole plant shutdowns and pose a significant danger to workers if they are missed.

There's no doubt that government and industry need to do much more to reduce our packaging problem. We as consumers have a role too, in the packaging choices we make when decent alternatives are available to us, and in disposing of waste in a responsible way.