

Information Sheet Packaging



Contents

Packaging consumption	3
Types of packaging and uses	4
Benefits of packaging	5
Environmental impacts of packaging	6
Lifecycle impacts of packaging	6
Sustainable packaging	8
Packaging in the waste stream.....	8
Degradable plastic packaging.....	9
Recycling and recovery of packaging waste	10
Reusing packaging.....	10
Recycling and recovery of packaging.....	10
Packaging recovery and recycling rate by material	12
Packaging recycling symbols	14
Launched by the British Retail Consortium (BRC) with support from WRAP, the On-Pack Recycling Label aims to deliver a simpler, UK-wide recycling message on both retailer private label and brand-owner packaging.	15
Reducing packaging waste	15
Legislation relating to packaging	16
The Packaging Directive - European Union Directive on Packaging and Packaging Waste 94/62/EC.....	16
What you can do – reduce, reuse, recycle	16
Contacts	17
References	19

Packaging consumption

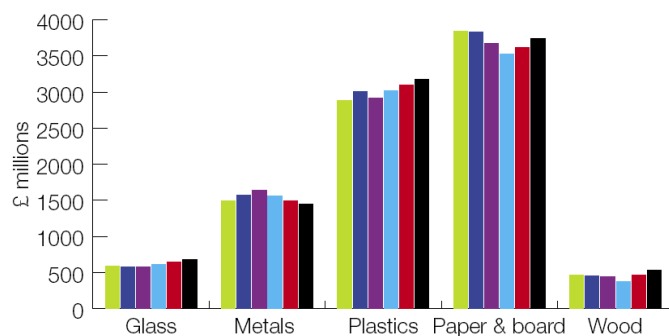
Packaging can be defined as materials used for the containment, protection, handling, delivery, and presentation of goods. Packaging can be divided into three broad categories:

- **Primary packaging** is the wrapping or containers handled by the consumer.
- **Secondary packaging** is the term used to describe larger cases or boxes that are used to group quantities of primary packaged goods for distribution and for display in shops.
- **Transit packaging** refers to the wooden pallets, board and plastic wrapping and containers that are used to pack the groups into larger loads for transport and facilitate the loading and unloading of goods.

The majority of packaging used in the domestic market is produced by UK manufacturers. However, increasingly plastics, metal and carton-board packaging is being imported, with the value of imports for both plastics and metals increasing approximately 26 % of net supply in 2000 to 32 % in 2005.¹

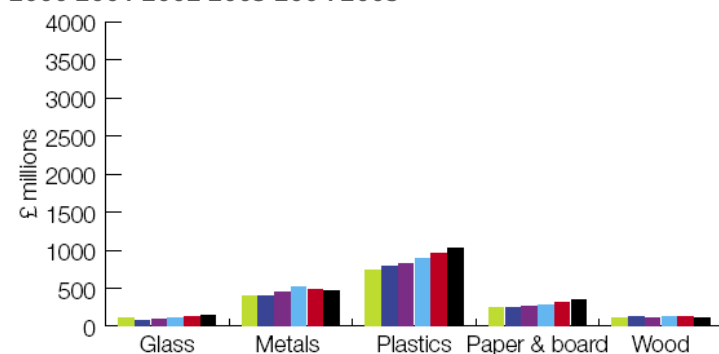
Packaging produced in the UK, by value

2000 2001 2002 2003 2004 2005



Packaging imported, by value

2000 2001 2002 2003 2004 2005

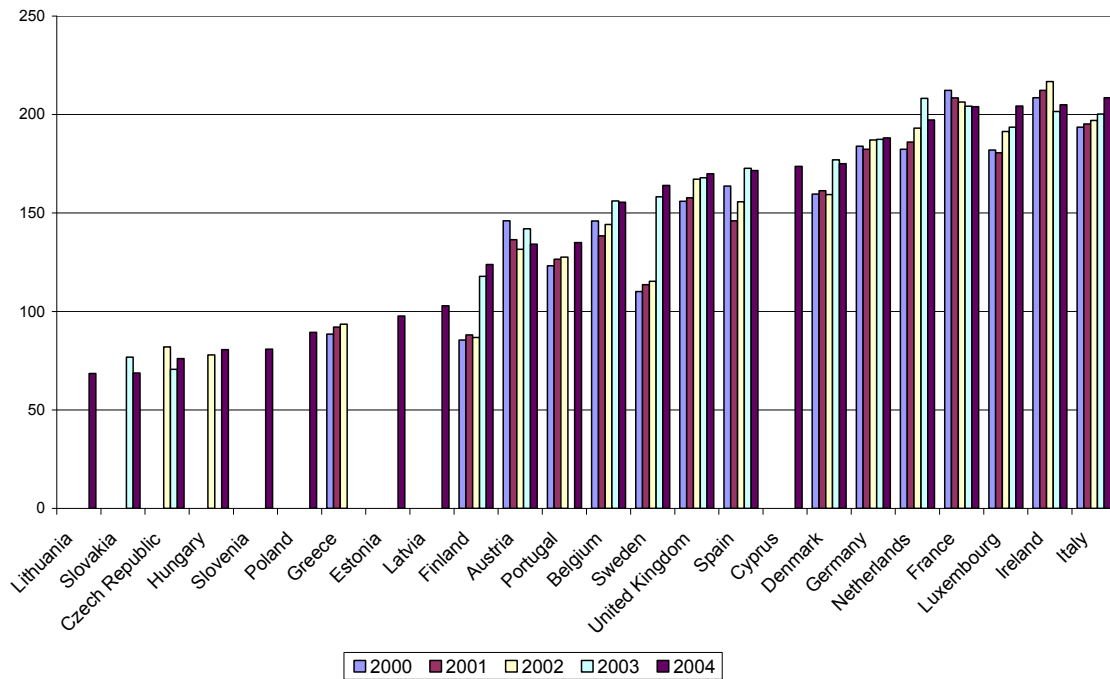


Source: The Packaging Federation

An estimated 10 million tonnes of packaging entered the UK waste stream in 2006, usually with imported goods. Roughly half of this is thought to have come from commercial and industrial sources and the other half from the domestic waste stream.²

An estimated 170 kg of packaging per capita were used in the UK in 2006, which is slightly above the EU25 average of 168 kg.³

Per capita packaging consumptions by European Union country, 2000 - 2005

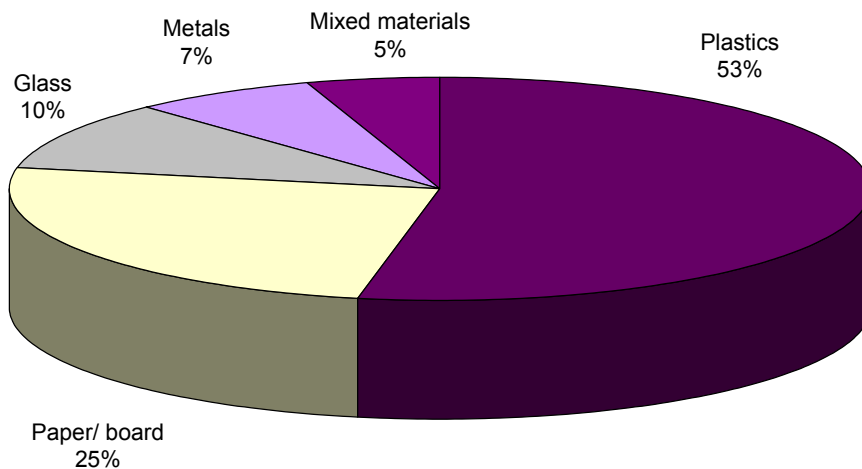


Source: European Commission

Types of packaging and uses

The most common types of material used for packaging are paper, board, plastic, glass, steel and aluminium.

Percentage use of packaging materials in all packaged products



Source: INCPEN ⁴

Plastic is the most commonly used packaging material, with 53 % of all goods packaged in plastics.⁵ However, it is a very light material and its low weight and relative strength make plastic one of the most energy efficient, robust and economic packaging types available. The annual consumption of plastics in the UK amounts to 5 million tonnes and over one third of these are used for packaging purposes (almost 1.7 million tonnes).⁶

Paper and board is used to package 25 % of all goods⁷. In 2007, the amount of paper, board and corrugated cardboard used for packaging purposes in the UK was estimated to be over 3 million tonnes.⁸

Glass accounts for 10 % of all packaging.⁹ The UK glass industry produces around 3.7 million tonnes of glass per year, according to 2006 estimates; 60 % of which are glass containers used for packaging purposes.¹⁰

Aluminium is used in packaging applications such as beverage and food cans, foils and laminates. It is estimated that 189,000 tonnes of aluminium packaging are used annually in the UK.¹¹

Steel containers are used to package a wide range of products, including food, paint and beverages as well as aerosols. All steel packaging is 100 % recyclable and can be recycled without any loss of quality.¹² In the UK, 13 billion steel cans are produced each year.¹³

Mixed material packaging can, in some cases, have the benefits of being more resource and energy efficient than single material packaging, but combining materials makes recycling difficult. An example of this type of packaging is 'Tetra Pak' (and similar cartons) which typically consists of 70-90 % paperboard, 10-25 % low-density polyethylene and 5 % aluminium foil (only in long-life or aseptic packages).¹⁴

Each year, two billion drinks cartons are sold in the UK; 200 million milk and juice cartons are used in England's primary schools, while secondary school pupils and staff get through more than 35 million.¹⁵

Benefits of packaging

Packaging provides a physical barrier between a product and the external environment thereby ensuring hygienic conditions and reducing the risk of product wastage due to contamination or impact damage. Some packaging is also needed for safe and efficient transportation.

Packaging is also used to provide customers with product information and usage instructions, some of which are required by law.

Packaging is particularly important in the case of food and beverage products. In the lifecycle of these products, the highest energy input takes place during the production process. Appropriate packaging ensures that this energy is not wasted.

Packaging has developed to a large extent in response to social and economic changes affecting consumers. Higher living standards in the western world have led to an increase in consumer goods and tastes for exotic foods, which cannot be grown locally and must be imported. A trend towards urbanisation in the last century, which creates longer distances between food producers in rural areas and consumers in urban areas, has also led a greater demand for packaging.

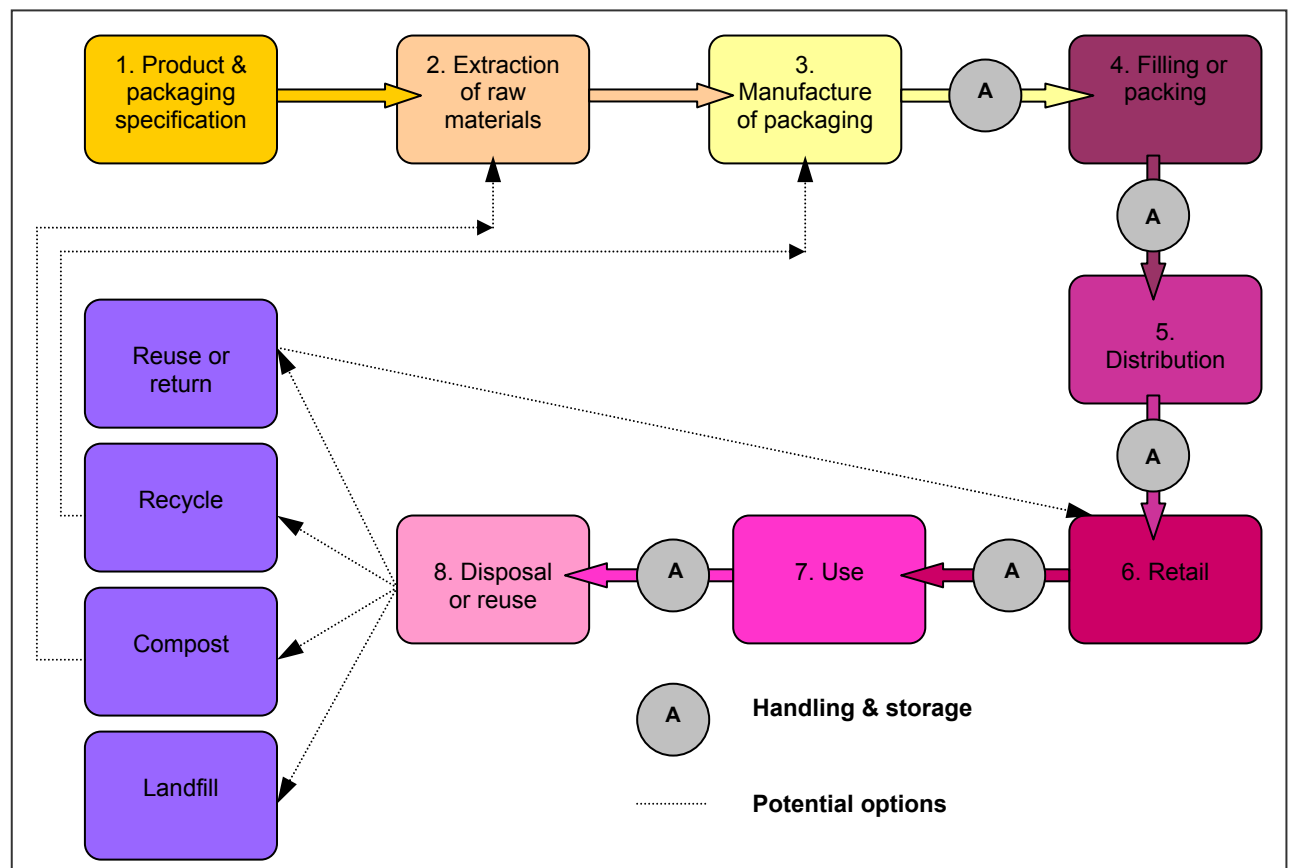
Advances in packaging technology have also allowed the shelf-life of food and drinks, e.g. tinned and frozen foods and long-life beverages, to be extended.

Environmental impacts of packaging

Lifecycle impacts of packaging

The environmental impacts of packaging range from raw material extraction and processing and energy use during the production and transportation of packing systems, to the final disposal of waste packaging.

The packaging lifecycle



Source: Reproduced from WRAP¹⁶

There is a wide range of packaging materials, including glass, paper, board as well as several different types of plastics and metals. These are used to package a large range of different goods each presenting their own specific packaging requirements depending on their functionality.

Assessing and comparing the impact of different packaging materials is therefore a complex task. A lifecycle analysis undertaken by the Danish Environmental Protection Agency (EPA) in 2000, calculating the environmental profiles of a range of typical packaging materials, showed that their environmental impact differs considerably. Generally, cardboard/paper and glass have the lowest impact per kg of material, followed by plastics such as polyethylene, polypropylene and polystyrene. In contrast, packaging

made from other plastics and from steel and aluminium has a greater impact on the environment per kg of material. According to the study, though, the total environmental impact of packaging also depends on how much material is required to pack a given quantity of merchandise, for instance, one litre of orange juice.¹⁷

Given the huge diversity of products and the different demands they place on packaging, the design of packing has to balance a multitude of factors which can impact on the environment in different ways. Looking only at the environmental footprint of packaging materials – for instance paper versus plastic – does not tell the whole story or lead to the most sustainable solution. A product systems perspective is therefore a more useful approach.

For example, another study by the Danish EPA found that packaging cat food in plastic pouches allowed more tonnes of cat food to be packed in each delivery truck, when compared to cans or jars. This may be considered a great way to reduce emissions from transportation, but does not take into account refillability or recyclability, nor the energy needed for manufacturing each packaging system.¹⁸

Similarly, a Swiss lifecycle assessment of milk packaging systems, comparing the environmental performance of plastic bags, Tetra Pak containers and glass bottles, showed that it depends on how they are transported, how far they travel, and whether they are sent to landfill or recycled.¹⁹

In another example, a study based on previous lifecycle and eco-efficiency analyses²⁰ compared, among other environmental parameters, the global warming potential of different types of packaging for beverages. It included one-way steel and aluminium cans, glass and PET bottles and beverage cartons, as well as for refillable glass and PET bottles. The one-way containers were the ones with the highest global warming potential values and, among these, PET bottles scored the highest, followed by glass bottles. Cartons were found to have the lowest global warming potential. Nevertheless, the study concluded that the borderline between what can be considered ecologically favourable or unfavourable packaging is very tenuous and depends greatly on a number of other factors such as transport distances and input of recycled material in the systems.

Paper or plastic bags?

A study comparing the lifecycle impacts (from the production of the material to post-use recycling) of disposable and durable plastic bags, biodegradable cornstarch bags and paper bags found that the paper and biodegradable ones produce more greenhouse gases than disposable plastic bags (40 % more for biodegradable bags and 90 % more for paper ones). Paper bags were also found to require 3.3 times more water during their lifecycles than the others and to produce 1.8 times more solid waste by weight. Durable plastic bags consume more non-renewable energy during their production; however due to their re-use, the overall impact dramatically decreases over their lifetime. Considering these and other environmental parameters analysed, durable bags came out as the best environmental option provided they are reused over three times.²¹

The overall environmental impacts of packaging are estimated to make up one to a few percent of the total environmental impacts of the economy. For example, the greenhouse gas emissions related to packaging consumption of the original 15 European Union member states are estimated at around 80 million tonnes of CO₂ equivalent per year. This is around 2 % of total greenhouse gas emissions of the EU15. The share of packaging for other environmental impacts, such as air acidification, fine particles and eutrophication is of a comparable magnitude.²²

Sustainable packaging

According to the Sustainable Packaging Coalition,²³ packaging has to meet the following criteria in order to constitute a sustainable packaging system:

- Be beneficial, safe & healthy for individuals and communities throughout its life-cycle
- Meet market criteria for performance and cost
- Be sourced, manufactured, transported, and recycled using renewable energy
- Maximize the use of renewable or recycled source materials
- Be manufactured using clean production technologies and best practices
- Be made from materials healthy in all probable end-of-life scenarios
- Be physically designed to optimize materials and energy
- Be effectively recovered and utilized in biological and/or industrial cradle-to-cradle cycles.

Packaging in the waste stream

Although packaging is important to protect products against being damaged and consequently wasted, it constitutes a significant percentage of the household waste stream, especially because most of it is used only once and then disposed of.

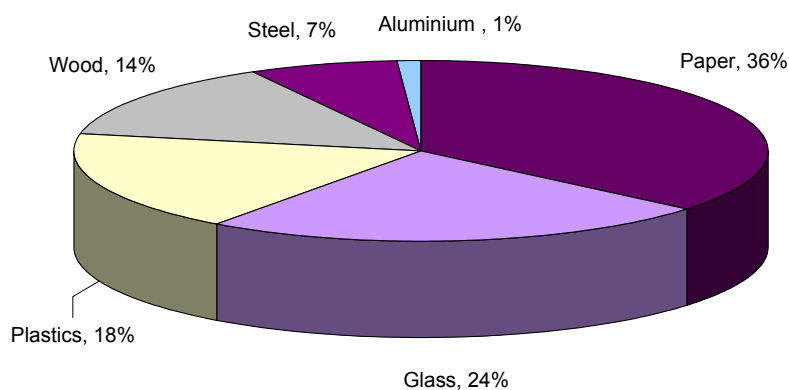
Because of its large volume, packaging waste tends to be very visible. Approximately 70 % of primary packaging is used for food and drink which is often contaminated by residues of the original contents when discarded.

Up to 38 % of the packaging found in a regular shopping basket cannot be recycled²⁴ and is either incinerated for the recovery of its energy content or sent to landfill.

In 2006, the EU produced 65 million tonnes of packaging waste and this is expected to increase to 77 million tonnes by 2008.²⁵

The UK produced an estimated 10.5 million tonnes of waste packaging in 2007²⁶, of which 6.3 million tonnes originated from households²⁷ and the remaining 4.2 million tonnes from commercial and industrial sources. The total packaging waste stream is made up of the following materials.

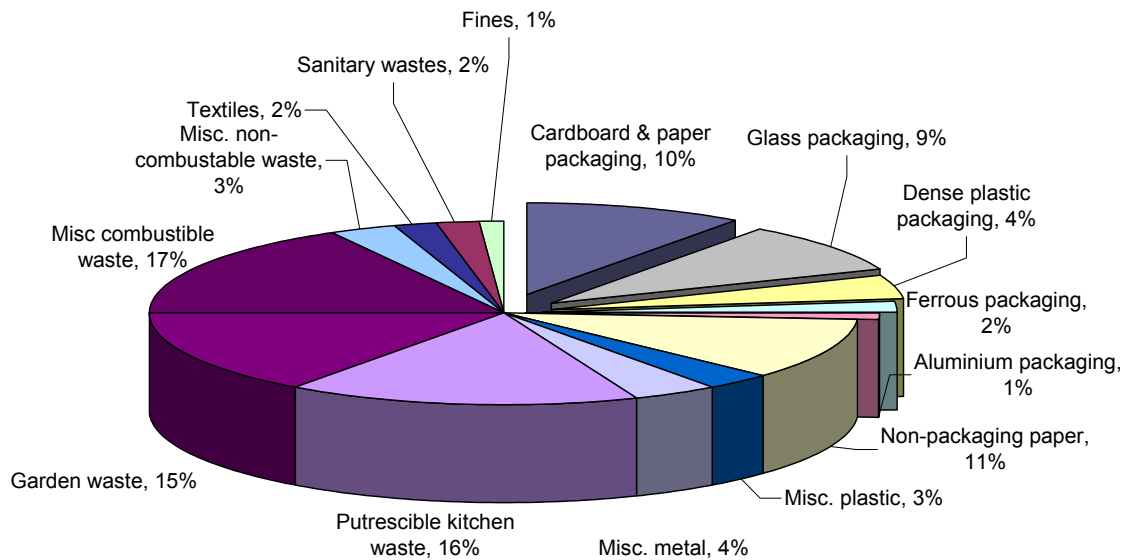
The packaging waste stream, 2006



Source: DEFRA ²⁸

Waste packaging makes up over a quarter (26 %) of the average UK household waste bin. Cardboard and paper packaging is the largest proportion by weight with 10 %, followed by glass packaging (9 %), plastic packaging (4 %) and metal packaging (3 %).

Average household waste composition (by weight), 2007



Source: The Open University

Degradable plastic packaging

Recently, carrier bags made from degradable plastics have been marketed by some UK retailers, predominantly supermarkets, as a way to address the increasing volumes of single-use plastic bag waste. These bags are made from plastic which degrades under certain conditions or after a predetermined length of time.

There are two types of degradable plastic:

- biodegradable plastics, which contain a small percentage of non oil-based material, such as corn starch
- photodegradable plastics, which contain no organic additives, but will break down when exposed to sunlight

The use of alternative plastics made from genetically modified maize, sugarcane, wheat and other crops is increasing at a rate of 20 to 30 % per year.²⁹ These bio-plastics are less stable than the regular oil-based plastics, degrading more quickly.³⁰

Supermarkets and food retailers including Wal-Mart, McDonald's, Del Monte and Marks & Spencer use biodegradable polylactic acid (Pla), which degrades under commercial composting conditions, to package salads, fruit and vegetables and desserts. In 2006, Belu launched a new plastic water bottle in the UK, which is made of corn-derived Pla and decomposes in home compost in months.³¹ There is also potential to use these plastics in non-packaging applications such as computer or car components.

Although they are often marketed as the more sustainable option, there are also numerous environmental concerns over the use of degradable and bio-plastics.

Rising global food prices and land use changes, including deforestation, have resulted from the rush to grow bio-fuel crops. In 2007, about 200,000 tonnes of bioplastics were produced, requiring 250,000-350,000 tonnes of crops. The industry is forecast to need several million acres of farmland within four years to accommodate the growth in demand.³²

It is also important to remember that once discarded, these plastics will only degrade if disposed of in the appropriate conditions – a photodegradable plastic product will not degrade if it is buried in a landfill site where there is no light.

The mixture of degradable and non-degradable plastics also complicates plastics sorting systems because degradable plastics are visually indistinguishable from other plastics. There are also no facilities for recycling bio-plastics in the UK at present, so these need to be landfilled at the end of their useful lives.

The increased landfilling of bio-plastics may over time contribute to a rise in emissions of methane, which is released when organic materials biodegrade anaerobically. Methane is 23 times more potent as a greenhouse gas than CO₂ and its presence in the atmosphere has been increasing sharply.³³

A major concern is also that the use of bio-plastics could actually lead to an increase in plastics waste and litter if people believe that discarded bio-plastics will simply disintegrate.

Recycling and recovery of packaging waste

Reusing packaging

The most direct way to recover packaging and reduce its environmental impact is by reusing it in its original form. Retailers now routinely reuse transport packaging, which reduces costs and saves resources.

However, the environmental impacts of washing and transportation have to be taken into consideration. Reusable packaging also has to be sturdier to withstand cleaning processes, increased transportation and handling, which leads to increased material and energy use during its manufacture.

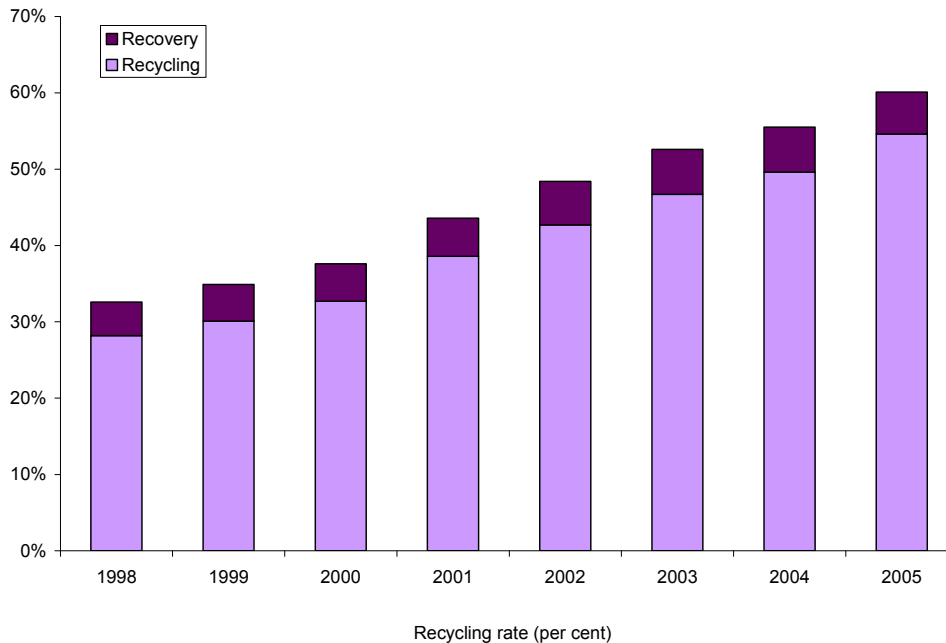
A number of toiletries and cleaning liquids are sold in refillable or returnable containers. Similarly, buying milk in returnable bottles avoids the creation of plastics waste. Packaging can also be reused at home, for example ice-cream and margarine tubs as lunch boxes or containers to store food leftovers in the fridge.

Recycling and recovery of packaging

Many packaging materials are collected for recycling through kerbside schemes, the most common ones being paper, glass and plastic bottles. UK household recycling rates of glass and cardboard and paper packaging are now above 70%.³⁴

Of the estimated 10.5 million tonnes of waste packaging produced in the UK in 2007, around 59% was either recycled or recovered.³⁵

Packaging recovery and recycling (as percentage of total packaging waste), 1998 - 2005

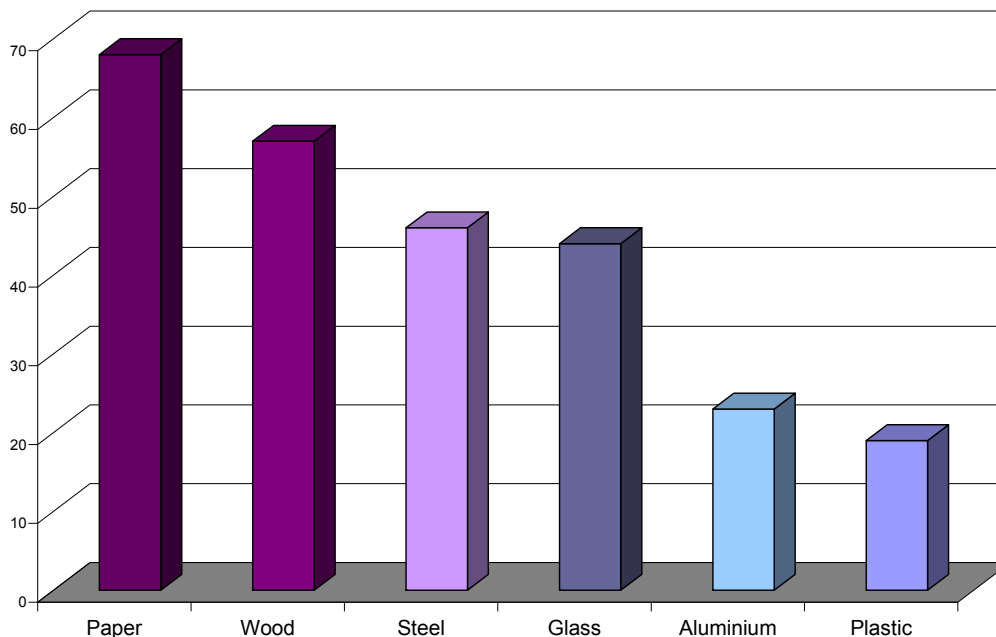


Paper and board: In 2006, 67 % of the fibre used by the paper and board industry in the UK was recovered (used) paper and an estimated 75 % of all paper and board packaging was recycled in the same year.³⁶

Plastics: Even though plastics can be recycled and more and more local authorities are accepting plastic bottles in their kerbside collections, only 25 % of the total plastic bottles purchased annually in the UK were recycled in 2007. Of the total plastic packaging waste, an estimated 22 % was recycled.³⁷ This is partially because plastic has a high volume to weight ratio, which can make recycling collections of plastic packaging waste less efficient than the collection of other recyclables which weigh more.

There is a strong market for plastic bottles, both in the UK and abroad, but the end-market for mixed plastics is not yet well developed³⁸, constituting a barrier to increasing plastics recycling. Recycled plastics can be used for a variety of products, such as garden furniture, flower pots and containers, fibres and new packaging materials. Plastic also has a high calorific content, which allows energy recovery methods to be utilised efficiently if recycling is not possible.

Packaging recovery and recycling rate by material



Source: Defra e-digest

Glass can be recycled easily and well established collection and recycling systems exist throughout the UK. The first bottle banks appeared in 1977, and there are now over 50,000 with every council in the country offering bottle banks.³⁹ Many recycling schemes also collect glass from the kerbside.

In 2007, the total amount of glass recycled was 1.44 tonnes, accounting for a recycling rate of 55% of the total glass waste stream.⁴⁰ This is relatively low compared to the 80 to 90% achieved by some other European countries.⁴¹

In addition, concerns about the future of UK 'closed loop' glass recycling, whereby glass bottles and jars are turned back into the same, have also been raised following analysis of the National Packaging Waste Database 2007 figures, which show a drop in closed loop glass recycling from 2006 and an increasing trend towards a decrease in container-ready cullet needed for such recycling.

In 2007, cullet for bottle recycling decreased by 56,000 tonnes from 2006 despite a significant increase in the amounts of glass extracted for recycling and a 46,000 tonne increase in glass production in 2006. UK exports of cullet for bottle manufacture to other EU states also increased in 2007.⁴²

The reason for this is that an increasing number of local authorities are opting for so-called co-mingled recycling collections in order to meet government recycling targets. In co-mingled collections, glass is collected and compacted together with other materials such as plastics, paper and metals, which are then separated at Materials Recovery Facilities. Consequently, glass of different colours is mixed and may only be suitable for low grade applications such as aggregate for road building, rather than closed loop processing.

British Glass, the UK's glass manufacturers association, believes that this significantly reduces the glass industry's scope to reduce its energy and resource use, as well as carbon

emissions.⁴³

Aluminium has a high value as a scrap metal and, because the metal can be simply re-melted, recycling used aluminium is estimated to use only 5 % of the energy required for primary production. Of the almost 900,000 tonnes of aluminium used in the UK annually, 73 % are recycled, with larger products, such as those used for transport and building applications, achieving a 95 % rate of return for recycling because of the high unit value. Waste aluminium packaging is much more difficult to collect, since it is very light and arises from a large number of sources including homes, schools, offices, pubs and restaurants.⁴⁴

An estimated 143,000 tonnes of aluminium packaging entered the wastestream in the UK in 2006, of which 89,000 tonnes (62 %) were used in aluminium cans.⁴⁵

Drinks cans can be recycled, made into new cans, filled and put back on the shelf in just six weeks. Every tonne of aluminium drinks cans recycled saves 10 tonnes of CO₂ equivalent.⁴⁶

The official aluminium packaging recycling rate is 32.5 % in 2006 (a tonnage increase of 17 % over 2005), with the cans-only recycling rate estimated to be 48 %. Only 10 % of aluminium foil is recycled. The UK aluminium industry estimates that over 90,000 tonnes of aluminium packaging (worth around £80 million) is still going to landfill every year.⁴⁷

Steel: In 2007, 4 billion steel cans were recycled.⁴⁸ It is relatively easy to separate steel through magnetic extraction; making it the world's most commonly recycled material. The recycling rate for all steel packaging in the UK was 57.3 % in 2006, amounting to over 300,000 tonnes.⁴⁹

In Europe, 66 % of steel packaging is recycled, amounting to over 2.5 million tonnes of steel containers being recycled in 2007 and preventing 4.7 million tonnes of CO₂ from being released into the environment – the equivalent of taking 2 million cars driving 15,000 km per year off the road.⁵⁰

Mixed material packaging: Mixed material packaging is packaging that is made up of several different materials, for example drinks cartons, which contain layers of paper, plastic and aluminium.

Until recently not many collection facilities for this type of packaging existed. However, an estimate 85 % of local authorities offered some kind of collection facility for drinks cartons in September 2008.⁵¹ Recycling rates remain relatively low, with an estimated 300,000 beverage cartons recycled in Europe in 2006.⁵²

One of the companies producing drinks cartons, Tetra Pak, has recently launched a schools recycling programme aiming to recover more drinks carton waste from schools. The cartons currently have to be exported for recycling as the one UK facility which used to reprocess all waste cartons collected in the UK was forced to close in 2006.

The fibre is recovered to make new paper products. The remaining mix of plastic and aluminium can then be reprocessed into a number of different products, ranging from plasterboard liner to high-strength paper bags and envelopes. In Brazil, the first plasma technology plant was installed in 2005. This process enables the separation of the polyethylene and the aluminium so that they can be reused in a wider variety of ways. The plastic content is turned into paraffin wax (which is then sold to petrochemical plants) and the aluminium is totally recovered, being subsequently used to produce more carton packaging.⁵³

Packaging recycling symbols

There are a number of symbols which commonly appear on packaging products. Some of these indicate whether the item is recyclable, whilst others show the recycled material content of the packaging. It is important to note that when a packaging article carries one of these symbols, this only means they can be recycled in theory. However, they are not necessarily accepted within all local authority recycling schemes.

Metals



This symbol denotes that the item is made from recyclable aluminium.



RECYCLABLE STEEL

This symbol denotes that the item is made from recyclable steel.

Cardboard



This symbol denotes that the cardboard item is recyclable.



The number inside the loop denotes the recycled content of the product (*e.g.* paper).

Plastics



There are a wide range of plastics used in packaging, each types being identified by a number in the recycling loop and/or letters.



This is a relatively new symbol found on biodegradable plastic packaging which can be composted at commercial composting facilities. However, this does not mean that the material can be put in a home composter, unless it is marked as home compostable.

Glass



This symbol reminds consumers to recycle their glass cans and jars.

General



Another symbol often appearing on packaging is the 'Green Dot'. This does not have any environmental significance, meaning only that the manufacturer has paid a fee towards the packaging recovery system in Germany.



Launched by the British Retail Consortium (BRC) with support from WRAP, the **On-Pack Recycling Label** aims to deliver a simpler, UK-wide recycling message on both retailer private label and brand-owner packaging.

Reducing packaging waste

Many people are concerned about the amount of packaging products are sold in and packaging is increasingly becoming a factor influencing householders' purchasing decisions.

An example of overpackaging is the use of standardised boxes. This can lead to void space in the package, which is both a wasteful use of resources and can be seen as misleading by consumers.

In the UK, local authorities are able to prosecute companies that over-package their goods under an EU packaging directive that entered UK law in 1999. However, to date there have only been four prosecutions for overpackaging and the Local Government believes that the rules have too many loopholes to be effective and the maximum fine of only £5,000 does not pose any real deterrent for large companies.⁵⁴

Office World, one of the companies successfully prosecuted under the regulations, was fined £2,000 for using boxes up to 14 times bigger than the items they contained. The last prosecution to date for excess packaging was in May 2006 when a Cambridgeshire biscuit firm was fined for filling its tins only two-thirds full.⁵⁵

Under the 2005 Courtauld Commitment⁵⁶ major UK retailers have joined forces to try and identify packaging solutions in order to halt packaging waste growth by 2008, deliver further reductions in packaging by 2010 and reduce food wastage.⁵⁷ Some of the actions intended to achieve the proposed goals include designing innovative packaging formats, reducing packaging weight, increasing the use of refill and self-dispensing systems and improving packaging design to incorporate more recycled content.⁵⁸

250,000 tonnes of glass, 180,000 tonnes of carbon and 198 million kW of energy could be saved every year by reducing the average weight of glass containers by 10%.⁵⁹

A joint initiative by the Waste and Resources Action Programme (WRAP), retailers and brand owners focused on lightweighting glass containers. It succeeded in reducing the weight of Grolsch beer bottles by 13 %, saving 4,500 tonnes of glass per year.⁶⁰ Similarly, reducing the weight of Adnams Bitter bottles by 34 % has led to an annual saving of 600 tonnes of glass.⁶¹

Legislation relating to packaging

The Packaging Directive - European Union Directive on Packaging and Packaging Waste 94/62/EC

This Directive aimed to establish producer responsibility for packaging waste. It was implemented in the UK through the Producer Responsibility Obligations (Packaging Waste) Regulations 1997, which sets targets for the recovery and recycling of packaging wastes, and the Packaging (Essential Requirements) Regulations 1998. In March 2008, the new Producer Responsibility Obligations (Packaging Waste) Regulations (Amendment) 2008 came into force,⁶² setting the following packaging recycling and recovery targets for 2008 and beyond⁶³:

	2008	2009	2010
Paper	67.5 %	68.5 %	69.5 %
Glass	78.0 %	80.0 %	81.0 %
Aluminium	35.0 %	38.0 %	40.0 %
Steel	68.0 %	68.5 %	69.0 %
Plastic	26.0 %	27.0 %	29.0 %
Wood	20.5 %	21.0 %	22.0 %
Total	72 %	73 %	74 %

What you can do – reduce, reuse, recycle

- Choose goods with minimal packaging and which are packaged in a material that can be recycled or returned in your area.
- Use plastic containers and bags again or make them into something else. For example, use yoghurt pots to grow seedlings, use the top part of drinks bottles as cloches for plants and offer clean plastic carrier bags to charity shops.
- Buy products that are refillable, such as liquid laundry detergent and fabric conditioner.
- Think of ways of reducing the need for packaging. Don't add extra packaging yourself - a melon, a grapefruit or a bunch of bananas already has natural packaging.
- Use your kerbside collection, if you have access to one, to separate your recyclable packaging materials or take them to collection banks specific to each type of material run by local authorities or voluntary groups. If you are unsure about the materials that are currently collected for recycling in your area, contact your local authority recycling officer.
- Whenever possible, look out for products packaged in at least partially recycled material.
- It is best to buy items for which you know that an infrastructure exists for recycling, although it is not always easy to avoid packaging that is more difficult to recycle.

Contacts

WRAP (Waste and Resources Action Programme)

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Helpline: 0808 100 2040
Website: www.wrap.org.uk
WRAP is a government-funded organisation that helps individuals, businesses and local authorities to reduce waste and recycle more.

The Industry Council for Packaging & the Environment (INCPEN)

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Metal Packaging Manufacturers Association

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Confederation of Paper Industries (CPI)

The Confederation of Paper Industries
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Website: www.paper.org.uk

Alupro (Aluminium Packaging Recycling Organisation)

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Alliance for Beverage Cartons and the Environment

Recycling Support
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Lanes, Wrexham, LL13 0UT
Tel: 0870 442 6012
Mobile: 077 8891 5586
Website: www.ace-uk.co.uk
E-mail: recycling.support@tetrapak.com

Steel Can Recycling Information Bureau (SCRIB)

Trostre Works
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Carmarthenshire
SA14 9SD – Wales
Tel: 01554 712632
Website: www.scrib.org

RECOUP (RECYcling Of Used Plastic Ltd)

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Welbeck Way
Shrewsbury Avenue
Woodston
Peterborough PE2 7UH
Tel: 01733 390 021
Fax: 01733 390 031
Website: www.recoup.org
E-mail: enquiry@recoup.org
Provides details of plastics recycling in your community, assistance in establishing plastic bottle recovery schemes, current market information and promotional material.

We kindly request that any reproduction in full or in part of this publication mentions its title and acknowledges Waste Watch.

Last updated October 2008

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