Guidance on Packaging and Packaging Waste

This guide is intended to give guidance on the legal requirements that businesses should consider when designing packaging for products to be placed on the market within the EU. It also gives guidance on the legal obligations that larger businesses may have in contributing to the packaging waste recovery targets of the UK.

The general obligations and targets for all Member States are laid down in a European Directive, which has then been implemented in the UK by two regulations, one that regulates the use of packaging to minimise its environmental impact and the other to regulate the minimum levels of packaging that is recovered and methods of recovery.

It also explains your obligations under the Landfill Directive to pre-treat your non-hazardous waste if you wish to send it to landfill.

This document is not a definitive interpretation of the law, which only the courts can provide. It is the responsibility of the individual business to ensure compliance with the law.
The Packaging and Packaging Waste Directive

Council Directive 94/62/EC on packaging and packaging waste was adopted on 20th December 1994. One of the requirements of this Directive was for a five year review of the recycling and recovery targets. This review led to amending Directive 2004/12/EC which lays down the next set of targets, as well expanding the definition of packaging.

The aims of the Directive are to minimise negative effects of packaging waste on the environment and to prevent individual members states packaging legislation creating barriers to trade.

2. What types of packaging are covered by the Directive?

The Directive covers all packaging and packaged goods placed on the market within the European Union and packaging waste from all sources including business and the final consumer.

‘packaging` is defined as ‘all products made of any materials of any nature to be used for the containment, protection, handling, delivery and presentation of goods, from raw materials to processed goods, from the producer to the user or the consumer. ‘Non-returnable` items used for the same purposes shall also be considered to constitute packaging’.

But the definition of ‘Packaging` is limited to;

Sales packaging or primary packaging, such as that sold with the product. For example the wrapping enclosing food products that is removed by the consumer before use. However if the packaging is also part of the product and would not be expected to be removed during the life of the product, then it is not considered to be packaging. For example a plant pot containing a plant, the pot is an integral part of the product.

Grouped packaging or secondary packaging, such as can be removed from the product without affecting its characteristics. For example packaging used to protect wholesale quantities of individually wrapped consumer goods, which would be removed and retained by the seller before sale.

Transport packaging or tertiary packaging, such as packaging used to facilitate transport, although road, rail, ship or air containers are excluded from the definition of packaging, but are not defined.

Reusable packaging, which is reused without any treatment only needs to comply with these regulations when first placed on the market, if the packaging is already in circulation then it is deemed to be outside the scope of these regulations. For example fish boxes that are washed and reused for their original purpose.
To assist in the interpretation of packaging Directive 2004/12/EC gives a set of principles, and also gives some examples of what would and would not be considered to be packaging.

3. What are the requirements under the Directive?

As the rules are laid down in a Directive, obligations are prescribed for Member States rather than individuals. Each Member State must ensure that systems are in place to meet set targets for the reuse or recovery of waste packaging.

These targets apply to packaging that becomes waste in that Member State, regardless of where the packaging originated. If waste packaging is exported as waste it will count towards meeting the target of the exporting country, although sound evidence of recovery or recycling in the importing country will be required before it counts towards the exporting country’s targets.

Defra is consulting on measures to determine equivalency in the treatment of exported waste to ensure it is treated to the same standards if exported.

The Directive requires that at least 60% by weight of packaging waste from each Member State must be recovered or incinerated at waste incineration plants with energy recovery.

In addition at least 55% and no more than 80% by weight of packaging waste must be recycled.

Within these targets there are also minimum recycling targets for materials that make up the packaging waste.

<table>
<thead>
<tr>
<th>Material By Weight</th>
<th>Recycling Target (%)</th>
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<tbody>
<tr>
<td>Glass</td>
<td>60%</td>
</tr>
<tr>
<td>Paper and board</td>
<td>60%</td>
</tr>
<tr>
<td>Wood</td>
<td>15%</td>
</tr>
<tr>
<td>Metals</td>
<td>50%</td>
</tr>
<tr>
<td>Plastics (recycled into plastics)</td>
<td>22.5%</td>
</tr>
</tbody>
</table>
Member States must ensure that packaging used for products meets with the Directives minimum requirements. These are laid down by the European Committee for Standardisation (CEN) in codes laid down in the Directive. Packaging that does not meet the essential requirements of the Directive may not be placed on the market within the EU. For details of the essential requirements see Questions 10 - 20

4. How has the UK implemented the Directive?

The Directive has been implemented by two separate regulations in each of the devolved regions.

The Producer Responsibility Obligations (Packaging Waste) Regulations, which require certain business to recover or recycle their waste packaging, and

The Packaging (Essential Requirements) Regulations, which require all businesses that manufacture or use packaging to minimise its use, and to facilitate its reuse and recycling.

These have both been amended in line with amendments to the Directive, the latest amendments being in 2008 and 2006 respectively.

5. Does Energy Recovery from waste count towards targets?

The Directive sets targets for packaging to be ‘recovered or incinerated at waste incineration plants with energy recovery’. This allows waste to be incinerated, where it is preferable to recycling due to environmental or cost-benefit reasons. Incineration is considered to be a recovery operation when the operation ‘use principally as a fuel or other means to generate energy’, therefore for a incineration process to be considered to be recovery it must produce more energy than in consumed by the process and the surplus energy is put to good use as energy or heat.

7. Will reuse of packaging count towards my targets?

The Directive does not establish a hierarchy between re use or recovery operations. Re-use of packaging would count towards targets.
6. How do I assess if my packaging meets the criteria of the Directive?

The European Committee for Standardisation has produced codes to give effect to the essential requirements of the Directive. These are known as CEN standards and details are given in the Directive. The CEN standards are based on the principle of continuous improvement. You should access your packaging systems regularly so that any further minimisation can be achieved. Further information on the codes can be found in annex I.

8. Is there an obligation to use recycled materials in my packaging?

No, while it may be a business decision to use recycled materials there is no legal requirement. In the case of food packaging it is likely that food safety consideration would prevent the use of many recycled materials for packaging that may come into contact with the food.

Regulation 1935/2004 on materials and articles intended to come into contact with food encourages the use of recycled materials provided that strict controls are in place to protect food safety. Priority was given to recycled plastics and the Commission is expected to adopt a Regulation on recycled plastics in contact with food in the near future.

9. How should I inform the user of my products that the packaging is suitable for recycling?

It is not a legal requirement to mark packaging as suitable for recycling or re-use. However if such information is given it should be given in the prescribed manner. A Commission Decision on Material Identification 97/129/EC came into force in February 1997. It lays down an identification system for packaging made from plastics, paper or fibreboard, metal, textiles, glass or composites. These are given numbers or abbreviations that appear in the centre of recycle or reuse symbols.
The Producer Responsibility Obligations (Packaging Waste) Regulations 2008

These are the latest amendment to the Producer Responsibility (Packaging Waste) Regulations 1997, which were introduced to meet the Member State obligations of the packaging waste Directive.

10. Who do the Regulations apply to?

The Regulations apply to Packaging 'producers', who

- Handle more than 50 tonnes of packaging and,
- Have a turnover of more than £2 million.

11. Who is a Packaging ‘producer’?

These include,

- Manufacturers of raw materials for packaging
- Businesses that convert raw materials into packaging
- Fillers, who put goods into packaging, or use packaging to wrap goods
- Sellers who sell packaging to the final consumer of the packaging.

12. What are my obligations under the Regulations?

If your business satisfies the two threshold tests in Q 10 then the amount of packaging waste that you must recover and recycle is determined by:
- The amount of packaging your business handles
- The business recovery and recycling targets for the year
- The activity the business carries out on the packaging

Each year recovery and recycling targets are set to enable the UK to meet its obligations under the packaging waste regulations. These can be viewed on the Defra website at www.defra.gov.uk.

Different sectors that create waste packaging have different percentage of the UK target that they must recover or recycle. This is related to the amount of packaging that each sector is deemed responsible for placing on the market.

If a business is carrying out more than one of the obligated activities, it will have separate obligations for each activity.

Any packaging imported with products will become part of a businesses obligation. Packaging exported with product does not count towards a businesses obligation.

The amount that a business must recycle is calculated using the formula,

\[
\text{Business recovery} = \text{packaging handled} \times \text{activity} \times \text{UK recovery} = \text{Business recovery}
\]

In previous year (tonnes) \(\times\) obligation (%) \(\times\) target (%) = obligation (tonnes)

<table>
<thead>
<tr>
<th>Activity</th>
<th>Obligation</th>
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<tbody>
<tr>
<td>raw material producers</td>
<td>6%</td>
</tr>
<tr>
<td>Convertors</td>
<td>9%</td>
</tr>
<tr>
<td>Packers/fillers</td>
<td>37%</td>
</tr>
<tr>
<td>Retail to the end-user</td>
<td>48%</td>
</tr>
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</table>
13. **How can I meet my obligations under the Regulations?**

There are 2 ways to comply. You can either arrange to do the work yourself or you can join a registered compliance scheme. A scheme will take on your legal obligations for you. There are currently 36 compliance schemes; details can be accessed at [www.defra.gov.uk](http://www.defra.gov.uk).

Both of these options incur financial costs. With the individual route there is a fee payable to the Agency for registration, plus the full costs of any waste handling and processing. Compliance schemes charge an initial subscription fee and then levies specific to the packaging materials that they recover or recycle on your behalf.

14. **What evidence of compliance is required?**

If you are arranging your own recovery or recycling, then you will need to purchase evidence of compliance from an accredited repressor or an accredited exporter. These businesses will issue Packaging Waste Recovery Notes (PRNS) or Packaging Waste Export Recovery Notes (PERNS).

Businesses are also required to submit accurate information on the packaging handled throughout the previous calendar year. This includes details of weights of each type of packaging handled and the activities carried out in relation to that packaging. This information is used to calculate the weights of packaging waste you will be required to recover and recycle.

15. **Who enforces the Regulation?**

The Regulation is enforced by the Environment Agency or equivalent in the devolved regions.
The Packaging (Essential Requirements) Regulations

Any packaging that is placed on the market or used to package products to be placed on the market must comply with the requirements of these regulations.

The regulations require that,

- The packaging system uses the minimum amount of packaging that is sufficient for the packaging requirements of the product.
- The packaging does not exceed the permitted levels of heavy metals or other noxious and hazardous substances.
- The functional unit of the packaging can be reused or recovered in accordance with the Directive.

15. **Who does the regulation apply to?**

The regulation applies to all businesses that package products for placing onto the market. This will usually be the packer/filler. Where a business is packing or filling on behalf of another business such as own brand labels, then the person responsible for the product will also be responsible for ensuring the obligations under this regulation are met.

16. **What are the essential requirements that I need to consider when designing product packaging?**

The packaging design and material should be designed to minimise the volume and weight of the packaging used, whilst still being fit for purpose. The use of volume and weight as criteria is not intended to indicate a preference to lower weight or volume materials i.e. plastics over glass, but rather the overall environmental impact and reuse, recovery or recycling potential in choosing a packaging material, whilst reducing the volumes or material used.
The environmental impact of the recovery operations should be considered including residues that will need to be disposed of, and any noxious or hazardous substances that may be released into the environment during recovery operations.

17. **When would packaging be considered excessive?**

Packaging will have certain specific performance criteria so that it is fit for purpose. These performance criteria could be product protection; the requirements of the packaging manufacturing process; the packing/filling process; the distribution chain; product presentation and marketing; consumer acceptance; provision of statutory or other information.

There will be a critical point at which any further reduction in packaging would cause the packaging to fail at one or more of these functions. In determining what is an acceptable failure rate if packaging is reduced will be different depending on the product. Expensive or dangerous products would require a much lower failure rate than safe low value products.

Economic considerations are also valid, if packaging can be reduced but only by replacement of packaging equipment, then this would not be considered a sound environmental decision.

18. **What are the limits for Heavy Metals in packaging?**

The heavy metal limits refer to the sum of concentration levels of cadmium, mercury, lead and hexavalent chromium. The content of the specified heavy metals in packaging or any of its components must not exceed,

- 600 ppm by weight on or after 30 June 1998
- 250 ppm by weight on or after 30 June 1999
- 100 ppm by weight on or after 30 June 2001

The limits apply to each component that can be separated by simple methods, for example a container lid. Coating applied to packaging would be included in the calculations for the component that they were applied to, and do not have to meet the requirements alone, only as a contributor to the level of the entire component.
NB: there are separate regulations for articles in contact with food. This would be applicable to packaging materials that come into contact with food. For more information see

19. Are there any specific requirements for the reuse of packaging?

Reuse is only considered reuse if it is for the same original purpose. It should be noted that reused is not the same as reworking or reconditioning packaging. The regulations do not apply to packaging that is being reused in this way. However the regulations do apply to reusable packaging when it is placed on the market for the first time. There are also some additional requirements included for reusable packaging,

- The properties of the packaging must enable it to be reused a number of times in normal use.
- The packaging must be able to be reused without contravening existing health and safety requirements of the workforce.
- The packaging must be able to be recovered in the same way as disposal packaging when it can no longer be reused and it becomes waste.

18. How can packaging be recovered?

Packaging should suitable for recovery or recycling in accordance with the Directive, or in the UK the requirements of the Producer Responsibility Obligations (Packaging Waste) Regulations 2007.

19. How do I demonstrate compliance?

Enforcement agencies can make any reasonable request to demonstrate compliance up to four years after a product is placed on the market. This is most likely to be in the form of documentation showing that the essential requirements have been met.

The CEN Standards are designed to help producers of packaging to meet the essential requirements of the Directive. The references to the standards are published in the official journal. Any packaging conforming to these standards is deemed to be meeting the essential requirements. There are currently 6 codes.
The use of the CEN standards will be deemed to be compliance with the regulation. This is only one method of demonstrating compliance and others can be used if a businesses chooses.

20. **Who enforces the regulation?**

The regulation is enforced by trading standards departments or similar departments in the devolved regions.
The Landfill Directive

The Landfill Directive aims to minimise the impact of landfill sites on the environment. Part of the way it does this is to reduce the amount of waste sent to landfill. To help reduce waste sent to landfill and increase the amount recovered, from 30th October 2007 all waste must be treated before it can be sent to landfill.

21. Do I need to treat my waste?

All waste producers have to pre-treat any non-hazardous waste before it can be sent to landfill. You can either treat the waste yourself, or ensure that a later holder of the waste will treat it before it is landfilled.

There are exceptions for

- inert waste that cannot be treated and,
- Any other waste for which treatment would not reduce its quantity or hazard to human health and the environment.

22. What is classed as treatment?

Treatment is defined as a physical, thermal, chemical or biological process, which changes the characteristics of the waste.

The characteristics may be changed by;

- Reducing the volume of the waste
- Reducing the hazardous nature of the waste
- Making handling or recovery easier
Treatment can include

- collecting or sorting waste stream separately to facilitate recycling
- Biological treatments such as composting
- Thermal treatment such as incineration

Compaction is not considered to be treatment as it does not reduce the impact of the waste on the environment.

For more information on your obligations to treat your waste see [www.environment-agency.gov.uk](http://www.environment-agency.gov.uk)
ANNEX I

The CEN Standards

The essential requirements in the packaging Directive define the results to be attained and the risks to be dealt with. The CEN (the European Committee for Standardisation) specifies the technical requirements to meet the standards.

There are 6 codes for the essential requirements of the packaging Directive, which are summarised below. The full codes can be purchased from the British Standards Institute. A guide to using the standards can be downloaded [here](#).

**EN 1427:2004, Packaging – requirements for the use of European Standards in the field of packaging and packaging waste**

This is the overarching standard that guides users through the other texts and which standards are applicable to each type of pack. To ensure packaging complies with the essential requirements there may be up to 7 assessment procedures to undertake before the product can be placed on the market.

Where the packaging system is comprised of different components, the components should be assessed individually, as well as the entire packaging system for prevention by source reduction.

Once the appropriate standards have been identified, producers must ensure that all the relevant factors have been considered when designing the packaging system. By applying the requirements of the selected standards the producers must ensure that;

1. The packaging system uses the minimum amount of packaging that is sufficient for the packaging requirements of the product.
2. The packaging does not exceed the permitted levels of heavy metals or other noxious and hazardous substances. Any such substance used for technical purposes must be kept to the minimum required for the function.
3. The functional unit of the packaging is recoverable in the form of energy and/or compostable in accordance with the relevant standards.
4. If the packaging to be reused, that it can also be recovered by at least one other method.

Records of the assessments carried out must be kept for inspection for 2 years after the product has been placed on the market.
Co-operation is required throughout the packaging supply chain to meet the relevant criteria.

**EN 13428:2004 packaging – requirements specific to manufacturing and composition-prevention by source reduction**

The standards are given in 2 parts. The first is on prevention by source reduction i.e. minimising the weight and/or volume of packaging. The second part is on qualitative prevention i.e. minimising the presence of noxious and hazardous substances in packaging.

In assessing whether packaging can be reduced, the performance criteria of the packaging must be considered. This could be product protection; the requirements of the packaging manufacturing process; the packing/filling process; the distribution chain; product presentation and marketing; consumer acceptance; provision of statutory or other information.

There will be a critical point at which any further reduction in packaging would cause the packaging to fail at one or more of these functions. In determining what is an acceptable failure rate if packaging is reduced will be different depending on the product. Expensive or dangerous products would require a much lower failure rate than safe low value products.

Economic considerations are also valid, if packaging can be reduced but only by replacement of packaging equipment, then this would not be considered a sound environmental decision.

The producer may be asked to demonstrate the steps taken to identify the critical area. Failure to do this may mean the packaging fails to meet the standard required.

The second part of the standard explains how to determine the presence of any dangerous substances and to minimise any identified.

Safety data sheets are available that enable a business to determine whether any dangerous substances or preparations that have been used during manufacture are present in the resulting packaging. Dangerous substances will be classified with an ‘N’ in the relevant Directives.

If any substances are identified, the user must evaluate the possibility of their release into the environment during any waste treatments.

Documentary evidence must be provided that such substances are used at the minimum levels required to fulfil their required function.

**EN 13429:2004 Packaging – Requirements for relevant materials and types of reusable packaging**
For a pack to be considered ‘reusable’ it should meet the following conditions,

1. The pack must be designed with the intention of reuse
2. The pack must be designed with a certain number of reuses intended. It is acceptable to need to replace small components such as the closure, but the majority of the packaging should be intended for reuse.
3. The package must be suitable for the preparation needed for reuse, for example cleaning or sterilisation for food use.
4. The package must be capable of being refilled.
5. There must be systems in place that allow the packaging to be reused.
6. A packer must obtain confirmation from the supplier that the packaging is suitable for reuse and also from their customers that they intend to reuse the packaging. The packer will need to confirm that there is a system in place to reuse the packaging.
7. The packaging must be recoverable when is no longer suitable for reuse.

**EN 13430:2004, Packaging – Requirements for packaging recoverable by material recycling**

To claim that packaging is recyclable the person responsible for the packaging or packaged product must ensure that the packaging design takes into consideration,

1. The recyclability of the materials from which it is produced,
2. Make sure that where possible raw materials used do not adversely affect recycling processes
3. Ensure that the design of packaging makes use of materials that are compatible with known and relevant recycling technologies,
4. Monitors developments in new recycling technology that may be more suitable for packaging design.
5. The percentage weight of the packaging that is recyclable must be declared. This is the total weight of the components that can be recycled as a percentage of the entire weight of the packaging.

Where the format and material of the functional unit of the packaging and/or the components conform to recognised standards for recycling, then this may be used to demonstrate compliance.

**EN 13431:2004, Packaging – Requirements for packaging recoverable in the form of energy recovery, including specification of minimum inferior calorific value.**

The energy recovery standard sets out the requirements for packaging to be considered suitable for energy recovery. For packaging to be suitable for energy recovery it must be combustible and be capable of providing calorific gain of at least 5 MJ/kg.
There is a standard formula for calculating the net calorific value of packaging consisting of different components. However in most case these calculation are unnecessary if,

1. Packaging is composed of over 50% by weight of organic materials e.g. paper it is considered recoverable in the form of energy
2. Packaging composed of 50% by weight of inorganic material e.g. glass may be declared recoverable in the form of energy when supported by evidence of calorific gain.
3. Thin gauge aluminium foil shall be considered recoverable in the form of energy.

The standard provides information on the calorific gain of common packaging materials and those that are not considered suitable for energy recovery or may have a negative effect on the energy recovery process.

**EN 13432:2000, Requirements for packaging recoverable through composting and biodegradation – Test scheme and evaluation criteria for the final acceptance of packaging.**

This sets the criteria for packaging that is designed to be recovered through composting and biodegradation. Each packaging material and its significant organic constituents must fulfil these criteria,

- Have been demonstrated to be biodegradable
- They disintegrate in a biological waste treatment process, with 90% biodegradation in 6 months, and have no negative effect on the process.
- They have no negative effect on the resulting compost.
- Packaging or packaging components intended for the biowaste stream must be recognisable by the end user as compostable or biodegradable.
- The standard only relates to the packaging, not any residual contents.
- Constituents that may be harmful to the environment in excess of the limits laid down cannot be used on packaging intended for biological recovery.
- Packaging material that are still in their natural state such as wood and paper can be accepted as biodegradable without further testing, but will need to be chemically characterised and fulfil the criteria for disintegration and quality.
- The evaluation criteria include levels for zinc, copper, nickel, lead, mercury, chromium, molybdenum, selenium, arsenic and fluorine. It is assumed that 50% of the original weight of the packaging will remain in the compost with 100% of the original amount of hazardous substances.