

BIS | Department for Business
Innovation & Skills

**PACKAGING (ESSENTIAL
REQUIREMENTS) REGULATIONS**

Government Guidance
Notes

JANUARY 2011

URN 11/524

About this guidance

This guide is addressed to those involved in the placing of packaged goods on the market.

This guidance cannot cover every situation and, of course, it may be necessary to carefully consider the relevant legislation to see how it applies in your circumstances. However, if you do follow the guidance it will help you to understand how to comply with the law.

This guidance has been designed to comply with the “Code of Practice on Guidance on Regulation 2009”. This was published in October 2009 and a copy can be downloaded from the BIS website at www.bis.gov.uk.

This is the full guidance. A quick start guide can be found in “Packaging Essential Requirements Regulations – Quick Start Guide” URN 11/525 is available separately.

This is the January 2011 edition of the guidance and replaces all earlier editions. The guidance is updated on a regular basis as necessary.

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The Regulations – An overview

Requirements

1. The main requirement of the regulations is that no one who is responsible for packing or filling products into packaging or importing packed or filled packaging into the United Kingdom, may place that packaging on the market unless it fulfils the Essential Requirements and is within the heavy metal concentration limits.

Essential Requirements

2. The Essential Requirements are, in summary:
 - i. Packaging volume and weight must be the minimum amount to maintain the necessary levels of safety, hygiene and acceptance for the packed product and for the consumer
 - ii. Packaging must be manufactured so as to permit reuse or recovery in accordance with specific requirements
 - iii. Noxious or hazardous substances in packaging must be minimised in emissions, ash or leachate from incineration or landfill

Heavy metal limits

3. The aggregate heavy metal limits apply to cadmium, mercury, lead and hexavalent chromium in packaging or packaging components subject to some exemptions (for glass and plastic crates/pallets, see pages 12 and 13).
4. The total by weight of such metals should not exceed 100 ppm on or after 30 June 2001. Previous limits were, 600 ppm on or after 30 June 1998 & 250 ppm on or after 30 June 1999.

Enforcement

5. Enforcement Officers (p14) may assess the compliance of any packaging by requesting technical documentation on both the packaging essential requirements and the heavy metal limits.
6. This documentation must be produced within **28 days** of the request being made.

Regulatory framework

7. The Packaging (Essential Requirements) Regulations 2003 (SI 2003 No 1941) ("the Regulations") are amended by:
 - the Packaging (Essential Requirements) (Amendment) Regulations 2004 (SI 2004 No 1188) ("the 2004 Regulations");
 - the Packaging (Essential Requirements) (Amendment) Regulations 2006 (SI 2006 No 1492) ("the 2006 Regulations");
 - the Packaging (Essential Requirements) (Amendment) Regulations 2009 (SI 2009 No 1504) ("the 2009 Regulations")
8. The Regulations implement provisions of the European Parliament and Council Directive on Packaging and Packaging Waste (94/62/EC) ("the Directive")

relating to the essential requirements to be satisfied by packaging in order to circulate freely on the single market.

9. Packaging manufactured before 31 December 1994 and lawfully placed on the market before 31 December 1999 is excluded from these requirements.
10. The 2003 Regulations came into effect on 25 August 2003, revoking and replacing the Packaging (Essential Requirements) Regulations 1998 (SI 2998/1165). They included derogations for the heavy metals limits in respect of certain glass packaging and plastic pallets and crates, as set out in Commission Decisions 1999/177/EC and 2001/171/EC. They also introduced a set timeframe for producing technical documentation demonstrating compliance of 28 days.
11. The European definition of “packaging” was amended by Directive 2004/12/EC, published on 18 February 2004. This amendment introduced an indicative list of what does and does not constitute packaging, in order to provide greater clarity and EU harmonisation on what is defined as “packaging”. The 2004 Regulations include this amendment (further details page 7).
12. The 2006 Regulations implement Commission Decision 2006/340/EC to extend indefinitely a derogation to heavy metal concentration levels in glass packaging.
13. The 2009 Regulations implement Commission Decision 2009/292/EC, and remove the end date for the existing derogation to heavy metal limits in plastic crates and pallets.

Existing requirements for packaging

14. The Regulations do not affect the application of existing quality or labelling requirements for packaging, such as safety, the protection of health and hygiene of the packed products, existing transport requirements or provisions on hazardous waste. In other words, existing legislation on these matters must be complied with.

Packaging and the single market

15. The desire to achieve the free movement of goods, in this case packaging, lies at the heart of the single European market.
16. In May 1985, European Community Ministers agreed on a 'New Approach to Technical Harmonisation and Standards' to fulfil this objective.
17. 'New Approach' EC Directives set out the essential requirements, usually written in general terms, which must be met before products may be placed on the market in the United Kingdom or anywhere else in the European Community. Mandated European harmonised standards in respect of a product provide detailed characteristics and tests which meet the essential requirements.
18. Use of the standards is voluntary and manufacturers are free to choose alternative means in order to demonstrate compliance. However, demonstrating conformity with the harmonised standards provides a "presumption of compliance" with the essential requirements of the Packaging Directive and Member States are obliged to grant market access to packaging meeting the standards.
19. A series of standards in relation to packaging were published by the European Committee for Standardisation (CEN). These provide framework methodologies for considering reduction, reuse, recyclability and recovery. These may help in considering packaging minimisation and environmental considerations.
20. The table in Annex A (p23) lists the current standards, how they are applied and provides references to the revised texts.

The Regulations

Scope

The Definition of Packaging

21. The Regulations apply to all packaging placed on the market in the United Kingdom as packed or filled packaging.
22. Packaging is defined as all products made of any material 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, including non-returnable items used for the same purposes, but only where the products are sales or primary packaging; grouped or secondary packaging or transport or tertiary packaging as defined.
23. The full definition is in the Regulations and is clarified by three additional criteria. These are:
 - i) Items shall be considered to be packaging if they fulfil the above definition without prejudice to other functions which the packaging might also perform. However, where an item is an integral part of a product and it is necessary to contain, support or preserve that product throughout its lifetime and all elements are intended to be used, consumed or disposed of together, the item will not constitute packaging for the purposes of the Regulations.
 - ii) Items designed and intended to be filled at the point of sale and disposable items sold, filled or designed and intended to be filled at the point of sale shall be considered to be packaging only if they fulfil a packaging function.
 - iii) Packaging components and ancillary elements integrated into packaging shall be considered to be part of the packaging into which they are integrated. Ancillary elements hung directly on, or attached to, a product and which perform a packaging function shall be considered to be packaging unless they are an integral part of that product and all elements are intended to be consumed or disposed of together.
24. An indicative list of what is and is not considered packaging under each of these three criteria is set out in Annex D and reflects the Annex to the Directive. The Commission has indicated its intention to supplement this Annex with a further list of items in 2011.
25. Further guidance on the interpretation of packaging has been published jointly by the Environment Agencies (reference documents p20). However, anything recognised as packaging and in use as packaging would in general be likely to be covered by the Regulations.

Placing on the market

26. "Placing on the market" is not defined in the Regulations, but is generally taken to refer to when a product is made available for the first time. This is considered to take place when the assembled (i.e. packed/filled) packaging is first transferred from the stage of manufacture with the intention of sale, distribution or use on the Community market, including the EEA market. The concept of placing on the market refers to each individual product, not to a type of product, and whether it was manufactured as an individual unit or in series'.
27. Whether the particular packaging product has been placed on the market for the first time in the UK would need to be examined by reference to the particular circumstances of the case. Further guidance on this matter is available from the Local Government Regulation (LGR) (see contact points, p21).
28. The reuse of packaging, for the same purpose for which it was intended is not considered to be a further placing on the market. Therefore such reused packaging already in circulation is not covered by these Regulations. Reusable packaging must fulfil the Essential Requirements and other requirements in the Regulations on its first placing on the market. Where packaging has been reconditioned, remanufactured, repainted or altered for a different use it will be considered "new" packaging and would need to meet the requirements of the Regulations when placed on the market.
29. For example, this could apply to either reusable steel drums which transport chemicals or to refillable soft drink bottles.

Exclusions

30. The Regulations do not apply:

- a) To packaging* used for a given product (that is, the packaging has been packed or filled) prior to 31 December 1994;
- b) To packaging* manufactured on or before 31 December 1994 and lawfully placed on the market in the Community on or before 31 December 1999;
- c) To packaging* manufactured, packed or filled for export without being placed on the market in the United Kingdom;

* In all cases, refers to the individual packaging on a product, rather than the packaging design.

31. The Regulations do not affect the application of existing quality or labelling requirements for packaging, including those regarding safety, the protection of health and hygiene of the packed products, existing transport requirements or the provisions of Council Directive 91/689/EEC on hazardous waste or other provisions of the Hazardous Waste (England and Wales) Regulations 2005. In other words, existing legislation on these matters must be complied with.

Obligation

32. Compliance with the Regulations must be ensured when the packaged goods are placed on the market in the Community.
33. The obligation to ensure that these Regulations are complied with lies with the responsible person. This is usually the packer/ filler or importer of packed or filled packaging. In circumstances where the packaged product is marked with a brand or trade mark or other distinctive mark, the person so identified would normally be considered the packer/filler.
34. It follows that, for an own-label product where the brand owner is not the packer/filler, the obligation to demonstrate compliance would fall upon the brand owner rather than the packer/filler.
35. The responsible person is obliged to ensure that all packaging covered by the Regulations complies with the essential requirements and heavy metal limits, in addition to the other provisions of the Regulations.

Essential Requirements

36. The essential requirements are:

a) Requirements specific to the manufacturing and composition of packaging.

All packaging subject to the Regulations must satisfy the following requirements:

i) Packaging shall be so manufactured that packaging volume and weight be limited to the minimum adequate amount to maintain the necessary level of safety, hygiene and acceptance for the packed product and for the consumer.

This is not considered to indicate a preference between material types (e.g. glass versus plastics) or packaging systems (e.g. single trip versus reusable), although consideration of the overall environmental impact of the packaging system used would be encouraged.

ii) Packaging shall be designed, produced and commercialised in such a way as to permit its reuse or recovery, including recycling, and to minimise its impact on the environment when packaging waste or residues from packaging waste management operations are disposed of (see 2 and 3 below).

iii) Packaging shall be so manufactured that the presence of noxious and other hazardous substances and materials as constituents of the packaging material or of any of the packaging components is minimised with regard to their presence in emissions, ash or leachate when packaging or residues from management operations or packaging waste are incinerated or landfilled.

b) Requirements specific to reusable packaging

Reuse is considered to be reuse for the same purpose for which the packaging was originally conceived. Packaging reused without alteration need not comply with the Regulations after first use.

The following requirements must simultaneously be satisfied if packaging is declared as reusable:

- i) The physical properties and characteristics of the packaging shall enable a number of trips or rotations in normally predictable conditions of use;
- ii) It must be possible to process the used packaging without contravening existing health and safety requirements for the workforce;
- iii) The requirements specific to recoverable packaging when the packaging is no longer reused and thus becomes waste must be met (see paragraph 3).

c) Requirements specific to the recoverable nature of packaging

All packaging, including reusable packaging, must fulfil at least one of the following:

- i) Packaging recoverable through material recycling.

Packaging must be manufactured in such a way as to enable the recycling of a certain percentage by weight of the materials used into the manufacture of marketable products, in compliance with current standards in the Community.

The establishment of this percentage may vary, depending on the type of material of which the packaging is composed. The revised standard on packaging reuse provides guidance on a "certain percentage". This is taken to mean that the packaging must make a positive contribution to the output of the material recycling process for which it is considered suitable. In other words, if packaging is considered suitable for a metal recycling process, it must be possible to extract metal from the packaging in the recycling process.

- ii) Packaging recoverable through energy recovery.

Packaging waste processed for the purpose of energy recovery shall have a minimum inferior calorific value (also known as 'minimum net calorific value') to allow optimisation of energy recovery.

In the absence of harmonised standards this is taken to mean that the packaging will make a positive contribution to the energy recovered in a waste incinerator.

- iii) Packaging recoverable through composting.

Packaging waste processed for the purpose of composting shall be of such a nature that it should not hinder the separate collection and the composting process or activity into which it is introduced.

iv) Biodegradable packaging.

Biodegradable packaging waste shall be of such a nature that it is capable of undergoing physical, chemical, thermal or biological decomposition such that most of the finished compost ultimately decomposes into carbon dioxide, biomass and water.

Standards

37. The Packaging Standards can be used for demonstrating compliance with the essential requirements above (see Illustrative Compliance Procedures Annex B).
38. The Standards provide a methodology that can also help inform decisions on packaging design, for example around material specification, maximising recyclability and recovery, minimising component parts, reducing wasted space and optimising pack size. Compliant packaging enjoys freedom of movement across the European Community.
39. In 2008 CEN published “Packaging - Material recycling - Report on requirements for substances and materials to prevent a sustained impediment to recycling” (CEN/TR 13688:2008). This supersedes earlier work and provides examples of the substances, materials and components that need to be considered in the design and control of the packaging, as defined in the standard EN 13430. It can be used as a guide for taking into account substances and materials that may be incorporated in packaging and which may, or do, inhibit subsequent operations related to recycling.
40. In September 2010, CEN published “Packaging – Report on criteria and methodologies for life cycle analysis of packaging” (CEN/TR 13910:2010). This Technical Report establishes a set of best practice guidelines for undertaking those aspects of life cycle assessment specific to packaging and distribution systems.
41. Design for all recovery routes is increasingly important in marrying disposed packaging from domestic and commercial waste streams with the collection and sorting infrastructure. Well designed packaging which is easily recoverable or reused, minimises environmental impacts and usually saves costs for everyone involved.
42. Standards documents are listed in Annex A and examples are given in Annex B. The Standards and 2008 Report are available from the British Standards Institution (BSI)(see contacts page 22).

Heavy metal limits

43. 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 the following limits 100 ppm by weight on or after 30 June 2001. Previous limits were 250 ppm by weight on or after 30 June 1999 and 600 ppm by weight on or after 30 June 1998.

44. A packaging component is defined as any part of the packaging that can be separated by hand or by using simple physical means - for example a bottle top.
45. This does not include permanent coatings or pigments, which would be regarded as a constituent of the packaging (or of the packaging component) and would thus be part of any calculation, but not required to meet the heavy metal limits independently. For example, a steel drum coated in lead chromate based paint would only exceed the limit if the lead chromate was greater than the limit in relation to the mass of the drum and the paint taken together.
46. Testing is not specifically required nor defined in the Regulations but note the section on 'Compliance' below. Compliance with the Heavy Metal limits is further addressed in Annex C.
47. The heavy metal limits do not apply to packaging which consists entirely of lead crystal glass.
48. There are two derogations from the heavy metals limits. These cover the placing on the market of glass packaging and plastic pallets and crates. These derogations are covered in more detail below.

Derogation for plastic crates and pallets

49. Commission Decision 1999/177/EC established the conditions for a derogation for plastic crates and plastic pallets in relation to the heavy metals concentration limits in the Directive.
50. This derogation was replaced by Commission Decision 2009/177/EC. This has the same effect as the original derogation but without a time limit and provides for a further review of the functioning of the system and the progress made in phasing out these plastic crates and pallets containing heavy metals after 5 years.
51. The derogation allows plastic pallets and crates with heavy metals concentrations greater than those permitted by the Regulations to be placed on the market if they fulfil a number of conditions, namely:
 - The plastic pallet or crate concerned must have been manufactured in a controlled recycling process, involving a maximum of 20% virgin material, and for which the remaining feedstock was other plastic pallets and crates.
 - None of the identified heavy metals are intentionally added during the production process
 - The plastic pallet or crate may only exceed the heavy metal limits as a result of the addition of recycled materials
52. Further to this, the crates and pallets must be introduced in a controlled distribution and reuse system in which:
 - New plastic pallets and crates containing the regulated metals are marked in a permanent and visible way

- A system of inventory and record-keeping is established
- The return rate of the pallets and crates over their lifetime is not less than 90%
- An annual declaration of conformity is drawn up by the responsible party, which must be made available on request for 4 years

53. The UK, as all member states, is required to submit relevant information on this process in the information included in their annual reports, submitted to the Commission under Article 17 of the Directive.

Derogation for glass packaging

54. Commission Decision 2006/340/EC indefinitely extended the derogation in relation to the heavy metals concentration limits in glass packaging. Heavy metal concentration limits do not apply to lead crystal glass packaging.

55. The derogation allows glass packaging heavy metals concentration limits greater than those permitted by the Regulations to be placed on the market if they fulfil a number of conditions, namely:

- No regulated metals have been intentionally introduced during the manufacturing process of glass packaging.
- The limits are exceeded only as a result of the addition of recycled materials containing heavy metals.
- That the manufacturer or, if the manufacturer is outside the EU, responsible person placing the product on the market, must submit a report to the enforcement authority in the event that the average heavy metals concentration level over twelve months' production from an individual glass furnace exceeds a 200 ppm limit.

Compliance

56. The responsible person for the purposes of these Regulations should demonstrate compliance with the Regulations by providing enforcement authorities, on request, with the necessary technical documentation. The responsible person must be able to supply technical documentation for a period of up to four years from the date on which the packaging is placed on the market.

57. A request may be made at any time by the enforcement authorities. The documentation must be produced within **28 days** of the enforcement authority making the request. It will be the responsibility of the responsible person to ensure that this information which shows that the packaging complies with the requirements is presented. Illustrative compliance procedures in Annex B are offered for consideration.

58. The use of the CEN standards will carry with it the presumption of conformity of the packaging with the essential requirements in all Member States. In other words, if the standards are used, the product will be considered to meet the essential requirements, unless there are grounds for suspecting otherwise. It should be noted that the standards represent only one means of establishing

conformity with the essential requirements, and that other means may be acceptable. The standards are available from BSI (contact details on p21).

59. It may be appropriate for the responsible person to refer to their suppliers for relevant information, such as test results or technical information, or to specify requirements as part of the supply arrangements. However, it should be noted that such suppliers would normally only be able to provide information concerning those aspects of the essential requirements which are directly under their control and that legal responsibility remains with the responsible person. The umbrella standard (EN13427:2004) recommends the level in the supply chain at which the various assessments for conformity should be carried out.
60. Trade associations and materials organisations are encouraged to organise conformity testing or other supporting information covering their sectors to aid their members in assessing compliance. Where it is considered desirable to have an enforcement input into this, an approach can be made to LGR by Trading Standards. For example, British Glass has agreed with LGR a procedure for demonstrating the compliance of UK-manufactured glass containers.

Compliance

61. It is the statutory duty of the following organisations to enforce the Regulations within their area:
- a) In England and Wales, weights and measures authorities (the trading standards departments of local authorities); and
 - b) In Northern Ireland, the Department of Enterprise, Trade and Investment.
 - c) In Scotland, weights and measures authorities (the trading standards departments of local authorities); prosecutions against infringement of the Regulations are brought by the Procurator Fiscal.
62. The enforcement authorities have available to them various powers contained in the Consumer Protection Act 1987, including:
- Issuing suspension notices prohibiting the supply of packaging which is considered to breach the Regulations
 - Making test purchases
 - Entering premises at any reasonable time
 - Requesting compliance documentation, inspecting processes and performing tests
63. Under agreed LBRO guidance, local authorities must carry out their regulatory and enforcement activities in a way that is accountable, consistency, proportionate, transparent and targeted. They should offer advice and guidance to businesses to help them achieve compliance in a way that does not impose unnecessary burdens.

64. Enforcement practice is based around the Home Authority Principle developed by LGR. This means that any guidance given to a business by a 'home authority' (usually the one covering the area where the headquarters of the business is based) will be recognised by all Trading Standards Departments. The principle is designed to promote good practice and thereby protect the consumer and encourage fair trading, consistency and common sense. The four express aims of the Home Authority Principle are to:

- Encourage authorities to place special emphasis on goods and services originating within their area;
- Provide businesses with a home authority source of guidance and advice;
- Support efficient liaison between local authorities; and
- Provide a system for the resolution of problems and disputes.

65. For businesses that trade across council boundaries, they can form a partnership with one council, called their Primary Authority, that acts as a single source of advice and co-ordinates all inspection, sampling and compliance activity by other local authorities. This provides assurance and confidence that businesses will be treated in a consistent and proportionate way when they have sought and acted on advice from their Primary Authority. More information on joining Primary Authority can be obtained at www.lbro.org.uk.

Offences and penalties

66. The Regulations contain the following offences for non-compliance:

- i. Contravening or failing to comply with the essential requirements or heavy metal limits, penalised by a fine up to level 5 on the standard scale (currently £5000) on summary conviction or an unlimited fine on conviction on indictment.
- ii. Failing to submit and retain compliance documentation at the request of the enforcement authorities, penalised by a fine up to level 5 on the standard scale.
- iii. Contravening a suspension notice, penalised by up to 3 months imprisonment or a fine up to level 5.
- iv. Intentionally obstructing the enforcement authorities, penalised by a fine up to level 5.
- v. Knowingly or recklessly making a false statement of compliance, penalised by a fine up to the statutory maximum on summary conviction (currently £5000) or an unlimited fine on conviction on indictment.

67. The defence of 'due diligence' applies to offences 1, 2, 4 and 5. This means that a claim that a person took all reasonable steps and exercised all due diligence to avoid committing the offence may be made in defence. This may include an allegation that the commission of the offence was due to the act or default of, or information given by a third party. In those circumstances the allegation must be accompanied by a notice giving such information identifying or assisting the identification of the third party who committed the act of default or gave the information as is in the possession of the person serving the notice. A person shall not be entitled to rely on the defence of "due diligence" unless they can

show that in all the circumstances it was reasonable for them to have relied on the information.

68. Where the commission of the offence is due to an act or default committed by some other person in the course of a business of theirs they shall be guilty of the offence and maybe prosecuted.

69. Where an offence by a corporate body is shown to have been committed with the consent, connivance or through neglect of any director, manager or similar officer of the corporate body, they shall be regarded as having committed the offence as well as the corporate body.

70. Further advice may be sought from the enforcement body (see page 14).

Further sources of advice

Advice for business

71. UK businesses can visit the Business Link portal (<http://www.businesslink.gov.uk/bdotg/action/detail?type=RESOURCES&itemId=1073792324>) for advice on complying with the Packaging Regulations.
72. In addition to guidance on the Regulations, many organisations offer additional advice and publications on eco-design of packaging, use of sustainable materials and designing for low carbon impact. A list of recommended services and publications follows (not exhaustive).
73. Detailed information is available on the publisher's websites. Contact details and web sites are listed from page 21.

WRAP/ENVIROWISE SERVICE

Freephone 0800 585 794 Helpline Service. The helpline enquiry service provides comprehensive information and signposting service for firms seeking advice on environmental legislation that may affect their business.

- *Packguide: A guide to Packaging Eco-Design* (Ref: GG908, August 2008)
<http://envirowise.wrap.org.uk/uk/Our-Services/Publications/GG908-PackGuide-a-guide-to-packaging-eco-design.html>
- *Packaging Design for the environment reducing costs and quantities* (Ref: GG360)
<http://envirowise.wrap.org.uk/uk/Our-Services/Publications/GG360R-Packaging-design-for-the-environment-Reducing-costs-and-quantities-Revised-in-February-2008.html>
- *Packaging Innovation Hub*
http://www.wrap.org.uk/retail/the_guide_to_evolution_of_packaging_design/index.html
- *Eco Design Indicator Tool (EDIT)* (Nb. Does not confer compliance with essential requirements)
<http://envirowise.wrap.org.uk/uk/Our-Services/Tools/EDIT-The-Eco-Design-Indicator-Tool.html>

INCPEN

- *The Responsible Packaging Code of Practice* (March 2003, 2nd Edition)
<http://www.incpen.org/pages/data/CodeofPractice.pdf>
Developed by INCPEN and endorsed by BIS, DEFRA and LGR.
- *Guidance on Packaging Essential Requirements Regulations* (INCPEN/LGR, 1999) <http://www.incpen.org/pages/data/LACORSGuidance.pdf>

EUROPEN

- Packaging in the Sustainability Agenda: A Guide for Corporate Decision Makers (July 2009)(free)
http://www.europen.be/download_protected_file.php?file=186
- Understanding the CEN Standards on Packaging and the Environment: Some questions and answers (4th Edition, February 2006)(Free)
http://www.europen.be/download_protected_file.php?file=24
- Essential Requirements for Packaging in Europe: A Practical Guide to using the CEN Standards (October 2005)(Price €150)
http://www.europen.be/?action=basket&add_item=39&backurl=%3Faction%3Donderdeel%26categorie%3D0%26item%3D29%26onderdeel%3D6%26titel%3DPublications

ADVISORY COMMITTEE ON PACKAGING

- Packaging in Perspective (ACP, 2008)
<http://www.defra.gov.uk/environment/waste/producer/packaging/acp/documents/packaginginperspective.pdf>

BSI

- Packaging Standards (2004)(various)(see Annex A)
<http://www.bsigroup.com/en/standards-and-publications/industry-sectors/manufacturing/packaging/>
- Packaging - Material recycling - Report on requirements for substances and materials to prevent a sustained impediment to recycling (CEN/TR 13688:2008)(August 2008)(£86/BSI Member £43)
<http://shop.bsigroup.com/en/ProductDetail/?pid=000000000030173505>
- Packaging – Report on criteria and methodologies for life cycle analysis of packaging (CEN/TR 13910:2010)(September 2010)(£124/BSI Member £62)
<http://shop.bsigroup.com/ProductDetail/?pid=000000000030213597>

BRITISH GLASS

- Conformance Protocol for UK-Manufactured Glass Containers (agreed with LGR)
<http://www.britglass.org.uk/Industry/Technical.html>

Advice for consumers

74. Consumers can contact Trading Standards with cases of perceived excess packaging for investigation under the Regulations (see contact details p21).

75. The role of packaging is often misunderstood and there can be confusion over the recycling of different packaging types and the role consumers can play in choosing packaging. There are a number of sources of advice for consumers available which can be accessed through the Directgov website. There is a dedicated Packaging portal for Scotland, run by Waste Scotland. For business, the ACP's Packaging in Perspective publication is designed to present the facts about packaging and recycling.

- Direct Gov “Greener packaging choices”
http://www.direct.gov.uk/en/Environmentandgreenerliving/Greenerhomeandgarden/Greenershopping/DG_078263
- Positive packaging (Scotland only)
<http://www.positivepackage.org.uk/packageAction.asp>
- Packaging in Perspective (ACP, 2008)
<http://www.defra.gov.uk/environment/waste/producer/packaging/acp/documents/packaginginperspective.pdf>

Reference documents

Regulations

The Packaging (Essential Requirements) Regulations 2003
S.I. 2003 No. 1941

<http://www.legislation.gov.uk/ukxi/2003/1941/contents/made>

The Packaging (Essential Requirements) (Amendment) Regulations 2004
S.I. 2004 No. 1188

<http://www.legislation.gov.uk/ukxi/2004/1188/contents/made>

The Packaging (Essential Requirements) (Amendment) Regulations 2006
S.I. 2006 No. 1492

<http://www.legislation.gov.uk/ukxi/2006/1492/contents/made>

The Packaging (Essential Requirements) (Amendment) Regulations 2009
S.I. 2009 No. 1504

<http://www.legislation.gov.uk/ukxi/2009/1504/contents/made>

Guidance notes

Packaging (Essential Requirements) Regulations – Government Guidance Notes
(URN 11/525, January 2011)(this publication)

<http://www.bis.gov.uk/>

Packaging (Essential Requirements) Regulations – Quick Start Guide (URN 11/524,
January 2011)

<http://www.bis.gov.uk/>

The Agencies' Interpretation of Packaging (2nd Edition, 1999)

A booklet advising business what is considered packaging for the purposes of the
Packaging (Producer Responsibility) Regulations.

<http://www.environment-agency.gov.uk/>

Contacts

Enforcement enquiries on the Regulations should be addressed, in the first instance, to your local authority Trading Standards department (or 'home authority'). Contact details of your local Trading Standards Office can be found by entering your postcode online at: <http://www.tradingstandards.gov.uk> or by calling Consumer Direct on 08454 04 05 06.

Local Government Regulation (LGR)

Local Government House
Smith Square
LONDON
SW1P 3HZ

Tel: 020 7665 3888
Fax: 020 7665 3887
Email: info@lacors.gov.uk
<http://www.lacors.gov.uk/>

Scottish Environmental Protection Agency (SEPA)

Erskine Court
The Castle Business Park
STIRLING
FK9 4TR

Tel: 01786 457700
Fax: 01786 446885
<http://www.sepa.org.uk/>

Environment Agency (EA)

Rio House, Waterside Drive
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Annex A

Packaging Standards

The following Standards are available from BSI and contain greater detail than presented in the Annexes¹. Suggested application below is provided as a guide only – refer to detailed Standards information on the BSI website.

Title	Content and purpose
EN 13427:2004 Packaging and the environment – Requirements for the use of European Standards in the field of packaging and packaging waste	The “Umbrella Standard” with tools for the application and use of associated Standards.
EN 13429:2004 Packaging – Reuse	For considering if packaging can be reused
EN 13430:2004 Packaging - Requirements for packaging recoverable by material recycling	For considering if packaging meets one or more of the packaging waste recovery standards
EN 13432:2000 Packaging - Requirements for packaging recoverable through composting and biodegradation - Test scheme and evaluation criteria for the final acceptance of packaging	For considering if packaging can be reduced/minimised
EN 13431:2004 Packaging - Requirements for packaging recoverable in the form of energy, including specification of minimum inferior calorific value	
EN 13428:2004 Packaging - Requirements specific to manufacturing and composition - Prevention by source reduction	

¹ Extracts from the British Standards are reproduced in the Annexes with the permission of BSI under licence number PD\1998 0971. They are included in this document for guidance only.

Title	Content and purpose
<p>CEN/CR 13695-1:2000 CEN/TR 13695-2:2004 Packaging - Requirements for measuring and verifying the four heavy metals and other dangerous substances present in packaging and their release into the environment –</p> <p>Part 1: Requirements for measuring and verifying the four heavy metals present in packaging. Part 2: Requirements for measuring and verifying dangerous substances present in packaging, and their release into the environment²</p>	<p>For considering if packaging complies with heavy metals and dangerous substances limits</p>
<p>CEN/TR 13688:2008 Packaging - Material recycling - Report on requirements for substances and materials to prevent a sustained impediment to recycling</p>	<p>Examples of the substances, materials and components to be considered.</p>
<p>CEN/TR 13910:2010 Packaging – Report on criteria and methodologies for life cycle analysis of packaging</p>	<p>Best practice guidelines for LCA specific to packaging and distribution</p>

² Supersedes CR 13695-2:2002, republished with minor revisions 2004.

Annex B

Illustrative compliance procedures

Overview

To comply with the standards published in 2004, users must work through a methodology to ensure that their decisions on the specification for a particular piece of packaging takes account of often conflicting social environmental and economic factors, identifying a solution right for the product, distribution system and how it will eventually be stored/used. It is important to document the answers to provide evidence for compliance.

Design and review processes

Wherever possible, it is recommended that the concerns represented by the essential requirements and heavy metals limits are addressed in existing packaging design and review processes, particularly where formal quality or environmental management systems are in use.

Existing packaging lines

For existing packaging portfolios evidence of suitability for recovery processes may be found through primary evidence that such recovery does occur. In the case of other issues such as minimisation, supporting evidence as to the required minimum strength of the packaging may be available through monitoring transit damage and similar parameters.

Procedures

The following recommended procedures are written from the point of view of the design process. They can equally be applied to a review of an existing package.

In the procedures, packaging is considered as a packaging system made up of different functional units. Each functional unit may be a single packaging unit or made up of several packaging components, which in turn are made of packaging constituents or packaging materials. An example would be a packaging system for the transport of beverages. This could be a cardboard carton used to transport filled bottles. The cardboard carton and the filled bottles would be functional units, interacting within the system but separable without affecting the product. The bottle would be made up of components: the empty bottle, the bottle top and the label, for example. The packaging constituents would be the cardboard of the carton, the glass of the bottle, any inks or pigments used and the materials of the bottle top and the label.

The compliance procedure should be applied to a packaging system as follows:

- The packaging system should be minimised by weight and volume to take account of the system chosen and interaction between functional units where, for instance, a thinner bottle may require a stronger carton. Generally this will mean that you maximise functionality with minimum material overall.
- All packaging components should comply with the heavy metal limits currently in force (see Annex D).

- All packaging components should comply with the requirement that the presence of noxious and other hazardous substances be minimised as constituents of the packaging material with regard to their presence in ash, emissions or leachate.
- Any reusable functional unit should comply with the reuse requirement, particularly if designing for reuse affects the criteria for minimisation by weight and volume.
- Each functional unit should comply with at least one recovery process, although different functional packaging in a packaging system may comply with different recovery processes.

Minimisation

It should be noted that the choice of packaging system and material does not fall within the compliance procedure. Once the system is chosen and materials specified, they should be the minimum required for the design criteria. The Directive does not require changes in material choices to reduce packaging volume or weight, however once chosen, that it be minimised to that required for the product to maintain necessary levels of safety, hygiene and consumer acceptance.

These design criteria should establish the minimum adequate volume and weight usable for the packaging without compromising its performance.

Performance criteria

A list of the relevant performance criteria should be produced in order to identify which criterion (called the critical area) prevents a further reduction in the quantity of material used. If it is not possible to identify a criterion preventing further reduction, then there is scope for further reduction until one of the criteria becomes the critical area.

Product protection

Examples include protection against vibration, compression, humidity, light, oxygen, microbiological contamination.

Packaging manufacturing process

Examples include container shape, thickness tolerances, size, tooling, specifications minimising production waste.

Packing/filling process

Examples include impact and stress resistance, mechanical strength, packing line speed and efficiency, stability, heat resistance, closing, minimum headspace, hygiene.

Logistics (including transport, warehousing and handling)

Examples include any handling requirement, space utilisation, palleting systems, damage resistance.

Product presentation and marketing

Examples include product identity, brand recognition, labelling, retail display system requirements, pilfer resistance.

Consumer acceptance

Examples include unit size, ergonomics, tamper evidence, child resistance, shelf life, dispensing methods, attractive presentation.

Information

Examples include product information, instructions, bar codes, expiry dates.

Safety

Examples include safe handling requirements, child resistance, hazard warnings, pressure release closures.

Legislation

Any requirements from national or international legislation or standardisation.

Other Issues

Other economic, social or environmental implication not considered above relevant to weight or volume of packaging.

Examples questions

Questions (non-exhaustive) to consider when assessing packaging for the above criteria might include:

- Minimisation: Could the overall amount of packaging, primary or secondary, be reduced and still meet the demands of safety, hygiene and consumer acceptance? Have tests / research been undertaken to find the best solution? Is there a trade off between primary and secondary packaging? Is thinner or lighter primary packaging compensated by sturdier, reusable secondary packaging? Or conversely does stronger primary packaging remove the need for secondary packaging? Is there evidence of resource savings?
- Pack efficiency: What is the shape of the packaging? For a given volume of product, different three-dimensional shapes need more or less surface material, i.e. what is the ratio of packaging surface area to volume? *The more spherical or round the object is, the less material it uses for a given volume of product. The larger the packaging is, the lower the ratio is. However the efficiency of the overall packaging supply chain should be taken into account.*
- Consumer acceptance: Can the packaging be resealed, if appropriate, to extend the shelf life of the product and thereby reduce other wastes? Are there opportunities to make this more efficient? Is there reasonable proof that consumers would not buy the product without certain levels of marketing and associated packaging?
- If the packaging is either for food & drink, detergent, personal healthcare or pet care products sold in the UK, where does it come in WRAP's *best-in-class* database of the lightest, middle and heaviest weight packaging? See http://www.wrap.org.uk/retail/tools_for_change/uk_best_in_class/index.html.

E.g. in 2006, one-litre plastic bleach bottles ranged between 44g and 73g. This needs to be taken in the context of other packaging components and intended functions

- Recovery: How many different materials are there? Does it need so many or could they be reduced to fewer types (and less overall material) and still perform its proper function? E.g. Is a plastic window needed in the card box? This is also a question of enabling re-usability. For PET bottles there is a WRAP PET Bottle Categorisation Tool, see http://www.wrap.org.uk/retail/tools_for_change/pet_tool.html

Simple Advice on Reuse and Recyclability and Best Practice (From *Envirowise Guide GG908*)

- Could the product or packaging be reduced in size or weight but keep its capacity?
- Could less material be used by modifying the volume, e.g. more units per box, larger portions?
- Could you reduce packaging by using an alternative material, or changing the shape/size of the contents?
- Are additional materials necessary e.g. intermediate layers, shrink wrap, adhesives and tapes?
- Could the distribution system be modified to reduce energy consumption or the amount of packaging?
- Could certain components be strengthened or weakened to reduce overall material use?

Noxious and Hazardous Substances

Noxious and hazardous substances must be minimised with regard to their presence in emissions, ash or leachate when packaging or residues from management operations or packaging waste are incinerated or landfilled. This implies that any noxious or hazardous substances should be reduced to the minimum level required for the effective functioning of the packaging. Where the presence of noxious or hazardous substances is included by design, the same procedure as presented for minimisation can be applied. This should be done by applying the procedure to the material containing the noxious or hazardous substance, although allowance should be made for the possible substitution, in part or full, of the noxious or hazardous substance by an alternative.

If the presence of noxious or hazardous substances is due to impurities then it may be appropriate to regard this as a quality control issue rather than a functional criterion.

As the Regulations do not define noxious or hazardous substances, it is taken to mean any substance described as such in national or international law.

Reuse

Packaging must conform to the reuse requirement only when design criteria for other requirements, particularly minimisation, are developed with the intention of reuse. In

other words, where packaging has been designed for reuse, and is therefore stronger and uses more material than single trip packaging, it must comply with the reuse requirement.

The requirements for reuse are fulfilled if:

- The physical properties of the packaging are such that it can be reused. That is, it must be capable of being unpacked and then repacked (with or without reconditioning).
- A reuse system is in place enabling the packaging to be reused. The recognised reuse systems are closed loop, open loop or hybrid systems. These are defined as follows:
 - A closed loop reuse system is one where reusable packaging is circulated by a company or an organised group of companies.
 - An open loop reuse system is one in which reusable packaging circulates amongst unspecified companies.
 - A hybrid system consists of a reusable packaging item which stays with the end user with no redistribution, and one way packaging used to transport the contents to the reusable packaging, (this must fulfil the essential requirements in its own right). An example of such a system would be detergent pouches used to refill a reusable container that stays in the home.
- Reusable packaging is subject to the same requirement of recoverability as set out below.

Recovery

Each recovery option (i.e. material recycling, energy recovery, composting and biodegradation) has its own requirements and design issues. Packaging must be designed to comply with at least one recovery option in full.

Material recycling

To be considered to comply with this recovery process the packaging and its associated life cycle must be compatible with at least one specified recycling process. As such it depends on the criteria of the recycling process specified. The following is a general list of considerations common to recycling processes.

The considerations are:

- That raw materials in the combination used as packaging constituents should allow a positive contribution to the material reclaimed; that is, the packaging must contribute to the output of the recycling process;
- That effective emptying or residue removal is possible, to the extent that any remaining traces of product adhering to the packaging have no negative effect on the recycling process;
- That materials are separable if they may be required to undergo separate recycling processes (e.g. mixed plastics)

- That further aids or improvements to collection, sorting or recycling processes may be incorporated, (e.g. material identification markings, reduction in undesired materials).

For example for plastic drinks bottles consideration of polymer choice, use of colour, minimal adhesive, label and sleeve design, material and attachment, suitability for sink-float separation etc could be considered. You can also take advantage of existing agreed industry solutions, for example in this case the European PET Bottle Platform (<http://www.petbottleplatform.eu/>) design for recycling industry guide.

Energy recovery

Packaging composed of >50% by weight organic materials (e.g. wood, cardboard, paper and other organic fibres and plastics) shall be considered to comply. Thin gauge aluminium foil up to 50 µm thick shall be considered to comply.

If packaging does not fall into the above description, it may still comply by the application of the methods below:

1. Any packaging which has a calculated net calorific gain shall be considered to comply (described below).
2. Any packaging which has a positive net calorific gain determined experimentally, e.g. by ISO/DIS 1928 or ISO/5660: Part 1, shall be considered to comply.

The net calorific gain is defined as:

$$Q_{net} = Q - H_a$$

This must be positive for the packaging to be considered to comply.

Where:

Q is the energy released on combustion.

H_a is the energy required to adiabatically heat the post combustion residues of a material from ambient temperature to the final combustion temperature. In this case the ambient temperature is defined as 25°C and final temperature as 850°C.

Thus an example would be a composite with 66% cellulose, 23% lignin and 11% inert coating. Calorific gain = (0.66 x 8) + (0.23 x 14) + (0.11 x -1) = 8MJ/kg

This calculation produces a positive value; the example would thus be considered to conform.

The table below may help:

Constituent	energy released from combustion, Q (MJ/kg)	energy required by combustion residue, Ha (MJ/kg)	calorific gain, Q - Ha (MJ/kg) or Qnet
Paper Constituents			
- cellulose	16	8	8
- lignin	26	12	14
Plastics			
- polyethylene, PE	43	21	22
- polypropylene, PP	44	20	24
- polystyrene, PS	40	18	22
- polyvinyl chloride, PVC	17	8	9
- polyethylene terephthalate PET	22	10	12
Aluminium under 50 µm	31	6	25
Aluminium over 50 µm - inert	0	1	-1
Steel	0	0.4	-0.4
other inert material (ceramic, glass)	0	1	-1
Calcium Carbonate	-2	1	-3
Water (moisture)	-2	2	-4

Composting and biodegradation

The conditions for composting and biodegradation are fulfilled when the packaging complies with the following:

- Packaging should be largely combustible solids; that is, the residue after incineration should be less than 50% of the packaging. This figure is taken as indicating the organic content.
- The organic materials should be inherently and ultimately biodegradable materials, which break down to carbon dioxide, mineral salts, biomass and water or methane. Chemically unmodified materials of natural origin such as wood, wood fibre, paper pulp and jute are accepted as biodegradable for these requirements.
- The packaging should disintegrate in the waste treatment process.
- The packaging should not retard or adversely affect the waste treatment process.
- The packaging should not degrade the quality of the resulting compost.

Packaging material demonstrated to be organically recoverable in a particular form shall be accepted as organically recoverable in any other form having a smaller mass to surface ratio or wall thickness.

Compliance information

There is no definitive template or format for compliance information, as this will depend on the packaging, the system considered and what is necessary to demonstrate compliance.

There are systems developed by industry, such as Opti-Pack, a Scandinavian methodology based on the CEN Standards which contains example compliance sheets which can be downloaded from www.opti-pack.org.

Annex C

Comments on Heavy metals in Packaging

Although it is recognised that heavy metals are rarely intentionally added to packaging, here are some known uses that may occur. Companies should be aware of these applications and the possible need to undertake compliance checks.

- **Glass (undecorated).** Glass containers may contain lead due to its unintentional introduction to recycled glass. This may be from lead containing glass or old wine bottle capsules. The derogation in the legislation for glass packaging allows heavy metal levels of above 100 ppm in glass packaging under certain conditions.
- **Glass (decorated).** Enamels used to decorated or print on glass may contain lead oxide as a basic component and cadmium may be used in bright red and yellow enamels. A number of major producers signed a voluntary agreement aiming to phase out the use of heavy metals in enamels in enamelled glass.
- **Non-food grade plastics.** Pigments containing cadmium are occasionally still found, as is the use of lead chromate for yellow, orange and red pigments. A derogation from the heavy metal limits has been agreed at European level for plastic pallets and crates manufactured by recycling old plastic pallets and crates in closed loop schemes.
- **Drums.** Lead chromate or other hexavalent chromium compounds may be used in some colours of coatings for metal drums.
- **Non-food metal containers.** Rarely, lead solder may be used in metal container construction.
- **Pigments and inks.** May in a few cases be based on lead, cadmium or hexavalent chromium compounds.

More generally, the specified heavy metals will occur in small levels in most materials and some level of compliance monitoring should be performed.

Assessing Compliance

To assess compliance with the heavy metals requirements it is recommended that manufacturers and responsible persons develop protocols through working with their trade association, supply chain and/or materials organisation. For example, following the voluntary procedures contained in CEN Report CR 13695-1, Requirements for measuring and verifying the four heavy metals present in packaging. CR 13695-1 recommends two alternative means of establishing concentration levels in packaging, to be used according to the information available: testing and calculation.

- Testing is necessary when no complete or reliable information is available from earlier stages in the manufacturing process, for example when using recycled materials.
- Calculation is recommended where information from early and intermediate stages in the manufacturing process of constituent materials is available.

If testing is carried out, particular care should be taken to ensure that a sample is representative of all the constituent materials and the proportion in which they are used. For example, a sample taken from a drum could lead to an unreliable result if the drum had a red stripe which contained lead chromate, yet the rest of the coating did not.

Annex D

Indicative list

Illustrative examples for criterion (i)

Packaging

Sweet boxes

Film overwrap around a CD case

Non-packaging

Flower pots intended to stay with the plant throughout its life

Tool boxes

Tea bags

Wax layers around cheese

Sausage skins

Illustrative examples for criterion (ii)

Packaging, if designed and intended to be filled at the point of sale

Paper or plastic carrier bags

Disposable plates and cups

Cling film

Sandwich bags

Aluminium foil

Non-packaging

Stirrer

Disposable cutlery

Illustrative examples for criterion (iii)

Packaging

Labels hung directly on or attached to a product

Part of packaging

Mascara brush which forms part of the container closure

Sticky labels attached to another packaging item

Staples

Plastic sleeves

Device for measuring dosage which forms part of the container closure for detergents

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URN 11/524