

Packaging and the Internet

A guide to packaging goods for multi-channel delivery systems

*Increase resource-efficiency
Reduce environmental impact
Save money*





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Foreword from UK Government

We are delighted to be able to support this guidance. We recognise the importance of reducing the amount of unnecessary packaging and thereby saving valuable resources and reducing the amount of waste that goes to landfill.

Encouraging a more common approach may also help reduce the costs of unnecessary packaging faced by businesses. This is especially true in rapidly growing areas like e-commerce, where optimisation of packaging will ultimately help to support a more sustainable use of packaging materials.

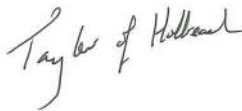
We commend the excellent progress in the reduction of excessive packaging to date; however, more can be done. We would like to see more consistency in the materials used for packaging and their recovery from waste. The optimisation of packaging means retailers can reduce the amount of waste and, as a result, minimise the burden on householders and local authorities. All of us are committed to making it easier for householders to recycle more.

We also welcome that, in producing this guidance, a number of local authorities, manufacturers and retailers have worked together. We want to encourage more joint working to ensure waste packaging is minimised; especially as more and more consumers switch to buying online or mail ordering items.

We challenge retailers and producers to take on board the good advice in this guidance booklet.



**Rt Hon Grant Shapps
MP, Minister of State
for Housing and Local
Government**



**Lord Taylor
of Holbeach,
Parliamentary Under-
Secretary for Defra**



**Mr Mark Prisk MP,
Minister of State
for Business and
Enterprise, Department
for Business,
Innovation and Skills.**

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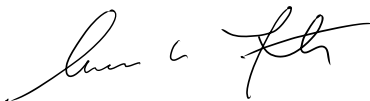
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Foreword from the Trading Standards Institute

The Trading Standards Institute welcomes and endorses INCPEN’s guidance on packaging goods for multi-channel delivery systems. Trusted guidance endorsed by industry and regulators plays a crucial role in creating an economic climate that allows enterprise to thrive and grow whilst ensuring compliance and good practice is exercised by the whole market. Businesses have a vital role to play in sustainable development and this guidance will assist them in that journey.

Trading standards professionals throughout the country are playing a crucial role in bridging consumer expectations and business responsibilities. Trading Standards and Industry experts will know that packaging optimisation is far from being a mere regulatory compliance issue but one that can stimulate genuine cost savings for businesses, enhance packaging performance and increase brand reputation.

TSI and our trading standards professionals look forward to bringing our unique mix of legal and technical experience in helping businesses on this important journey which has the potential to realise environmental, social and economic outcomes for businesses and consumers alike.



Andy Foster, Operations & Policy Director, TSI



1. INTRODUCTION

The way we buy things is changing. The convenience and competitiveness of being able to shop via the Internet is altering the retail landscape. 'Click and collect' services are growing rapidly.

Most retailers offer some form of home delivery or click-and-collect service. In many cases shops have become little more than a showroom with goods delivered through a 'fulfilment' service. Packaging needs to respond to these developments.

As always, packaging's most important role is protection of goods from farm or factory to the user.

However, packaging performs lots of other roles including carrying information, marketing the product, enabling handling, storage and use of goods.

Not all of these roles are needed for goods delivered direct to homes and via 'click and collect' systems and there are other functions that are required. This guide explains the differences.

Consumers assume that goods and food will reach them undamaged and in perfect condition. The fact that packaging has helped ensure this is not always obvious.

Consumers only notice packaging once its contents have been used and they

see it piling up in their bins. They rightly also object to products being excessively packaged.

However, packaging is not a major cause of environmental damage, compared to, for example, home heating (20 times the impact of packaging) or personal transport (30 times packaging). Overall packaging has a net positive impact. It protects far more resources than it uses and prevents far more waste than it generates.

There is, however, always room for improvement and opportunities to design packaging to make supply chains more resource-efficient.

Companies need to manage their use of packaging because:

- packaging is costly and there is potential for saving
- consumers expect products and services that meet their needs with the lowest environmental and social impacts

*Cost-effectiveness
and environmental
sustainability
are two sides
of the same coin.*

- packaging regulations must be complied with.

Companies that continually monitor their use of packaging can achieve savings, make supply chains more sustainable and reduce environmental impacts.

Cost-effectiveness and environmental sustainability are two sides of the same coin.

Packaging has to be designed in the context of the protection required by the product, the strains and stresses of the distribution chain, and the needs of the end user.

Simple rules cannot be applied to supply chains, which are complex and uniquely designed.

This guide outlines the issues involved in choosing packaging for e-commerce goods. It sets out a voluntary approach and shows the general direction to take, not a detailed road map.

Simple rules cannot be applied to supply chains, which are complex and uniquely designed.



2. EXECUTIVE SUMMARY

The growth in e-commerce presents an opportunity to assess the whole supply chain, to consider new types of packaging and to ask some key questions.

- Can the retail (sales) pack be simplified for home delivery?
- Are there alternative delivery systems or packaging options that reduce impacts and costs?
- Can the outer (secondary grouping and transport) packaging be eliminated or minimised?
- Is there a role for re-usable packages?
- Can the outer dimensions be changed to improve pallet fill?
- Is the packaging designed for ease of handling and opening?
- Are the material sources, especially paper, certified as 'sustainable'?
- Is the packaging designed according to 'good practice' for recycling?

New supply chains place different

demands on packaging and present new challenges and opportunities. The challenge is to design and choose packaging which is cost-effective, protects the goods and helps make the supply chain as resource-efficient as possible. This means considering:

- The complexity and variability of orders. Orders can be for single or a number of items and the goods may be delivered from more than one depot.
- The need to include supporting paperwork.
- Putting in place a systematic approach to new pack selection.
- Assessing the packaging as part of the product and its supply chain, not in isolation.
- The trade-off between having many different outer pack sizes or just a few.
- The training and management of the packing staff.
- Putting in place simple indicators and management controls.



3. PACKAGING'S ROLE IN E-COMMERCE

Most packaging for goods is designed for sale through shops.

At some point in the distribution chain, a pallet of goods will be broken down; outer packages will continue their journey until they too are broken out into individual sales units and sold to the customer.

Each element of this packaging system must fulfil its purposes – protection, handling, providing information and so on.

The requirements of a home delivery or click-and-collect system have substantial differences from a conventional model.

Retail packs are seldom specifically designed for home delivery because it is not commercially or environmentally sensible, or logistically feasible to manufacture and pack two different types.

However, if e-commerce grows as it is expected to it may become feasible.

The requirements of a home delivery or click-and-collect system have substantial differences from a conventional retail model.

In that case, both the retail and outer pack need to be assessed together and each needs to take account of the functions required.

The retail pack for home delivery:

- Needs to provide physical protection of the product in combination with the outer pack.
- Needs to provide legal information and instructions for consumers.
- Needs to be strong enough to survive automated and manual handling.
- Does not have to guard against the risk of shop-lifting.
- Does not need to provide point-of-sale marketing.

Whether the standard retail pack or a specially designed home delivery system is used, there are a number of features involved in designing the outer pack.

The outer pack for home delivery:

- Might have to contain a number of goods of different sizes and shapes.
- Needs to include individual addresses, distribution tracking and order information
- Has to comply with courier-specific requirements
- Needs to provide protection of goods



through a more complex and less predictable distribution system.

- Needs to prevent retail packs shifting within the outer packaging.
- Might be designed to be re-usable.
- Must allow for the return of unwanted/ faulty goods
- Needs to provide protection against in-transit theft.
- Should be easy to open by the consumer

Home delivery often starts as a minor 'add on' to normal retailing and the design of the packaging may not have been considered. As a result, the retail pack may have functions that are unnecessary.

The type of outer pack may be specified by the courier company.

E-commerce is growing so rapidly that packaging may continue to be overlooked. However packaging is a critical part of any delivery system and it is important to ensure it is designed not only to protect the product but also to be resource efficient.

Some businesses have thought about packaging but others seem to be using far more packaging than is necessary or not enough and, as a result, are incurring large costs through damage to goods. This may be because of the expense of re-tooling or because of low volumes.

4. PACKAGING AND THE ENVIRONMENT

Packaging contains, protects and preserves, and carries information safeguarding those who use and/or handle the contents.

The challenge for companies is to identify packs that are 'fit for purpose' at minimum cost and with minimum environmental impact.

A thorough analysis of the environmental impacts of a package is a complex and expensive exercise and is actually rarely suitable for everyday application. Simple practical approaches are the best guide to the selection of packaging.

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Packaging as part of the product and its delivery system

Packaging is one part of a system. This includes the product itself and the type of delivery. The packaging also interacts with warehousing, vehicle loading, ease of handling, automated procedures and many more factors.

There is no point selecting an improved pack if this is offset by losses elsewhere in the business.

Minimisation

It may be possible to eliminate some packaging layers. Reducing packaging weight will reduce the cost of the packaging and is likely to also reduce the environmental impact.

Choice of materials

All types of materials – glass, metal, paper, plastics – and mixtures of materials are used for retail packs. Paper and plastics are the principal materials used for outer packs. Neither material has a clear-cut advantage over the other. There will often be a choice of suitable types, such as a plastic bag, Jiffy bag, corrugated box, solid board box.

It is important to know where materials come from and to use sources with proven certification.

Recycled Content

Incorporating recycled material into packages may have benefits. Recycling



can use less energy than is used to produce packaging from virgin raw materials. However, recycled materials must meet quality criteria.

It is not feasible to set a level of recycled content because this usually depends on the availability of secondary material and, like virgin materials, this is affected by supply and demand.

Recyclability

Theoretically, most materials can be recycled. In practice, small details in the packaging specification can have a major influence on whether or not it is actually recycled.

For example, the excessive use of printing inks, incompatible label materials or adhesives, wire ties and adhesive tapes can all hinder recycling.

Reuse

Reusable outer packaging can sometimes be a good option. This is particularly likely where a business tightly controls the distribution chain or there is a 'collect from store' or local collection point such as pubs or corner shops.

Setting performance indicators

It is a good idea to visit suppliers and customers periodically to see how packaging is manufactured and how it performs in practice.

Simple performance indicators, based on information that already exists, should be introduced.

Companies that are obligated under the Producer Responsibility regulations will already know their use of packaging.

Data on how much is spent on packaging and number of orders processed and despatched will also exist. These can be converted into metrics such as:

- Packaging spend / value of despatched goods
- Average pack weight per parcel despatched
- Percentage of parcels returned as damaged
- Value/incidence of thefts in transit

Another useful benchmark is to compare your own packaging with that used by competitors and comparable businesses.

5. SPECIFYING PACKAGING FOR E-COMMERCE GOODS

Retail sales packaging

As e-commerce grows, it may be possible to use simpler retail packs, make them smaller, leave them unprinted or perhaps remove them entirely. Blister packs, for example, may be replaced by a simpler and smaller option.

The law requires a significant amount of the labelling and information on packaging. It is important to check what labelling will need to be added to alternative packaging if a retail pack is not used.

The need to enclose a receipt or other documentation may provide an opportunity to enclose marketing materials and order forms for future use.

Outer pack

One appeal of e-commerce is the ability to purchase products not stocked by a local shop. Each order is a unique collation of a number of retail packs.



Ideally, the pack would be specifically designed for each order. In practice, though, this is impossible since it would require an infinite number of shapes and sizes. Companies use a number of packaging options and whoever is compiling an order needs to use their own judgement to select the most appropriate.

The number and type of outer packs stocked is a challenging decision which has to take account of a number of variables.

Theoretically, at one extreme, the business might use just one type. Most orders would then be contained in a very oversized outer package.

At the opposite extreme, each order would be fitted into a specific pack, so that there is minimal void space.

The choice of pack will also be influenced by the automation of the packing lines. The practical requirement is to arrive at a sound business compromise.

Producing a separate box for every order would be far more environmentally negative than using a bit more board and transporting more air.

There is also the option of splitting one order across several smaller outer packs. It is important for companies to explore alternatives with suppliers and logistics partners in order to achieve an overall best solution.

Trends in product ranges or average number of items per order should be regularly reviewed. Some companies have found there is a trend to more frequent, smaller orders. A bag may be more appropriate than a box.

It is also important to consider seasonal variations. For example at Christmas time more staff need to be taken on to deal with the higher number of orders.

The dimensions of outer packaging can be selected to give a good pallet fill, if this is relevant. A good fit on the 600x400mm module ensures that all usual pallets will be efficiently utilised.

Custom packaging

The variety of orders needs to be examined. It may be that there are some predominant types of order that would justify a customised packaging.

Staff training

Even if a company has a suitable range of outer packaging, the staff compiling orders need to make appropriate choices. Training staff and providing them with suitable guidance and supervision is essential.

Temporary untrained staff taken on at busy times will also need basic training.

Producing a separate box for every order would be far more environmentally negative than using a bit more board and transporting more air.



Strength of outer pack

It is difficult to predict the strength required from an outer pack used for home delivery because supply chains are varied and unpredictable.

Traditional distribution systems are more predictable and so criteria and test methods have been established. Home delivery systems will rely more on experienced judgement.

Rapid feedback about damage and theft levels is needed. One approach is to adopt a 'safe' specification at the outset and then to progressively lightweight, making sure to monitor performance.

Filling the void

Outer packages usually contain voids which need filling to prevent the contents moving during transit.

Reusable outer containers

Reusable containers can be useful where regular repeat orders to the same customer are made. The packaging can

be unpacked at the point-of-delivery or left until the next delivery, when the 'empty' is retrieved. They may also be appropriate for click-and-collect systems.

Providing for a return route

For some products there is a need to provide for their return to the distributor. Some items for example need a periodic service. In these circumstances, the packaging needs to be strong enough to survive more than one trip. Alternative ways of returning items should be considered.

The pros and cons of stocking a small or large number of outer pack sizes

Few Pack Sizes

Lower cost to buy packaging because bigger orders but ... bigger average pack size so higher cost per product.

Less inventory to stock.

Less complexity of storage, handling, packing systems.

More void space in the pack so more filler required.

Simpler choice for order-picking staff.

More orders may appear excessively packaged.

Large Number of Pack Sizes

Higher cost to buy packaging because more, smaller orders but ... smaller average pack size so lower cost per product.

More inventory to stock.

More complexity of storage.

Less void space in the pack so less filler required.

More complex choice for order-picking staff.

Fewer orders likely to be excessively packaged.

6. THE ESSENTIAL REQUIREMENTS REGULATIONS

The UK Packaging (Essential Requirements) Regulations implement European law. Packaging must meet its requirements before it can be used in Europe.

Companies can choose how to comply. They may do so by meeting a set of standards (see references and links).

Local authority Trading Standards Officers (TSO) are responsible for ensuring that companies comply.

The law requires packers and fillers of packaging, and importers to ensure that:

- Packaging contains less than 100ppm in total, of lead, cadmium, mercury or hexavalent chromium.
- Essential requirements are met regarding:
 - minimising packaging volume and weight in line with safety, hygiene and product/consumer acceptance
 - designing packaging to permit recovery or reuse and recovery
 - minimising the impact of packaging waste on the environment
 - manufacturing packaging to minimise the presence of hazardous substances in emissions, ash or leachate when packaging waste is incinerated or landfilled

There have been a few prosecutions but there have been many instances where companies have been required to modify their packaging through a mediation process. Home delivery packaging is one area that has been challenged.

The business has to respond to a challenge from Trading Standards within 28 days, demonstrating compliance; otherwise products may have to be taken off the market.

Trading Standards Services receive some complaints directly from the public or from companies.

They also carry out independent investigations and sampling projects, for example, purchasing a similar product from a number of suppliers and comparing the packaging.



7. REFERENCES AND LINKS

General Guidance on Packaging Design and the Environment

1. Responsible Packaging – Code of Practice. INCPEN, the Industry Council for Packaging and the Environment. <http://www.incpen.org/displayarticle.asp?a=37&c=3>
2. 'Packaging Design and the Environment': Reducing Costs and Quantities. A Manual published by the government advice centre, Envirowise, now part of WRAP (Waste and Resources Action Programme)
<http://envirowise.wrap.org.uk/uk/Our-Services/Publications/GG360R-Packaging-design-for-the-environment-Reducing-costs-and-quantities-Revised-in-February-2008.html>

This report also lists other Envirowise publications.

PublicationGG482 deals with transit packaging -

<http://envirowise.wrap.org.uk/uk/Our-Services/Publications/GG482-Cutting-costs-and-waste-by-optimising-packaging-use.html>

Publication GG908, a guide to eco-design, was prepared in conjunction with INCPEN: <http://envirowise.wrap.org.uk/uk/Our-Services/Publications/GG908-PackGuide-a-guide-to-packaging-eco-design.html>

3. WRAP have a catalogue of publications www.wrap.org.uk

Guidance on the Essential Requirements

1. The regulations – SI 2003No. 1941 – as amended – SI 2004 No. 1188 and amendment – SI 2006 No. 1492 and SI 2009 No.1504, downloadable from www.legislation.gov.uk
2. The Essential Requirements Standards : EN 13427:2004 and EN 13428:2004, EN 13429:2004, EN 13430:2004, EN 13431:2004, EN 13432:2000, and CR 13695-1:2000 and TR 13695-2:2004.
3. BIS, the government department have published useful guidance: www.bis.gov.uk/assets/biscore/business-sectors/docs/p/11-524-packaging-regulations-government-guidance.pdf (also available through Business Link)
4. Trading Standards Services publish advice on their local authority websites. Visit your local authority website or the Trading Standards Institute website www.tradingstandards.gov.uk for further information
5. County Council Trading Standards Offices publish advice. As an example, see that issued by Devon County Council www.devon.gov.uk/122149_consumer_-_packaging.pdf

Other sources

General

- The Industry Council for Packaging and the Environment www.incpen.org
- The French Packaging Council www.conseil-emballage.org
- Valpak www.valpak.co.uk/home
- Waste and Resources Action Plan www.wrap.org.uk

Trade Bodies

- British Glass www.britglass.org.uk
- British Plastics Federation www.bpf.co.uk
- Confederation of Paper Industries www.paper.org.uk
- Metal Packaging Manufacturers Assn. www.mpma.org.uk
- Packaging and Films Assn. www.pafa.org.uk
- The Packaging Federation www.packagingfedn.co.uk

Regulation

- Department for Environment, Food, and Rural Affairs www.defra.gov.uk
- Department for Business, Innovation & Skills www.bis.gov.uk
- Environment Agency (England & Wales) www.environment-agency.gov.uk
- Scottish Environment Protection Agency www.sepa.org.uk
- Environment & Heritage Service (Northern Ireland) www.ehsni.gov.uk

INCPEN is a research organisation, which draws together an influential group of companies who share a vision of the future where all production, distribution, and consumption are sustainable. It aims to:

- ensure that policy on packaging makes a positive contribution to sustainability.
- encourage industry to minimise the environmental impact of packaging and packaged goods and continuously improve packaging.
- explain the role of packaging in society.

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