cpi confederation of paper industries

DESIGN FOR THE FUTURE

PAPER AND BOARD PACKAGING RECYCLABILITY GUIDELINES

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PAPER AND BOARD PACKAGING RECYCLABILITY GUIDELINES

Helping retailers and brands specify and design packaging that can be reprocessed in paper mills

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PAPER AND BOARD PACKAGING RECYCLABILITY GUIDELINES

Design for the future

Paper is a sustainable, renewable and ecologically sound choice for packaging because all paper and board is recyclable. In practice, the specific recyclability of a small number of packaging products will be determined by composition and design, and the way they are collected and presented for reprocessing. However, the vast majority of paper-based products are easily and widely recyclable.

For the avoidance of doubt, these guidelines seek to address the design and construction of the next generation of paper and board-based packaging. For the purpose of the consumer, all fibre-based products should be considered recyclable. If a material is made of fibre and can be readily pulped it should be considered recyclable, albeit in some circumstance it may need to be collected and treated separately from other fibre-based materials.

Paper recycling in the UK is a success story, with over 80% of paper and board packaging recovered for recycling. Paper for Recycling (PfR) is collected primarily for use in manufacturing processes and is used as an alternative to virgin materials e.g. wood pulp. When presented it should therefore be of adequate quality and economically viable to use.

Packaging is vital in ensuring that goods arrive at the consumer in pristine condition. It often facilitates the extension of shelf life, as well as providing protection and information for the consumer. As society evolves, an increasing number of applications are found for paper and board, some of which demand changes to its functionality. This is often achieved by combining the fibre substrate with another material to form a multi-material, multi-layer laminate, providing properties such as water resistance or a gas barrier to extend product life. These changes can provide challenges for recycling, and in some instances can increase the costs of reprocessing and of waste disposal. In rare cases, they may also cause damage to process machinery or be detrimental to the finished product or harm the environment.

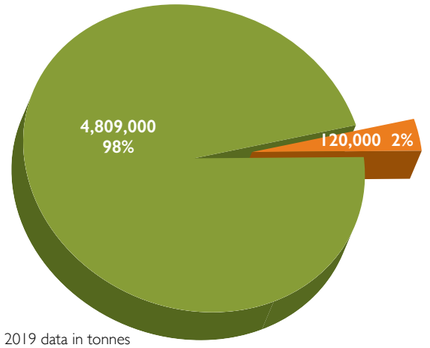
The potential for a future increase in this type of packaging challenges pack designers to look for creative design alternatives, and explore the potential for new materials and techniques to make composite materials easier to recycle, and to reduce the quantity of current harder to recycle products.

These guidelines are produced to help Retailers and Brands specify and design packaging that can be easily reprocessed in high volume paper mills with current "standard" pulping technology.[1] The vast majority of PfR collected for recycling from households or "on the go" is reprocessed in this way, with only a very small proportion of material creating challenges for reprocessors. Packaging that is challenging to recycle should be separated for treatment at mills with specialist facilities.

The overriding motivation is to optimise the quality and quantity of PfR, and through technological development and better design, improve the recyclability of more challenging materials and reduce waste in the supply chain.

These guidelines reflect the requirements of UK reprocessors and are compliant with the European quality standard EN643.[2] Other markets offering export outlets for PfR may work to different standards in line with relevant national policies. These Guidelines are not intended for use by the public.

Recyclability of paper-based packaging in standard mills



2019 data in tonnes

Packaging readily recyclable

Packaging more challenging to recycle*

**Hot and cold beverage cups, beverage cartons, other plastic-laminated food packaging*

1. Pulping is the means by which solid paper and board sheet is reduced to individual fibres in suspension prior to being reformed into a new sheet, and is a prelude to the papermaking process.

2. https://shop.bsigroup.com/ProductDetail/?pid=000000000030265770

Plastic

How much can the Paper and Board Industry handle?

The Paper and Board Industry would prefer not to receive plastic in the fibre stream since it reduces efficiency in reprocessing and negatively impacts the economics of paper recycling. Plastic is a contaminant and will be rejected from the process. Currently, "standard" paper machine reprocessing technology is designed to cope with a maximum of 1.5% non-paper components (plastics, metals etc) in the material delivered to the machinery. This implies an average across all material delivered to the mill, but in practice is assessed by sampling individual loads upon delivery at the mill.

The majority of post domestic and public collections in the UK are comingled and produce "dry mixed recyclables" (63% of Councils now comingle). The consequence can be the presence of very significant quantities of contaminants and unwanted materials (such as plastic bottles, cans and glass) in low grade paper for recycling. This can overwhelm the cleaning processes at paper mills and undermine the efficiency of the machinery. For this reason alone, mills are keen to minimise the amount of plastics and other non-fibrous materials presented "by design" into the recycling stream.

VERDICT

Plastic content attached to any paper or board packaging product should be minimised.

What percentage per pack?

The industry would prefer that where possible, laminated paper material be collected separately and sold as a distinct and separate grade to mills with the specialist facility to reprocess it effectively. However, it understands that currently in most cases this is not practicable.

In order to encourage specifiers and designers to minimise plastic content, the industry suggests a target design guideline for new products of not more than 5% of pack weight on single-sided laminates. This is an aspirational target and will likely take time to achieve.

It would also help if designers could ensure the consumer can remove laminate faces and dispose of them into the waste stream, e.g. a tear-off tab. They should in any event minimise the adhesion between the laminate face and fibreboard so that material passing into the reprocessing system is easily separated either by the consumer or by the water-based separation process.

Where a functioning tear-off tab is present, the industry would be amenable to increasing the target design guideline for plastic to 10%.

Two-sided laminates such as beverage cartons and hard to recycle laminates with water resistant properties such as cold drinks cups should be marked appropriately, collected separately, and reprocessed at facilities capable of accepting them.

For the purpose of this document, the 5% aspirational target for plastic or metallic content refers only to laminates or coatings and excludes other polymers that may be contained in adhesives and inks.

VERDICT

- ***Most paper mills would prefer not to receive plastic laminated board***
- ***Designers should target plastic content to below 5% of pack weight where possible,***
- ***A tear-off facility should be provided for plastic facing***
- ***Two-sided laminates such as beverage cartons and harder to recycle drinks cups should be collected and reprocessed separately.***

How much tonnage overall – Industry cap?

If collected and presented appropriately, almost all paper and board can be recycled. The amount of composite, non-fibrous material the industry can absorb is dependent on how and where it is presented. So,

- Coffee Cups, Cold Cups, Beverage Cartons, oven-ready meal trays or other laminated products can be reprocessed if collected and presented in baled form to mills that can handle them
- Similar material, when presented in high concentrations to "standard" mills, is likely to be removed as contamination in the papermaking process, and will pass into the waste stream and be directed to energy from waste or landfill.

In practice, the majority of composite and laminated paper is likely to be collected and presented for recycling as "Mixed Papers". This is traditionally the lowest grade of paper for recycling and is used by packaging mills as a significant proportion of feedstock.

Exports of this grade to China and other Asian countries are now banned because it is held to contain high levels of contaminants and non-target material. If future outlets are to be found for it, every effort must be made to ensure that material going into this grade is easily recyclable.

The industry standard for paper grades for recycling is BS EN643. This describes the levels of non-target material allowable in grades of PfR.

Are some plastics best avoided or preferred?

Papermakers would prefer all plastics be minimised. It makes little difference in the recycling process if plastic is Conventional, Biodegradable, Compostable or Oxo-degradable, as biological processes will not have sufficient time to cause any significant degradation of the material before it passes through the papermaking process.

It is a particular wish that plastic that has potential to cause environmental harm or damage to recovery systems is designed out. For instance, polymers with low shear strength that break down in the pulper into micro-plastics should be avoided as micro plastics may pass through mill wastewater cleaning systems and be discharged into water-courses or pass into, and contaminate, the finished product.

In addition, PVC (Polyvinyl chloride) has potential to release toxins into the air during energy recovery.

In simple terms, paper mills would encourage a hierarchical approach to plastic laminates so that they are:

- Designed out altogether or reduced to a necessary minimum
- Designed to peel off by the consumer and clearly marked as such
- Designed to be easily separated by the process so it can be rejected in the system at the beginning of the papermaking process
- Designed to deliver minimal impact, both to the environment and to existing recovery systems.

Where plastics are necessary, it would be better for them to be of a type that does not readily degenerate or break into micro-plastics because:

- During repulping, plastics can disintegrate into sizes that will pass through screening elements in stock preparation. They may also be too "flexible" and thin – "two dimensional" (foil particles), and so pass through even low slot width screens
- Plastic with the same density as fibre can create problems. For example, material with a density in a range of 0.95 to 1.15 g/cm^3, e.g. the same density as fibres and similar to water are impossible to separate with the hydro cleaners that are used in paper mills.

The development of fully soluble, bio-digestible barrier systems would be welcomed.

VERDICT

The industry has no preference for biodegradable, or conventional plastics since all plastic waste from the paper machine will be treated in the same way and sent to Energy from Waste (EfW) or landfill unless separately collected and processed by specialist operators.

Coatings

'Coatings' is a term used to describe a variety of materials applied to a sheet of paper to impart specific properties. These can create different challenges in the recycling process. Coatings can be either inorganic inclusions or printed or varnished coatings and can be applied at different stages in the paper and box making process.[3]

Films / Laminates:

These occur when a sheet of a non-paper material (such as a plastic or foil film) is combined with a sheet of paper or board, usually with some form of adhesive or binder to adhere the two materials together.

Depending on the strength of the adhesion between the film and paper, fibre may or may not be released. For preference, the industry would wish they be lightly bonded with a water-soluble adhesive agent so that the plastic layer separates easily in the paper pulping process.

Providing the film does not interfere with the separation of the fibre (such as occurs with two-sided laminates, stacked paper cups, etc.) some fibre should be recovered. This will be determined by the degree of adhesion between film and fibre.

If the plastic film can be separated as relatively large particles, it can be removed using conventional mill technology. However, the removal and disposal adds cost.

Metallised films/Aluminium Films are usually less tightly bonded to the paper substrate (in some cases a plastic film may be applied over the surface for durability) and fibre can be recovered from them. However, in sufficient quantities, the small 'metallic' particles produced can interfere with equipment used to measure flows in paper mills and be deleterious to the end use in packaging due to metal contamination (both visual and metal detector activation) of the finished sheet.

Foil back / Metpol / Metallised Papers

See guidelines in **Films and Laminates** above.

Hot and Cold Foil Transfer

Hot and Cold Foil Transfer can be dealt with by paper mills. Cartons printed with not more than 60% of the external surface area in foil transfer should be considered recyclable.[4]

VERDICT

- *Paper mills would prefer not to receive plastic or metallised laminated board*
- *Designers should minimise plastic content, targeting a maximum 5% of pack weight*
- *Tear-off facility should be provided for plastic facing*
- *Packaging with not more than 60% of the external surface area with Hot and Cold Foil transfer should be considered recyclable*
- *Two-sided laminates such as beverage cartons should be collected and reprocessed separately.*

3. In printing: lacquering, coating or varnishing refers to the application of a liquid or paste, unpigmented ink like product, which after drying is mostly transparent. Thereby, certain surface properties are obtained, as for example protection against mechanical damage, gloss or matt surface effects, and/or specific slip or adhesion properties.

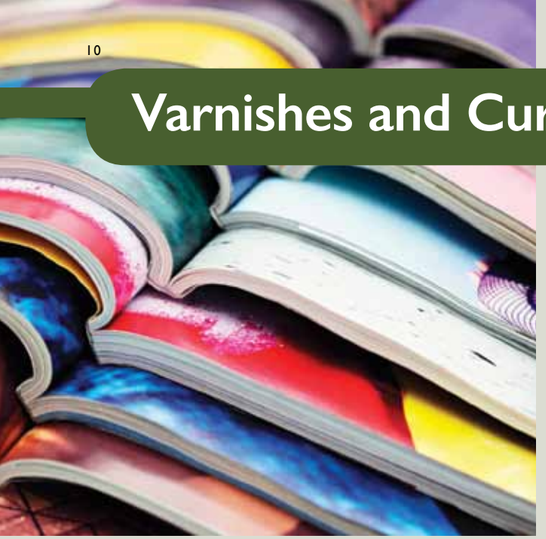
4. However, the impact of the metallic ions that will arise in the mill wastewater needs to be assessed – guidance on the acceptability of certain chemicals in mill waste water treatment systems should be given by the Paper Industry.

Peelable Solutions

Peelable laminates are preferred as they provide an opportunity for the consumer to remove the laminate before recycling, and they imply a loose bond between laminated face and base substrate. With encouragement, the public will be able to separate contaminated plastic liners for disposal and recycle the paper fibre layer. Every opportunity should be taken to encourage consumers to peel off or remove laminated coatings, windows or linings.

VERDICT

- *The industry would favour peelable liners and windows*
- *Consumers should be encouraged to remove liners or windows.*



Varnishes and Curable Varnishes

These are thin layers of a non-fibrous sealant coated onto the surface of paper that has often been printed with water-based inks. They are typically used to protect the ink film and provide a degree of robustness to the print.

The 'active component' (typically a resin) is thinly spread onto the surface of the paper and a carrier medium evaporates or is absorbed into the sheet leaving a film of the active component. In some cases, where a more robust surface is required, the resin may then be cured by the application of heat and/or UV radiation.

Depending on the resin used, the thickness of resin applied and the degree of curing that takes place, these films can vary from very easy to very difficult to remove. Even if the film is detached, the resin particles may be problematic in further processing.

In some cases, the film may contain extremely fine dispersions of solid materials to provide key properties and some varnishes are known to create finely dispersed polymers/plastics (micro-plastics) during pulping which may or may not cause a problem during reprocessing and may or may not pass into the product or mill effluent.

UV Inks and Varnishes

UV inks and varnishes can cause issues within some papermaking processes, as they are not readily removed by most conventional de-inking technology. Where they are used in packaging they can be recycled, albeit they can cause flecking on the new paper sheet. For this reason, the industry would prefer to keep to a minimum the quantities of cured varnished material (either conventional or UV cured) specified in packaging products.

VERDICT

Coatings that are soluble in water can generally be treated in paper mill effluent treatment processes and are preferred.

Adhesives

Adhesives are integral to the manufacture of packaging and standard paper mill technology is designed to separate and remove these during the papermaking process. However, some adhesives found on tape, labels and in the binding of packaging have potential to soften or plasticise in the heat of the process to form "stickies" that can end up on the finished paper, spoiling the performance and appearance of the paper.[5]

Most hot melt and pressure sensitive adhesives are insoluble in water and dispersal during the pulping process can therefore be problematical. The adhesive can soften in the pulper to form small jelly like globules that, if not removed, can travel through mill filter systems and stick to the finished paper product. Some packaging grade hot melt adhesives, however, have previously demonstrated dispersal as larger particles during processing that are easier to remove during screening.

Water soluble adhesives are preferred assuming that the chemicals formed when the glue dissolves are not detrimental to the mill wastewater treatment system. Some products such as PVA re-disperse and can create sticky deposits. These should be assessed from information provided on the data sheet of the proposed adhesive in conjunction with the Paper Industry.

VERDICT

The industry asks designers to minimise adhesive usage and prefer adhesives that create large particles that can be removed by mill screening systems or water-soluble adhesives with no deposit risk.

Alternative Barriers

The industry welcomes and supports research to develop alternative barrier technologies. By its nature, and because Intellectual Property considerations prevent description here, it is impossible to list or judge the recyclability of these technologies. However, in general terms, recyclability in any alternative barrier system will be achieved where:

- The fibreboard or paper within the packaging, when exposed to water, is capable of breaking down into single fibres in suspension
- Polymers and other sealing agents can be removed from the fibre during the papermaking process
- Polymers and sealing agents can be dealt with efficiently by paper mill effluent systems and do not compromise the finished product, the production process or the environment whilst being recycled.

5. "Stickies" are a tacky substance contained in the paper and pulp and process water systems of paper machines. They have potential to contaminate machinery and the finished sheet and are transported within the pulp and can agglomerate causing problematic deposits.

Paper Products

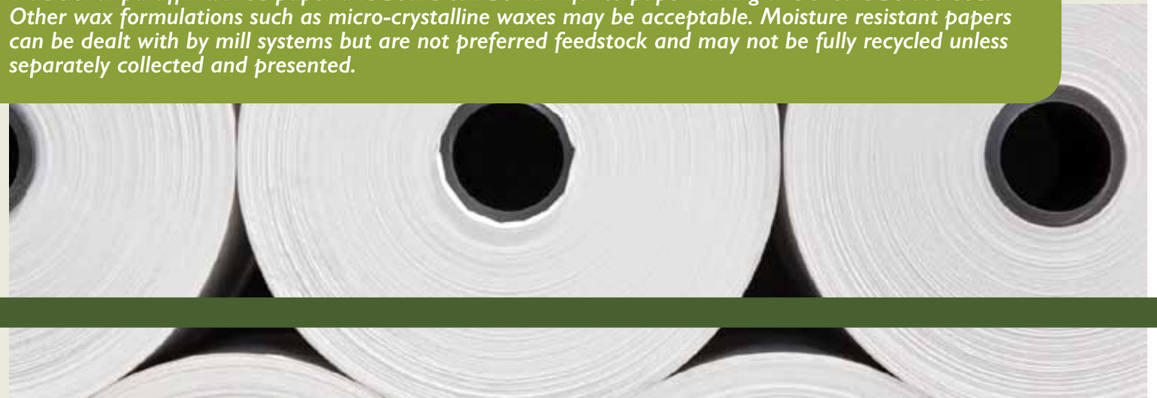
Translucent Papers – Silicone, Waxed, Greaseproof, Wax Coated and Glassine Paper

Tracing paper has no water resistance and is fully pulpable. In general, translucent papers for use in food related applications are likely to have "wet strength" or water resistance and are more challenging to recycle. They can be recycled, but generally need to be collected and treated separately in specialist facilities. Specifically,

- Traditional paraffin based wax formulations cannot be efficiently removed by mill cleaning systems and can pass on to the finished product. These should be considered unrecyclable and avoided. Paper products utilising micro-crystalline wax may be recyclable subject to testing.
- Silicone, Greaseproof and Glassine papers, whilst not damaging to the process, cannot readily be pulped by high volume standard paper machines and therefore often pass into the mill waste stream.
  - ▷ Glassine paper: if it is pure paper and not siliconised, can be reprocessed but if it is treated in any form, (baking paper is usually also siliconised), it is not likely to be recycled in a standard paper mill.
- Hard-sized products are papers and boards treated with starch to make them moisture resistant. A typical example is the surfaces of some frozen food packaging. These products are slow to pulp but can be recycled in most standard paper mills.

VERDICT

Traditional paraffin waxed paper and board can be harmful to papermaking and should be avoided. Other wax formulations such as micro-crystalline waxes may be acceptable. Moisture resistant papers can be dealt with by mill systems but are not preferred feedstock and may not be fully recycled unless separately collected and presented.



Other Fibrous Materials

Most UK paper mills are set up to reprocess cellulose fibre derived from trees. The industry acknowledges that there is increasing pressure to use alternative fibre sources, particularly those derived from agricultural residues.

Bagasse, Palm Fibre, Rice Straw, Wheat Straw, Barley Straw, Oat Straw, and other plant fibres

Subject to fibre having been prepared for use in papermaking and presented in a form suitable to be utilised in the papermaking process, these fibres can be recycled.

However, the Paper Industry recognises the urgent need to investigate the impact of these fibres when they are returned into a conventional papermaking process. The varying properties of alternative fibres could mean they will be separated out in the process at the mill and may be discarded in the waste stream.

Pulp products such as egg boxes and pulp packaging can be recycled and should be placed with paper and board for recycling.

VERDICT

Specifiers are encouraged to use cellulose fibre derived from trees. Other fibres can be recycled, subject to having been prepared for use in papermaking and presented in a form suitable for use. The industry continues to review this situation and may alter its view on the recyclability of alternative fibres subject to future findings.

How are they best recycled/ disposed of?

Fibrous matter which is neither prepared for papermaking nor able to be presented for recycling in an appropriate manner should be marked unrecyclable and discarded with general waste.

Fillers and Binders

Fillers comprise inorganic materials (known to the industry as "Ash"), which are added to paper and board to provide enhanced surface qualities. In order to achieve proper adhesion to the surface of the paper, they are often combined with "binders".

- "Ash" is often comprised of Calcium Carbonate and is typically used to improve printability in graphics papers and a percentage will be removed in the papermaking process, producing a sludge that may be landfilled or sent to EfW. Calcium Carbonate ($CaCO_3$) coating does not add strength to recycling fibres, and so should be kept to a minimum
- "Binders" used with some coatings can create "stickies" which will affect the runnability of the paper both at production and converting machines ("black spots")

VERDICT

Fillers and binders are normal constituents of the papermaking process and can usually be dealt with by paper mills.

Gift Wrap

The Paper Industry encourages the use of paper gift wrap, and offers the following guidelines to specifiers, alongside advice given on the WRAP website.[6] In principle:

- Paper based wrapping paper is recyclable in the normal stream
- Wrapping paper that is heavily laminated and/or contains non-paper additives such as metallised gold and silver coloured shapes should not be recycled. See guidelines under Films and Laminates
- Glitter should not be used as it passes into the finished product, causing imperfections in the finished product and causing paper to be unprintable. Glitter can also melt within the process acting like glue, ripping the paper and building up within the process
- Metallised Films or plastic based wrapping cannot be recycled with paper - See guidelines under Films and Laminates
- Simple paper wrap can be recycled but foil or glitter-decorated paper cannot and should be treated as general waste

VERDICT

- ***Paper based gift wrap is recyclable***
- ***Glitter should be avoided and glittered paper considered unrecyclable***
- ***Metallised Films or plastic wrap cannot be recycled.***

6. https://www.recyclenow.com/what-to-do-with/wrapping-paper-1

Biodegradable Paper Packaging

All cellulose fibre is potentially biodegradable in the right conditions, so whether paper and board packaging is marked "Biodegradable" is irrelevant for the purpose of paper making. The process of remanufacturing paper through a "standard" mill takes a matter of minutes, so degradation of the fibre or liner is unlikely to occur in this time. If a package is marketed as biodegradable but is likely to pass into the paper recycling stream and through a paper mill it should, nonetheless, meet these guidelines.

Where Polylactic Acid (PLA) liners are used, PLA is unlikely to degrade in standard processes and will behave like all other plastic contaminants.

VERDICT

Whether packaging is marked "biodegradable" or not is largely irrelevant to the paper recycling process.

Contaminants

Packaging intended to be in direct contact with potentially harmful contaminants such as medical waste, animal products or toxins should be considered unrecyclable and discarded with general waste.

Acceptable levels of Food Contamination

Food Contamination is prohibited in Paper for Recycling in British Standard EN643

CEPI position paper REC 17-076 explains the difference between contamination by food, and staining. Surface staining of paper is acceptable, but food waste sitting in the pack (Free Moving Food) or food attached to the surface (3D Residue) is regarded as unacceptable.[7]

Careful consideration should be given to the proposed application of fibre-based packaging to prevent inadvertent contamination by food substances.

VERDICT

- *Packaging should be washed or scraped clean of food prior to recycling and clearly marked to encourage consumers to do so*
- *Tear-off or peelable surfaces would help reduce the potential for contamination*
- *Any packaging, such as oven ready food trays, that is likely to contain 3D food residue and cannot be readily cleaned i.e. because it is sold "on the go", should be marked as unrecyclable.*

7. CEPI Position Paper REC 17-076

Are sandwich packs recyclable?

The current configuration of some sandwich skillets and the risk that used sandwich packs may contain food contamination means they are not preferred feedstock for paper mills and should not be considered readily recyclable unless collected and sorted separately or presented to paper mills with the necessary processing technology.

However, sandwich skillets can be designed to be fully recyclable. Guidelines as follows:

- Avoid the use of composite, laminated or coated paperboard
- Consider the use of a detachable liner or a separate covering for the sandwich (which should be disposed of separately)
- Avoid the use of strongly attached windows and use easily detachable, thin, lightweight solutions
- The overall target weight of non-pulpable material in the pack should strive to achieve the guidance above.
- Packs should be clearly marked to encourage removal of liners and food waste before recycling.

VERDICT

Sandwich skillets designed using the guidelines above are fully recyclable.

Promotional Magazines and Graphical Papers

Promotional magazines and papers may be recycled either in packaging or graphic paper mills.

Some UV inks and varnishes can be particularly challenging for paper mills manufacturing graphical papers such as newsprint and magazine papers. Some are not easily removed by the de-inking process and pass into the new sheet, causing flecking and pin holes. For this reason, printed promotional material using UV inks and varnishes and likely to pass back into recycling as raw material for graphic papermaking should be considered unrecyclable.

VERDICT

Some UV Printed or coated graphical papers are unrecyclable in graphical paper mills.

Verification

Who decides?

It is not practicable for the industry to evaluate the recyclability of individual packaging products on a case-by-case basis. Rather, this document is intended to provide design parameters, which if generally adhered to, should deliver recyclable paper-based packaging for the industry and improved environmental and social responsibility in the supply chain.

It is anticipated that this document will provide sufficient guidance for packaging designers and specifiers to make appropriate decisions about the recyclability of products and drive developments in design and technology to improve the general recyclability of paper and board packaging over the medium to long term.

These guidelines are being used to inform the OPRL *Packaging Design (PREP) Tool* and labelling system that will, in turn, underpin this document and help drive change.

Standards Tests or Protocols for Recyclability

In light of market and technological development, the Confederation of Paper Industries (CPI) will maintain a standing sub-committee to undertake periodic review of these guidelines on a minimum of a quarterly basis for the first year, and thereafter on an annual basis. This will be chaired by a member of the CPI Recovered Paper Council and contain members from across stakeholder sectors.

The industry is aware of a number of test protocols, standards and laboratories all claiming authority in determining recyclability. None can claim to have cross industry support or to provide a definitive measure. In many cases the acceptability of a product for recycling depends upon a wider range of factors such as the way it is collected and presented, its application and the likelihood of contamination.

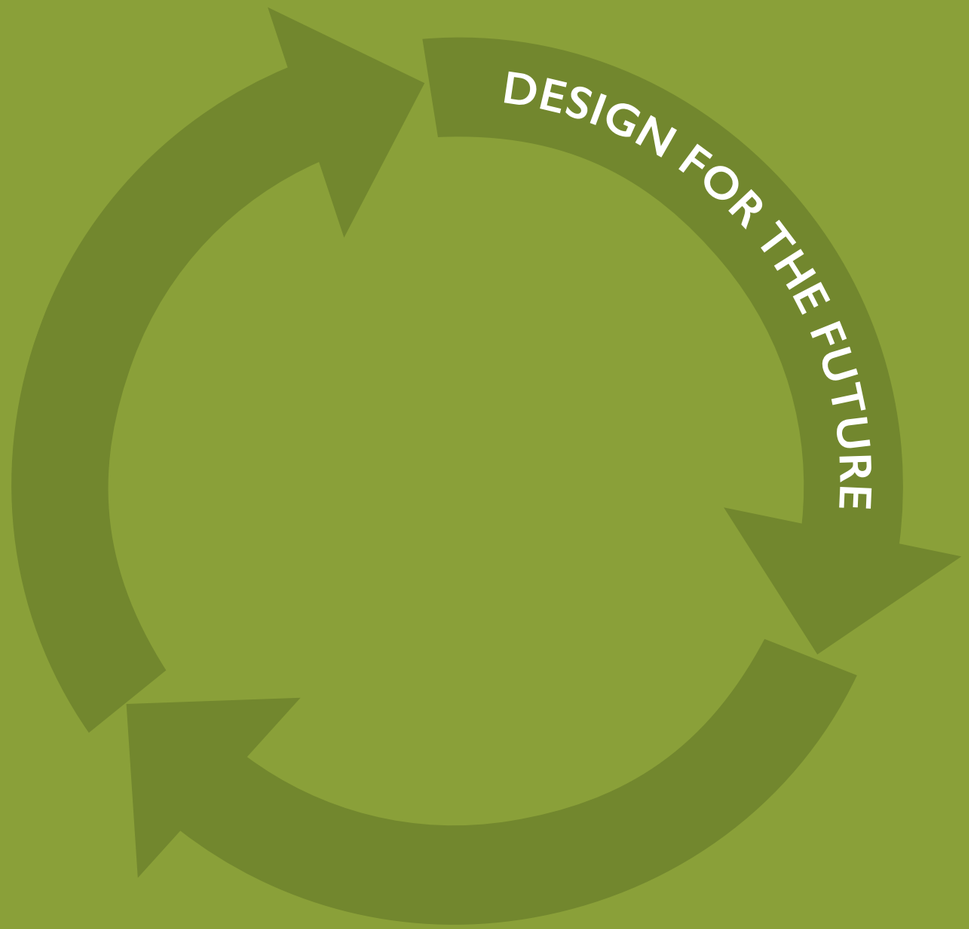
The UK Paper industry has undertaken to identify a suitable widely agreeable protocol for measuring recyclability as a back stop to these guidelines. Thus, specifiers and producers with doubt about the recyclability of any packaging system, and at their own expense, can undertake a laboratory test for confirmation. It is hoped this work will be complete by the end of 2020.

Summary

These guidelines are intended to provide broad direction and point the way towards resource efficient recycling of paper and board packaging. They address a very small minority of products and packaging formats, and in that sense demonstrate the enormous variety of opportunity offered by paper and board products for packaging applications and the wide recyclability of them.

It should be noted that the importance of this issue is recognised by the Confederation of European Paper Industries (CEPI), which has issued its own European framework guidance on recyclability.

The Confederation of Paper Industries would like to acknowledge the particular help of the Waste Resources Action Programme (WRAP), the Paper Industry Technical Association (PITA) and On-Pack Recycling Label Ltd (OPRL) in the creation of these guidelines, and thank other elements of the supply chain, especially major retailers and brands for their support. Particular thanks are due to Iain Ferguson at the Co-operative Group.



Paper and Board Packaging Recyclability Guidelines

How much plastic can the Paper and Board Industry handle?

Plastic attached to any paper and board packaging product should be minimised.

What percentage of plastic per pack?

- Paper mills would prefer not to receive plastic or metallised laminated paper and board
- Designers should minimise laminate content with a maximum 5% of pack weight
- Tear-off facility should be provided for plastic facing
- Two-sided laminates such as beverage cartons or hard to recycle coffee cups should be collected and presented for reprocessing separately at specialist facilities.

Are some plastics best avoided or preferred?

The industry has no preference for biodegradable or conventional plastics since all plastic waste from the paper machine is rejected and sent for disposal unless separately collected and processed by specialist operators.

Coatings: Films / Laminates / Foil back / Metpol / Metallised Paper

- Designers should target non-paper laminate content at a maximum of 5% of pack weight
- Tear-off facility should be provided for plastic facings
- Packaging with not more than 60% of the surface area with hot/cold metallic foil transfer should be considered recyclable.

Peelable Solutions

- The industry favours peelable liners and windows
- Consumers should be encouraged to remove liners and windows.

Varnishes, Curable Varnishes and UV Curable Varnishes

Coatings that are soluble in water can generally be treated in a paper mill and are preferred. Some UV printed or coated graphical papers are unable to be recycled in some graphical paper mills.

Adhesives to avoid. Hot Melt, Labels

The industry prefers to receive adhesives that do not plasticise at temperatures of 35 degrees celsius and above. This means that the industry favours cold set, curable or water-soluble adhesives over hot melt adhesives.

Paper Products: Translucent Papers – Silicone, Waxed, Greaseproof, Wax Coated and Glassine Paper

Traditional waxed papers can be harmful to production in a paper mill and should be avoided. Other formulations such as micro-crystalline waxes may be acceptable. Moisture resistant papers can be dealt with by mill systems but are not preferred feedstock and may not be fully recycled.

DESIGN FOR THE FUTURE

Summary Sheet

Other Fibrous Materials

Specifiers are encouraged to use cellulose fibre derived from trees. Other fibres can be recycled, subject to having been prepared for use in papermaking and presented in a form suitable for use. The industry continues to review this situation and may alter its view on the recyclability of alternative fibres subject to future findings.

How are they best recycled?

Fibrous matter which is neither prepared for papermaking nor able to be presented for recycling in an appropriate manner should be discarded with general waste.

Fillers and Binders

Fillers and binders are normal constituents of the papermaking process and can be dealt with by paper mills.

Gift Wrap

- Paper-based gift wrap is recyclable
- Glitter causes problems and should be avoided
- Foil or plastic wrap cannot be recycled

Biodegradable Paper Packaging

Whether packaging is marked "biodegradable" is irrelevant for recyclability. Other factors such as the type of fibre and liners used are much more important.

Contaminants

Packaging intended to be in direct contact with potentially harmful contaminants such as medical waste, animal products or toxins should be considered unrecyclable and discarded with general waste.

Acceptable levels of Food Contamination

- Food packaging should be clearly marked to encourage consumers to empty and clean it prior to recycling
- Any packaging that is likely to contain 3D food residue i.e. because it is baked on, should be marked as unrecyclable because food waste in recycling is prohibited
- Tear-off or peelable surfaces would help reduce potential contamination.

Are sandwich packs considered recyclable?

Sandwich skillets designed using the guidelines are fully recyclable:

- Avoid the use of composite, laminated or coated paperboard
- Consider the use of a detachable liner or a separate covering for the sandwich (which should be disposed of separately) and mark the pack accordingly
- Avoid the use of strongly attached windows and use easily detachable, thin, lightweight solutions
- The overall weight of non-pulpable material in the pack should conform to guidance above.

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