Quality Counts

cpi confederation of paper industries

FACT SHEET

What is Quality Recovered Paper?

'Quality recovered paper' is used paper and board which is clean and dry so it can be used, without further sorting, to make new paper and board products. This is best achieved by segregating the used paper at the source of its collection in order to minimise potential contamination during the recovery process.

Potential Contaminants can include:

- plastics
- glass
- cans and metals
- grease, oil and dirt
- food debris and other organic matter
- burnt paper
- other papers not suitable for recycling

Why Does Quality Count?

There are four main reasons why the quality of recovered paper is important:

1. Impact on Machinery

Paper machines are large, complex and expensive pieces of machinery, costing in the region of £500 million each.

Running at between 40mph and 60mph, foreign material such as glass or glue can have serious implications on the wear and tear of a machine, and in some cases can cause the machine to stop. It has been estimated that the complete shutdown of a paper machine can cost anything up to £100,000 per hour.

2. Impact on the Finished Product

Using good quality recovered paper ensures that the end paper and board product is also of good quality. Paper and board made from recovered paper must match the physical performance and visual characteristics of comparable products made from virgin fibre. A product made with contaminated material may compromise product quality in terms of strength, print quality, food safety or visual presentation, and may not be acceptable for the end customer.

Poor quality recovered paper increases the possibility of entire batches of finished paper and board being rejected by the customer. That in turn may raise the production costs of the final product and impact on the manufacturer's competitiveness. Moreover, were this to happen too frequently, recycling would no longer be considered an economical option and the future of secondary reprocessing could be threatened.

3. Environmental impact

If a batch of recovered paper is deemed to be of too poor a quality, the reprocessing paper mill may have no alternative but to send it back to the supplier for further sorting, or send it directly to landfill or incineration. This is especially damaging given the resources and energy required to collect, process and transport the material in the first place.

If poor quality material gets into the papermaking process, it will have a negative impact on the efficiency of the machines or require additional chemical treatment to overcome the problems. Both of these scenarios can lead directly to higher carbon emissions from the paper mill itself and from the associated processes, such as the chemical industry.

Whereas recycling paper and the production of new paper stores carbon in a solid form, landfilling and incineration of waste or unrecoverable material causes the release of carbon gases into the atmosphere. This has an adverse effect on our environment and exacerbates global warming.

In 2006, the Waste and Resource Action Programme (WRAP) produced a report, Environmental Benefits of Recycling, which provided a comprehensive review of over 200 life cycle analyses (LCA) published worldwide and which sought to determine the benefit of recycling. This demonstrated the huge benefits of recycling over both incineration and landfill, concluding that, at that time, the UK's recycling of those materials (including paper and board) saved between 10 - 15 million tonnes of CO_2 equivalents each year compared to the then current mix of landfill and incineration with energy recovery.

An updated report released in 2010 looked at new LCAs since 2006 and confirmed the key conclusion of the initial report that recycling of paper and cardboard, for most indicators assessed, gives greater environmental benefits than other waste management options. Since then, it is commonly accepted that the benefits of recycling high quality materials far outweigh incineration or landfill.

4. Economic impact
In 2019, the UK recovered 7,348 million tonnes of paper and board, of which 3,100 million tonnes was used by UK domestic mills and 4,321 million tonnes was exported. Export markets are critical to the future of recovered paper and board collection in the UK. Development of overseas markets must continue if more recovered fibre and board is to be drawn from the UK waste stream, in line with EU and UK waste strategies. To achieve steady outlets in all world market conditions, it is vital that a high quality product emerges from recovery operations in the UK.

Currently, much of the poorly sorted paper recovered from the UK household waste stream is exported to other parts of the world. With the imminent closure of China as an export destination, other markets are being found where labour, energy and waste disposal costs are lower. However, no mill in the world can make paper from plastics, metals or glass and this disposal route transfers the external costs of UK waste streams to other parts of the globe where waste treatment is less rigorous. This is illegal, morally wrong and contrary to the overall purpose of recycling.

Choosing the right collection system

The level of contamination from households largely depends upon the type of collection method used, and the CPI has a clear preference for segregated collection:

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"Segregated" or Kerbside sort
"Segregated" collection is a system where recyclables are sorted into different compartments of a collection vehicle depending on material (paper, glass, cans, plastic etc), thereby removing the need for sorting at a Materials Recovery Facility (MRF). Segregated collections tend to produce cleaner, less contaminated recyclates, with a typical contamination level of <1%.

"Two-Stream" co-mingled
A second method, "twin stream" or "dual stream", sees the collection of material in two batches: typically with paper and card being segregated from other recyclables at the point of collection. In this way, paper can be kept clean and free of contaminants whilst the remaining recyclables are sent to a MRF for resorting; a much simpler task without paper and card.

Single Stream (co-mingled)
Contamination can be particularly high in "single stream" (co-mingled) collection schemes. This is because all recyclables – paper, glass, cans, plastic etc. – are collected together in one container and mixed in the same vehicle before being sorted at a MRF. This is now common with Local Authority kerbside collection schemes, with nearly two thirds of council collection schemes being done this way. Data collected under the MRF Code of Practice shows high levels of contamination of materials emerging from most sorting systems[1].

The EU's revised Waste Framework Directive expresses a clear preference for separate collection of recycling over co-mingled collections as the means most likely to achieve the purpose of the Directive. Article 11 of the Waste Framework Directive requires member states to promote high quality recycling by setting up separate collection of waste where technically, environmentally and economically practicable.

Where there is no choice but to use a comingled system, CPI would recommend the following actions be taken in an attempt to keep contamination of recycled paper and board to a minimum:

- put paper and cardboard into a carrier bag to keep it clean and free from other contaminants
- ensure tins and jars are both clean and dry before placing them in the recycling container
- ensure the lid of recycling containers close tightly before placing it outside for collection, to prevent rain and damp from penetrating the container and being absorbed by the paper

[1]The Environmental Permitting (England and Wales) (Amendment) Regulations 2014 contain requirements for MRFs to routinely sample and compositionally test their mixed material inputs by individual supplier and their main outputs by material stream e.g. news and pams, ordinary corrugated cardboard and mixed paper.

- don't include paper or cardboard that is highly contaminated with food residues. Lightly grease stained boxes are recyclable but heavily stained packaging or material with food residues that can't be removed should be put in general waste
- don't include pieces of broken glass, such as a jar that has been dropped

In 2009 WRAP undertook work which showed the benefits of source separation of paper and board, which remains largely valid.

www.wrap.org.uk/sites/files/wrap/Choosing_the_right_recycling_collection_system.pdf

It is imperative that quality is built into collection systems to ensure that material is recovered in such a way that provides the best economic and environmental option for the entire recycling chain. Significant carbon reduction can be achieved by recycling the material instead of landfilling or incinerating it, but only if the material is of a quality that can allow efficient reprocessing. It is simply not morally justifiable to defer or transfer the externalities of the recovery process to other parts of the supply chain.

Did you know...?

Paper is not infinitely recyclable and a constant supply of new fibres are needed to replace those that degrade in the recycling process. Without virgin fibres, the paper cycle can neither begin nor continue.

Revised: July 2020