



THE PERFECT FIT

*Flexible solutions for a more
sustainable packaging industry*



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EXECUTIVE SUMMARY

Flexible packaging offers the perfect fit solution to our sustainability challenges today. By providing a simple and adaptable answer to portioning, preservation and demands for convenience, we can effectively address the 'Packaging Paradox'. Flexible packaging simultaneously enables both the optimisation of packaging functionality and the best use of resources. This has the potential to provide considerable economic, environmental and social benefits.

Effectiveness and efficiency are the fundamental factors that define the ultimate sustainability of a packaging solution. When a full life cycle perspective is considered, taking into account all aspects of the product's value chain, the packaging itself, consumption and all end of life impacts, we can see that flexible packaging very often is the 'perfect fit'. This is because packaging producers and brand owners can hit the packaging design 'sweet-spot' that optimises its functional effectiveness and material efficiency. We call this the perfect product to packaging ratio.

Great design also delivers great packaging. By its very nature, flexible packaging is highly adaptable. Clever design can drive further sustainability benefits. These benefits range from appropriate portion sizes and reclosable packs that minimise waste, through on-pack information that ensures appropriate storage and use, to lightweight functional packs that reduce the impacts of storage, distribution and transport.

The potential to innovate, such as through 'lightweighting', can dramatically reduce the environmental impacts related to the packaging materials, but also provides significant advantages for product storage and transport. Equally, whilst the contribution of flexible packaging to the overall material and environmental impacts of a product may be minimal, it can also play a crucial role in extending the shelf-life and preservation of sensitive high-value contents such as coffee with its complex aromas and oils.

The background of the entire page is a dark green technical drawing. It features various white lines: solid, dashed, and concentric circles. In the upper right, there is a circular feature with a central dot and two concentric circles. Below it, a line with an arrow points towards the text area, accompanied by the text 'EASY OPEN' in a sans-serif font. The overall style is that of a precision engineering or architectural blueprint.

The mixed material, composite nature of flexible packaging facilitates the search for the 'perfect fit' packaging solution by combining beneficial attributes of different materials. The introduction of thin foil layers to create an absolute barrier effect, for example, can lead to major benefits in the preservation of nutritional value, extension of shelf-life and subsequently reduced wastage.

Finally, continuously evolving consumer demands for convenience can also be rapidly and effectively met through flexible packaging solutions. 'Right-sized' portions, a range of product pack sizes or the creation of special promotional versions are all possible without new machinery or production processes.

Ultimately, flexible packaging solutions are in the vanguard of the continually evolving 'sustainable packaging' agenda. Whilst complexities still exist around the relative merits of recyclability and other forms of recovery, flexible packaging is often the closest to a 'perfect fit' in regards to the most sustainable solution available on the market. Best of all, these solutions are available now and they will continue to improve in the future.

1 INTRODUCING THE PERFECT FIT FOR PACKAGING

Sustainability is all about the continuous striving for a balanced improvement in the economic, environmental and social performance of a product or service. It is **the** defining challenge of the twenty-first century. Every sector of industry and society is actively seeking 'perfect fit' sustainability solutions and the packaging world is no exception.

A simplistic but popular perspective on packaging would suggest that less packaging is always better. Taken to its logical conclusion, we might assume that less packaging therefore means using fewer resources. However, one of the fundamental functions of packaging is to protect precious resources. A delicate balance must be struck between the amount of resources invested in packaging and the resources saved through the protection it provides.

This is known as the '**Packaging Paradox**'. When we invest in packaging, we are using resources for the packing materials and the related activities to protect the product contained by the packaging, even though we may be able to reuse, recycle or recover a large part of that investment afterwards. If we use an excessive amount of materials, this can lead to 'overinvesting'. Conversely, if we underinvest in packaging, we are at risk of wasting resources through the spoilage and wastage of the very contents we are trying to protect. Packaging must therefore be seen in the context of the packaged product and its use in order to find the optimum environmental solution.


This holds true for all packs, but to remain true to the 'Packaging Paradox', it must also account for providing 'convenience' and 'appropriate portioning' where a number of different pack sizes may be required for a single product. This capability to tailor packaging so that it represents 'a perfect fit' for either single or family packs enables the overall environmental impact to be optimised efficiently. This protects the product up to the point of use.

It is important then, that in the pursuit of sustainability we acknowledge these complexities. Packaging solutions must be flexible to meet our sustainability challenges:

- They should make economic sense, i.e. where the cost of packaging is justified by the service it provides and the waste it avoids.
- They should make environmental sense, i.e. where the resources invested are outweighed by the resources saved and by the functionality the packaging provides.
- They should make social sense, i.e. where the demand for delivery of affordable goods as well as convenience is matched with the benefit of providing nutrition and/or medication or other services.

The market demand for convenience gives rise to another issue. Specialised foods and medications, for instance, often require more sophisticated packaging to protect quality, which might be perceived as 'over packaging'. Currently, very few consumers consider the full picture related to the packaged product, creating a tension that can only be bridged by a greater awareness of the meaning of packaging sustainability. It is important that consumers begin to appreciate the real and tangible environmental benefits that appropriate packaging delivers. Only then might these better informed consumers realise that appropriate and tailored packaging is actually a good thing, not simply an unnecessary environmental burden.

And this really matters. Sometimes more than 50% of food production in emerging economies is lost due to poor preservation and deterioration. But the industrialised world also faces challenges. Food wastage along the supply chain, in particular at household level, is a critical issue for Europe, and is responsible for significant economic and environmental impacts both directly and indirectly. European households waste 71 million tonnes of food each year at a cost of €90 billion. To put this in a climate change context, eliminating food waste in the UK alone would have the same impact on carbon emissions as taking one in five cars off the road¹.



By looking at the overall life cycle benefits and impacts of food and its packaging together, and not just the simplistic footprint of one or the other in isolation, it is clear that relatively modest packaging interventions can generate astonishing savings environmentally (e.g. embodied greenhouse gases and water), financially (e.g. through reduction of waste from produced food) as well as in terms of social development (e.g. affordable and efficient delivery of nutrition). This fundamental yet simple conclusion emerges from an insightful analysis of this complex issue and it also applies to packaged products other than food.

The challenge is a societal one. Consumers must be better informed about packaging and sustainability, since packaging must be considered in the context of the product it contains and the way it is expected to be consumed. This understanding has to move beyond concerns solely about the life cycle of the packaging, into the positive role that smart packaging can play throughout the life cycles of both the packaging and the resources it protects.

Flexible packaging is one of the 'ultimate' solutions to addressing the **'Packaging Paradox'** effectively and enabling packaging to play an effective role in the broader agenda of sustainable consumption and production.

There is a need for continuous innovation that recognises sustainability is a journey, not simply a destination; innovation that moves towards smarter packaging that progressively minimises impacts at all stages of a product's life cycle. Ultimately, more effective and efficient packaging means there is less wastage of resources and the impact on the environment is reduced, whilst providing economic and social benefits.

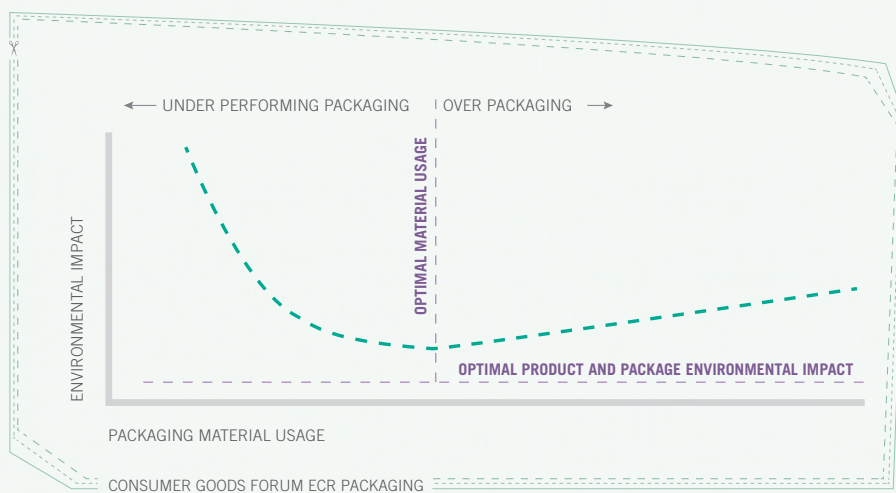
2 'PACKAGING SUSTAINABILITY' AND THE PURSUIT OF THE PERFECT FIT

There are two key factors that influence the relative sustainability of a packaging solution. These are defined as the packaging's effectiveness and its efficiency:

1. The **effectiveness** of packaging is the extent to which it adds real value to society by effectively fulfilling its function, including containing, protecting and delivering products as they move through the value chain and supporting informed and responsible consumption.
2. The **efficiency** of packaging is the extent to which it uses materials and energy throughout the life cycle. This should include material and energy efficiency in interaction with associated support systems, such as storage, transport, handling, delivery and use of the package and packaged product.

It is in this context that questions about the contribution of packaging to sustainable consumption and production have to be asked. What is the optimum amount of packaging or its composition?

The Packaging Paradox



The European Organisation for Packaging and the Environment (EUROPEN) and Efficient Consumer Response Europe (ECR Europe) asked this very question to position packaging within the sustainability agenda. The chart above graphically illustrates where the 'optimum environmental packaging' point lies. This is where the environmental impacts of the packaging-product system, including overall wastage/spoilage, are minimised².

As the chart shows, underperforming packaging can lead to much larger negative environmental impacts than 'over packaging'. However, the additional resources involved through the increased material content and the related impacts (e.g. from transport) of 'over packaging' will also increase the overall environmental impact of the product and packaging. The relative 'sweet spot' at which different considerations align to provide the 'optimum packaging' solution therefore lies in the heart of the chart.

This is true not only for a single pack but also for the composition of various packaging formats (e.g. portion and family packs) depending on the context of consumption. Improvements should be made from a life cycle perspective, taking into consideration the complete value chain of the product. This includes the packaging, the consumption occasion, and the end of life options (including recovery and recycling).

Life cycle thinking is essential to understanding the sustainability performance of packaging – be it the single pack option or the suite of different solutions. Life cycle thinking considers all the environmental impacts associated with the full life cycle of a product system. This broader perspective ensures any improvement in one aspect of the life cycle does not end up creating adverse effects and burdens in others³.

A common framework (concept) for more 'sustainable packaging' (identified in the global Consumer Goods Forum's 'Global Protocol on Packaging Sustainability') is that packaging should increasingly be:

- Designed holistically together with the product, to improve overall environmental performance
- Made from responsibly sourced materials
- Efficiently recoverable after use
- Manufactured using clean production technologies⁴.

Packaging will at the same time need to:

- Meet market criteria for performance and cost
- Meet consumer choice and expectations
- Be beneficial, safe and healthy for individuals and communities, regardless of the end of life solution.

In view of these rather general perspectives, there are a number of design improvements that can be made to increase both the effectiveness and efficiency of flexible packaging solutions and to decrease waste and spoilage.

Examples include:

- Portion packs: these enable 'right size' consumption to avoid food wastage and ensure a longer shelf-life
- Packs that eliminate the need for refrigeration in the supply chain and for the consumer, thus saving the associated energy
- Packs that optimise product use (e.g. minimise energy needed for preparation of food)
- Reclosable packs: these allow unused contents to be preserved
- Easy to empty packs: these minimise residual product left in packaging
- Adequate barrier effect: this optimises shelf-life and minimises deterioration of e.g. food and pharmaceuticals
- On-pack information: this informs users about storage, preparation, waste prevention, medical compliance, etc.
- 'Cube efficient' packs that minimise impacts of distribution, storage and transport by the consumer
- Optimised packaging: where the material selection, the amount of material used and the related processing to convert it into packaging is optimised relative to the required functionality and the available end of life infrastructure.

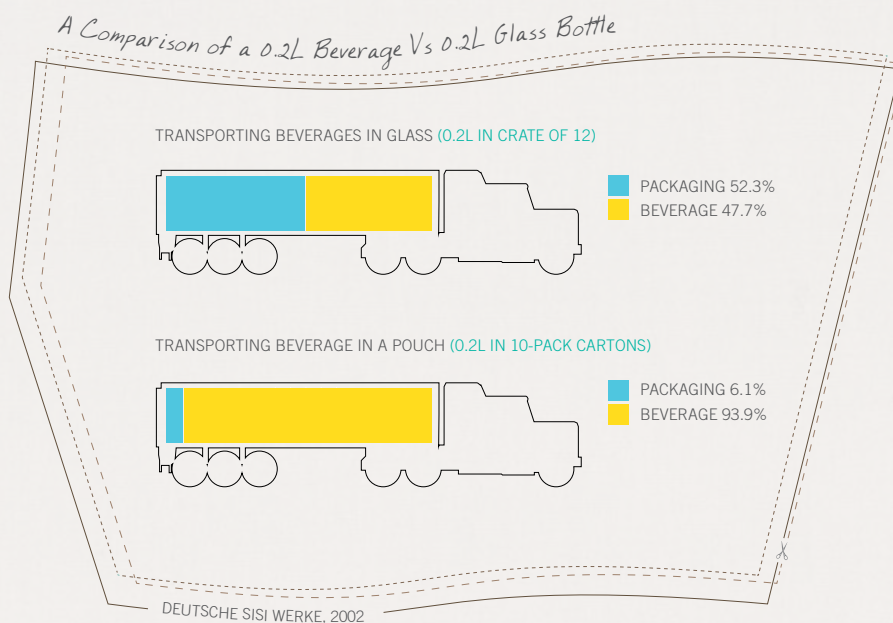
The next pages will explore how such options and improvements link to a more sustainable consumption.



3 THE PERFECT PRODUCT-TO-PACKAGE RATIO

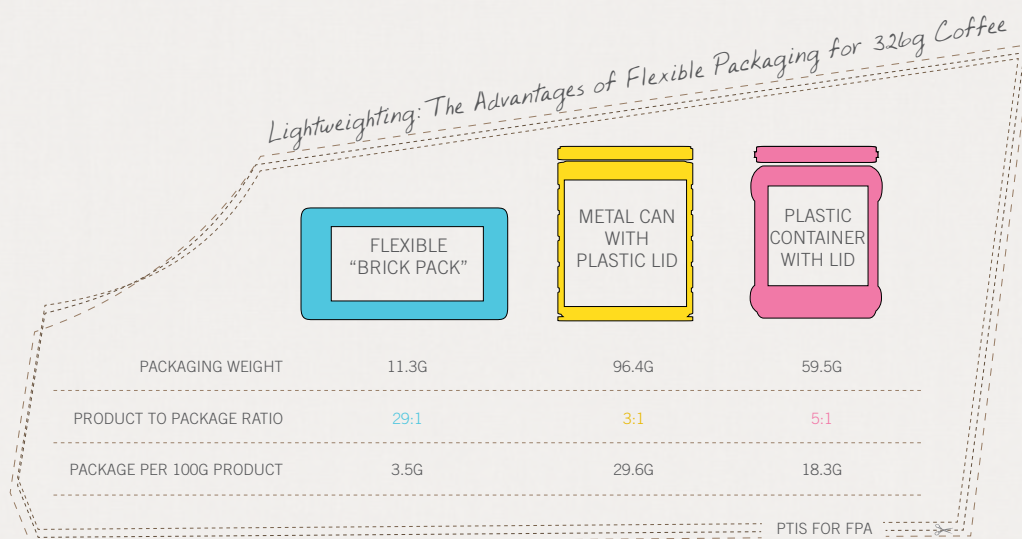
One of the biggest assets of flexible packaging solutions in the sustainability journey is 'lightweighting'. We have seen how the effectiveness of packaging is critical to the preservation and use of product contents. If, on top of this, we can minimise the relative amount of packaging per unit of product, thereby maximising packaging efficiency, we can reach the point of 'optimum packaging' needed to find the 'perfect fit'.

Flexible packaging solutions are good examples of 'lightweighting' and the realisation of an optimised product-to-package ratio. Not only can flexible packaging solutions be assembled at the filling plant, preventing the need to transport inbound empty containers filled with air, but also flexible packaging solutions usually occupy minimal space during the shipping of the filled container to the point of sale. This, combined with the low weight of packaging as a proportion of the total weight, means fuel is saved both during transportation per unit of product shipped to the retailer, and from there to the consumer. This is illustrated well by the example below of the relative proportions of product to packaging in the shipping of flexible drinks pouches as opposed to glass bottles:



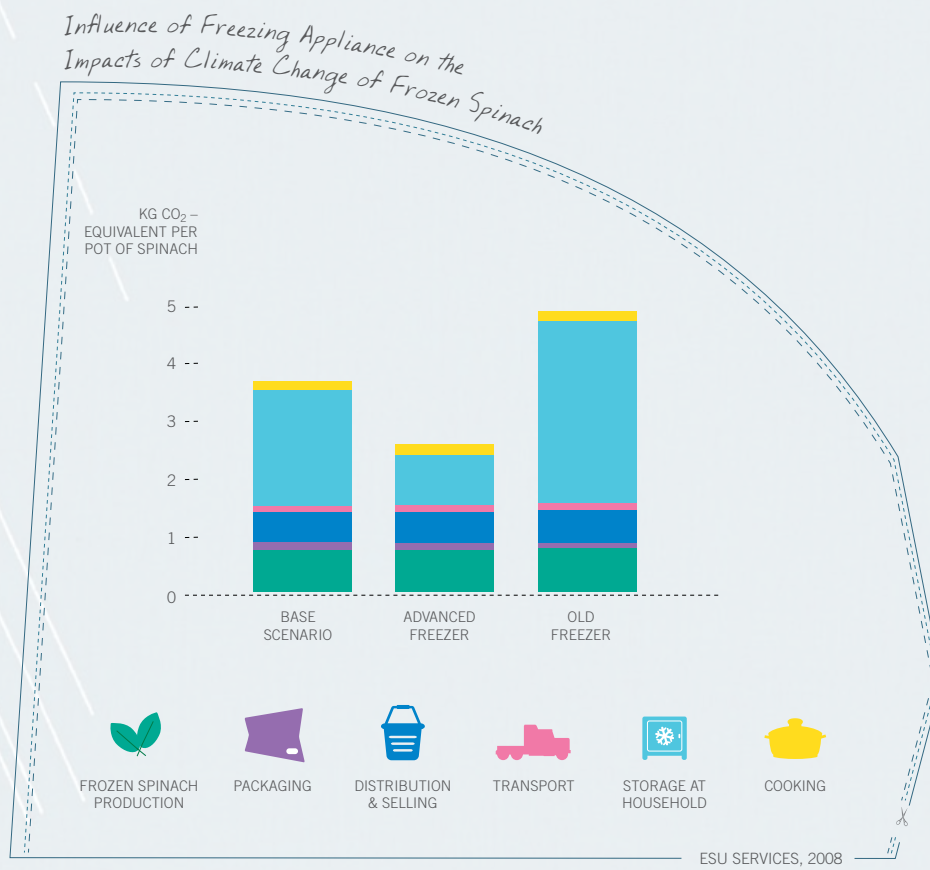
The illustration to the left is part of a larger life cycle assessment according to ISO 14040, which confirms that such savings are directly translatable to a reduced overall environmental impact⁵.


Flexible packaging for coffee is another good example; it provides a long shelf-life, but is also sensitive to pressure differences between the inside and outside of the pack. The very modest amount of flexible packaging material to achieve this is a good investment to protect valuable and sensitive aromas. In this example, a life cycle assessment confirms that not only is material saved, but these savings also translate to an overall minimisation of environmental impacts⁶.



Further analyses of the life cycles of products that use flexible packaging solutions confirm that the contribution of packaging generally constitutes an extremely small component of a product's overall environmental impact⁷.

This also holds true for the case of frozen spinach analysed in the Life Cycle Assessment below. This example shows that the impact on climate change much more heavily depends on the type of freezer and its performance compared to the relatively small contribution from packaging.



The background of the entire page is a dark blue technical drawing. It features various white lines, including dashed and solid lines, forming geometric shapes like rectangles and circles. Some lines are thicker than others, and there are small circles and dots scattered throughout. In the bottom right corner, there is a more detailed technical drawing of a mechanical part, possibly a container lid or a handle, with a circular feature and a rectangular slot. The text is placed within a white rectangular area in the upper left portion of the page.

For the perfect fit, simple storage functionality is not enough. The right protection of food, with its nutritional values (e.g. Vitamin C) and all its specificities, is also vital and needs to be considered when looking at packaging. It shows that optimal packaging provides huge benefits in environmental terms by ensuring that all resources and efforts related to the production, delivery and use of a product are conserved and utilised to the best extent possible.

Seeking smart packaging solutions that use a range of materials, formats and applications can reduce the environmental impacts across a product's entire life cycle. As this chapter shows, flexible packaging enables us to find the elegant "perfect fit" solutions to achieve the optimal product-to-packaging ratio.

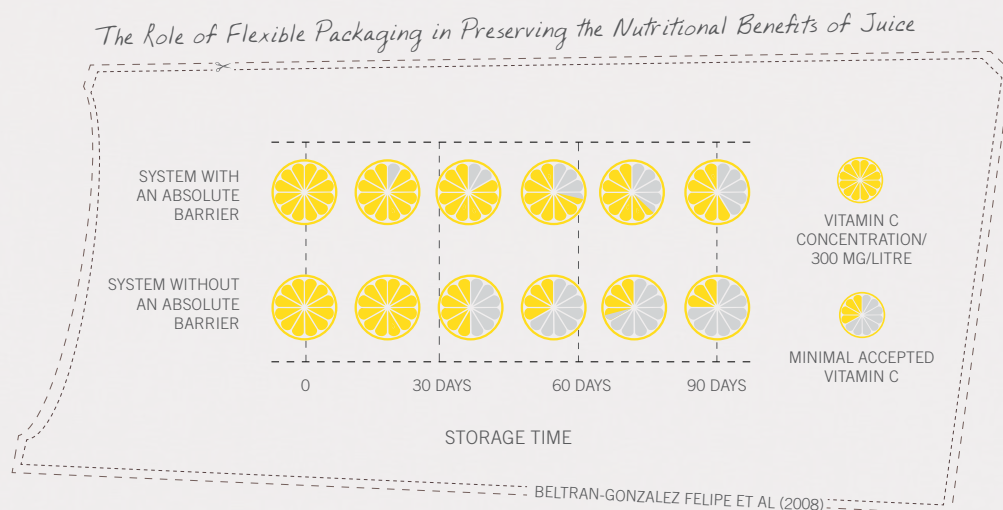
4 THE PERFECT FIT FOR BOTH FUNCTION AND PERFORMANCE

Flexible packaging provides both effectiveness and efficiency through its unique ability to combine different materials to maximise the practical functionality of the packaging, while using the minimum amount of material. By using a mix of materials (usually paper, plastic and/or aluminium foil, together with other functional materials) it is possible to achieve optimum performance for minimal investment and still reduce impacts across all aspects of a product's life cycle.

Mixed-material flexible packaging and its benefits are sometimes perceived negatively by the public, industry and political decision-makers in the context of sustainability. This is partly because they are seen as difficult to recycle, a point to which we will return later. Whilst this can be true in some countries, this simplistic view fails to appreciate the challenges of achieving sustainability in practice, such as the real material savings delivered by flexible packaging solutions. Real-world solutions are unfortunately never simple and even the best intentions can be counter-productive – the full picture and all interactions have to be taken into account.

Flexible packaging solutions are not always the simplest, as they often combine different materials. What they do provide, however, is a functional balance of efficiency and effectiveness. This is through using the minimum amount of materials (very efficiently) to achieve the necessary protection to do the specified job of avoiding food spoilage and wastage (effectiveness). Additionally, the use of sustainably sourced materials can increase the environmental performance, provided its usage is appropriate.

An excellent example of flexible packaging combining various materials very effectively is the beverage carton, which is made up of three principle layers. The thin layer of aluminium foil provides an absolute barrier for light and oxygen; the thick (relatively) paper layer provides rigidity and a useful surface for decoration; and the polymer layer ensures the perfect cohesion and protection of the whole. The combination of materials delivers efficiency and effectiveness through minimising resource use and permitting a long shelf-life. For juice, this can be tracked by measuring the residual vitamin C concentration, which in turn depends on the packaging's barrier properties to protect against oxygen and light entering the product.



The chart above illustrates the preservation of nutritional values in mandarin juice packed in a beverage carton. It demonstrates the difference between a beverage carton containing a thin layer of foil and one without an absolute barrier between the product and oxygen and light. As you can see, the carton with the foil has a far greater shelf-life for the valuable product it contains (longer than 90 days with reference to the required residual minimum vitamin C concentration of 100mg/l at the end of shelf-life).

Despite this 'perfect fit', the various components of the appropriate packaging (e.g. layer materials, inks) are under continuous improvement – either on their own or in their composition – to further minimise the overall environmental footprint of the package.

This example illustrates today's challenges in packaging design and manufacturing: namely to develop a pack that perfectly suits the content while minimising the overall environmental footprint and, simultaneously, delivering on all the other requirements of consumption, such as transportation, storage, handling and preparation.



5 THE PERFECT FIT FOR CUSTOMISATION AND CONVENIENCE

In a fast-moving world, flexible packaging solutions provide manufacturers and producers with an opportunity to respond rapidly to evolving consumer needs and demands. They can be relatively quickly and simply customised to facilitate an efficient response to new opportunities whilst maintaining the effectiveness of the packaging itself.

Some consumers are sometimes cynical about perceived 'over packaging'. But the reality is that consumer demand for increased functionality and safety together with a growing convenience culture is driving an increased need for more packaging. This requires industry to develop smart packaging solutions. Consumers take environmental issues seriously and want to incorporate them into their decision-making process. Sometimes more packaging is required because of the needs of the supply chain/logistics/store handling, etc. These considerations are not always visible to the consumer, so are often misunderstood. Few communicators attempt to educate consumers on this issue, as they are wary of creating a 'bad feeling'.

We increasingly live in an age where 'convenience' is a must. Flexible packaging options help fulfil this challenge precisely because they are lightweight, physically adaptable, effective and materially efficient. The flexible packaging industry can swiftly provide packaging in a range of sizes, adjust portions and create promotional applications. They can meet this 'convenience challenge', often without the need for new or additional machinery and production processes.

Flexible packaging addresses consumer life-style and habit changes and the demand for convenience with solutions that include portion packs, 'lightweighting', in-pack sterilisation, microwave-ability, and easy opening and reclosing systems.

As well as efficiently solving these packaging convenience challenges, flexible packaging is also excellent for 'portioning' of products – and therefore ideal for providing efficient consumption by matching the pack format to the usage occasion.

A good example of this is comparing the analysis of life cycle impacts of a cup of coffee made from ground coffee from a pouch/jar (i.e. a family size pack), versus one made using individual portioned packs or sachets of coffee⁸. The study illustrates that the biggest greenhouse gas contribution of the system is the boiling of the water, not the production or roasting of the beans themselves. Perhaps counter-intuitively, the greenhouse gas emissions from transportation and packaging are very small. Whilst packaging will continue to evolve and become more efficient, this example clearly demonstrates the need to take into account the impact of the production and preparation of the food itself, as well as the packaging.

Prevention of Wastage: Life Cycle Greenhouse Gas Emissions Associated with a Cup of Coffee from Ground Coffee and Portioned Packs



This can be illustrated further using another important packaging dilemma relating to portion packs. In this example, the contribution of packaging to the total greenhouse gas emissions of the product increases from about 1.5% to 8%, yet the overall carbon footprint remains about the same. The difference in carbon footprint for the coffee can be accounted for by the different process steps in the coffee production to make the 'instant coffee' variant.

Here, packaging plays a key role in regulating portion sizes, thereby reducing the impact of the coffee consumption by preventing waste. This generates a far more significant overall saving than that added by the increased packaging!

If, for instance, one also assumes that 30% of prepared coffee from ground coffee is not consumed (e.g. if coffee is prepared ahead of meetings) and that portions prepared from single packs are fully consumed, the resulting environmental impact per cup of coffee increases significantly as shown in the diagram.

In summary, by providing different options ranging from a catering size multipack, to a family pack or an individual portion, flexible packaging can provide an optimised solution for every circumstance.

Portion packs can also be used to adapt the product to the income levels of different consumers. In emerging regions, smaller unit packs of products such as stock cubes, soap and washing powder provide large parts of the population with access to essential nutrition, personal hygiene and health care that they otherwise would not be able to afford.

From these examples we can see that appropriate packaging has already to fulfil a significant number of criteria/conditions, so that content can actually be consumed effectively and efficiently. However, after usage, the packaging has to be collected and handled responsibly. This is covered in the next section.

6

END OF LIFE OPTIONS

"I suspect that the understanding of sustainability will change in all sectors, including retail, as everyone learns more and understands it better. If there is one issue that is affecting retailer policies at the moment it is lightweighting, which favours flexible packaging. I am not convinced, however, that it is as black and white as using less material. For instance, do you choose a very lightweight packaging plastic that can't be recycled, or a heavier plastic that can be? There is a place for flexible packaging, but we need to change our view on recycling. Across the industry there is ignorance about packaging when it becomes waste. The whole sector is guilty of looking at things in terms that are too simple."

Steph Carter, Packaging Sustainability and Functional Capability Director at Unilever.

PACKAGING GATEWAY (2009) ✂

Sustainability in practice is constantly evolving and Carter highlights a very particular dilemma for the packaging industry and legislators alike: to recycle or not to recycle! Recycling has rightly been a major focus of environmental campaigns for many years. Consumers have been educated to look for products and packaging that are either made from recycled materials or that are easily recyclable. This argument has been attractive because of its simplicity. Similarly, legislators and regulators have tended to focus on encouraging recycled material content and recyclability for a broad array of materials, without necessarily considering the overall impact of the total product/packaging system, particularly related to specific uses/applications and markets.

This has led to an emerging perception amongst consumers and legislators alike, that only packaging that can be (easily, readily and cost-effectively) recycled is 'good', whereas those packs that can't are perceived as 'bad'. This distinction between 'good' packaging and 'bad' packaging is much too simplistic; the reality is far more complex.

Part of the problem is that legislators need to consider the aim of the regulations, namely to increase recycling rates. This focus on the Holy Grail of a '100% recycling' rate for some materials compels packaging manufacturers/ fillers and retailers to prefer the simple single material packs that are widely collected for recycling and thus better suited for achieving this goal. But this can, as Carter suggests, also involve using heavier and greater quantities of these 'simpler' materials, which correspondingly use more resources and energy to deliver similar transport, convenience and consumption benefits. In some instances this sole focus on 'recyclability' actually increases the overall environmental impacts of the packaging, which is the opposite effect to the one intended by the regulation or legislation.

As we have seen, lightweight packaging solutions can make a big difference: reducing the overall environmental impact by dematerialising packaging, reducing transport impacts and 'right-sizing' portions for different consumption occasions. These impact reductions are not always taken into account as part of this often exclusive emphasis on recycling of the packaging alone. Resource efficiency in terms of a lower total environmental impact profile can indeed be more important than recycling.

Taking the example we referred to earlier on page 12, we can see that recycling rates have to be extremely high to start being more 'resource efficient' and actually reducing the overall environmental impact of the product/pack system. In this example, even if none of the flexible 'brick' pack was recovered, the metal can and plastic container would require recycling rates of about 90% and 80% respectively to be equivalent in terms of weight of material 'lost'.

This can also apply to the carbon footprint of a flexible packaging solution where, even without recycling, it can be dramatically more greenhouse gas efficient than an alternative highly recyclable packaging format.

This illustrates the paradox in which we often find ourselves trapped: using fewer materials increases resource efficiency, but often lowers the economic and technical 'attractiveness' of a material to be collected and recycled.

A single solution to this paradox still eludes us and we must conclude that the parallel demands for less weight and more recycling do not necessarily make sense at the level of a single package.

A different and very viable end of life option which is increasingly practised safely across Europe is “waste to energy”, also called clean incineration with energy recovery. This enables energy to be recovered from the packaging while reducing the amount of material which needs to be further treated or disposed off.

As flexible packaging (depending on the composition) has similar energy values to oil or coal⁹, one can say that the materials which are incinerated with energy recovery are effectively being used ‘twice’! Once as a pack and then as fuel to provide energy.

In positioning (without preference) the recovery of energy on the same level as recycling, the current EU legislation on Packaging and Packaging Waste intentionally deviates from the classical waste hierarchy. The latter has generally preferred recycling prior to recovery. Having a choice of different end of life options makes sense for flexible packaging in particular, as it helps facilitate ‘perfect fit’ resource efficient solutions. Assessing alternative packaging solutions in the face of these additional end of life complexities requires us to not only focus on the product itself and its anticipated consumption pattern, but also to consider the existing waste collection, recycling and recovery systems that may or may not be available at the end of the packaging’s life.

There are a number of promising (future) developments that will help to facilitate further improvements to the recycling/recovery rates for flexible packaging (e.g. chemical recycling, pyrolysis). Industry is actively involved in these developments to continuously improve the end of life options for flexible packaging. In this sense, flexible packaging is continually striving to increase both its effectiveness and efficiency as the ‘sustainable packaging’ solution of choice.

As this chapter highlights, sustainable end of life solutions rely heavily upon the two core principles of effectiveness and efficiency. These run through all stages of the packaging life cycle and are intrinsically linked to sustainability, both at the beginning and end of the product life cycle.

7

CONCLUSION: THE PERFECT FIT


Why is flexible packaging the perfect fit? This is due to the combination of the physical properties of flexible packaging. Its material efficiency, adaptability and light weight leads to reductions in storage, distribution and transportation costs with associated energy and greenhouse gas emission savings.

Flexible packaging also generally saves more resources than it consumes during production, thereby preserving and conserving valuable food and other resources. It also delivers some of the highest product-to-packaging ratios. Unfortunately, well-intentioned legislation or other initiatives, for instance relating to recycling, can sometimes take an overly simplistic approach to the complex issues of packaging, by attempting to define 'good' and 'bad' packaging. In doing so, this potentially decreases overall sustainability and does more harm than good.

The arguments outlined above show how flexible packaging solutions can challenge the orthodox thinking around recycled content and recyclability of packaging. This is especially true when clean incineration with energy recovery is considered. But there are additional reasons why flexible packaging solutions will continue to contribute to the packaging sustainability challenges today and in the future.

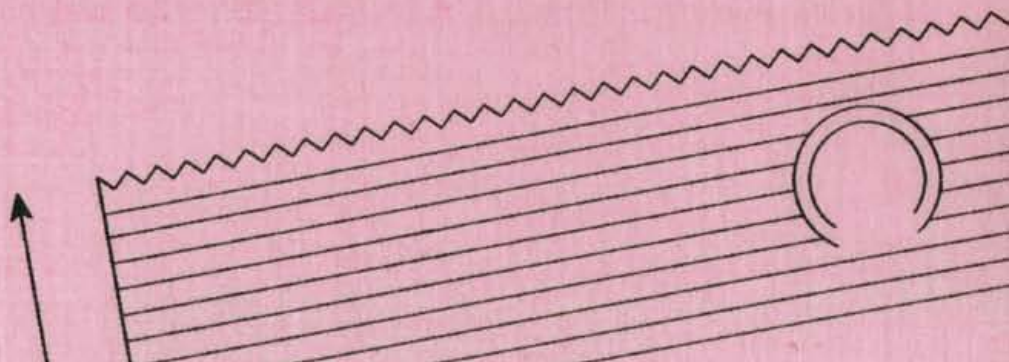
These attributes include:

- **Perfect** product-to-package ratio, reducing excess packaging and allowing for a range of pack types and sizes
- **Perfect** 'lightweighting' performance, reducing the impact from materials production, transportation and other impacts along the value chain
- **Perfect** adaptability to protect, while delivering convenience and portioning
- **Perfect** performance, giving optimum protection for valuable resources
- **Perfect** flexibility, an elegant combination of materials to meet the needs of a society that is changing ever faster
- **Multiple end of life solutions, minimising waste and ensuring optimised recovery**



If society seeks more 'sustainable packaging' options for today and tomorrow, it should be wary of applying simplistic arguments to complex problems. Flexible packaging solutions offer superior effectiveness, excellent material efficiency, adaptability and convenience. The best aspect of this is that they are available now. In the words of Antoine de Saint-Exupery:

*“Perfection is achieved,
not when there is nothing
more to add, but when
there is nothing left
to take away.”*



REFERENCES

Beltran-Gonzalez Felipe et al (2008): Effect of packaging materials on colour, vitamin C and sensory quality of refrigerated mandarin juice. Wiley Periodicals Inc.

Carter, S (2009): The Bigger Picture

Consumer Goods Forum ECR packaging

Deutsche Sisi Werke with IFEU (2002): LCA fruit juice drinks laminated pouch 0.2l, returnable glass bottle, and beverage carton

EN 13431 (2004)

ESU Services (2008a): The LCA of packed products – The function of flexible packaging, case study: Coffee

ESU Services (2008b): The LCA of packed products – The function of flexible packaging, case study: Spinach

ESU Services (2009): The LCA of chocolate packed in aluminium foil based packaging.


Europen (2009): Packaging in the sustainability agenda

Gibson, W (1999): NPR interview

Goldstein, S (2008): Packaging remains an environmental concern for consumers

Global Packaging Project (2011): A global language for packaging and sustainability

INCPEN/Ipsos MORI (2008): Public Attitudes to Packaging 2008



James, K, Fitzpatrick, L, Lewis, H, and Sonneveld, K (2005): Sustainable Packaging:
How do we Define and Measure it?

Packaging Gateway (2009)

PTIS for Flexible Packaging Association (2007)

Sustainable Packaging Coalition (2010): Principles

UNEP & SETAC (2009): Guidelines for social life cycle assessment of products

WRAP (2007): Understanding Food Waste



The bottom half of the image features a technical drawing on a dark purple background. It shows a mechanical part with various dimensions and dashed lines indicating internal features or assembly points. A dimension of '140mm' is clearly visible. The drawing includes solid lines for the outer profile and dashed lines for internal structures, with arrows pointing to specific features.



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