Cost & Environmental Benefits of Induction Sealing

Protecting products and the environment
The pressure to reduce plastic packaging is coming from many sides and the tide is turning, as manufacturers make changes to avert the potential disaster of there being more plastics than fish in the ocean by 2050\(^1\). One of the tools in the packaging reduction toolbox is ‘lightweighting’: its little-by-little approach is having a significant impact, offering food, beverage and pharmaceutical providers ways to improve their sustainability credentials in these tough economic times.

Reducing plastic impact
With less than 10% of plastic packaging at present recycled\(^2\), many companies are looking for ways to reduce the amount of plastic used in their product packaging. Lightweighting – the reduction of the overall amount of any material in a piece of packaging – has become increasingly important as part of the sustainable packaging toolbox. Alongside the choice of alternative packaging and using recycled materials, lightweighting is being used by large and small food and beverage producers alike.

This little-by-little packaging adjustment approach is proving popular. Nestle, for example, has reduced the weight of its water bottles by 22% over the last ten years and through its eco-design process has managed to avoid the use of more than 142,000 metric tons of packaging material by the end of 2019, compared to the baseline of 2015\(^3\).

Promoting freshness, safety and affordability
In the EU, around 88 million tonnes of food waste is generated annually, with associated costs estimated at 143 billion euros\(^4\) and nearly 40 million tons of food is wasted in the US every year\(^5\), equating to more than $161 billion\(^6\). A significant amount of this waste is from fresh produce thrown away by households each year. Although a consumer re-education programme is needed, packaging and its ability to extend the shelf-life of foods plays a key part in the food waste reduction puzzle.

Plastic is difficult to replace in many food and drink applications, as it promotes product freshness, affordability and safety. However, the practice of lightweighting, along with improved packaging recyclability and reusability are all helping reduce the negative impact of this material on the environment.

Diageo, for example, has saved 1,200 tonnes of packaging in North America by a simple redesign of its 1.75l Smirnoff bottles. By removing the handle on the side of the bottle, 137g, or 12.6% of the total container weight, has been saved. With 8.7 million bottles being sold in this format, the reduction saves approximately the same weight as 96 London double-decker buses, or seven Boeing 747s\(^7\).
The benefits of lightweighting
Lightweighting as a process delivers a range of cost and environmental benefits:
- Material and production cost reductions – less packaging means savings on raw material and in production costs to deliver a more cost-effective overall product.
- Transportation and production energy savings – lighter products equates to reduced production levels and fuel consumption for their transportation, leading to lower CO2 emissions overall.
- E-commerce cost-efficiencies – as demand increases for online shopping, lighter packages are proving their worth for e-commerce.

Although lightweighting helps reduce shipping costs, has environmental benefits and is proving popular with e-commerce applications, attention needs to be paid to the quality of the packaging and the overall consumer experience it delivers. Afterall, thinner packaging can lead to performance issues.

Lightweighting and induction heat sealing
Packaging must be robust, tamper-proof and leak free if it is going to provide customer satisfaction. To achieve this, whilst still lightweighting the packaging and closures, producers have turned to a variety of methods to allow lightweighting, which can include production line changes, such as compression moulding technology and packaging redesign to remove unnecessary features. Lightweighting combined with induction heat sealing has stood the test of time however, as it creates a strong, hermetic seal that has many benefits.

Here are some of the areas of a container that can be light-weighted thanks to induction heat sealing:

### Lightweighing successes in dairy applications

#### 1982

- **Container:** In 1982 a 2l milk bottle weighted 24.6g
- **Closures:** In 1982 a 1.5mm cap weighed 2.5g

#### 2015

- **Container:** In 2015 a 1.8l milk bottle weighed 24.6g
- **Closures:** In 2015 a 1.3mm cap weighed 2.5g

#### 23.8% Weight Reduction

- **1982 vs 2015**

#### An example of induction heat sealing’s success can be seen in the dairy industry, one Australian milk brand experienced significant improvements in leakage prevention (and the elimination of spill mats), as well as a corresponding growth in sales and a shelf-life improvement for its milk from 12 to 14 days, corresponding to the introduction of induction heat sealing on its products.

Selig’s Lift ‘n’ Peel™ range
Selig’s Lift ‘n’ Peel™ range features an ergonomic tab that ensures easy opening for all consumers, even those with limited dexterity. Another benefit of Lift ‘n’ Peel™ is that when removed, it leaves no residue on the bottle, making the container easier to recycle. Furthermore, they can be printed with a custom logo or design for brand differentiation and require no additional processing or equipment beyond standard induction sealing machinery to include in packaging.

Selig - tried and tested
As a global leader in sealing solutions, Selig has helped many producers lightweight their product ranges. Lightweighting and induction heat sealing success can be seen across the food sector. For example, thanks to induction heat sealing, many PET ketchup bottles are now reduced in thickness. In addition their caps have been lightweighted and their tamperbands and shrinkseals removed. The impact of lightweighting and induction heat sealing on dairy packaging has also been significant:

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About Selig
Selig is a leading worldwide manufacturer of tamper evident cap and closure lining materials for use across a broad range of applications, such as food and beverage, pharmaceutical, agrochemical, cosmetics and healthcare. Selig’s comprehensive range of both one and two piece structures provides a solution for even the most challenging applications using one of their customised aluminium foil/heat seal combination products. In addition, Selig offers a range of easy open products, which provides greatest convenience and product freshness to consumers as well as strong market differentiation to the brand owner.

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