

Live design session at  
Graham Packaging  
Graham Packaging, photos



# Designing for Recyclability is key to meeting strict European recycling laws

Recent European legislation is driving manufacturers to seek out innovative ways to meet new rigorous recycling demands. One of the best ways to achieve this is to design for recyclability.

– By **Carl Gaughran**, Director of Development, Graham Packaging

**M**anufacturers must create products that both attain the company's brand vision while at the same time satisfy all recycling and sustainability legislation. Today, these regulations call for both an increase in the amount of recycled content in packaging, and mandate that all future packaging be reusable or recyclable. When it comes to the plastics packaging industry, companies like Graham Packaging have developed several advancements that can help companies attain these goals.

## The role of a package designer

Over the years, package designers have evolved into prob-

lem solvers who create appealing designs while embracing sustainable practices. Striking the right balance involves a collaborative effort between the brand team and the design team. To that end, Graham Packaging holds "live design" sessions with its customers in its design studio. During these sessions, customers discuss projects in detail while new designs are produced in real time.

Using a variety of technologies throughout the design process, the creative team works to develop sustainable solutions that reflect the brand's identity. The overall success of a design team involves the utilization of art, communication, engineering, technology and manufacturing to optimise the development of customized, sustainable pack-

aging solutions.

## Near-infrared (NIR) challenges

In the past, traditional carbon black bottles were virtually undetectable by near-infrared sorting in recycling streams. This posed a challenge for companies who wanted to maintain their brand identity while making their packaging recyclable.

This led to the development of a new technology that allows products to achieve the look of a carbon black bottle while also being detected during NIR sorting. The innovative process provides the opacity of standard carbon black with the detection capabilities of non-carbon black. This is achieved through the use of a tri-layer structure - a solution that provides added sustainability benefits by reducing the amount of masterbatch needed to achieve the correct opacity and by en-

abling recycled material to be used. While European legislation does not permit recycled content to touch food, the tri-layer structure of the package allows the manufacturer to fully encapsulate the recycled content to achieve a more sustainable solution.

## Heavy focus on lightweighting

For years, manufacturers have challenged themselves to make lighter packaging without compromising performance. Lightweighting is an innovative process that results in a reduction in the overall weight of a package, while still having the integrity to stand up to filling, labelling, packaging and shelf life.

Another innovation in lightweighting can be found in the medical nutrition market. In the past, intravenous food products were typically packaged in pouches. However, they were



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costly and had a 10% to 15% reject rate that was unrecyclable. This inspired Graham to develop a collapsible bottle that could effectively replace the pouches. As the product is used, the bottle fully collapses until it is completely flat.

This collapsible bottle was first manufactured using medium-density polyethylene (MDPE), since it provided additional flexibility. However, a way was found to make a collapsible product with the same level of performance using high-density polyethylene (HDPE), which made the bottle easier to recycle.

### Post-industrial recycling

Recyclers in Europe are challenged to get a sufficient supply of food-grade material, because of legislation requiring traceability to ensure the content that is coming from food packaging is going back into food packaging. Due to this lack of access to food-grade recycled content, manufacturers are turning to alternative streams — one being post-industrial recycling (PIR).



Post-consumer regrid  
Graham Packaging. photos

In addition to post-consumer recycling (PCR), PIR is another source of recycled content. Essentially, it is the waste generated from the original manufacturing process that is used again in the same material. Post-consumer materials have been introduced into the distribution system for their intended use.

PIR often requires less energy to convert material into a new usable package. Additional benefits include a reduction in freight savings, lower risk of contamination from mixed materials and energy savings for cleaning, sorting and the conversion of flakes to pellets.

### Future recycling initiatives

Graham Packaging continues to explore new and innovative ways to move the needle on both designing for recyclability as well as increasing the amount of recycled content in its products. Another development in Europe involves chemical recycling, which alters the physical form of used plastics, either by dissolving the plastic with chemicals or using heat to break down plastics into their original components.

Additionally, the company is looking for ways to use master-

batches that contain recycled content without compromising the level of colorant the packaging needs to achieve. The company is also actively promoting freight optimization and working with clients to ensure they can fit as much product as possible on pallets to reduce the number of trucks on the road.

### Educating the consumer

In addition to the aggressive efforts of packaging companies to design for recyclability, companies must make a concerted effort to educate consumers on best practices for recycling. The public must understand how to overcome barriers of recycling and do their part to achieve the best possible environmental outcomes.

Packaging companies are therefore pushing for legislation that gives consumers more than just nutritional information on a package label. They also want clear instructions on how to properly recycle each bottle and container. Efforts such as these will further drive sustainability while contributing to a circular economy.



## 2020 WINNERS TO BE REVEALED



For more information visit:  
[www.prseventeurope.com](http://www.prseventeurope.com)

The successful shortlisted finalists for 2020 will be on display in a special feature area at the Plastics Recycling Show Europe on the 25th-26th March 2020 at the RAI in Amsterdam.

The lucky winners will be announced on 26th March 2020.

#### CATEGORIES:

- Automotive, Electrical or Electronic Product •
- Building & Construction Product •
- Household & Leisure Product •
- Plastic Packaging Product •
- Product Technology Innovation •
- Recycling Machinery Innovation •
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