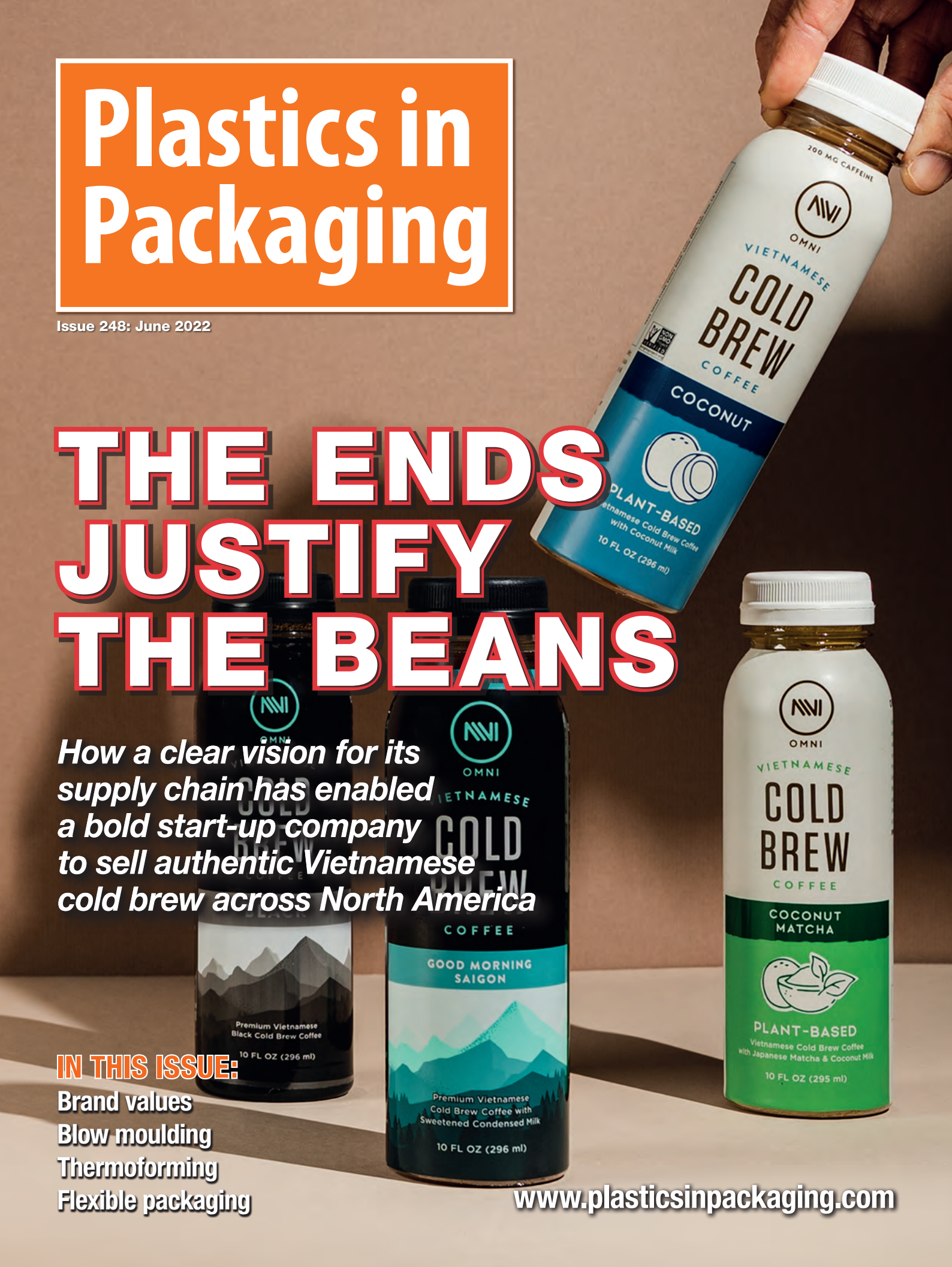
Plastics in Packaging

Issue 248: June 2022



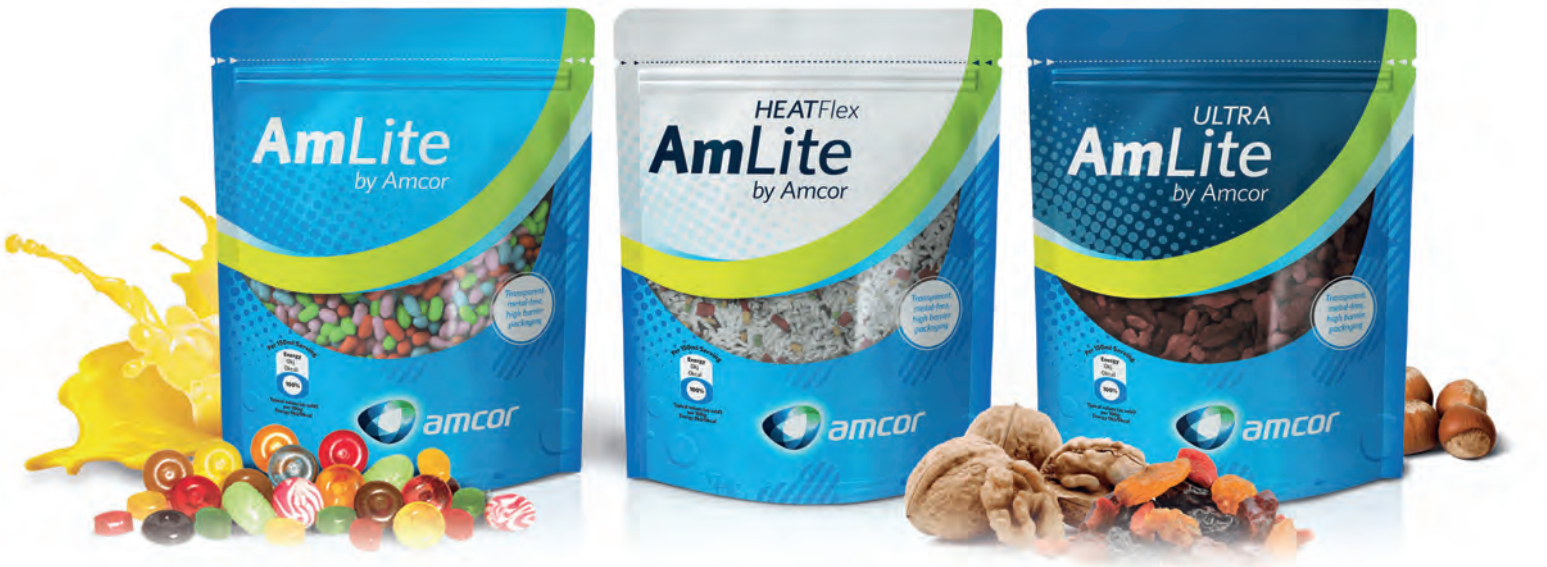
THE ENDS JUSTIFY THE BEANS

How a clear vision for its supply chain has enabled a bold start-up company to sell authentic Vietnamese cold brew across North America

IN THIS ISSUE:

Brand values
Blow moulding
Thermoforming
Flexible packaging

www.plasticsinpackaging.com



Breaking down barriers

Converters and packaging manufacturers are putting considerable resources into improving the circularity of flexible packaging without compromising form or function. And, as Noli Dinkovski discovers, they are starting to reap the rewards

The thirst for innovation in flexible packaging appears to be at an all-time high. On the one hand, the desire for brand owners to differentiate, stand out and attract consumers to their products continues to accelerate new product development. On the other, the necessity for better convenience and longer shelf-life, coupled with the unrelenting demand for more sustainable and circular materials, is driving constant change.

"The need for sustainable options can take many forms but can include end-of-life alternatives such as recycling and composting, and reducing the use of virgin plastics through the use of post-consumer recycled content [PCR]," says Jeff Travis, manager for innovation and sustainability at American Packaging Corporation (APC).

"However, innovating and providing new packaging with the required performance and functionality is now more complicated as materials are often different and don't perform the same as traditional offerings."

It's evident that packaging innovation doesn't come without its challenges. But in meeting market demand, converters and manufacturers are ploughing increasing amounts of time, money and resources into product development, resulting in ever more creative outcomes.

A good example is APCs bio-based packaging for Lamb Weston's Alexia-branded frozen potato products. Following consumer feedback, Lamb Weston was keen to introduce plant-based content into its packaging and reduce the quantity of its fossil-based plastics.

APC came upon a technology based on starches generated from the washing and processing of Lamb Weston's potato fries. This starch was compounded into a resin formulation that could be introduced into the film manufacturing process. In the new package, 16 per cent of the entire structure – a sealant layer formerly composed of LLDPE – has been removed.

"Our work with the frozen potato pouch allowed Lamb Weston to express its commitment to sustainability to its customer base," explains Travis. "The company reported annual savings of 6.5 tonnes of carbon dioxide emissions, equivalent to 14,700 miles driven or 14 barrels of oil. Additionally, the starch was previously discarded as waste and is now reintroduced into packaging, which offers a great sustainability story."

APC's packaging innovation was recognised at the recent 2022 Flexible Packaging Achievement Awards, held in Texas, USA, where it won a gold award in the Sustainability category and silver for Packaging Excellence.

Another award winner at the event was Amcor, which received gold for Expanding the use of Flexible Packaging with its AmPrima recycle-ready pouch for Tyson's Instant Pot family meal kits. The AmPrima pouch replaces a three-part tray, lidding and overwrap system with a single high-barrier carrier, which is at the same time eligible for consumer recycling.

One of the latest innovations the company claims to be especially proud of is AmLite HeatFlex, a line of metal-free high barrier packaging for retort and heat processing. The product range, it says, utilises its extensive experience in high barrier coatings to create a lightweight material that offers excellent product protection, and can be recycled.

"Compared with other materials used in the same application, our innovation has enabled the manufacturing process to reduce the packaging's carbon footprint by up to 60 per cent," says Amcor director of sustainability Gerald Rebitzer. "The product's attributes underline our commitment to sustainability and highlight our efforts to reduce the greenhouse gas emission intensity of our products."

Amcor claims to be investing more than $100 million in research and development every year, and it says it is innovating to produce packaging that can both be recycled and offer lifecycle benefits, such as carbon footprint reductions. It has also invested into the Michigan State University's School of Packaging in the US.

"These measures are crucial in allowing Amcor to meet its objective of designing all products to be recyclable or reusable by 2025, and to use more recycled content," Rebitzer states.

Whether it involves the removal of a metallised barrier layer or not, the move towards mono-material structures is clearly a leading sustainability focus in flexible packaging.

Following investment in a machine direction-orientation PE line, Indian packaging manufacturer UFlex has been able to help brand owners across various segments migrate to more sustainable laminate structures. As an example, edible oil packaging – which

traditionally used nylon – can now be replaced with its mono-material laminate with barrier coating.

One of the latest developments from the company is the ULP (ultra-low permeable) PET-based laminate, which replaces PVDC-coated PET/nylon PE laminate. UFlex says the new laminate has had success in meat packaging. Further NPD comes in the form of a PET-based cold form laminate, which UFlex describes as a "breakthrough development" for the pharmaceutical industry, as it can replace both nylon and PVC.

"Our strength lies in understanding the underlying needs of the consumer packaged goods industry, which we bridge using our knowledge and enabling technology," says Amit Shah, joint-president and chief marketing officer for flexible packaging at UFlex. "The work done by us has enabled the entire ecosystem – including us, the brand owners, and the consumers – to be more resource-efficient and sustainable."

A trend towards mono-material packaging has also been a central driver of innovation for inks and coatings specialist Hubergroup. Most recently, the German company introduced the Hydro-Lac oxygen barrier coating, which protects packaged food from oxygen, enabling mono-PE or mono-PP packaging for oxygen-sensitive food.

According to Hubergroup, an oxygen transmission rate of less than 10 sq cm of oxygen per sq m can be achieved under industrial conditions when using the barrier coating with PP film. "Our oxygen barrier coating enables mono-material packaging for oxygen-sensitive food such as nuts or muesli," says Dr Lutz Frischmann, the company's global product director for flexible packaging.

Furthermore, the recyclability of such mono-material packaging with Hydro-Lac barrier coating is significantly better than that of packaging containing several different types of film, Frischmann suggests.

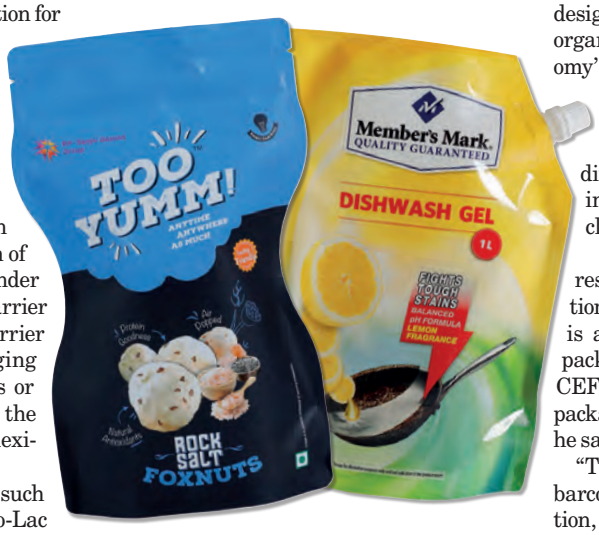
"We are always working on developing safe, sustainable, and future-oriented products," he enthuses. "A major focus is to further drive circularity – by designing recyclable inks and varnishes, and with solutions to promote design-for-recycling, for example with our barrier coatings."

Frischmann also sees steady growth in UV flexo applications, with the company currently "intensively involved" in UV flexo inks and varnishes for food packaging. "We are working on several market launches in 2022 that meet the highest requirements for food contact materials applications," he adds.

Of course, innovation in flexible packaging isn't always about protecting food. Sealed Air recently launched the Fill-Air Extreme Efficiency recycled content films range, which is designed for inflatable void fill packaging to secure and cushion goods while in transit. The films contain a minimum of 50 per cent recycled content, 30 per cent of which is PCR content.

Above: *Hubergroup's oxygen barrier coating enables the mono-material packaging of oxygen-sensitive foods.* ***Above right:*** *Indian packaging manufacturer UFlex is focused on the development of PET-based laminate for food and beverage packaging*

Sealed Air's Bubble Wrap IB recycled content films, meanwhile, are tailored towards light- to medium-weight cushioning and wrapping applications. The films contain a minimum of 30 per cent recycled content diverted from post-industrial recycled material.



Brand owners are demanding ever more sustainable packaging without any compromise on functionality or visual appeal

Both films are supplied in long roll lengths and inflated on demand, says Eric van der Kallen, protective solutions manager at Sealed Air. "When compared with thicker films, this reduces the amount of handling, cartons, pallets, warehouse space and lorries on the road, while increasing operational efficiencies," he adds.

According to van der Kallen, the inflated pillows and bubble material can be reused multiple times, greatly reducing the amount of packaging material that enters the waste stream. The material can also be recycled when sorted appropriately.

The critical importance of making flexible packaging more recyclable continues to gather momentum thanks in part to the Circular Economy for Flexible Packaging (CEFLEX) initiative, which started in 2017. The grouping now comprises almost 200 European companies, associations and organisations, all working to make flexible packaging in Europe circular by 2025.

To increase the quantity of recyclable materials and manage the total system costs efficiently, CEFLEX project coordinator Graham Houlder believes it is imperative that all flexible packaging placed on to the market is also designed for circularity, as laid out in his organisation's 'Designing for a Circular Economy' guidelines.

"This will be further elaborated by the extensive testing work CEFLEX is doing to fill the knowledge gaps on what level different functional minor components used in flexible packaging start impacting recyclate quality," he adds.

Houlder speaks positively about the progress made by industry, suggesting a realisation of the demand-driven circular economy is already happening. "The whole flexible packaging value chain is collaborating in CEFLEX and is (re)designing their flexible packaging in parallel to be circular compliant," he says.

"Technologies like HolyGrail 2.0 digital barcoding, dissolution recycling, layer separation, deinking and the commercialisation of significant quantities of chemical recycling (of PE and PP) are key enablers and need the support of all market actors to further develop their potential to help make flexible packaging materials circular and sustainable."

So, while there is clearly still work to be done before all flexible packaging materials can be circular, major steps forward in design across Europe at least are being achieved. The challenge now is to have a recycling infrastructure in place to support the current rate of progress. P

More information from:

Amcor	*amcor.com*
American Packaging Corporation	*americanpackaging.com*
CEFLEX	*ceflex.eu*
Hubergroup	*hubergroup.com*
Sealed Air	*sealedair.com*
UFlex	*uflexltd.com*