

FORM-FILL-SEAL FOR DAIRY PROGRESS REPORT

Determining the future of multipack for yogurts and dairy products



INTRODUCTION

Sustainable packaging solutions are more important now than ever. Consumers want to reduce their waste and recycle more, without drastically altering their lifestyle. To this end, Amcor has been leading the charge in developing more sustainable solutions for yogurt/dairy retailers and producers across Europe.

'Determining the Future of Yogurt Multipacks' is a collaborative research and development program to provide recyclable solutions across the dairy sector in Europe. This progress report assesses the developments made over the past year, the current state, and sets out a vision for a robust delivery program for the two most viable solutions.

In France, the current national target is to reduce landfill waste 50% by 2025¹. According to Total, the oil and gas company, in France alone over 110,000 tonnes of polystyrene (PS) packaging is produced each year. As a core component of the current yogurt packaging, PS reduction and/or recyclability has become a focus across the industry and Europe as a whole.

At Amcor we have a commitment to innovation, which is deeply embedded in the Amcor Sustainability Pledge to develop all our packaging to be recyclable or reusable by 2025. As part of this commitment, Amcor is developing a number of solutions to improve recyclability within the dairy sector.

FOR FORM-FILL-SEAL (FFS) IN PARTICULAR THE CHALLENGES ARE THREEFOLD:

- 1) The rigid cup is the most important part of the structure, constitutes more than 80% of the overall CO2 impact.
- 2) The choice of polymer for the rigid cup will influence the choice of flexible packaging components (lidding and banderole). This means evaluating the full on-shelf structure when determining the recycle readiness of the pack.
- 3) We must also consider the evolution of the recycling infrastructure, collection and sorting system available now and in the near future.

To ensure a more recyclable yogurt pack, we must look at the supporting flexible packaging as well as the polymer used in the rigid aspects.



1. The Waste Reduction and Recovery plan 2014-2020

CURRENT STATE

In today's market the most common structure is a PS cup, Paper banderole and PAP/PET lidding. Recycling these materials can be challenging and only Germany currently has an established collection, sorting, and recycling stream for PS rigid packaging.

In 2018, a consortium of industry leaders comprising of Citeo, Total, Saint Gobain and Syndifrais came together to lay the groundwork for a PS recycling stream in France. With an estimated 110,000 tonnes of polystyrene packaging put into the market each year, this recycling channel will form a key part of the country's move to a more circular economy. Current targets project that this stream could be implemented as soon as 2020.

In addition to the PS recycling stream there is also a growing desire for more widely recyclable PET solutions.

PET bottle recycling streams have been available since 1992. However, PET containers are not currently available at scale. Working within the available streams would mean maintaining the correct thickness and density to ensure PET yogurt cups can be recycled through the existing stream. Additionally, even if the PET container can be recycled, there is the recyclability of the flexible components to consider as well.

To ensure a greater chance of recyclability in dairy packaging, the focus for Amcor is on two key areas: PS recycling streams and innovations in PET rigid cups with OPP Flexibles.

IN DEVELOPMENT:

PET (Polyester) cup with OPP Banderole & OPP Lidding

The ideal outcome would be innovations in PET rigids that work within PET Streams.

PS (Polystyrene) cup with OPS Banderole and PS Lidding

PS recycling stream consortium of Total, St Gobain, Syndifrais and Citeo in France. The ideal outcome is to achieve a PS recycling stream.



BRINGING THE PS RECYCLING STREAM TO LIFE

Within the consortium, responsibilities for sorting and collection, recycling innovations, and reuse functions are shared amongst the members:

SORTING AND COLLECTION

Citeo, the company focusing on the circular economy, and Syndifrais, the group for dairy industrials (yogurt in this case), are focusing on the collection and sorting across France. Through its communications Citeo is educating French households on polystyrene waste sorting and collection. This is part an extended household waste sorting program, which aims to boost collection and encourage the recycling of PS products such as yogurt cups.

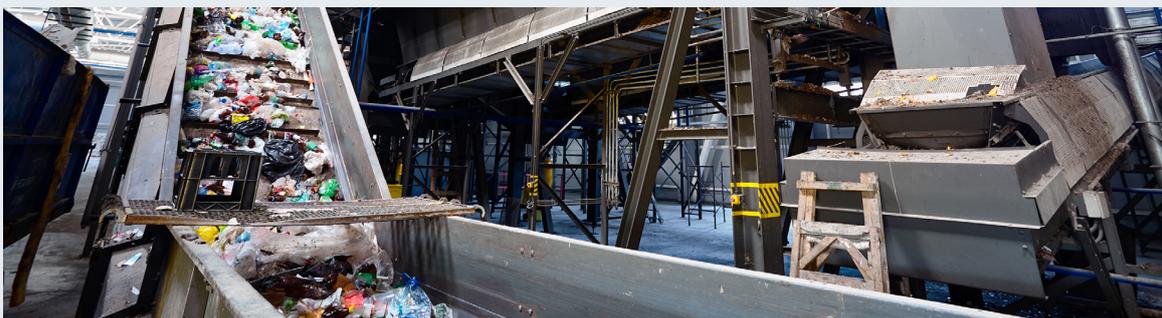
The more technical aspects of facilitating the recyclability of the PS packaging focus on providing the solutions to make PS easier to recycle, sort, and prepare.



INNOVATIONS IN RECYCLING TECHNIQUES

For Total, the focus has been on contributing industrial expertise and access to cutting edge recycling facilities. The sorted and prepared PS is being transferred to Total's industrial plastic production facilities located in Carling (France) and Feluy (Belgium).

Establishing an understanding of how large-scale recycling can take place is essential prior to a wider rollout. With a circular approach at the centre of the solutions, Total need to conduct research and development regarding the production of new products using the recycled PS, and the large-scale impacts of this.



ENSURING CIRCULAR ECONOMY GOALS

Saint-Gobain is working with key subsidiaries to move the circular economy initiatives forward towards the 2020 goal. They are currently focusing on expanded polystyrene (EPS) in construction, and the inclusion of recycled materials in these products is a key move for Saint-Gobain. Similarly, they will also be laying the foundations and groundwork for the further inclusion of recycled PS in production streams and closing the loop.

THE BIG PET CHALLENGE

Over the last several decades, PET has been on an extensive recyclability journey. Moving from mixed plastic to, easily separable, mono-material components, has made PET bottles significantly lighter and easier to recycle at scale

SUSTAINABILITY FOR FLEXIBLE PACKAGING:



However, the PET solution is proving difficult for the dairy industry as a replacement for traditional PS rigid yogurt cups. Almost every aspect of the PET solution behaves differently to its PS predecessor:

KEY CHALLENGES TO ADOPTING PET YOGURT POTS:

Thermoforming

Can the plastic be heated in a uniform way, before being moulded into packaging?

Resistance

Does the material hold up under pressure the same way?

Vertical compression

Can the material maintain its integrity under pressure?

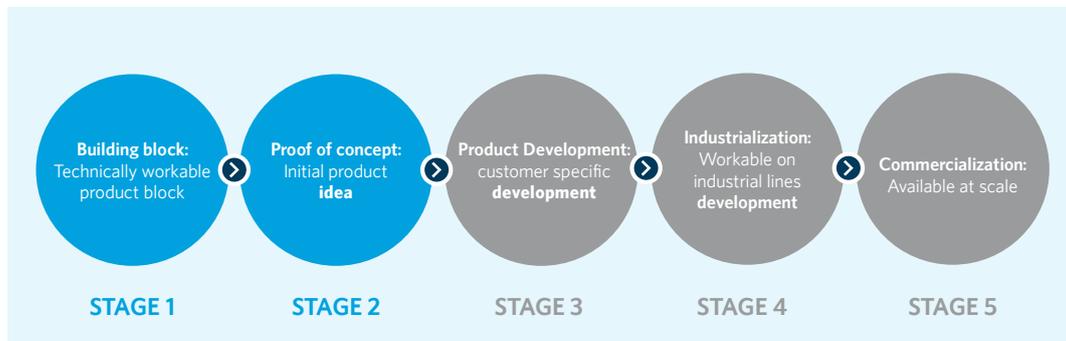
Sealing options differ

Is there a uniform sealing option to maximise reliability and recyclability?

The innovation process for materials is simply one aspect of the progress being made today. While the development of the components for PET solutions, such as the inclusion of OPP flexibles is one thing, establishing working models which run on current machines means that the process for a commercially viable product is heavily phased.

At Amcor the robust nature of our research and development process means we are already making progress towards these goals.

HOW DOES OUR INNOVATION PROCESS WORK FOR PET/OPP DEVELOPMENT, AND WHERE ARE WE TODAY?



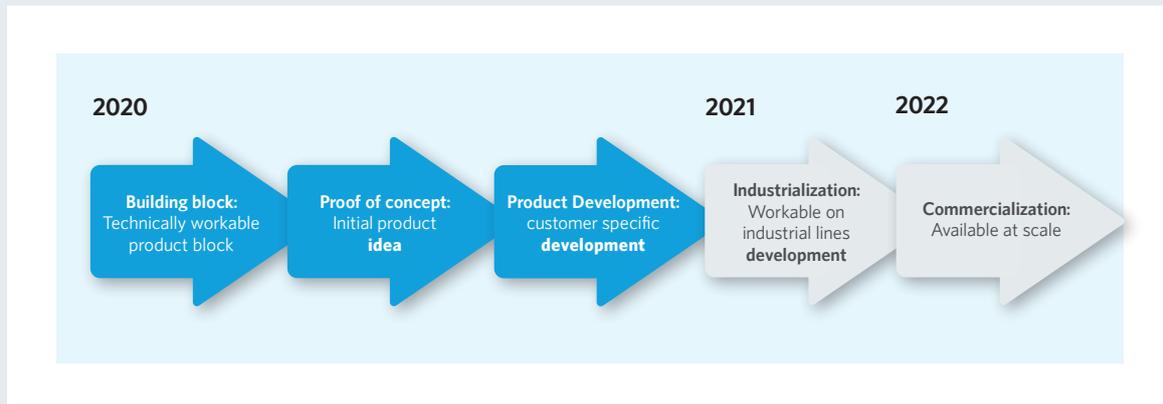
At the early stages we work closely with customers to develop a PET solution with OPP banderole/lidding. This process will take the dairy portfolio forward with a more recyclable solution for a number of markets across Europe.



2020 AND BEYOND

Over the next year, the process will progress to the product development stages:

Working in collaboration with the needs of customers, the Amcor team are working to develop a recyclable product aligned with the specific needs of retailers and producers. This stage will ensure a more workable and larger scale solution in the final development stages.



There is no one obvious route for recyclability solutions in the dairy industry today but the existing PP route and the PS route in Germany demonstrate what can be done. The uncertainties and movements around recycling streams and the complex development of more recyclable products such as PET rigid with OPP flexibles (lidding/banderole) packaging means that both aspects will continue to feature in the coming months and years.

However, having a robust process for collaborative development of solutions is key. Working with leading materials experts and research teams, as well as involvement in supporting and diversifying recycling streams across the world, is essential to futureproofing a more sustainable dairy packaging approach.

To find out more about the Amcor solution or research and development in this area contact mathieu.nicey@amcor.com

DELIVERING THE SUSTAINABILITY PROMISE

Today, almost every European food manufacturer has implied sustainability and social responsibility beliefs and values, or explicit, defined goals and promises. While many consumers may focus primarily on recyclability as the main determinant of packaging sustainability, FMCG producers and their suppliers must take a more holistic view of resource efficiency that also addresses total material use.

This is why Amcor is the first global packaging company pledging to develop all its packaging to be recyclable or reusable by 2025.

“For all that we have accomplished so far, we firmly believe that Amcor is just getting started. Better packaging makes for a better world for customers and consumers, investors, the environment, and our team. Inspired by our winning aspiration – to be the leading global packaging company – Amcor continues to make real, measurable progress and we are determined to continue the trend.”

Ron Delia, Amcor CEO

FURTHER INFORMATION

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