

## COFFEE CAPSULES



### DO YOU KNOW?

The global **coffee capsule** market is estimated at 80 billion unit. The industry is experiencing a major shift as **sustainability and environmental awareness** take center stage.

Growing consumer demand for specialty and organic coffee pods is driving the market, highlighting a shift toward premium and sustainably sourced products. Under the European Union's Packaging and Packaging Waste Regulation (PPWR), coffee and tea capsules will continue to be recognized as a valid packaging solution, provided they meet certain requirements — including being **compostable**.

### TERRIFIC SOLUTION

**What is it?** TERRIFIC will develop compostable coffee capsules that are not only sustainable but also with enhanced barrier properties and functionality. They will be designed to work with various end-of-life options.

## Challenges & Environmental Benefit: TERRIFIC goals

- **Biodegradability and Compostability** – Certified for industrial and home composting (OK COMPOST)
- **Recyclability of the bioplastics** – Available for injection moulded packaging in bioplastic non contaminated by organic waste
- **Lower Carbon Footprint** – Over 50% reduction in CO<sub>2</sub> emissions compared to traditional plastic capsules
- **Does not release persistent microplastics** into the environment, even in case of accidental dispersion
- **Improved oxygen barrier**

## How it works?

TERRIFIC coffee capsules will be made from over **95% renewable resources**, including used cooking oils and agro-industry sugar residues. These materials will be then converted into **biodegradable and recyclable biopolymers**, which can then be shaped into capsules using conventional manufacturing techniques such as injection moulding.

### What can I do?

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## FLEXIBLE FILM PACKAGING



### DO YOU KNOW?

As environmental awareness grows, there is a rising demand for **sustainable and biodegradable flexible films**.

So, the market for sustainable flexible films is expected to grow as both consumers and industries increasingly **prioritize sustainable materials**.

According to the PPWR\*, these applications are included in the list of products for which member states may allow their marketability if compostable.

\* European Union's Packaging and Packaging Waste Regulation (PPWR)

### TERRIFIC SOLUTION

**What is it?** TERRIFIC will develop biobased and biodegradable film packaging for crispy snacks. They will be designed to work with various end-of-life options.



## Challenges & Environmental Benefit: TERRIFIC goals

- **Biodegradability and Compostability** – Certified for both industrial and home composting (OK COMPOST)
- **Material Reusability:** Ensure the recycling feasibility to re-use the material through repulping processes
- **Lower Carbon Footprint** – Over 50% reduction in CO<sub>2</sub> emissions compared to traditional plastic
- **Does not release persistent microplastics** into the environment, even in case of accidental dispersion
- **Improved moisture and oxygen barrier properties**



## How it works?

**TERRIFIC flexible film packaging** will be made from over **95% renewable resources**, including used cooking oils and agro-industry sugar residues. These materials will be converted into **biodegradable and recyclable biopolymers**, which are then combined with **FSC® Control Wood Standard-certified paper**.

Conventional manufacturing technologies, such as film blowing, barrier coating, paper lamination and extrusion coating will be used to convert it into flexible film packaging.

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## STICK PACKS



### DO YOU KNOW?

The **stick packaging** industry is poised for significant growth, with its value expected to increase from USD 1,452.6 million in 2025 to USD 2,277.5 million by 2035, driven by increasing consumer demand for **convenient, sustainable, and innovative packaging** solutions across the food, beverage, and health sectors.

However, **the rise of single-use stick packs is contributing to significant waste**, as many are non-recyclable **due to material mixing and contamination**, leading to increased landfill and environmental pollution.

### TERRIFIC SOLUTION

**What is it?** TERRIFIC will develop biobased, biodegradable, compostable and repulpable stick pack for nutraceuticals. They will be designed to work with various end-of-life options.

## Challenges & Environmental Benefit: TERRIFIC goals

- **Biodegradability and Compostability** – Certified for industrial and home composting (OK COMPOST)
- **Additional end of life** – Possibility to dispose the packaging in paper waste stream due to the compatibility of the material and product with repulping processes, recovering the cellulosic fibers
- **Lower Carbon Footprint** – Over 50% reduction in CO<sub>2</sub> emissions compared to the traditional plastic
- **Does not release persistent microplastics** into the environment, even in case of accidental dispersion
- **Improved moisture and oxygen barrier properties**

## How it works?

**TERRIFIC stick packs** will be made from over **95% renewable resources**, including used cooking oils and agro-industry sugar residues. These materials will be converted into **biodegradable and recyclable biopolymers** and combined with **FSC® Control Wood Standard-certified paper**. Conventional manufacturing technologies, such as film blowing and paper lamination, will be used to convert it into **compostable and repulpable barrier stick packs**.

### What can I do?

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## EXPANDED THERMOBOXES FOR FROZEN LOOSE FOOD



### DO YOU KNOW?

The **cold chain packaging market** is projected to reach USD 70.4 billion by 2032, driven by the increasing demand for temperature-sensitive products. The sector is evolving with technological advancements aimed at enhancing efficiency, reducing waste, and increasing sustainability.

There is an interest in investing in **innovative materials** designed to develop **reusable, recyclable, and biodegradable packaging solutions** while ensuring optimal performance and minimal environmental impact.

### TERRIFIC SOLUTION

**What is it?** TERRIFIC will develop biobased reusable, recyclable and biodegradable expanded thermoboxes. They will be designed to work with various end-of-life options.

## Challenges & Environmental Benefit: TERRIFIC goals

- **Reusability:** the re-usability of the boxes is guaranteed by functionality and ecodesign of the packaging solution
- **Recyclability:** Biomaterials can be recycled at the end of the thermobox's lifecycle
- **Biodegradability and Compostability** of the barrier flagship packaging solution – Certified for both industrial and home composting (OK COMPOST)
- **Does not release persistent microplastics** into the environment, even in case of accidental dispersion
- **Potential for replication** in expanded products with high probability of microplastic

## How it works?

**TERRIFIC expanded thermoboxes** for frozen loose food will be made from over **95% renewable resources**, including used cooking oils and agro-industry sugar residues. These materials will be converted into **biodegradable and recyclable biopolymers**, which can then be shaped into expanded thermoboxes using conventional manufacturing techniques such as beads and microbeads foaming.

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## FOOD TRAYS



### DO YOU KNOW?

The global **food trays** market was valued at USD 10.84 billion in 2024 and is expected to grow from USD 11.40 billion in 2025 to USD 17.99 billion by 2034. A key trend in the food tray market is the rising demand for **sustainable packaging solutions**. As consumers become more environmentally conscious, there is a noticeable shift toward sustainable materials. This change not only reflects **growing preferences for biodegradable and recyclable materials** but also addresses concerns about the **environmental impact of packaging**, making it a vital factor in the food tray market. According to the PPWR\*, these applications are included in the list of products for which member states may allow their marketability if compostable.

\* European Union's Packaging and Packaging Waste Regulation (PPWR)

### TERRIFIC SOLUTION

**What is it?** TERRIFIC will develop biobased and biodegradable trays for meat and dairy products. They will be designed to work with various end-of-life options.

## Challenges & Environmental Benefit: TERRIFIC goals

- **Biodegradability and Compostability** – Certified for both industrial and home composting (OK COMPOST)
- **Additional end of life** – Possibility to dispose the packaging in paper waste stream due to the compatibility of the material and product with repulping processes, recovering the cellulosic fibers
- **Lower Carbon Footprint** – Over 50% reduction in CO<sub>2</sub> emissions compared to traditional plastic
- **Does not release persistent microplastics** into the environment, even in case of accidental dispersion
- **Improved moisture and oxygen barrier properties**

## How it works?

**TERRIFIC food trays** will be made from over **95% renewable resources**, including used cooking oils and agro-industry sugar residues. These materials will be converted into **biodegradable and recyclable biopolymers**, which are then combined with **FSC® Control Wood Standard-certified pulp**. Conventional manufacturing technologies, such as film blowing, multilayer structure and pulp thermolamination, will be used to convert it into compostable and repulpable barrier tray packs.

#### What can I do?

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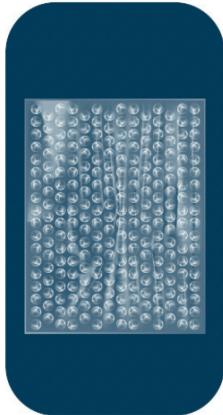


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## AIR BUBBLE FILMS



### DO YOU KNOW?

The global **air bubble film** market was valued at around USD 2.5 billion in 2023 and is forecast to reach around USD 4.1 billion by 2032.

This growth is driven by the **increasing demand for protective packaging solutions** across various industries, as air bubble films provide superior cushioning and shock absorption.

**The market is evolving with advances in materials science leading to the development of more durable and environmentally friendly solutions.**

### TERRIFIC SOLUTION

**What is it?** TERRIFIC will develop reusable and recyclable air cushioning and bubble film. They will be designed to work with various end-of-life options.

## Challenges & Environmental Benefit: TERRIFIC goals

- **Biodegradability & Compostability:** Certified for industrial and home composting (OK COMPOST)
- **Reusability:** Designed for multiple uses before disposal
- **Recyclability:** Made from materials that can be reintroduced into recycling streams
- **Does not release persistent microplastics** into the environment, even in case of accidental dispersion

## How it works?

**TERRIFIC Air Bubble Films** will be made from over **95% renewable resources**, including used cooking oils and agro-industry sugar residues. These materials will be converted into **biodegradable and recyclable biopolymers**, which can then be shaped into Air Bubble Films using a combination of technologies such as film blowing and bubble thermoforming.

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## BIO-BASED YOGURT CUPS



### DO YOU KNOW?

The EU produces approximately 7.69 million tons of yogurt each year, usually packaged in multi-material containers that complicate the recycling process.

**As consumers become more environmentally conscious**, demand for sustainable yogurt packaging is rising.

**There is a growing preference for sustainable materials** that reduce the product's overall environmental impact, **making sustainable packaging solutions a key market trend in the coming years.**

### TERRIFIC SOLUTION

**What is it?** TERRIFIC will develop biobased compostable and recyclable thermoformed cups for yogurt and dairy products. They will be designed to work with various end-of-life options.

## Challenges & Environmental Benefit: TERRIFIC goals

- **Biodegradability and Compostability** – Certified for both industrial and home composting (OK COMPOST)
- **Recyclability of the bioplastics:** available for thermoformed packaging for bioplastic non contaminated by organic waste.
- **Lower Carbon Footprint** – Over 50% reduction in CO<sub>2</sub> emissions compared to traditional plastic
- **Does not release persistent microplastics** into the environment, even in case of accidental dispersion
- **Improved moisture barrier properties**

## How it works?

**TERRIFIC yogurt cups** will be made from over **95% renewable resources**, including used cooking oils and agro-industry sugar residues. These materials will be converted into **biodegradable and recyclable biopolymers**, which can then be shaped into cups combining technologies such as multi-layer sheet extrusion and thermoforming.

**WHY?** to offer more sustainable cups for yogurt and dairy products that could be disposed with organic waste, **ensuring food safety and improving circularity.**

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## WOVEN TEA BAGS

### DO YOU KNOW?



Millions of tons of **tea bag** waste are generated annually. Sustainability is a **key factor in the tea bag market**. Many manufacturers now offer **biodegradable and compostable materials** in response to growing environmental concerns. This trend aligns with consumer demand for environmentally friendly packaging, further supporting market growth. Manufacturers that prioritize innovation in **sustainable packaging, flavor and materials are expected to gain a significant position in this market**.

As sustainability becomes a key priority in the tea market, manufacturers are increasingly shifting towards biodegradable and compostable materials. This shift is driven by **consumer demand for eco-friendly alternatives** and presents a **growth opportunity** for brands that innovate in **sustainable packaging, materials, and product quality**.

### TERRIFIC SOLUTION

**What is it?** TERRIFIC will develop biobased and compostable woven tea bags. They will be designed to work with various end-of-life options.



## Challenges & Environmental Benefit: TERRIFIC goals



**Biodegradability & Compostability:** Certified for **industrial and home composting** (OK COMPOST)



**Lower Carbon Footprint** – Over 50% reduction in CO<sub>2</sub> emissions compared to the traditional plastic



**Does not release persistent microplastics** into the environment, even in case of accidental dispersion



## How it works?

**TERRIFIC tea bag** waste will be made from over **95% renewable resources**, including used cooking oils and agro-industry sugar residues. These materials will be converted into **biodegradable and recyclable biopolymers**, which can then be shaped into tea bags combining technologies such as melt spinning and weaving.

**WHY:** to **offer a sustainable tea bags** that could be composted accordingly to the PPWR\* **while maintaining tea quality and flavor release**.

\* European Union's Packaging and Packaging Waste Regulation (PPWR)

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