



# Flexsafe® Pro Mixer Bags

Simplifying Progress

Sustainability Fact Sheet

**SARTORIUS**

# Overview

Flexsafe® Single-Use Bags for Mixing. Building on more than 20 years of experience in designing single-use solutions, we have established the mixing solutions for all process steps where either powerful or low shear mixing performances are required. Discover our product range for bioprocessing with Flexsafe® bags for mixing from 5 L to 3,000 L.

This fact sheet presents the current sustainability status of Flexsafe® bags for mixing, using the Flexsafe® Pro Mixer 200 L bag as an example. It highlights our commitment to enhancing the sustainability of our products, with continuous improvements being made over time.

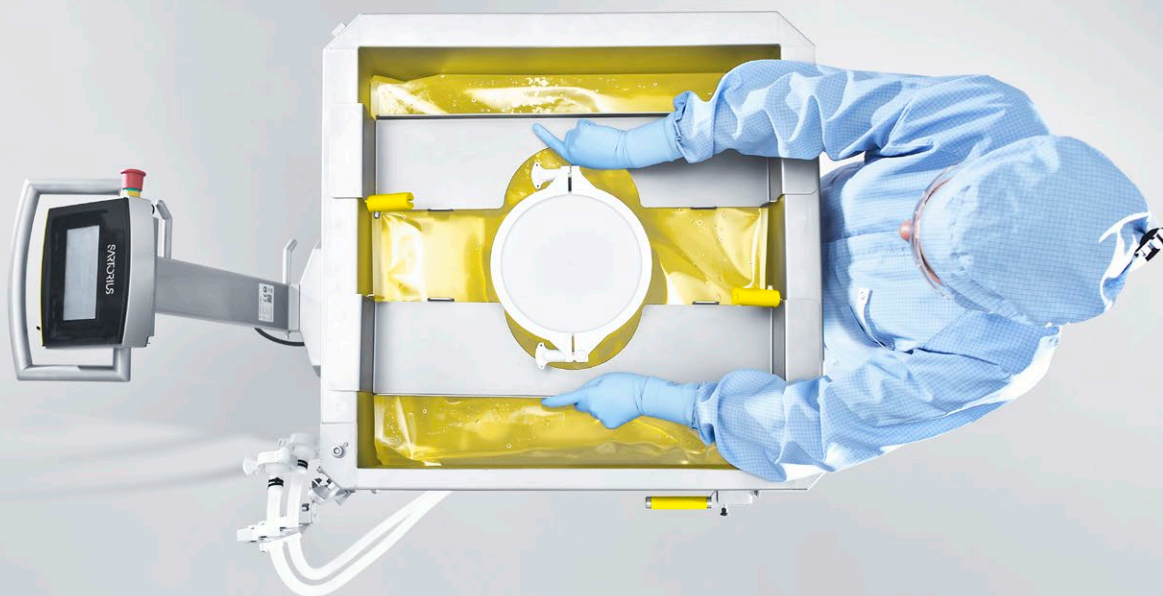
# Life Cycle Thinking

At Sartorius, we are committed to sustainability and are actively seeking innovative ways to reduce the ecological footprint of our products.

Adopting life cycle thinking is key to enhancing sustainability and considering the environmental impacts from raw materials to end-of-life disposal. We are dedicated to refining our production methods, boosting efficiency, minimizing waste. We also consider the environmental toll of shipping practices and are committed to optimizing logistics to reduce carbon emissions.

Our ongoing research into materials and designs aims to lessen environmental impact and enhance the recyclability of our products. Guided by Product Carbon Footprint (PCF) screenings, we gain valuable insights that drive the development of more sustainable products and deepen our understanding of their ecological footprints.

Integrating life cycle thinking into our operations not only supports the sustainability of our products but also enables our customers to make environmentally conscious decisions with confidence.



# Environmental Overview

## Material Selection

All materials of construction are selected with care. The polymers used in plastic components and support materials, along with packaging materials like cardboard, are of high quality and largely recyclable.

## Raw Material Acquisition

Raw and support materials are supplied from sources close to the manufacturing sites where feasible. Bag manufacturing and final assembly are performed in a single plant, which avoids the environmental impact of internal transport.

## Material Processing

Bags, tubes and other components are manufactured on modern equipment in efficient processes that take material, energy and water consumption into account.

The Aubagne site undertakes several sustainability initiatives: it recycles the magnets contained in defective impellers that cannot be used to manufacture Flexsafe® Pro Mixer bags, enabling the magnets to be recovered and re-molded to create new impellers. Additionally, it sends plastic scraps to external recycling and uses renewable energy to manufacture the bags.

## Certification

The production sites in Aubagne, France, and Yauco, Puerto Rico are ISO 14001 certified. The environmental management system enables our organization to improve the environmental performance, meet legal and other obligations, and achieve environmental objectives.

Additionally, the production site in Aubagne has received the International Sustainability and Carbon Certification PLUS (ISCC PLUS), a globally recognized certification for recycled, biocircular, and biobased products. This certification enables us to advance toward using bio-circular feedstock at our resin manufacturers, thereby reducing the environmental impact of the plastic components without the need for additional product validation. All manufacturing processes, materials, and components will remain unchanged, maintaining the same technical and performance specifications. This ensures no impact on the fit, form, or function of the final product. In summary, this certification allows us to source products more sustainably and contribute to a circular economy without the need for their revalidation.

## Distribution

The production and distribution of the bags is managed with logistics solutions allowing for minimized impacts linked to transport to the final customers.



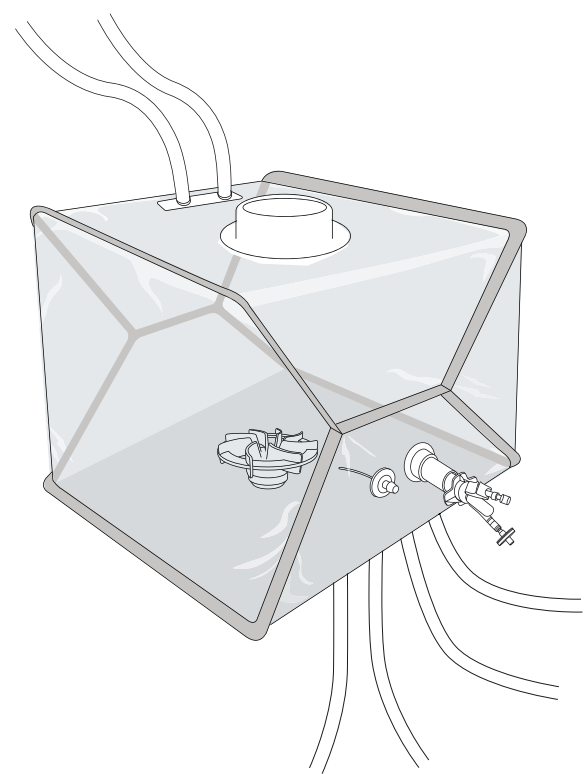
# Product

|                             |     |
|-----------------------------|-----|
| Recyclability               | 56% |
| S80 Film Renewable Content* | 71% |

The recyclability of our product stands at 56%, reflecting our commitment to sustainability and environmental responsibility.

Recyclability is defined as the characteristic of products that retain useful physical or chemical properties after serving their original purpose. Once these products are separated and sent to recycling, they can be reintroduced into manufacturing as raw materials<sup>1</sup>. In this context, we refer to the technical recyclability of a material or component, meaning that technological solutions exist to recycle them, either mechanically or through advanced recycling methods.

In addition, we have earned the ISCC PLUS certification for the Aubagne manufacturing site, where selected Flexsafe® Bags are produced. This certification enables us to allocate bio-circular feedstocks for the S80 film used in these products. For selected Flexsafe® Bags, the certifiable bio-circular material content of the S80 film is 71%. Certified material is available upon request for eligible references. The traceability of this allocation is managed using the mass-balance approach. All manufacturing processes, materials and components will remain unchanged, maintaining the same technical and performance specifications. This ensures no impact on fit, form, or function of the final product.



## Elements of the Product: Options at the End-Of-Life

| Component  | Material  | Recyclable |
|--|---|------------|
| Bag chambers and tubes   | EVA   EVOH, PE  | Yes        |
| Tubes  | Sil   | No         |
| Fluid contact components such as ports, flanges, impeller, caps, etc.                    | PC, PE, PP, PET, metals                               | Yes        |
| Fluid contact components such as triclamp unions, triclamp gaskets, filter, valves, etc. | Glass-reinforced PA, Sil, PSU, ABS, PC, PE and others | No         |
| Non-fluid contact components such as clamps and labels                                   | PP, paper   | Yes        |
| Non-fluid contact components such as cable ties, clamps and clamp protectors             | PA, PVC, PBT  | No         |

ABS= Acrylonitrile Butadiene Styrene, EVA= Ethylene vinyl acetate, EVOH= Ethylene vinyl alcohol, PA= Polyamide, PBT= Polybutylene terephthalate, PC= Polycarbonate, PE= Polyethylene, PET= Polyethylene terephthalate, PP= Polypropylene, PSU= Polysulfone, PVC= Polyvinylchloride, Sil= Silicone

\*For selected eligible references upon demand

Definitions: <sup>1</sup>Based on European Environmental Agency GEMET – Environmental thesaurus

Disclaimer  
The recyclability of the product may be influenced by its use, such as the presence or absence of agents defined as hazardous, as well as local regulations and the capabilities of local companies to manage those materials. Data refers to one Flexsafe® Pro Mixer 200 L.

# Packaging

|                   |     |
|-------------------|-----|
| Recyclability     | 79% |
| Renewable Content | 69% |
| Recycled Content  | 52% |

To meet customer requests and enhance the value of recyclates – reusable materials obtained from recycling – in Q3 2023 we have shifted from pink foam to non-colored foam in our packaging. This change improves recyclability and fosters circularity, benefiting both customers and recyclers while aligning with our sustainability goals.

### Recyclability<sup>1</sup>

Characteristic of products that still have useful physical or chemical properties after serving their original purpose and, after being separated and sent to recycling, can be reintroduced into manufacturing as raw materials.

We refer here as technical recyclability of a material | component | packaging material if technological solutions exist to recycle them (mechanically or via advanced recycling).

### Renewable Content<sup>2</sup>

Materials that are derived from resources that are quickly replenished by ecological cycles or agricultural processes, so that the services provided by these and other linked resources are not endangered and remain available for the next generation. In our product packaging, we refer specifically to cardboard and paper.

### Recycled Content<sup>3</sup>

Proportion of the mass of recycled material on the total mass of the packaging.



## Elements of the Primary and Secondary Packaging: Options at the End-Of-Life

| Category            | Packaging Element   | Material             | Recyclable? |
|---------------------|---------------------|----------------------|-------------|
| Plastics            | Foam cushion        | PE                   | Yes         |
|                     | Primary overpouch   | PE   PA   PE         | No          |
|                     | Secondary overpouch | PE   PA   PE         | No          |
|                     | Reverse cable tie   | PE                   | Yes         |
|                     | Reverse cable tie   | PA                   | No          |
|                     | Cable tie           | PA                   | No          |
|                     | Bubble wrap         | PE                   | Yes         |
| Paper and Cardboard | Product box         | Corrugated cardboard | Yes         |
|                     | Divider             | Corrugated cardboard | Yes         |

PA=Polyamide, PE=Polyethylene

**Definitions:** <sup>1</sup>Based on European Environmental Agency GEMET – Environmental thesaurus | <sup>2</sup>Corporate Sustainability Reporting Directive (CSRD) | <sup>3</sup>Only recycled post-industrial and recycled post-consumer materials shall be considered as recycled content. The numbers provided herein are the best available approximations.

**Disclaimer**  
The recyclability of the packaging may be influenced by local regulations as well as the capabilities of local companies to manage those materials. Data refers to one Flexsafe® Pro Mixer 200 L

# Sustainability at Sartorius

Sartorius is dedicated to shaping a future where improved medicine is more accessible to many. Concurrently, we acknowledge and address the impacts of our operations globally.

Taking into account the concerns of its stakeholders, Sartorius has defined six strategic sustainability topics:



Climate Action



Resources and  
Circularity



Water and Effluents



Supply Chains



Social Responsibility



Corporate  
Governance

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