



Vivaflow[®] SU

Simplifying Progress

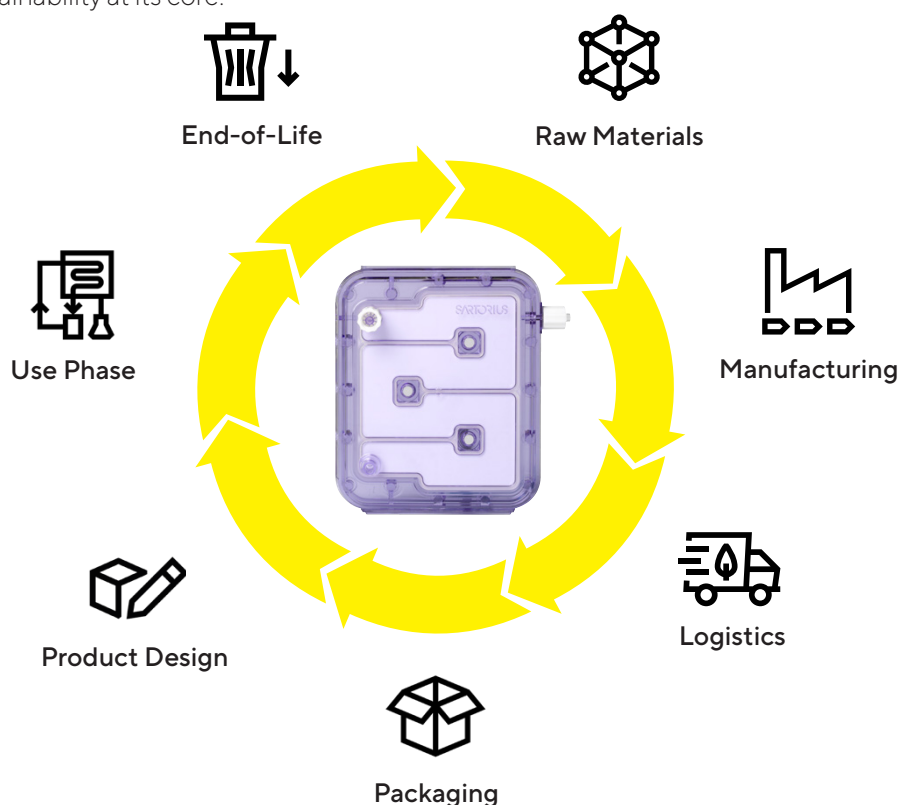
Sustainability Facts Sheet

SARTORIUS

Overview

Vivaflow® SU is a next generation tangential flow filtration (TFF) cassette, designed to simplify ultrafiltration and diafiltration of 100-1,000 mL samples in research laboratories. Each cassette is supplied ready to use for fast and intuitive setup right out of the box. In addition, the advanced flow path and extended range of membranes deliver faster process speeds and higher recoveries for virtually any molecule, without the need for expensive equipment or complicated process optimization.

Now, in addition to making TFF more accessible to research scientists, Vivaflow® SU has reinvented the TFF cassette with sustainability at its core.



Raw Materials

Revolutionary Reductions

Each Vivaflow® cassette begins with a handful of raw materials. For Vivaflow® SU, the housing has been completely redesigned and is now made of medical grade polycarbonate, which is certified renewable by the International Sustainability and Carbon Certification (ISCC) PLUS program. Polyethylene has also been introduced as a membrane support, and our commitment to local sourcing has brought the entire production process much closer to home. These changes have increased the product's recyclability potential and ensured a sustainable origin by reducing the complexity and carbon emissions of our supply chain. The result? A remarkable 30.5% reduction in plastic use and less dependence on crude oil (Figure 1), marking a significant step towards a greener future.



Figure 1. Each Vivaflow® SU cassette (teal) uses 30.5% less plastic than the previous generation Vivaflow® 50 (grey).

Manufacturing

Process Precision

We've transformed manufacturing with a cutting-edge heat staking assembly process, reducing production time by 40%. Each second saved in production contributes to a more sustainable operation. While we continue to explore renewable energy options, our manufacturing facility already excels in efficient waste management practices that align with circular economy principles. In addition, Sartorius is committed to converting all its production sites, including the Stonehouse facility, to 100% renewable electricity by 2030.

Logistics

Streamlined Supply

Our distribution network remains as efficient as ever, with a strong focus on optimizing the journey from raw material to delivered product. For Vivaflow® SU, we now source raw materials more locally and manufacture the housing entirely in-house (Figure 2). We have also maintained our commitment to ambient shipping conditions for the finished product, ensuring that it reaches you without the need for energy-intensive cooling.

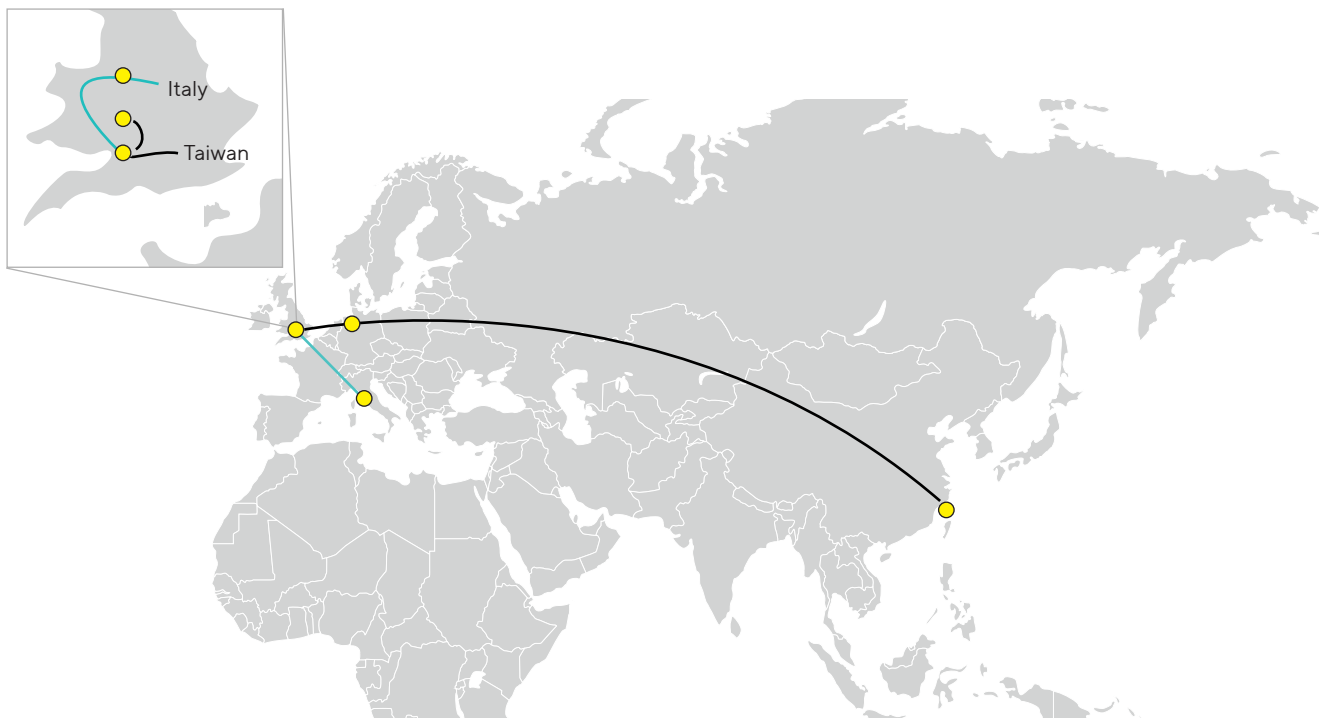


Figure 2. Local raw material sourcing and in-house production of the Vivaflow® SU housing (teal) have reduced the length of our supply chain by over 8,500 km.

Packaging

Recycling-Ready

We have redesigned the packaging for Vivaflow® SU to replace plastic bubble wrap with environmentally friendly cardboard inserts, a simple change that underscores our commitment to sustainability. While there is a slight increase in packaging weight (Table 1), the overall benefits more than compensate for this. Our new design also maintains the same overall shipping volume for delivery to our customers, ensuring that sustainability doesn't come at the cost of distribution efficiency.

	Vivaflow® SU		Vivaflow® 50	
Inner packaging	Cardboard (PAP)	39 g	Bubble wrap (PE)	5 g
Outer packaging	Cardboard (PAP)	59 g	Cardboard (PAP)	59 g
Printed materials	Quick start guide (PAP)	5 g	Instruction Manial (PAP)	30 g
Total weight		103 g		94 g

Table 1. The packaging for Vivaflow® SU cassettes is entirely paper based, making it easier to recycle.

Product Design

TFF Reimagined

Vivaflow® SU takes the core principles of our original Vivaflow® cassettes even further, to conserve resources and simplify processes for our research customers. The all-in-one housing and advanced flow path eliminate the need for expensive equipment, reducing both cost and environmental impact. While the lifespan of Vivaflow® SU remains unchanged at launch, we are exploring ways to enhance throughput and efficiency in future updates.

Use Phase

TFF Reimagined

Ergonomics take center stage with improved, directional Luer connectors for more intuitive setup and a leak-free process. We have also minimized waste by tailoring the included tubing kits to your specific application needs (Figure 3). This offers more versatility, enabling you to process both small and large feed volumes efficiently, while ensuring that every component of Vivaflow® SU serves a clear purpose. In addition, pre-washing is now an optional step that, if omitted, saves 100 mL of water per run (Table 2). Similarly, the single-use design and the retained ability to perform continuous diafiltration with Vivaflow® SU support even greater water savings compared to reusable cassettes and dialysis.



Figure 3. Vivaflow® SU cassettes are supplied with tubing kits to either run each cassette individually (left), or to run both cassettes in series (right), so that every component is always used and never goes to waste

Process	Product(s)	Vivaflow® SU	Vivaflow® 50R	Vivaflow® 50R Dialysis Cassette
	Method(s)	UF/DF	UF/DF	UF and Dialysis
Water Consumption	Pre-Washing	0.0 L	0.1 L	0.1 L
	Cleaning	0.0 L	1.2 L	1.2 L
	Buffer Exchange	0.25 L	0.25 L	30 L
	Total	0.25 L	1.55 L	31.3 L
Potential Water Savings with Vivaflow® SU			1.3 L	31.05 L

Table 2. By omitting the now optional pre-washing step and making use of Vivaflow® SU for buffer exchange as an alternative to reusable TFF cassettes and dialysis, a substantial reduction in water consumption can be achieved.

End of Life

No Parts Unused

We understand the challenges of recycling heat-staked products, but our tubing kits are easily separable and recyclable if uncontaminated. Additionally, our customized kits ensure you receive only what you need, minimizing waste. We also encourage practices that enhance the sustainability of Vivaflow® SU. For instance, proper sample clarification before TFF helps to maximize throughput, ensuring that the full capacity of each cassette can be utilized.

Further information on recyclability can be found in the Guide to Recycling and Responsible Disposal of Lab Filtration and Chromatography Products.

Together, we are not only advancing biotechnology but also paving the way for more sustainable future in life science research.

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For more information, please visit:

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