

## DRIVING ENVIRONMENTAL SUSTAINABILITY IN THE BIOPHARMACEUTICAL INDUSTRY

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SU technologies are increasingly employed in modern biopharmaceutical manufacturing as an alternative to traditional stainless steel solutions, owing to their contributions towards reproducibility, flexibility, time efficiency, and safety. These technologies are implemented across the bioprocess workflow from cell line development to final filling, including storage bags, mixers, bioreactors, tubing, filters, chromatography systems, and sensors. The adoption of SU technologies helps the industry reach environmental goals and strive against resource depletion, particularly water, energy, emissions, and footprint reduction.

The paper's goal is to present initiatives developed internally by Sartorius and with our partners, focused on our products and processes' sustainability. We will highlight results and examples of how suppliers in the biopharma industry can help customers achieve their sustainability goals. Moreover, we talk about the role of process intensification in driving resources optimization upstream and downstream. We will be looking at material circularity, carbon footprint reduction, partnerships, and water consumption optimization.

We believe that the best results can be achieved through collaboration between end users, suppliers, and academia, and hope to see the whole industry continue its progress on sustainability.

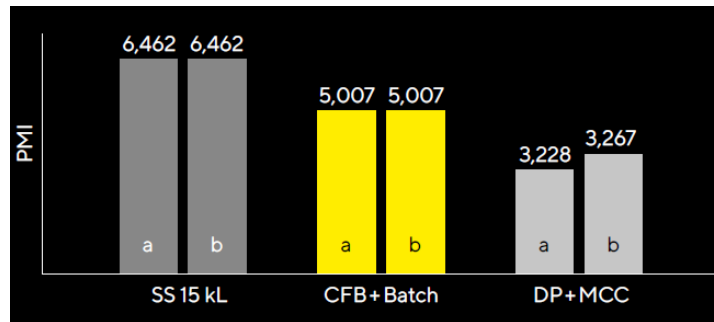


Figure 1 - Process Intensification Strategies help limit PMI