

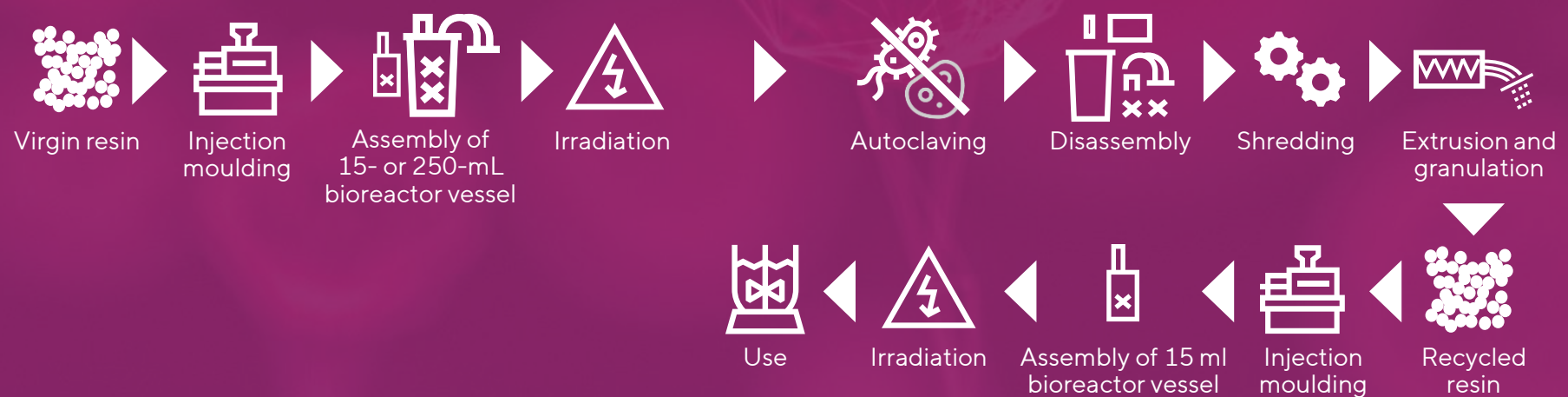
# Recycling Small-Scale Plastic-Based Bioreactors in a close-loop

## Summary of issue or opportunity being addressed

- Despite recognized benefits, single-use plastics in healthcare and bio-processes raises environmental concerns.
- Perceived barriers to plastic recycling in the industry :
  - Hazardous waste can't be recycled
  - Quality of recycled plastic isn't good enough for the application
  - Recycling has a worse carbon footprint than current disposal

## Introduction to the concept

Technical feasibility for recycling a small-scale bioreactor polycarbonate vessel in the same application – testing model



## Results | Impact of this concept

- No negative impact on cell growth or viability when using bioreactors made from recycled polycarbonate.
- Recycling would have a positive impact on Climate – Carbon-total (up to 35%)

## Considerations for implementation

- Need to establish a recycling stream from collection to new product creation.
- Current return rates are low; increasing them is crucial for maximizing environmental benefits.
- Open-loop recycling as an intermediate step can still provide environmental advantages.