

Dissolvr: Chemically defined media, buffers and precipitation agents on-demand

Continuous bioprocessing requires extensive amounts of cell culture media and buffers. The continuous preparation of cell culture media and buffers has not yet been realized. Therefore, companies have to prepare media and buffers repeatedly in batch which leads to increased storage costs, preparation cost and large necessary hold tanks. To solve the bottleneck, we developed a prototype which allows a continuous reconstitution of media and buffers directly from powders. This reduces the footprint of the floorspace reduced drastically, saving on necessity tank storage.

BACKGROUND

Moving from batch biomanufacturing to integrated continuous biomanufacturing reduces capital costs and reduces the footprint of each unit operation. However, it is often overlooked that this conversion only shrinks the unit operations themselves, and that the necessary auxiliary operations such as hold tanks, surge tanks necessary for buffers and media are drastically increased. As a result, the supply chains are facing increased demand for process materials and the need to process very high volumes. The storage capacity and the space for shuttling such large volumes is not always available, which hinders the transformation into continuous production facilities and offsets the footprint reduction due to continuous manufacturing. In addition, hold tanks limit the process development in terms of cost, footprint, and missing flexibility.

TECHNOLOGY

A system/process which allows a continuous on-demand reconstitution of process materials directly from solids. The system comprises one or more solid feeding devices, a mixing vessel and optionally a sterile filter unit. The system is able to continuously reconstitute commercially available chemically defined media and commonly used buffering salts and precipitation agents.



First Prototype

3D printed powder feeders allow a seamless integration in a continuous process using a liquid preparation unit containing two pumps, a CSTR and a tubular reactor.

BENEFITS

- Continuous on-demand preparation of culture media and buffers directly from powder
- Drastic reduced facility floor space, labor costs and cost of goods
- Platform technology to develop new cell culture formulation
- Precision precipitation technology for next generation downstream processes

REFERENCE:
201913

AVAILABLE FOR:
R&D cooperation
License agreement
Purchase

**KEYWORDS/
APPLICATIONS:**

Cell culture medium, Buffers,
Bioprocess, Continuous,
Precipitation,

DEVELOPMENT STATUS:
Prototype

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