



Simplify Your Process

Single-use from flow to filter



Bioprocess manufacturing grows more complex at every stage, increasing risk and reducing control.

- Escalating process complexity across upstream, downstream, and fill-finish operations
- Multiple vendors, handoffs, and qualification steps create silos and coordination challenges
- Contamination risks, leaks, misconnections, and delays compound with scale
- Pressure to scale quickly while maintaining quality, compliance, and cost control

From buffer preparation through final fill, Entegris delivers integrated, single-use solutions that simplify workflows, reduce contamination risks, leaks, and misconnections while maintaining quality, compliance, and scalability.

Why Tackle These Challenges Alone?

Entegris delivers a complete, integrated suite of single-use assemblies and solutions that eliminate handoffs, reduce integration complexity, and ensure consistent performance from buffer prep to final fill. One partner. Multiple process steps. Pure, Proven, and Precise at every stage.

Bringing Semiconductor-Grade Quality, Reliability, and Performance to Bioprocessing

PARTNERING WITH ENTEGRIS FOR EFFICIENT, HIGH-QUALITY PRODUCTS

Pure, Proven, Precise

Purity You Can Trust

Entegris delivers semiconductor-grade quality, globally validated quality systems, and advanced filtration solutions to ensure compliance and consistency at scale:

↑ Quality and Product Yield

↓ Risk and Cost/Time

Proven Outcomes

Dedicated quality and application teams, backed by scalable manufacturing capacity, help meet your scale-up demands while optimizing both process performance and product outcomes.

Precise Standards

At Entegris, we offer life sciences solutions born from the stringent requirements of the semiconductor industry. Our customization capabilities are integrated by design, ensuring product integrity and flexibility while reducing assembly steps.



Five decades of unparalleled partnerships



Global supply chain infrastructure



Reliable quality for life-sustaining treatments



Expertise from development through commercialization

Hands-on Partnership

Our commitment to your success begins at discovery and extends through commercialization. We're invested in your outcomes and will proactively understand your challenges and support your success from design to scale.

INTEGRATION FROM DESIGN TO SCALE:

Entegris offers a comprehensive library of single-use products designed for easy process integration. The portfolio includes tube sets, filtration manifolds, final fill manifolds, integrated component packs, and cell separation solutions that are engineered to work together across your bioprocessing workflows.

Life Sciences Technology Center:
Advancing Capabilities for Complex Challenges



Our Billerica, MA is a specialized technology center dedicated to solving the most demanding bioprocessing challenges. With dedicated support staff and advanced laboratory and development space, we offer hands-on expertise and capabilities that go beyond product sales.



A PRACTICAL GUIDE: WHERE ENTEGRIS SOLUTIONS FIT ACROSS THE WORKFLOW



CELL CULTURE AND SEED TRAIN

- Rocker bags
- Cell and microcarrier separation systems
- High-density cell banking solutions
- Storage and sample bags
- Customized tube sets
- Sterile venting filters



MEDIA AND BUFFER PREP

- Mixing systems
- Powder bags
- Sterile liquid filters
- Storage and sample bags
- Customized assemblies for tube sets for seamless integration



DOWNSTREAM PROCESSING

- Mixing systems for intermediate hold
- Sterile, bioburden control and particle removal filters
- Storage and sample bags
- Customized assemblies or tube sets



STERILE FILTRATION

- Mixing systems
- PUPSIT assemblies
- Sterile liquid and air filters
- Filling manifolds
- Custom tube sets
- Aramus™ 2D bags and freezing shells

Buffer Preparation: Simplify Before Scale

CHALLENGE Buffer preparation is labor and resource intensive. Each type of buffer needs to be prepared, filtered, and stored until release and use are complete. The burden spans capex investment, facility footprint, scheduling, consumables, and labor.

OUR SOLUTION Reduce the cost of buffer prep and operational overhead while maintaining purity.

BUFFER MIXING

- Peristaltic pump driven, low capex investment required
- Low-cost mixing bag with innovative mixing nozzle
- Integrated powder handling operations
- Customized assembly design, seamless integration



BUFFER STERILE FILTRATION

- 2x buffer filtration flowrate or downsized filter selection, enabled by high-flow single layer PES 0.2 µm filter
- Broad chemical compatibility for various types of buffer
- Filter integration into customized bag, tubing and manifold assemblies for easy connection and operation



BUFFER STORAGE AND TRANSFER

- Customized assembly design to fit every site environment for easy connection and operation
- 2D and 3D bag options across multiple film types and volumes
- Mobile drums or totes for maximized mobility and flexibility



Integrated Filtration: Accelerate Without Compromise

CHALLENGE Downstream processing demands precision filtration without slowing throughput. Mismatched filters, poor integration, or incompatible materials compromise purity, increase cycle times, and force costly rework and can lead to batch failures.

OUR SOLUTION Industry-leading Pharmsteri™ capsule filters integrated into your workflow-engineering for speed, consistency, and reliability to eliminate bottlenecks in downstream processing, reduce cycle times, increase product yield, and process reliability. Filters integrate seamlessly into customized single-use assemblies for true plug-and-play operations.

Entegris' filtration portfolio has a comprehensive range of cartridges and capsules, optimized for life science applications.

PHARMSTERI™ II GAMMA COMPATIBLE CAPSULE PORTFOLIO

Pharmsteri II GHF

- A high flow PES liquid filter designed for the sterile filtration of low fouling feed streams such as buffers, small molecule solutions, and more
- Helps your process efficiency improvement by proving 2x flow rate

Pharmsteri II GHC

- A high-capacity dual layer PES liquid filter designed for the sterile filtration of fouling feed streams such as media, intermediate, and protein formulation
- Improve your process economics and product recovery with higher throughput and lower product residual

Pharmsteri II GSV

- A high airflow UPE filter designed for sterile venting, gassing or process air filtration, providing a safe sterile barrier with lower differential pressure and risk of blockage under moist conditions



PUPSIT Sterile Filtration and Final Fill: De-Risk the Critical Last Mile

CHALLENGE The complexity to meet regulatory requirements and mitigate process risk increases when it comes to the final sterile filtration and filling steps. Implementing PUPSIT require expertise and flexibility in design to ensure compliance, process reliability, and product safety. Containers for frozen storage and transportation pose critical product leakage and contamination risks.

OUR SOLUTION Aramus single-use bags and specialized PUPSIT assemblies deliver regulatory compliance and operational confidence, de-risk final fill operations, and ensure batch integrity from manufacturing through distribution.

PUPSIT STERILE FILTRATION ASSEMBLIES

- Flexible customization and optimized design to meet process needs and regulatory compliance
- In-house liquid and air filter available for supply chain and lead time optimization
- Expertise in filtration, filter testing, and fluid handling
- Enhanced filter throughput and flow performance
- Reduces operational risk and ensures predictable outcomes



ARAMUS™ FLUOROPOLYMER BAGS

- Near-universal chemical compatibility-inert and non-binding
- 100% DMSO compatible for sensitive formulations
- Single-layer construction resists delamination and ensures robust seams
- Available from 4 mL to 50 L with temperature range from -196°C to 121°C
- Manifolds can be made featuring Aramus bags



Our Services

We can accelerate your time to market and reduce risk with integrated solutions and expert support. Our dedicated support team can advise you regarding single-use assemblies, corrosion-resistant materials for fluid management, particle characterization, liquid packaging, filtration, freezing systems, and purification.

OUR SOLUTIONS



Freeze/Thaw Dynamics

- Min/max loading
- Modeling freezing options
- Consumable benchmarking
- Freezer system evaluation, selection, and validation



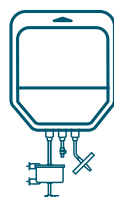
Shipping Robustness Studies

- Consumable evaluation for shipping
- Air, truck, or simulated shipping for custom designs
- Drop and integrity testing



Process Evaluation and Particulate Audits

- Measurement and detection of particulates from new materials
- Benchmarking new versus existing systems and components
- Process and equipment changes



SUT (Single-Use Technology) Design

- Custom and configurable options
- Match your existing or future process needs
- Material design for scalability
- Leachables assessment and chemical compatibility



New User Training

- New to single-use consumables? We can provide training and guidance on the latest materials and design options
- Best practices on how to manage new configurations, protocols, and equipment

Why Entegris?

One Partner. Multiple Process Steps. Proven Performance.

- Five decades of unparalleled materials science expertise stemming from the semiconductor industry
- Global supply chain infrastructure ensures consistency and reliability at scale
- Customer-centric enabling technologies tailored to your process needs

By choosing Entegris across your workflow, you eliminate handoffs and reduce integration risk at every stage. Your benefits compound.

Every process runs Pure, every outcome is Proven, and every standard is met with Precision.

» [Let's simplify your process – together.](#)

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LIMITED WARRANTY

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