



Mission-Critical Solutions for Therapeutic Manufacturing

UPSTREAM BIOPROCESSING

Choose specific bioprocessing materials and components from our extensive library to enable both customization and fast design and delivery for cell culture applications.

- Motion bioreactor bags
- Cell and microcarrier separation systems
- High-density cell banking solutions
- Storage and sample bags
- Mixing systems
- Customized tube sets
- Sterilizing filters
- Powder bags

DOWNSTREAM PROCESSING

Complete recirculation mixing process systems, secure fluid transfer solutions, and advanced particle count and particle size analyzers provide high resolution and accuracy that can be used to help prevent costly yield excursions.

- Mixing systems
- Customized tube sets
- Cell and microcarrier separation systems
- Storage and sample bags
- Sterilizing filters
- Powder bags
- NOWPak® liner-based chemical storage and distribution systems
- Freeze/Thaw solutions
 - Aramus™ bags for robust freezing
 - Lightweight and secure reusable plastic shells for plate and blast freezing systems
 - Protective low-profile reusable metal shells for plate freezing systems
- High-resolution particle characterization



LIFE SCIENCES TECHNOLOGY CENTER

Entegris' technology center has everything needed to make educated decisions about what freezing process and products best fit your needs. Only at Entegris will you find all these tools and technologies in one place.

Our experts can help you optimize your freeze/thaw process and resolve problems related to:

- Product loss
- Cost of ownership
- Security of supply
- Product tracking
- Freeze consistency
- Purity and particulate contamination
- Process validation
- Freezer selection and optimization

PRODUCTS

Flexible containment solutions for single-use biopharmaceutical applications, including quality single-, double-, and triple-barrier containment systems to meet your safety, storage, and transportation needs for sterile liquids.

Process Bags

- Aramus single-use assemblies
 - Available in standard and custom shapes, these assemblies provide a new level of assurance for your frozen product storage, final fill, process sampling and archiving, peptide synthesis, and buffer and media prep processes
- 2D PE assemblies
 - Customizable 2D bioprocess assemblies are ideal for single-use biopharmaceutical applications
- 3D PE assemblies
 - Customizable 3D multilayer bioprocess assemblies are ideal for medium to large, single-use biopharmaceutical applications



Customized Tube Sets

- Design flexibility to fit the process
- Sterilized using gamma irradiation between 25 – 40 kGY, full traceability for all materials, with certificates of analysis provided for each lot



Sterilizing Filters

- Contamination control technologies for biological manufacturing
- Continually expanding product line to meet your needs



Microcarrier and Cell Separation Systems

- Completely sterile single-use mesh filtration system
- Separation process using a filter/mesh bag system and peristaltic pump
- 20, 40, 70, and 200 micron mesh options



Freeze/Thaw Single-Use Systems

- Aramus single-use assemblies are available in standard and custom shapes, and provide a new level of assurance for your frozen product storage, final fill, process sampling and archiving, peptide synthesis, and buffer and media prep processes
- Plate freezing shells available in 9.5 L and 11.5 L sizes designed and validated for three full freeze/thaw cycles of reuse, offering superior product protection in transport and consistent freezing profiles
- Lightweight plastic freezing shells available in 2 L and 5 L sizes for use with static, blast, and controlled rate freezing chambers, offering a convenient and economical solution to bulk product fill, controlled rate freeze, and secure transport
- Partner with qualified equipment manufacturers specializing in reliable, cold-chain containment at our Life Sciences Technology Center near Boston



Powder Bags

- Robust, anti-static single-use powder containment and transfer solution
- Constructed from anti-static monolayer polyethylene-based film, enabling full product recovery without requiring a liquid rinse
- Sizes include 5 L, 10 L, 15 L, 25 L, and 50 L 4" sanitary flange dispense ports

3D Bags

- Safe and secure single-, double-, and triple-barrier cell culture bags customized to your exact specifications up to 2500 L
- Choose specific components from our extensive library to enable ultimate customization, fast design, and delivery to cell culture applications



2D Motion/Rocker Bags

- Our single-use bag system creates a completely sterile mixing and recirculation process from start to finish
- Complete, customizable mixing system for storing, recirculating, and mixing biopharmaceuticals in a single-use bag
- Multilayer film, sizes 50 L, 100 L, 200 L
- 1/4" to 1" ports



High-Density Cell Banking Solutions

- Quick-turn custom manufactured for single-use bioprocessing systems
- Designed to fit your process
- Shortening and intensifying seed train

Particle Characterization

- Our particle characterization solutions enable customers to perform single or automated tests to characterize and count particles
- Used extensively on parenteral drugs following USP <788>, therapeutic proteins per USP <787>, ophthalmic solutions per USP <789>, and lipid emulsion per USP <729>



NOWPak Liner-Based Systems

- Provide safe and efficient transport, containment, and delivery of critical process materials
 - Rugged and efficient
 - Maintain chemical purity



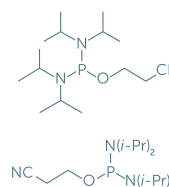
FluoroPure® High-Purity 55 Gallon Drums

- Safe bulk chemical storage and transport



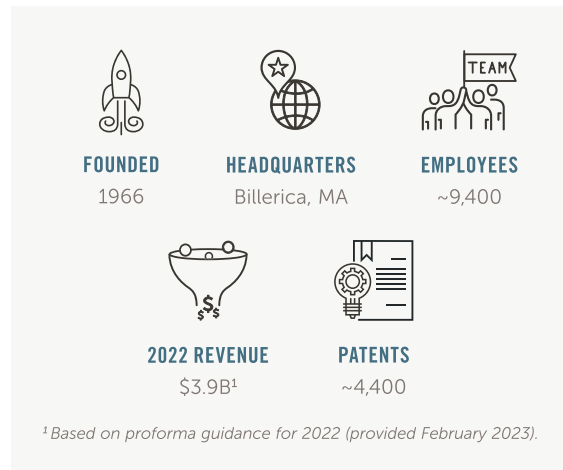
Specialty Chemicals

- Small through industrial scale
- Organophosphorus compounds
 - Our portfolio includes intermediates and reagents, phosphines and chlorophosphines, and phosphitylating and phosphorylating agents. Additional organophosphorus compounds are available upon request
- Catalysts
- Ligands
- Siloxanes



ENTEGRIS AT A GLANCE

A world-class supplier of advanced materials and process solutions for semiconductor, life sciences, and other high-tech industries. For over 50 years, we have been committed to solving our customers' most demanding process challenges through a broad solutions portfolio, collaborative and innovative product development, and a focus on science and applications knowledge.



North America



Europe and Israel



Asia

LEARN MORE

No other company has both the expertise and experience to provide transformative new solutions for your processes. Learn more at entegris.com/lifesciences.

FOR MORE INFORMATION

Please call your Regional Customer Service Center today to learn what Entegris can do for you. Visit entegris.com and select the [Contact Us](#) link to find the customer service center nearest you.

TERMS AND CONDITIONS OF SALE

All purchases are subject to Entegris' Terms and Conditions of Sale. To view and print this information, visit entegris.com and select the [Terms & Conditions](#) link in the footer.



Corporate Headquarters
129 Concord Road
Billerica, MA 01821
USA

Customer Service
Tel +1 952 556 4181
Fax +1 952 556 8022
Toll Free 800 394 4083



3265 Sunset Lane Hatboro, PA 19040 | 215-675-5700 | sentinelprocess.com

Entegris®, the Entegris Rings Design®, and other product names are trademarks of Entegris, Inc. as listed on entegris.com/trademarks. All third-party product names, logos, and company names are trademarks or registered trademarks of their respective owners. Use of them does not imply any affiliation, sponsorship, or endorsement by the trademark owner.

©2023 Entegris, Inc. | All rights reserved. | Printed in the USA | 9000-12971CRE-0423