# Life Sciences Solutions

Protecting quality, efficacy, and efficiency in upstream and downstream bioprocessing

The life sciences industry depends on quality, purity, and efficiency to provide life-saving and life-improving innovations for people around the world. Our 50+ years of proven materials science experience in the most demanding industries allows us to easily become a strategic partner by applying our expertise to develop the cleanest, most reliable and scalable solutions to reduce your validation time, development costs, and time to market. We understand that keeping biopharmaceutical products and processes free of harmful chemical and environmental contaminants is paramount. Our advanced materials expertise, combined with quick-turn custom capabilities, enables us to provide singleuse solutions that meet complex demands for material integrity across upstream and downstream applications, with very short lead times. Available in 50 mL to 2,000 L fluid containers, our products withstand a wide range of temperatures, provide maximum process fluid compatibility, and significantly reduced E&L potential.

## Upstream Bioprocessing

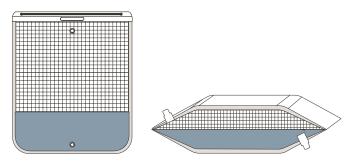
#### **MOTION BIOREACTOR**

Entegris offers quick-turn, customized motion bioreactor bags that get your process up and running. Starting with the preferred motion bioreactor, end users can choose the bag film, bag size, port geometry, port quantity, port location, tubing material, connector type, and more from Entegris' extensive library of standard bioprocessing materials and components. Entegris motion bioreactor bags are manufactured to the most exacting standards. Quality control inspections are performed from the raw material state to the final product to assure performance the customer can rely on, and the entire process occurs under a quality system compliant to FDA standards.



#### **MICROCARRIER CELL SEPARATION**

The Entegris microcarrier separation system facilitates a separation process through the use of a stream-lined bag system and peristaltic pump, no other equipment is required. Simply pump the unfiltered fluid to the inlet port, through the filtration mesh, and out the second port. By customizing the bag size, mesh size, and pump settings the user can trap and break up cell clumps, or trap microcarriers.





#### MEDIA STORAGE AND PROCESSING

Entegris 2D and 3D single-use bioprocess bags for the preparation, storage and transport of biopharmaceutical solutions. These bags can be configured with varying port numbers and locations as well as a selection of tubing and connectors.



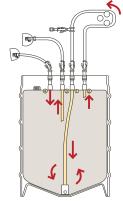
### TRANSPORT, STORAGE, DISPENSE

Whether transporting, storing, or dispensing product in bulk or to the point of use, our liner-based systems, transport vessels, storage tanks, and quick connect systems are designed to maintain product integrity and not contaminate your process. Bottom drain capable, stackable, and collapsible options are available.



### MIXING

The Entegris mixing system is designed to maximize simplicity, ease-of-use, and affordability. Properly fitting the single-use bag system into a reusable conical drum creates a completely sterile mixing and recirculation process from start to finish. There are no moving parts in the system; fluid and other media recirculation is accomplished via an external pump. The rapid recirculation design will mix almost any component to a homogeneous mixture within 5–15 minutes, saving time and money without sacrificing quality or consistency.



#### **HEATING/COOLING**

The Entegris temperature-controlled mixing system maintains a constant temperature using a double wall construction with fluid exchanges. Fitting connections are available to efficiently interface with virtually any hot/cold exchange system. Our heating/cooling tanks and liners are available in 50 L, 100 L, and 200 L sizes and are designed for use with bioprocessing drums at a fraction of the cost of stainless steel. reusable conical drum and a pump. The rapid recirculation design will mix almost any component to a homogeneous mixture within 5–15 minutes, saving time and money without sacrificing quality or consistency.



#### **TUBE SETS AND MANIFOLDS**

Entegris offers true single-use system customization to meet your exact process needs, fast. Nominal bag volumes, number and locations of bag ports, diptubes, hanging rods, filter meshes, any supplier's component, even customer supplied components can be incorporated while the standardized materials of construction keep qualification simple. If you can imagine it, Entegris can design and build it without compromising your process.



### Downstream Bioprocessing

#### **CRYOPRESERVATION SOLUTIONS**

Entegris single-use bag assemblies are ideal for freeze, transport, storage and thaw of drug substance. Our single-layer fluoropolymer provides gamma stability with low extactables and leachables (E&L) and has a wide operating temperature range. Our bag assemblies, tubing, and connectors can be adapted to many SUS configurations, making Aramus single-use bag assemblies a flexible and dependable choice for any cold bioprocessing applications.

#### **CRYOGENIC STORAGE**

Without proper care, handling, storing, and transporting single-use systems in cold temperatures can cause many problems for end users. Whether improving the handling of slippery assemblies, making assemblies stackable for space optimization, or protecting components susceptible to damage, Entegris is working with process experts and product suppliers to protect valuable bulk drug and biological products during freeze/thaw processes. Contact Entegris for solutions to meet your specific application needs.

### Experience You Can Count On

Medical treatment as we know it is changing. The biopharmaceutical market continues to grow as existing treatments evolve and become more sophisticated and new products are developed for previously untreatable conditions. To compete in these life-saving, life-improving innovations and reduce time and cost, biomanufacturers need to develop more efficient processes in upstream, downstream, and continuous bioprocessing.

Entegris is in a unique position to help you meet the ever-changing and more stringent requirements of drug developers, biopharmaceutical manufacturers, and regulators now and into the future.

#### FOR MORE INFORMATION

Please call your Regional Customer Service Center today to learn what Entegris can do for you. Visit <u>entegris.com</u> and select the <u>Contact Us</u> 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 <u>entegris.com</u> and select the <u>Terms & Conditions</u> link in the footer.



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