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Adaptability Expands the Usage Range for Single-Use Beta Bags

Innovative Life Science product manufacturers are finding creative ways to implement the technology

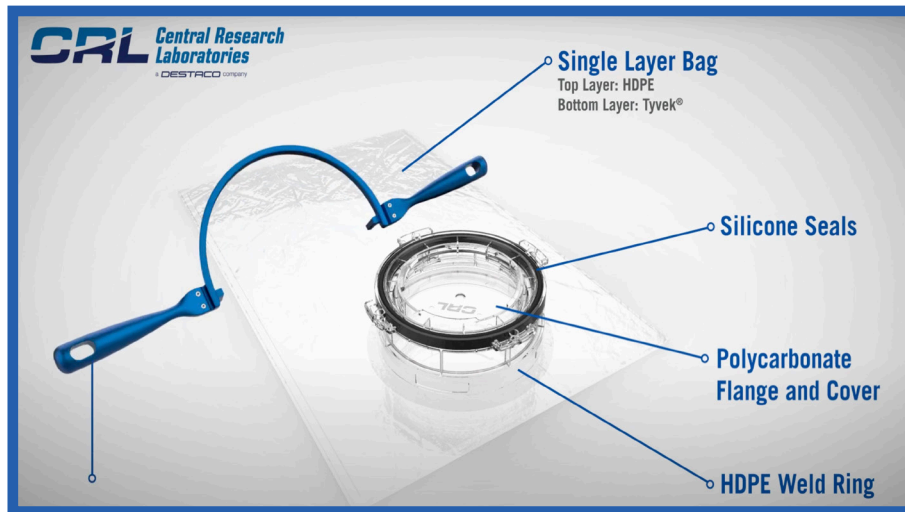
By Rob Weber

Introduction

It was the computer industry that gave us the word “multitasking,” with some noting that the first examples of its usage occurred as far back as the mid-1960s. Since then, multitasking has evolved into a catchall term for many industries or applications, describing something that is said to be “capable of performing multiple tasks at one time.” This multitasking ability led to the creation of a noun, “multitasker,” which is defined as “something that has many functions or uses” or that, in the case of a person, “can perform or manage many tasks at the same time.”



Which brings us to Single-Use Beta Bags.



Single-use beta bags are used in a wide range of aseptic-production applications in the Life Science industry, from the sterilization and transfer of solid or liquid components into isolation to the filling of finished products into bottles, vials and injectors. In all cases, sterility must be maintained at every step in the production, transfer and handling process in order to ensure a contaminant-free final product is created that is safe for human consumption and use.

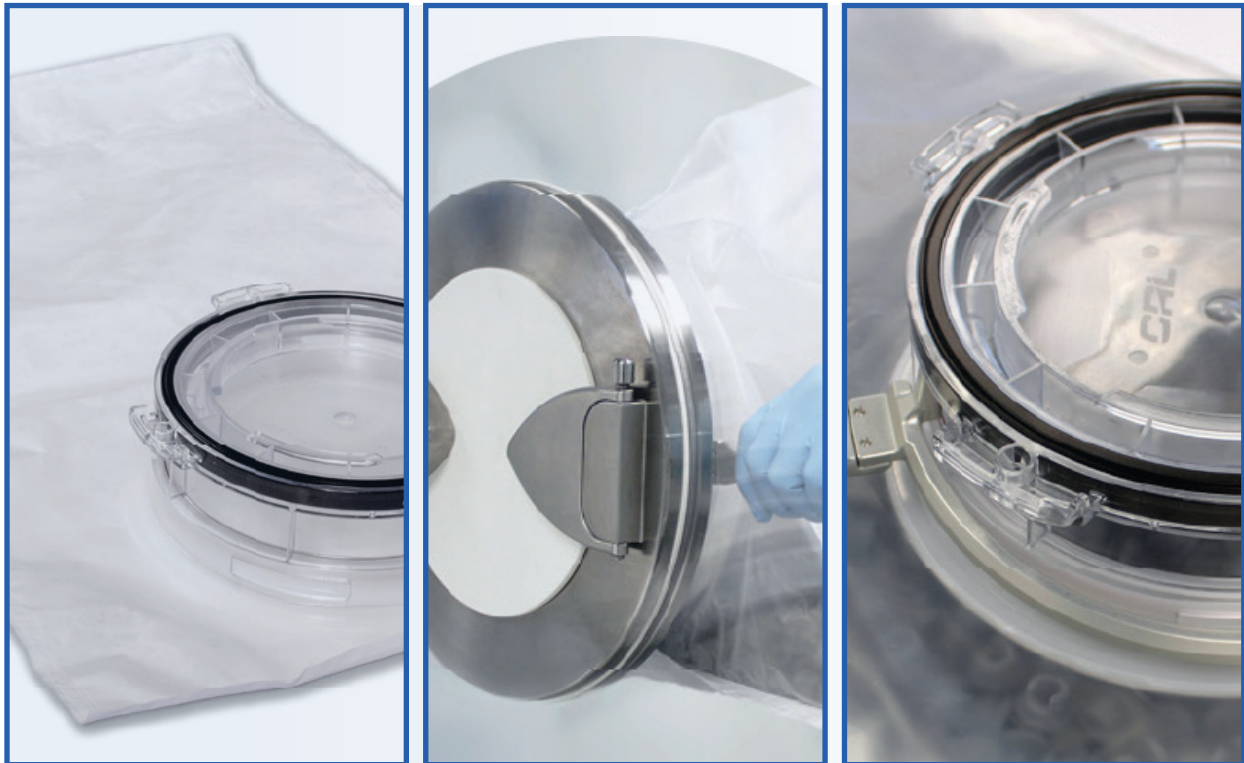
Specifically, single-use beta bags were designed to be a replacement for stainless-steel vessels, the use of which require a validated cleaning process to be completed initially before they need to be thoroughly cleaned after every use. The beta bags have a distinct advantage over multi-use stainless-steel systems in that when they are done being utilized, they can simply be disconnected from the isolation chamber, glovebox or cleanroom wall and disposed of. This eliminates the need for cleaning operations at the end of production runs while enabling the production process to meet all relevant regulatory-compliance parameters for purity and sterility in the production process.

Single-use beta bags also improve efficiency through a reduction in the downtime and cost needed to clean and revalidate a multi-use system. When used in conjunction with an Alpha port, fully sterilized single-use beta bags will facilitate leak-free transfer of sterile components into isolation, as well as the removal of any toxic components or waste that may be produced.

In this realm, Central Research Laboratories® (CRL), Red Wing, MN, USA, a world leader in the design, development and production of remote-handling and containment solutions for use in the Life Science market, has become a leading supplier of single-use beta bags.

CRL Single-Use Beta Bags – all of which are made in the USA – undergo a strict construction process. First, sheets of Tyvek® and a high-density polyethylene (HDPE) plastic are welded together to form a strong and virtually leak-free system. The welding of the Tyvek and HDPE sheets takes place in a controlled environment to ensure that a contaminant-free beta bag is produced.

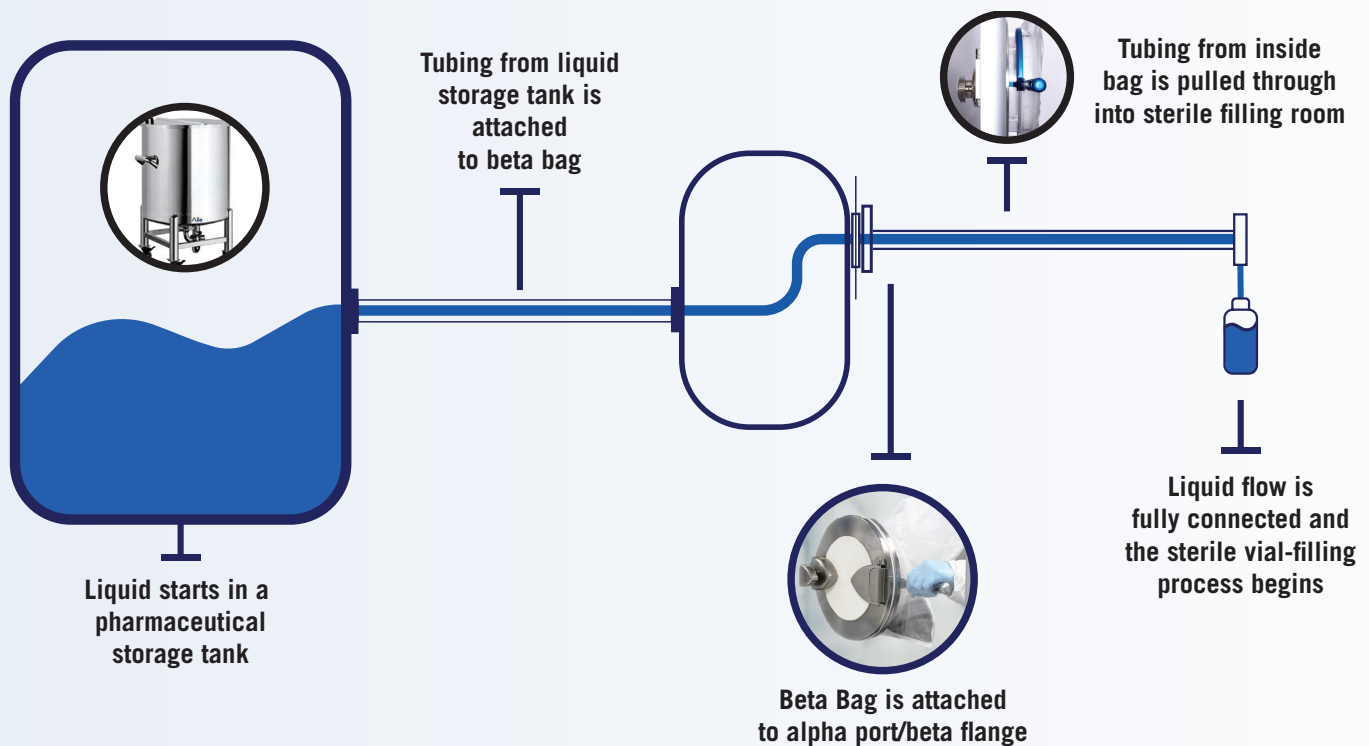
The single-use beta bags are then welded to an HDPE ring that is permanently connected to a polycarbonate flange to complete the beta bag system. This polycarbonate flange is what mates the entire bag assembly to the Alpha port on an isolator. To help make its beta bags a plug-and-play solution for many Life Science applications, CRL has developed a beta bag flange that is compatible with other Alpha-port designs that are currently available to the market. This means that CRL's single-use beta bags can be a first-choice technology no matter what make or model of Alpha port is being used in the application.



The Mother Of Invention

Manufacturers in the Life Science market are not unlike those in most industries: they possess curious, creative minds and an entrepreneurial spirit. So, it is not surprising that some of these operators are creating innovative and new ways to use single-use beta bags in their operations.

One of the more striking examples of this mindset that we have recently seen is that some manufacturers have begun building their own single-use beta bag assemblies. In these instances, the beta bags are used as a delivery method, mode of transport or “middleman” that helps facilitate the transfer of a liquid from a storage vessel into tubing that runs through the beta bag and into the isolator, glovebox or cleanroom before it is metered or dispensed into vials, bottles or syringes.



This is just one example of a “necessity is the mother of invention” mindset that can hopefully lead to other new and notable ways that CRL single-use beta bags can be adapted to fit the needs of the specific application. Keep in mind, though, that CRL is just the supplier of the beta bags and is in no way involved in the design, engineering, outfitting or building of the single-use assembly system. That falls to the fertile minds that inhabit Life Science product-manufacturing companies, with the potential uses limited only by their imaginations.

CRL stands ready to aid its clients in this area by having a ready supply of Single-Use Beta Bags on hand, as well as a global distribution network that helps mitigate any possible delays in delivery lead times. CRL’s customer-service staff is also highly trained and ready to answer any questions that may arise concerning the capabilities and potential uses for its beta bags.

Conclusion

Beta bags were originally designed to hold solid Life Science product components such as vials, stoppers and bottles that needed to be kept contaminant-free as they were passed into and out of isolation during the manufacturing process. Single-use beta bags helped to optimize the time, efficiency and cost of this process by being able to be simply disposed of after their use. Now, thanks to the innovative ambitions of some manufacturers in the market, they are being used to help facilitate the transfer of sterile liquids from storage vessels and into vials, bottles or syringes. This newfound capability – and the hopes that many more similarly innovative ideas may be in the offing – promises to help keep CRL's Single-Use Beta Bag product line at the forefront of many of the world's most important aseptic-manufacturing processes within the Life Science industry.



About The Author:

Rob Weber is the Manager of Products & Proposals for Central Research Laboratories® (CRL), Red Wing, MN, USA, which is a DESTACO company. He can be reached at rweber@destaco.com. CRL possesses more than 75 years of innovation experience in the development of remote-handling systems, including Telemanipulators, Transfer Systems, Glove Ports and Waste Drum Transfer Systems. CRL's industry-leading technology helps its customers safely and efficiently handle hazardous and sterile materials in Nuclear and Life Science applications around the world.

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DESTACO, a Dover company, is a global leader in the design and manufacture of high-performance automation, workholding and remote-handling solutions. The company serves customers in a variety of end markets, including the automotive, life science, consumer packaged goods, aerospace, industrial and nuclear sectors. DESTACO is based in Auburn Hills, Michigan, U.S.A. The company has more than 800 employees with 13 locations, in 9 countries, across the Americas, Europe and Asia.

More information is available at crlsolutions.com.