Is your company pondering whether to make the switch from bottles to single-use plastic bags? No change is ever risk-free, so is the move to single-use bags worth it? By Lorraine Borland, External Collaborations Manager at Sartorius

End users also tend to associate changes in technology with a high CAPEX and large investments, but single-use is flexible enough to adapt to existing infrastructures. This flexibility helps avoid any extra investment in cases where the end user wishes to hold on to their existing equipment or freezer— but also support those cases where the end user wants to upgrade their freeze and thaw capabilities.

Finally, the switch from bottle to bag is sometimes perceived as hard to implement, as it requires the adaptation of existing standards of practice and handling procedures, as well as new operator training. However, as noted, single-use bags tend to simplify processes across the board. Of course, updates to existing documentation will be necessary, but ultimately the change from bottles to bags is all about the simplification of everything already in place.

Are there any benefits in terms of reducing overall footprint? Bottles are cumbersome! They cannot be stacked, are not easy to transport via carts, and demand a great deal of storage space, especially when processing more than 100 L of product. Conversely, single-use containers made with bags can also be stacked and shipped in dedicated validated transport on racks and transport on aircraft.

For shipping, single-use containers made with bags can also be stacked and shipped in dedicated validated systems—some of which allow for up to 120 L shipments using a pallet base format that fits in passenger aircraft. Bottles tend to require additional packaging material such as Mylar bags, and are also not stackable for shipping; it may take several shipments to package and protect all the bottles lined up for shipment.

How do single-use bags help companies looking for improved robustness in design and quality? In my view, single-use bags really are much easier to use and work with than bottles. Bags are a more reliable solution for processing drug substances because there is less potential for handling errors. Single-use products and their benefits are already well established in the biopharma industry, and have seen increasing use in freeze and thaw applications, evolving towards highly robust systems validated against every step in the life cycle of freezing containers: from filling to freezing, storage, shipping, and thawing.

How easily can single-use bags be integrated into new and existing facilities? Single-use bags are available in various types and sizes, which allows them to easily integrate with all forms of existing equipment and facilities without extra investment in cold rooms or conventional upright, blast, or plate freezers. When switching from bottles to bags, the timespans needed for processing batches are drastically reduced, which cuts the overall production cost. Even if the bags cost more than the bottles as products, the total cost of ownership will shrink for companies finally choose to make the switch from bottles to bags. In one customer case, we were able to move from 40 or more hours to 10 hours for a 400 L batch, including quality control activities. However, the amount of reduction that can be achieved will vary in different cases depending on the starting base and the initial process.

For all in all, they should be able to help their partners recognize that single-use bags present numerous advantages over bottles that ultimately result in greater safety for both the product and the operator due to the process improvements they involve. The switch is not meant to be a leap when you partner with a single-use supplier that can step in and offer support from beginning to end, including expertise, data sharing, and access to complete qualification packages. Companies don’t need to embark on their single-use journeys alone!

Switching From Bottles to Bags: Robust by Design

Single-use technology continues to evolve; single-use bags are now a robust and effective alternative to using bottles in freeze and thaw operations.

Bottles to Bags: Switching From Single-use Containers Made With Bags To Single-use Bags

What barriers do people associate with the switch to single-use bags? When switching from one technology to another, companies may have concerns over changes in material and the associated additional validation workload—especially if you are not familiar with the data generated and made available by the supplier. What makes a good single-use bag supplier?

That’s a good question! To ensure success when switching from bottles to bags, choosing the right single-use supplier is a key part of the process. It is important to consider a supplier with longstanding, recognized expertise. They should be able to offer advice regarding the technology to be used, provide consistent support as a consultant, and possess the capability necessary for the manufacture, testing, and release of the technologies in a reliable and consistent manner.

All in all, they should be able to help their partners recognize that single-use bags present numerous advantages over bottles that ultimately result in greater safety for both the product and the operator due to the process improvements they involve. The switch is not meant to be a leap when you partner with a single-use supplier that can step in and offer support from beginning to end, including expertise, data sharing, and access to complete qualification packages. Companies don’t need to embark on their single-use journeys alone!

Of course, most single-use suppliers also carry other relevant equipment in their portfolio, giving customers access to a complete platform in the case of new facilities or new projects where the end-users also wish to buy cutting-edge equipment. The cost of the equipment itself can vary greatly depending on its type; the least expensive being conventional or upright freezers, followed by blast freezers, and finally plate freezers. Though plate freezers provide a higher baseline cost, many of advanced features and process control than all other options, the variety of options available means that companies of all sizes and capabilities can find equipment that is compatible with their single-use needs.

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