



sartorius

## How to select bulk tips



Practical  
Selection  
Guide

#03

Points to consider  
when choosing  
Bulk Tips.

Bulk tips are an affordable option for laboratories having high consumption of pipette tips and willingness to load the tip racks themselves. They also offer an ecological option to reuse the empty tip racks. When selecting bulk tips, it is important to acknowledge that there are significant differences in bulk tips from various manufacturers. This guide provides you with the important things you should consider when choosing the right bulk tips for your laboratory.

### Set requirements for quality

Choosing bulk tips instead of racked tips offers considerable savings in tip price. Nevertheless, tip quality is one of the most important factors affecting the repeatability and consistency of results. Cost savings achieved by buying low quality bulk tips are quickly lost if an expensive reagent kit has to be bought to repeat unreliable experiments. This is why bulk tips should be of the same high quality as racked tips.

The importance of tip quality is highlighted by the fact that bulk tips are sold as non-sterile and are commonly autoclaved for sterility. The high temperature of autoclaving can cause form changes, such as banana-shape, to tips that are manufactured in unstable manufacturing process or with raw material of poor or inconsistent quality (Figure 1). According to pipette calibration standard ISO8655, problems in straightness of the tip can cause an error of up to 10% in pipetting accuracy. The changes in form affect the attachment and sealing of the tip onto the pipette and therefore the accuracy and precision of pipetting.



Figure 1

### Ensure perfect fitting of tip to pipette

The tip and pipette form a system and the performance of the pipette is highly dependent on the compatibility and quality of the tip. In fact, according to ISO8655, leakage caused by incorrect pipette and tip sealing can cause accuracy errors of up to 50%. Moreover, the pipette is less prone to wear-and-tear when tip fits well, extending the pipette's lifetime. Tips that fit the pipette perfectly also reduce the forces needed to load and eject the tips, making pipetting more comfortable and ergonomic work.

### What is ISO8655?

ISO8655 is the international standard for Piston operated volumetric apparatus prepared by the ISO (the International Organization for Standardization) technical committee.

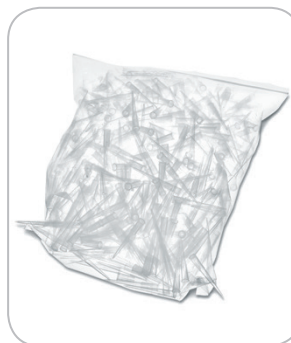
The standard describes the requirements for pipettes and calibrations of pipettes, including methods, test conditions and equipment needed. The ISO8655 addresses:

- the responsibilities of pipette manufacturers
- the requirements for test houses and other bodies, as a basis for independent certification
- the needs of users of the equipment, to set regular testing routines for pipettes

### Set requirements for purity

To ensure that tips are free of dust, particles and contamination, the tips must be manufactured in a clean room environment, using fully automated processes, starting from the raw material all the way to the packaging. The use of high quality virgin polypropylene without plastic additives as raw material ensure that the least amount of leachable substances and contaminants are released into the samples.

The most common format for packaging of bulk tips by many manufacturers is to have randomly oriented tips in polyethylene plastic bags. However, during transportation, the tips can puncture the plastic bag and compromise the purity of the tips. Packing of the tip-filled plastic bag into a protective cardboard box helps to some extent, but the bag is still likely to be punctured. This means that the tips are not safe even from dust, let alone free of DNase, RNase or endotoxins. The shearing of the tips in plastic bags can also bend, break or damage the tips, rendering them unusable or prone to affect the accuracy and precision of the volumes dispensed. Packaging of the tips in a durable PET plastic box protects the tips' purity and quality during the transport, ensuring reliability in use.



### Ensure speed to lab

Filling of tip racks with bulk tips can be difficult because tips tend to stick to each other, fall on the table and floor, resulting in contamination. By choosing an easy to open bulk package, where tips are orderly arranged, filling of racks is faster, cleaner and more convenient. Faster and cleaner filling of the tip racks also ensures that contamination is minimized.



Your work is too valuable to be wasted with unreliable results. Do not compromise when selecting your bulk pipette tips.

Use this checklist the next time you choose bulk tips for your lab:


- Check that your bulk tips are fitting the pipettes properly (Figure 2)
- Ensure that the tips withstand the rigour of autoclaving without deformation 
- Confirm that the tips are made from virgin polypropylene and using automated processes
- Choose tips that are packed in durable containers and are easy to load onto racks



Figure 2

Have you already tried Optifit tips in Flexibulk package? Contact your Sartorius sales or go to [Sartorius.com](http://Sartorius.com) and try now!



Sartorius Lab Instruments  
GmbH & Co. KG  
Otto-Brenner-Strasse 20  
37079 Goettingen, Germany  
Phone +49.551.3080

Sartorius Biohit Liquid Handling Oy  
Laippatie 1  
00880 Helsinki, Finland  
Phone +358.9.755.951  
[www.sartorius.com](http://www.sartorius.com)