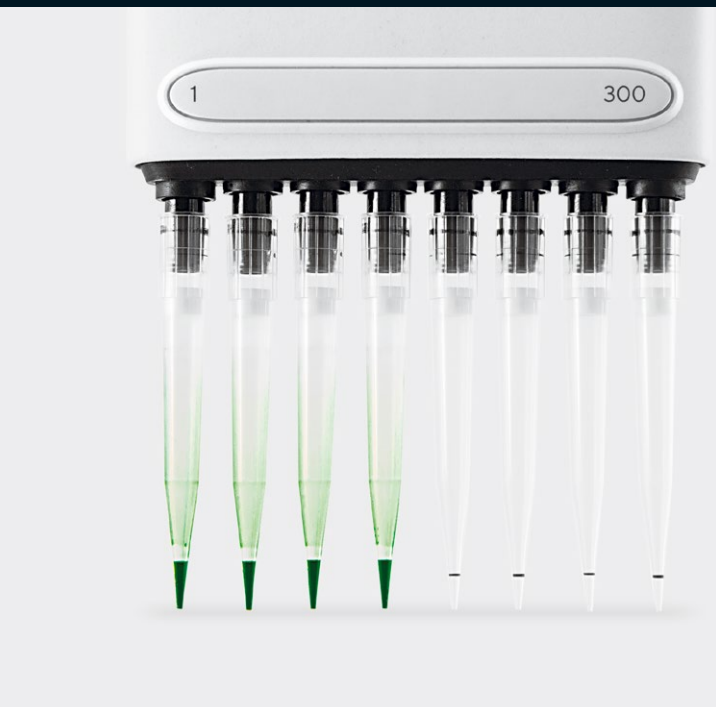


# Low Retention Tips

Optifit Tips and  
Safetyspace™ Filter Tips

## Product Information

Sartorius Low Retention Tips maximize sample recovery, when pipetting detergent containing solutions or other liquids with low surface tension. Sartorius Low Retention Tips have a highly liquid-repellent surface. Sartorius' modern patented technology enables producing tips with complete hydrophobic coverage, and with high chemical resistance.



## Description

Low Retention Tips are made of virgin polypropylene and the filters of polyethylene without any self-sealing additives to avoid contamination of the sample, which may affect the results. All steps in the manufacturing process strictly follow ISO 9001 and ISO 13485 quality standards, and the tips are manufactured in ISO 8-classified cleanroom conditions to avoid any contamination. Every production batch of Low Retention Safetyspace™ Filter Tips and Optifit Tips in single tray racks is tested for DNase, RNase, human DNA and endotoxins. The tips are released for sale once they have fulfilled the test requirements. Certificates are available at [www.sartorius.com](http://www.sartorius.com).

The additional space between the sample and the filter differentiates Safetyspace™ Filter Tips from other filter tips. This feature is particularly useful in reverse pipetting, pipetting foaming liquids (such as buffers and proteins), or when using Multi-Dispensing mode in electronic pipette.

## Features

- Available in volumes from 10 to 1,200 µL as standard non-sterile Optifit Tips in Single Tray racks and Refill Towers and pre-sterilized Safetyspace™ Filter Tips in Single Tray racks
- Highly liquid-repellent tip surface
- High chemical resistance
- No coating that would interfere with the sample
- All production batches of racked tips are certified DNase, RNase, human DNA and endotoxin free
- All Safetyspace™ Filter Tips are E-beam pre-sterilized
- Autoclavable (non-filtered tips)
- Informative rack labels indicating tip volume, product number, lot number, date, and purity level for improved tip identification and traceability
- Perfect fitting and tip sealing with all Sartorius pipettes
- Smooth and ergonomic tip attachment and ejection ensured by compatibility with the spring-loaded Optiload mechanism of Sartorius pipettes
- Color-coded tip trays make it easy to match tip with appropriate Sartorius pipette
- Flip-top racks that are easy to open and close with one hand
- Materials used in tips, trays, and racks are 100% recyclable or can be incinerated as energy waste

## Applications

In many molecular biology techniques the high sensitivity of the detection methods requires extreme reliability and reproducibility in pipetting. In DNA and protein analysis methods the reagents and samples often contain detergents.

By minimizing sample retention and improving reproducibility of pipetting, Sartorius Low Retention Tips are especially beneficial in the following applications:

- PCR, real-time PCR
- Cloning
- Sequencing
- Other DNA and RNA techniques
- SDS-PAGE & other protein analysis methods

Note: Due to the high hydrophobicity of the Low Retention Tips, the dispensing volume with aqueous solutions may be slightly lower than the nominal volume. Low Retention Tips are not recommended for volumes < 0,5 µL, when pipetting purely aqueous solutions.

## Intended use

The Sartorius Low Retention Tips are intended, designed and manufactured to be used in liquid dispensing in a variety of applications and to be used in combination with Sartorius pipettes.

It is recommended that Sartorius Low Retention Tips are used with Sartorius pipettes to ensure optimum compatibility and performance.

# Technical Data

## Technical Specifications

Sterilization	Electron beam (beta irradiation) in accordance with EN 552 and ISO 11137 and validated by using 25 kGy as the minimum dose with SAL (sterility assurance level) of $10^{-6}$ .
Purity certificate	Every production batch (lot number) of tips in Single Racks is certified free of DNase, RNase, human DNA and endotoxins.
Endotoxin purity testing	Validated test result with LAL gel clot method for endotoxin free pipette tip is $< 0,005$ IU/mL (EU/mL).
DNase purity testing	DNase-free pipette tips show no evidence of DNase activity in the fluorometric assay with the detection level of $< 6,25 \cdot 10^{-5}$ U/ $\mu$ L when DNase I is used as a standard.
RNase purity testing	RNase-free pipette tips show no evidence of RNase activity in the fluorometric assay with the detection level of $< 3,125 \cdot 10^{-9}$ U/ $\mu$ L when RNase A is used as a standard.
Human DNA purity testing	Human DNA free pipette tips show no evidence of human DNA in quantitative PCR (qPCR) using human DNA specific primers and with a detection level of $< 1$ pg/ $\mu$ L.
Standards	ISO 9001 Quality management standard ISO 14001 Environmental standard ISO 13485 Medical device quality management standard ISO 14644-1 Class 8 cleanroom manufacturing standard
Autoclavability	Optifit Low Retention Tips, trays, and racks are autoclavable (121°C, 20 min, 1 bar) Low Retention Safetyspace™ Filter Tips are not autoclavable
Transportation conditions	Temperature: -50°C to +50°C Humidity: 10% - 90% Shocks: < 10 G
Storage conditions	Temperature: -20°C to +40°C Humidity: 10% - 60%
Filter pore size	20 - 40 $\mu$ m
Expiry date	5 years from manufacturing date

## Materials and Recyclability

Tip	Polypropylene (PP) Recyclable, can be incinerated as energy waste
Filter	Polyethylene (PE) Recyclable, can be incinerated as energy waste
Tray and Rack	Polypropylene (PP) Recyclable, can be incinerated as energy waste
Cardboard package	Cardboard Recyclable, renewable waste

## Package Options



Single Tray racks  
purity-certified tip racks



Refill Tower  
space-saving, ecological refill packages

# Ordering Information

## Low Retention Safetyspace™ Filter Tips

Order Code	Volume Range [µL]	Length [mm]	Package	Purity Level	Tips/Unit	
				Certified free of DNase, RNase, human DNA and endotoxins	Pre-sterilized	
LH-LF790011	0.1–10	31.5	Single Tray	■	■	10 x 96
LH-LF790021	0.5–20	51	Single Tray	■	■	10 x 96
LH-LF790101	2–120	51	Single Tray	■	■	10 x 96
LH-LF790201	5–200	52.5	Single Tray	■	■	10 x 96
LH-LF790301	5–300	52.5	Single Tray	■	■	10 x 96
LH-LF791001	50–1,000	78	Single Tray	■	■	10 x 96
LH-LF791211	50–1,200	90	Single Tray	■	■	10 x 96

## Low Retention Optifit Tips

Order Code	Volume Range [µL]	Length [mm]	Package	Purity Level	Tips/Unit	
				Certified free of DNase, RNase, human DNA and endotoxins	Pre-sterilized	
LH-L790010	0.1–10	31,5	Single Tray	■		10 x 96
LH-L790012	0.1–10	31,5	Refill Tower			10 x 96
LH-L790200	0.5–200	51	Single Tray	■		10 x 96
LH-L790202	0.5–200	51	Refill Tower			10 x 96
LH-L790350	5–350	54	Single Tray	■		10 x 96
LH-L790352	5–350	54	Refill Tower			10 x 96
LH-L791000	50–1,000	71,5	Single Tray	■		10 x 96
LH-L791200	50–1,200	71,5	Single Tray	■		10 x 96
LH-L791210	50–1,200, Extended	90	Single Tray	■		10 x 96

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