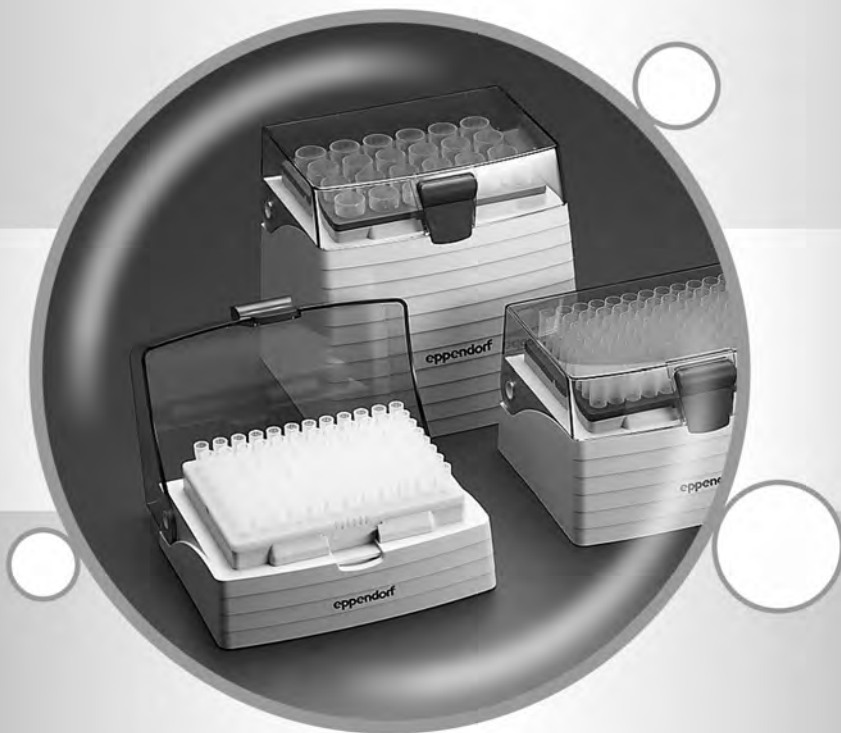




epT.I.P.S.®

Instructions for use
Version A

eppendorf



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1 Introduction

epT.I.P.S. pipette tips are disposable plastic tips made of polypropylene (PP). epT.I.P.S. stands for Eppendorf Totally Integrated Pipetting System which means that form, material properties and fit are optimized for Eppendorf's manual and electronic piston-stroke pipettes.

The tips are available in a variety of finishes and purity grades. Every tray for epT.I.P.S. pipette tips is color-coded and corresponds to the color of the control buttons of Eppendorf pipettes.

Beside epT.I.P.S. pipette tips we offer ep Dualfilter T.I.P.S. pipette tips to minimize the risk of contamination, epT.I.P.S. LoRetention pipette tips to dispense liquids containing detergents and ep Dualfilter T.I.P.S. LoRetention pipette tips which combines both.

2 Instructions for use

- The pipette tips epT.I.P.S., ep Dualfilter T.I.P.S., epT.I.P.S. LoRetention and ep Dualfilter T.I.P.S. LoRetention and relevant pipettes must be used by trained laboratory workers.
- Before using tips familiarize yourself with the operating manual of the relevant instrument.
- Before using the tips, check pack and contents carefully for any damage. For filter tips, check whether there is a dualfilter in every tip and whether it is correctly positioned, undamaged and not twisted. If you detect any fault, do not use the tip.
- The tips should always be emptied into a container so that no fluid sprays into the environment. After use, dispose of tips in accordance with the relevant legal regulations.
- Tips should not be filled with fluids which attack PP, or in the case of filter tips also PE.
- If you are in any doubt as to the suitability of your product for its intended use or as to the reagent, please contact our hotline. You will find phone number and address on the last page.

3 Intended use

The pipette tips epT.I.P.S. of the packaging units Reloads, Box, Set, Singles, and Racks of the sizes 0.1 µL – 10 µL, 0.1 µL – 20 µL, 0.5 µL – 20 µL L, 2 µL – 200 µL, 20 µL – 300 µL, 50 µL – 1 000 µL, in combination with the corresponding pipettes, are designed for the transmission of liquids with low contamination, especially to make it possible to use the in vitro diagnostics according to their intended use for samples from the human body and/or for reagents in the context of an in vitro diagnostic application. Therefore, the above-mentioned pipette tips as accessories for in vitro diagnostics are themselves in vitro diagnostics in terms of the guideline 98/79/EG of the European Parliament and Council of October 27th, 1998, about in vitro diagnostics. The pipette tips only are intended for application by trained specialists and only for single use.

4 Operation

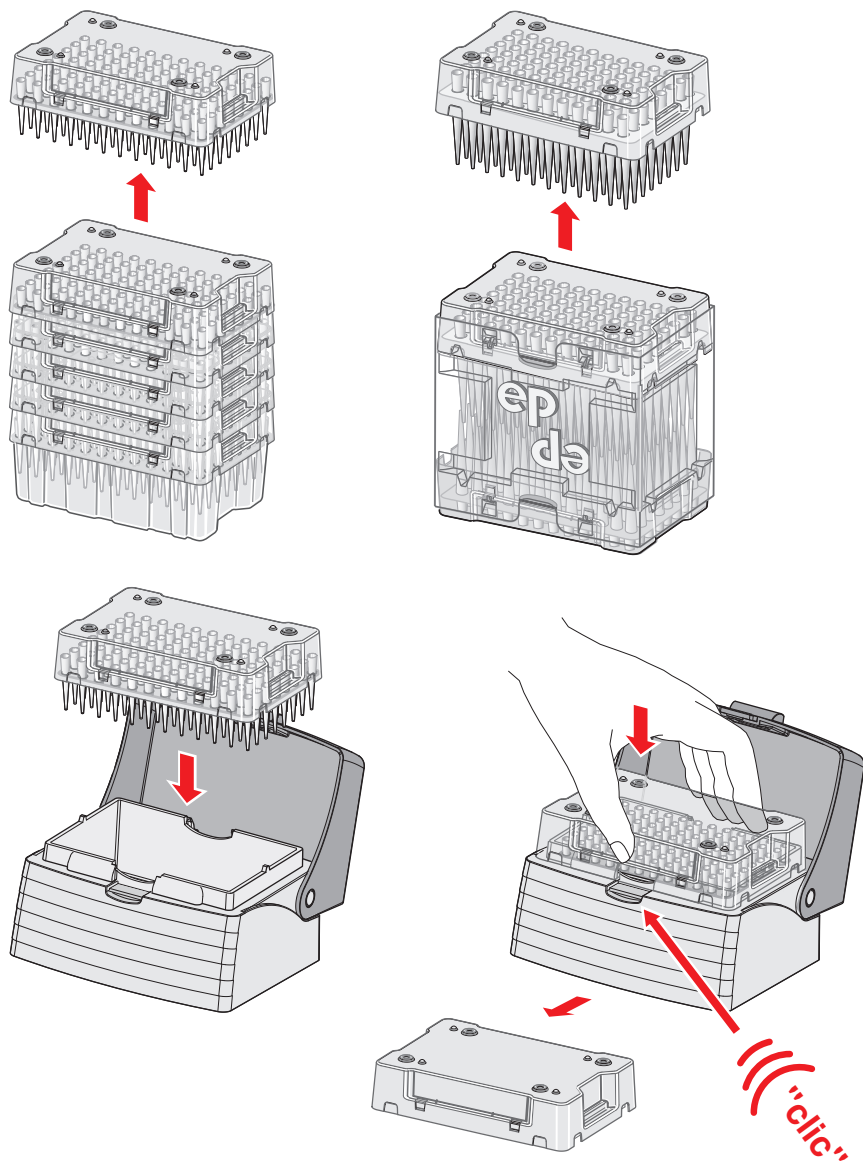
You will find recommendations for handling in the operating manual for the instrument you are using.

The dispensing techniques used most frequently are forward pipetting, reverse pipetting, dispensing, sequential dispensing and diluting. Mechanical pipettes are only suitable for forward and reverse pipetting.

Irrespective of the dispensing technique use, the following items should be taken into consideration during pipetting:

- When aspirating the liquid, the tip should only be immersed a few millimeters into the medium.
- The filled tip should be moved up against the wall of the vessel to avoid residues of liquid on the outside of the tip.
- Pre-wetting the tip up to three times will improve the accuracy and precision of the results.
- Liquid should be aspirated slowly and evenly.
- A waiting period of 3 seconds should be allowed for the liquid to rise in the tip.
- The pipette should be held vertically during aspiration.

5 Handling reloads



6 ep Dualfilter T.I.P.S.

During pipetting liquid flows through a small opening. A possible outcome of this are aerosols (dispersion of solid or liquid particles in gas). Aerosols, drops and splashes could contaminate the pipette and contaminations could be transferred to other samples.

To avoid these unintended and unnoticed contaminations ep Dualfilter T.I.P.S. pipette tips should be used. The dualfilter is made up of hydrophobic polyethylene (PE). The first white layer defends from splashes and drops and the second blue layer builds an aerosol barrier.

ep Dualfilter T.I.P.S. pipette tips are sterilized by electron beams and are certified (see *Certificates - verifiable safety for you* on p. 9). ep Dualfilter T.I.P.S. pipette tips can not be sterilized.

7 epT.I.P.S. LoRetention

epT.I.P.S. LoRetention pipette tips are particularly suited to the dispensing of liquids containing detergents. The optimized surface of the epT.I.P.S. LoRetention pipette tips counteracts the reduced surface tension caused by detergents and also with corresponding solvents, so that the liquid runs off without forming a film. This increases sample recovery and pipetting accuracy.

Please note:

The small amounts of residual moisture that may occur with epT.I.P.S. LoRetention pipette tips can appear to be higher than with standard epT.I.P.S. pipette tips as the residual moisture does not remain in the tip as a film, but collects as droplets due to the physical properties.

Due to the physical properties of the surface of epT.I.P.S. LoRetention pipette tips, the dispensing volume is slightly lower than the nominal volume in comparison to the corresponding standard epT.I.P.S. pipette tips when dispensing purely aqueous solutions with epT.I.P.S. LoRetention pipette tips 0.1 – 10 µL S and 0.5 – 20 µL L. Reproducibility still has the same high performance as standard epT.I.P.S. pipette tips.

8 Autoclave pipet tips

 Don not use any additional disinfectants during autoclaving for box and rack.

Product	Temperature	Pressure	Time	Number of possible cycles
ep T.I.P.S. and ep T.I.P.S. LoRetention	121 °C	1 bar	20 min	5 times
ep T.I.P.S. Rack	121 °C	1 bar	20 min	10 times
ep T.I.P.S. Box	121 °C	1 bar	20 min	100 times
ep Dualfilter T.I.P.S. and ep Dualfilter T.I.P.S. LoRetention	Can not be autoclaved.			

1. Remove the packaging foil.
2. Autoclave the pipet tips.

9 Purity grades and certificates

9.1 Eppendorf purity grades

	Eppendorf Quality 	Sterile 	PCR clean 	Sterile + PCR clean 	Biopur 
Relevant quality criteria					
Function, tightness, precision	■	■	■	■	■
Low wettability	■	■	■	■	■
High chemical resistance	■	■	■	■	■
High thermal stability	■	■	■	■	■
High transparency	■	■	■	■	■
Precisely molded	■	■	■	■	■
Batch testing (certified) for the following purity criteria					
Human DNA-free			■	■	■
DNA-free (free of human + bacterial DNA)					■
DNase-free			■	■	■
RNase-free			■	■	■
PCR inhibitor-free			■	■	■
ATP-free					■
Pyrogen-free (endotoxin-free)		■		■	■

	Eppendorf Quality 	Sterile 	PCR clean 	Sterile + PCR clean 	Biopur 
Sterile (European Pharmacopoeia/USP)		■		■	■
epT.I.P.S.[®]					
epT.I.P.S. [®] Standard + Box + Set	■				
epT.I.P.S. [®] Reloads	■		■		
epT.I.P.S. [®] Racks					■
epT.I.P.S. [®] Singles					■
ep Dualfilter T.I.P.S. [®]				■	
epT.I.P.S. [®] LoRetention	■		■	■	
ep Dualfilter T.I.P.S. [®] LoRetention				■	

9.2 Certificates - verifiable safety for you

The number of standards, guidelines and specifications that apply to biological, diagnostic and industrial laboratories is constantly on the rise. As a result, the need to provide proof of observing these requirements has also increased.

Three certificate categories are available for Eppendorf liquid handling consumables:

1. Batch-specific certificates are prepared by externally commissioned and recognized laboratories for the following purity grades:

- Biopur
- PCR clean
- PCR clean and Sterile

You can access the batch-specific certificate at www.eppendorf.com/consumables/certificates after entering the batch number of your product.

2. General certificates of conformity such as:
 - Certificate of conformity for products in the PCR clean purity grade
 - Certificate of conformity for verifying metal trace concentrations
 - Certificate of conformity on the absence of surface active additives
 - Certificate of conformity for HEPA classification of ep Dualfilter T.I.P.S. filter tips
 3. Quality management and ISO certificates which verify conformity to ISO
- All certificates can be downloaded from our homepage www.eppendorf.com/certificates.

10 Troubleshooting

10.1 General errors

Symptom/ message	Cause	Remedy
Drops form on the inner wall of the epT.I.P.S. pipette tip.	Inner wall has not been uniformly prewet.	► Use new epT.I.P.S. pipette tip or epT.I.P.S. LoRetention pipette tip.
Liquid is dripping from the tip and/or the dispensed volume is incorrect.	The tip is loose or the pipette tip is poorly fitted.	► Firmly attach the pipette tips. Use epT.I.P.S. pipette tips. For 5 mL and 10 mL ep Dualfilter T.I.P.S. pipette tips, work without a protection filter in the pipette.
	Pipetted too quickly.	► Move the control button slowly.
	The tip is withdrawn from the liquid too quickly.	► Slowly remove the tip from the liquid with a time delay (approx. 3 seconds).

Other possible reasons for faults associated with overall operation are described in the operating instructions for the device being used.

These brief instructions for use do not replace the operating instructions for the individual devices.



CAUTION! Poor safety due to incorrect accessories and spare parts.

The use of accessories and spare parts other than those recommended by Eppendorf may impair the safety, function and precision of the device. Eppendorf cannot be held liable or accept any liability for damage resulting from the use of incorrect or non-recommended accessories and spare parts or from the improper use of such equipment.

- Only use accessories and original spare parts recommended by Eppendorf.

11 epT.I.P.S. combinations

Eppendorf Reference

[illegible]

Eppendorf Research

Research	0.1 µL – 10 µL S	0.1 µL – 10 µL M	0.1 µL – 20 µL M	0.5 µL – 20 µL L	2 µL – 20 µL L	2 µL – 100 µL L	2 µL – 200 µL L	20 µL – 300 µL L	50 µL – 1000 µL L	50 µL – 1250 µL L	50 µL – 1250 µL L	50 µL – 1250 µL L	500 µL – 2500 µL L	100 µL – 5000 µL L	1 mL – 10 mL L	GE loader 1 mL – 10 mL L
Color	dark gray	medium gray	medium gray	light gray	yellow	yellow	yellow	orange	blue	green	dark green	red	violet	turquoise	light gray	
epT.I.P.S.	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
epT.I.P.S. LoRegent	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
ep Dualfilter T.I.P.S.	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
ep Dualfilter T.I.P.S. LoRegent	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Fixed volume																
10 µL					•	•	•									
yellow					•	•	•	•								
20 µL					•	•	•									
25 µL								•								
50 µL																
100 µL																
250 µL																
500 µL									•	•	•					
1000 µL																
blue																
Variable volume																
0.1 µL – 2.5 µL	•	•	•													
dark gray				•												
0.5 µL – 10 µL	•	•	•	•												•
medium gray																
2 µL – 20 µL					•	•	•	•								
yellow																
10 µL – 100 µL					•	•	•	•								
yellow					•	•	•	•								
20 µL – 200 µL					•	•	•	•								
yellow					•	•	•	•								
30 µL – 300 µL					•	•	•	•								
dark gray					•	•	•	•								
100 µL – 1000 µL					•	•	•	•								
blue									•	•	•					
500 µL – 5000 µL														•		
violet																
1 mL – 10 mL															•	
turquoise																
	• compatible															
	• limited volume															

[illegible]

Eppendorf Research pro

Research pro	0.1 µL – 10 µL S	0.1 µL – 10 µL M	0.1 µL – 20 µL M	0.5 µL – 20 µL L	2 µL – 20 µL L	2 µL – 100 µL L	2 µL – 200 µL L	20 µL – 300 µL L	50 µL – 1000 µL L	50 µL – 1250 µL L	50 µL – 1250 µL L	50 µL – 1250 µL L	500 µL – 2500 µL L	100 µL – 5000 µL L	1 mL – 10 mL L	GE loader 1 mL – 10 mL L
Color	dark gray	medium gray	medium gray	light gray	yellow	yellow	yellow	orange	blue	green	dark green	red	violet	turquoise	turquoise	light gray
ep.T.I.P.S. LoRetention	•			•					•					•		
ep.Dualfilter T.I.P.S.	•	•		•	•	•	•	•	•	•	•			•		
ep.Dualfilter T.I.P.S. LoRetention	•			•	•	•	•	•	•							
0.5 µL – 10 µL L	•			•												
5 µL – 100 µL L		•			•			•								•
15/20 µL – 300 µL L				•	•			•								
50 µL – 1000 µL L					•			•								
50 µL – 1200 µL L									•	•	•					
0.1/0.25 µL – 5 mL L										•				•		
violet																
• compatible ○ limited volume																

Eppendorf Xplorer

Xplorer	0.1 µL – 10 µL S	0.1 µL – 10 µL M	0.1 µL – 20 µL M	0.5 µL – 20 µL L	2 µL – 20 µL L	2 µL – 100 µL L	2 µL – 200 µL L	20 µL – 300 µL L	50 µL – 1000 µL L	50 µL – 1250 µL L	50 µL – 1250 µL L	500 µL – 2500 µL L	100 µL – 5000 µL L	1 mL – 10 mL L	GE loader 1 mL – 10 mL L
Color	dark gray	medium gray	medium gray	light gray	yellow	yellow	yellow	orange	blue	green	dark green	red	violet	turquoise	light gray
ep.T.I.P.S. LoRetention	•			•					•						
ep.Dualfilter T.I.P.S.	•	•		•	•	•	•	•	•	•	•		•	•	
ep.Dualfilter T.I.P.S. LoRetention	•			•	•	•	•	•	•						
0.5 µL – 10 µL L		•		•											
5 µL – 100 µL L				•	•			•							•
15/20 µL – 300 µL L				•	•			•							
50 µL – 1000 µL L					•			•							
50 µL – 1200 µL L									•	•	•				
0.1/0.25 µL – 5 mL L										•			•		
0.5 mL – 10 mL L															•
turquoise															
• compatible ○ limited volume															

12 Technical data

12.1 Ambient conditions

Ambience	Only for use in indoors.
Ambient temperature	5 °C – 40 °C
Relative humidity	10 % – 95 %, non-condensing
Atmospheric pressure	79.5 kPa – 106 kPa Usage up to a height of 2000 m above sea level

13 Transport, storage and disposal

13.1 Storage

	Air temperature	Relative humidity	Atmospheric pressure
In transport packaging	-25 °C – 55 °C	10 % – 95 %	70 kPa – 106 kPa
Without transport packaging	-5 °C – 45 °C	10 % – 95 %	70 kPa – 106 kPa



Evaluate your operating manual

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