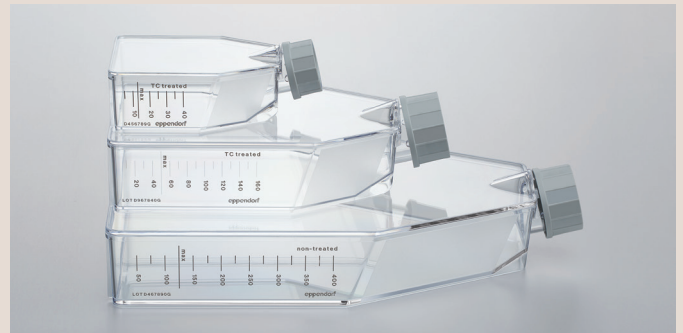


# Improved Handling of Cells and Protection against Contamination

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The T-flask is the most widely used vessel for routine maintenance of cell cultures. Its secure screw cap offers best protection of valuable cells. However, compared to dishes and plates, the T-flask provides only limited access to the cells due to its narrow neck which makes handling with pipettes and cell scrapers inconvenient. Eppendorf Cell Culture Flasks offer some unique benefits combining best protection against contamination with simplified and ergonomic handling.



Reach out to your cells. Optimal accessibility with the ConvexAccess™ neck



**Fig. 1:** The ConvexAccess neck of the Eppendorf Cell Culture Flask facilitates access to the growth area, providing protection of the cell monolayer during pipetting. When harvesting cells, increased access also enables better maneuvering with cell scrapers.

## Smart design and technology

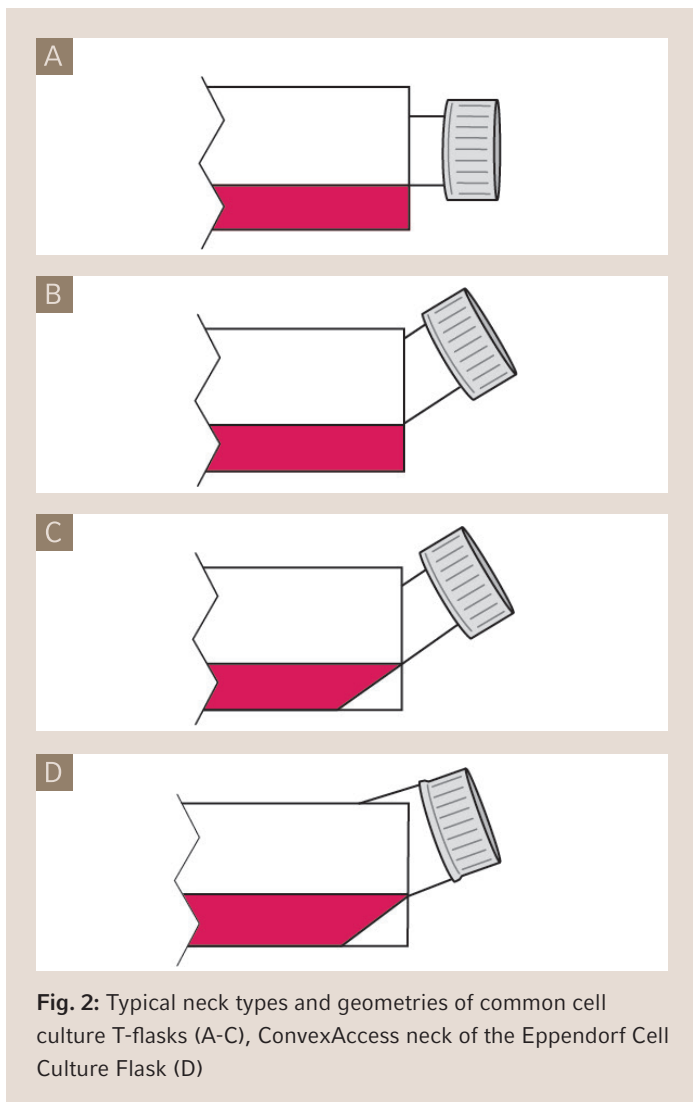
### Neck types

T-flasks are mostly used for maintenance of cells, because a T-flask and its secure screw cap protect valuable stock cultures best against contamination. However, the narrow flask neck makes working with pipettes or cell scrapers difficult. In the past, some modifications were made to cell culture T-flasks to improve access to the cells (Fig. 2 A-C). The initial straight neck of the flask made way for the invention of an angled neck that provides a better access especially when using serological pipettes. Meanwhile, some manufacturers offer a so called canted neck, where an additional ramp is supposed to eliminate “dead corners”, i.e. inaccessible parts of the growth area.

### Better access to the growth area

The new Eppendorf Cell Culture Flask goes one step further. Its unique ConvexAccess neck provides the user with optimal room for all liquid handling steps and protects the cell monolayer against unintended scratching with the pipette.

As summarized in table 1, the growth area that can be conveniently reached with serological pipettes increases to 98 % in the Eppendorf T-75 Cell Culture Flask, making it outstanding compared to other brands. The T-75 is the most commonly used flask format for the maintenance of cell cultures. The other Eppendorf Cell Culture Flask formats (T-25 and T-175) also feature the unique ConvexAccess neck to provide best access with pipettes and cell scrapers.



T-75 Cell Culture Flask	Accessible growth area (10 mL serological pipette)	Accessible growth area (25 mL serological pipette)
Eppendorf	98%	87%
Competitor A	93%	76%
Competitor B	91%	72%
Competitor C	90%	58%
Competitor D	84%	64%
Competitor E	83%	56%
Competitor F	83%	54%
Competitor G	81%	49%

**Table 1:** Accessible growth area in T-75 flasks with different neck types and geometries

## Protect your cells with Eppendorf filter and plug-seal caps



**Fig. 3:** Due to its anti-rolling design, the flask cap can be placed on its side to reduce the risk of contamination and it stays in position. The inside of the cap is not in contact with the air flow nor the work surface.

### Cap innovation

In addition to the maintenance of stock cultures, flasks are often preferred when cultivating hazardous material, e.g. virus-infected cells. In this case, the screw cap provides security for the user, because it prevents spillage e.g. during transport. However, during incubation the screw cap has to ensure sufficient gas transfer while still offering best protection against contamination. When incubating flasks with a non-filter cap, the cap has to be opened to a certain extent to allow gas exchange. If the cap is opened too much it increases the risk of airborne germs entering the flask. The Eppendorf plug-seal cap has a defined vent position to allow proper gas transfer. An additional click mechanism indicates the optimal position for the cap during incubation therefore minimizing the risk of contamination from inside and outside of the flask. Using flasks with filter caps resolves the above mentioned challenges in handling non-filter caps. A filter cap can be tightened securely during incubation because the filter allows air to circulate while retaining particles.

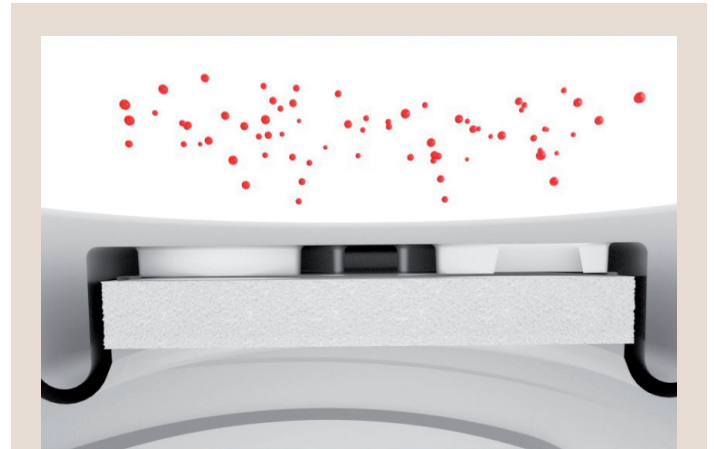


### Better protection against mycoplasma

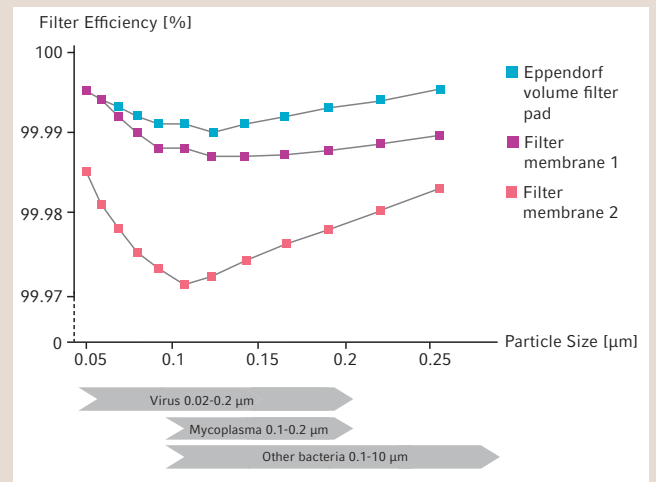
The Eppendorf filter cap is equipped with a pressure fit volume filter pad. This special hydrophobic filter has pores of various sizes making it more efficient than standard filter membranes at holding back contaminants like viruses, mycoplasma and other bacteria as well as fungi. Every single airborne germ that passes a filter can cause contamination so even a small difference like seen in figure 5 can have a big impact on the cells. Assuming that the room air in the laboratory contains  $10^6$  particles per  $m^3$ , a difference of approximately 0.02 % corresponds to 200 particles. The smaller the particles/contaminants, the more they are adsorbed by the filter material. Bigger particles cannot pass through the filter due to their size.

### Summary

Combining smart design, excellent filter performance and optimal accessibility, the Eppendorf Cell Culture Flask provides best protection against contamination, optimal growth conditions for cells and easy and ergonomic handling.



**Fig. 4:** The Eppendorf filter cap is equipped with a high efficiency volume filter providing reliable gas exchange and excellent protection against airborne particles.



**Fig. 5:** Reliable Eppendorf filter technology. The hydrophobic volume filter pad is more efficient than standard filter membranes.

## About Eppendorf

Eppendorf is a leading life science company that develops and sells instruments, consumables, and services for liquid-, sample-, and cell handling in laboratories worldwide. Its product range includes pipettes and automated pipetting systems, dispensers, centrifuges, mixers, spectrometers, and DNA amplification equipment as well as ultra-low temperature freezers, fermentors, bioreactors, CO<sub>2</sub> incubators, shakers, and cell manipulation systems. Associated consumables like pipette tips, test tubes, microtiter plates, cell culture consumables and disposable bioreactors complement the instruments for highest quality workflow solutions.

Eppendorf was founded in Hamburg, Germany in 1945 and has about 2,600 employees worldwide. The company has subsidiaries in 23 countries and is represented in all other markets by distributors.

### Ordering information

Description	Order no. international	Order no. North America
<b>Eppendorf Cell Culture Flask T-25</b> , sterile, free of detectable pyrogens, RNase & DNase, DNA. Non-cytotoxic.		
TC treated, with filter cap, 192 flasks (24 bags x 8 flasks)	0030 710.126	0030710126
TC treated, with plug-seal cap, 192 flasks (24 bags x 8 flasks)	0030 710.118	0030710118
non-treated, with filter cap, 192 flasks (24 bags x 8 flasks)	0030 710.029	0030710029
non-treated, with plug-seal cap, 192 flasks (24 bags x 8 flasks)	0030 710.010	0030710010
<b>Eppendorf Cell Culture Flask T-75</b> , sterile, free of detectable pyrogens, RNase & DNase, DNA. Non-cytotoxic.		
TC treated, with filter cap, 80 flasks (16 bags x 5 flasks)	0030 711.122	0030711122
TC treated, with plug-seal cap, 80 flasks (16 bags x 5 flasks)	0030 711.114	0030711114
non-treated, with filter cap, 80 flasks (16 bags x 5 flasks)	0030 711.025	0030711025
non-treated, with plug-seal cap, 80 flasks (16 bags x 5 flasks)	0030 711.017	0030711017
<b>Eppendorf Cell Culture Flask T-175</b> , sterile, free of detectable pyrogens, RNase & DNase, DNA. Non-cytotoxic.		
TC treated, with filter cap, 48 flasks (12 bags x 4 flasks)	0030 712.129	0030712129
TC treated, with plug-seal cap, 48 flasks (12 bags x 4 flasks)	0030 712.110	0030712110
non-treated, with filter cap, 48 flasks (12 bags x 4 flasks)	0030 712.021	0030712021
non-treated, with plug-seal cap, 48 flasks (12 bags x 4 flasks)	0030 712.013	0030712013

### Technical Specifications: All Eppendorf Cell Culture Consumables

<b>Surface</b>	Tissue culture treated or non-treated
<b>Operating temperature</b>	-86 °C to 60 °C
<b>Storage before use</b>	Store dry and at RT. Protect from sunlight and UV rays
<b>Purity</b>	All products are sterile: Sterility is assured by irradiation according to DIN EN ISO 11137-2:2007 with sterility assurance level (SAL) of 10 <sup>-6</sup> . Sterility is tested according to USP, Ph. Eur. 2.6.1. All products are free of detectable pyrogens, RNase, DNase and human and bacterial DNA. All products are non-cytotoxic.
<b>Certificates</b>	Leachables, heavy metals, production conditions, cytotoxicity. The certificates are available under <a href="http://www.eppendorf.com">www.eppendorf.com</a>
<b>Lot-specific certificates</b>	Sterility Absence of: Pyrogens, RNase, DNase, DNA. TC treated surface: Testing for cell attachment and cell growth with an anchorage-dependent cell line Lot-specific certificates can be downloaded at <a href="http://www.eppendorf.com">www.eppendorf.com</a>

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