

MicroFunnel™ Plus and MicroFunnel Plus AP Filter Funnels

Instructions for Use

Introduction

Important

Read these instructions carefully before using the products.

Intended use

The products are intended for research use only, and shall not be used in any clinical or *in vitro* procedures for diagnostic purposes.

Background

Description

MicroFunnel™ Plus and MicroFunnel Plus AP filter funnels are disposable filter units that are designed to be used as a sample cup and filter funnel for purified water system monitoring.

The filter units have a tight-sealing lid with an integrated vent. The lid snaps securely to contain the water sample, and the vent allows for filtration without removing the lid. A hydrophobic vent tab on the base of the filter unit prevents leakage of the sample while protecting the port prior to filtration.

The units include an adhesive gasket seal between the flexible cylinder and the base, which prevents sanitizing fluids from seeping into the test membrane. The flexible cylinder allows for removal of the membrane filter prior to culturing.

MicroFunnel Plus AP filter funnels have an additional aseptic sampling port (AP) compatible with male luer connectors, through which the sample can be aseptically processed.

The products are individually bagged. Select products are double bagged to facilitate sanitary transfer into controlled areas.

Membranes

ME25 membrane: 0.45 µm mixed cellulose ester (MCE) membrane used in the Membrane Filter (MF) technique for the determination of total coliforms, *E. coli*, yeast, mold, Streptococcal strains, and total organism contamination.

Metrical™ Black membrane: A 0.45 µm modified polyethersulfone (PES) membrane used with the MF technique to provide better contrast to light colored colonies of bacteria, yeast and mold.

Supor™ 200 membrane: A 0.2 µm polyethersulfone low-binding membrane used in the MF technique for the determination of contamination by *Pseudomonas* species.

Supor 450 membrane: A 0.45 µm polyethersulfone low-binding membrane used in the MF technique for the determination of total organism contamination.

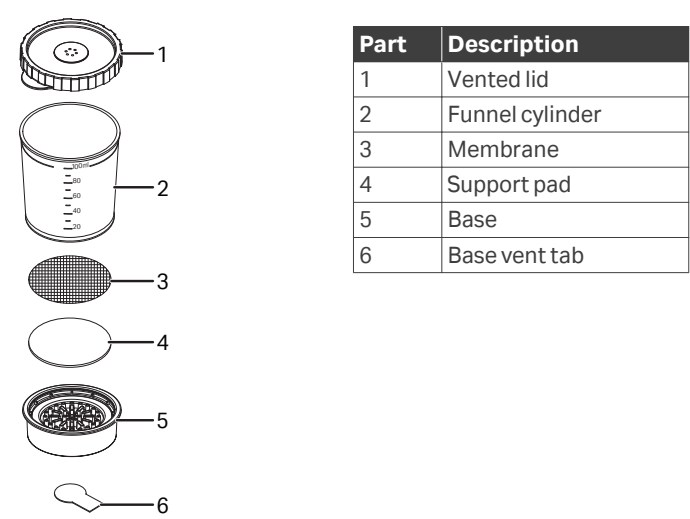
Technical information

Technical data

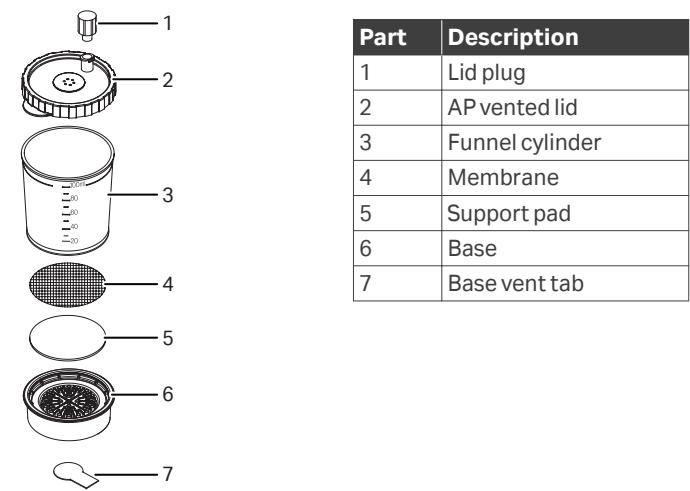
Support pad:	Cellulose
Funnel, base, and lid plug:	Polypropylene
Vented lid:	Polyethylene
Lid and base vent membrane:	Hydrophobic Versapor™ (acrylic copolymer on a non-woven support) membrane
Bag:	Polyethylene
Adapter:	Polyethylene
Adhesive gasket:	Urethane
Membrane diameter:	47 mm (1.9 inch)
Filter media:	• Metrical Black (modified polyethersulfone) membrane, black • Supor (polyethersulfone) membrane, white • ME25 (mixed cellulose esters) membrane, white
Maximum vacuum:	635 mm Hg (25 in. Hg) (vacuum use only)
Maximum operating temperature:	Metrical and ME25: Ambient Supor: 90°C (194 °F)
Effective filtration area:	13.46 cm ²
Dimensions: (H × W)	100 mL • 7.6 × 6.1 cm (3.0 × 2.4 inch) 300 mL • 8.9 × 8.7 cm (3.5 × 3.4 inch)
Sterilization:	Gamma-irradiated

Illustration

The illustration below shows the parts of the MicroFunnel Plus filter unit (product codes 4808, 4809, 4823, 4813, 4814, 4807ME, and 4829ME). Product codes 4807ME and 4808 also have a base cap.



The illustration below shows the parts of the MicroFunnel Plus AP filter unit (product codes 4844, 4855, and 4856ME).



Instructions for use

Prepare to collect samples

To prepare for collecting ambient or hot water samples using MicroFunnel Plus filter funnel or MicroFunnel Plus AP filter funnel, follow the steps below.

Step	Action
1	Select the appropriate filter funnel based on temperature, volume of sample to be collected, and pore size of the membrane.
2	Remove the funnel from the protective sealed bag. a. Firmly grasp the bag above and below the tear notch.

Step	Action
b.	Tear the bag evenly by pulling up and over with a rotation of the wrist grasping above the tear notch. Avoid pulling the bag toward or away from you, or to open the bag by pulling the sealed seam apart. Such movements can cause the polyethylene plastic of the bag to stretch and to tear unevenly.

Immediately proceed to the appropriate instructions described below.

Collecting ambient samples using MicroFunnel Plus filter funnel

Select and open the filter funnel according to [Prepare to collect samples, on page 2](#). To collect ambient samples, follow the steps below.

Step	Action
1	Position the funnel near the sample point and remove the lid by placing the thumb under the tab on the lid. Make sure not to contaminate the funnel by touching the inner surfaces of the lid and funnel.
2	Collect the sample and replace the lid. a. Place the funnel on a flat, sturdy surface. b. Press the lid down by applying even pressure around the perimeter of the funnel, or by grasping the funnel in a vertical position with thumbs on the upper perimeter of the lid and finger tips on the lower edge of the base. c. Squeeze the funnel firmly until you hear the lid engage. Make sure the lid has been snapped down to the second liquid-tight engagement.
3	Return the filled funnels to the laboratory for filtration and analysis.

Collecting ambient samples using MicroFunnel Plus AP filter funnel

Select and open the filter funnel according to [Prepare to collect samples, on page 2](#). To collect ambient samples, follow the steps below.

Step	Action
1	Open the adapter end of the sampling tube (product code 4845) aseptically and remove the lid plug from the sample port.
2	Press the male luer adapter into the sample port.
3	Remove the bag from the sampling tube and connect the end of the tube to the sanitized port on the water system.
4	Collect the sample.
5	Remove the sampling tube and replace the lid plug.
6	Return the filled funnels to the laboratory for filtration and analysis.

Collecting a hot water sample using MicroFunnel Plus filter funnel

Select and open the filter funnel according to [Prepare to collect samples, on page 2](#). To collect hot water samples, follow the steps below.



CAUTION
Personal Protective Equipment (PPE). Hot water samples in the loop can cause burns. Wear the following protective equipment.

- Insulated rubber gloves.
- Protective glasses.

Required materials

- Personal protective equipment (insulated rubber gloves, safety glasses)
- Funnel holder for critical sample sites (product code 4824 for 100 mL funnels and product code 4825 for 300 mL funnels).

Step	Action
1	Place the funnel into the holder in a way that the graduations are visible through the viewing slot.
2	Position the holder with the funnel near the sample point and remove the lid by placing the thumb under the tab on the lid. Make sure not to contaminate the funnel by touching the inner surfaces of the lid and funnel.
3	Collect the sample and replace the lid. a. Place the funnel on a flat, sturdy surface. b. Press the lid down by applying even pressure around the perimeter of the funnel, or by grasping the funnel in a vertical position with thumbs on the upper perimeter of the lid and finger tips on the lower edge of the base. c. Squeeze the funnel firmly until you hear the lid engage. Make sure the lid has been snapped down to the second liquid-tight engagement.
4	Remove the funnel from the holder by pressing upward with your index finger through the opening in the bottom of the holder and gently lifting the funnel out. Make sure not to damage the vent tab on the bottom of the funnel.
5	Return the filled funnels to the laboratory for filtration and analysis.

Collecting a hot water sample using MicroFunnel Plus AP filter funnel

Select and open the filter funnel according to [Prepare to collect samples, on page 2](#). To collect hot water samples, follow the steps below.



CAUTION
Personal Protective Equipment (PPE). Hot water samples in the loop can cause burns. Wear the following protective equipment.

- Insulated rubber gloves.
- Protective glasses.

Required materials

- Personal protective equipment (insulated rubber gloves, safety glasses)
- Funnel holder for critical sample sites (product code 4824 for 100 mL funnels and product code 4825 for 300 mL funnels).
- Sampling tube (product code 4845)

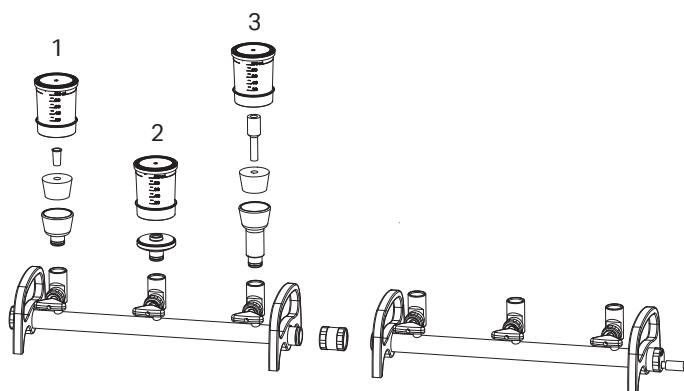
Step	Action
1	Place the funnel into the holder in a way that the graduations are visible through the viewing slot.
2	Aseptically open the adapter end of the sampling tube (product code 4845) and remove the lid plug from the sample port.
3	Press the male luer adapter into the sample port.
4	Remove the bag from the sampling tube and connect the end of the tube to the sanitized port on the water system.
5	Collect the sample.
6	Remove the sampling tube and replace the lid plug.
7	Remove the funnel from the holder by pressing upward with your index finger through the opening in the bottom of the holder and gently lifting the funnel out. Make sure not to damage the vent tab on the bottom of the funnel.
8	Return the filled funnels to the laboratory for filtration and analysis.

Filter the sample

To filter the samples, follow the steps below.

Step	Action
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|---|---|
| 1 | Remove the filter unit from the bag. Place the filter unit onto the manifold with the applicable adapter assembly as shown below. |
|---|---|



Option	Adapter assembly
1	Standard adapter with no. 8 stopper
2	MicroFunnel adapter
3	Elongated adapter with no. 8 stopper and autoclavable adapter

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|---|--|
| 2 | Remove the funnel cover without touching the inner surface. |
| 3 | Turn on the vacuum pump for 30 to 40 seconds and draw the sample through the filter. |
| 4 | Filter the entire sample first, then rinse the inside walls of the funnel with sterile buffer. Turn off the vacuum pump. |

Culture the sample

To culture the sample, follow the steps below.

Step	Action
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|---|--|
| 1 | Hold the filter unit with one hand and gently squeeze the funnel cylinder near the top with the other hand. |
| 2 | Remove the funnel cylinder carefully from the base. |
| 3 | Dip the tips of the stainless steel forceps into alcohol and flame to sterilize. Allow to cool before handling the membrane. |
| 4 | Insert the sterilized forceps and remove the membrane from the base leaving behind the support pad. |
| 5 | Place the membrane filter on a prepared agar plate or broth soaked pad in a Petri dish. |
| 6 | Transfer the Petri dish to an incubator, and incubate the Petri dish inverted at the specified temperature and time. |

Ordering information

All items are gridded, gamma-irradiated, and individually bagged.

For additional ordering information, visit [cytiva.com](https://www.cytiva.com).

MicroFunnel Plus filter funnels

Product code	Description	Qty./Pkg.
4807ME ¹	MicroFunnel Plus filter funnel with 0.45 µm ME 25 MCE membrane, 100 mL capacity	50
4808	MicroFunnel Plus filter funnel with 0.45 µm Metrice Black membrane, 100 mL capacity	50
4809	MicroFunnel Plus filter funnel with 0.2 µm Supor membrane, 100 mL capacity	50
4823	MicroFunnel Plus filter funnel with 0.45 µm Supor membrane, 100 mL capacity	50
4813	MicroFunnel Plus filter funnel with 0.2 µm Supor membrane, 300 mL capacity	20
4814	MicroFunnel Plus filter funnel with 0.45 µm Supor membrane, 300 mL capacity	20
4829ME ¹	MicroFunnel Plus filter funnel with 0.45 µm ME25 MCE membrane, 300 mL capacity	20

¹ This product is not compatible with hot water loop applications.

MicroFunnel Plus AP filter funnels

Part number	Description	Qty./Pk.
4844	MicroFunnel Plus AP filter funnel with 0.45 µm Supor membrane, 100 mL capacity	50
4856ME	MicroFunnel Plus AP filter funnel with 0.45 µm ME25 membrane, 100 mL capacity	50
4855	MicroFunnel Plus AP filter funnel with 0.45 µm Supor membrane, 300 mL capacity	20

Related products

Product code	Description	Qty./Pkg.
4824	Funnel holder, 100 mL	1
4825	Funnel holder, 300 mL	1
4845	AP sampling tube, individually bagged, sterile	50
4889	Place manifold (quantity 3), including valves (quantity 3) end cap (quantity 1), hose barb cap (quantity 1)	1 set
4701	Autoclavable funnel adapter	3
82728N	No. 8 rubber stopper	5
4890	MicroFunnel filter funnel adapter	3
4892	Standard adapter	3
4959	Elongated standard adapter	3

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