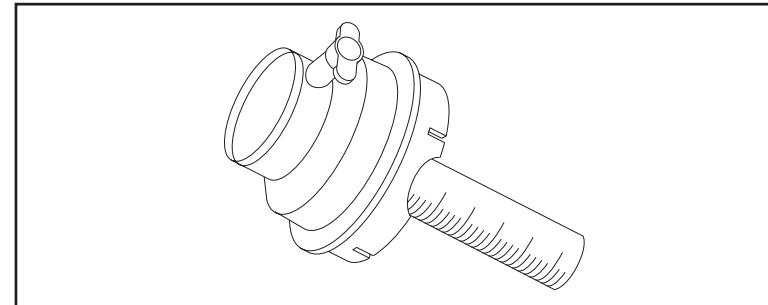


Removing Excess Liquid from the MicropreSure Monitor

The liquid remaining in the MicropreSure monitor will not compromise the test results if it remains in the monitor for a short period of time (2 hours). Therefore, the monitor containing the remaining liquid may be carried to the laboratory and purged just before adding the broth medium.

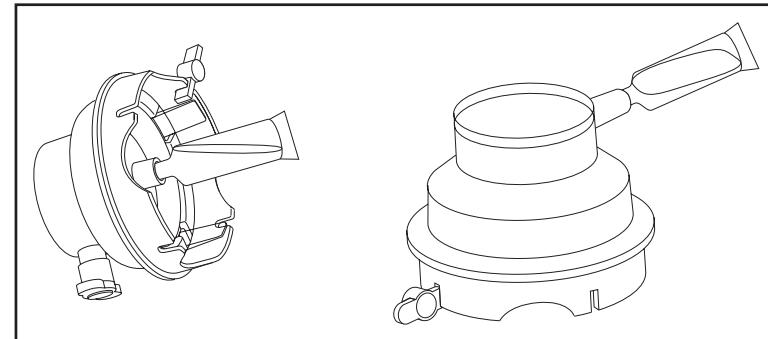
1. Remove the yellow stopper from the monitor outlet.
2. Connect a sterile 20 mL syringe to the outlet Luer connection and draw the excess liquid through the membrane.



3. Dispose of the excess liquid collected.

Adding the Broth Medium

1. Select a 2 mL ampoule of the appropriate broth medium. (See Millipore's Biopharmaceutical Catalogue for available media.)
2. Insert the ampoule into either the inlet connection or the outlet port of the MicropreSure monitor and squeeze the ampoule to dispense the full volume of the medium into the monitor.

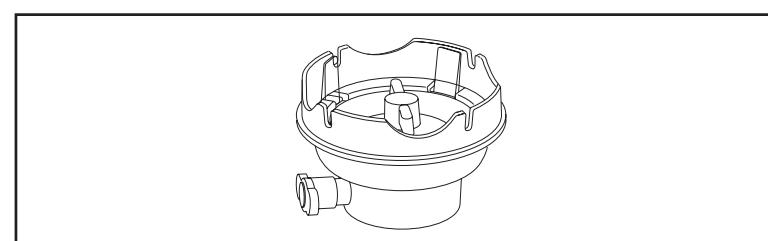


3. Remove the excess broth medium by inserting a 20 mL syringe into the outlet of the MicropreSure monitor and drawing the excess medium through the membrane.

4. Replace both stoppers onto the monitor inlet and outlet.

Incubating and Counting

Incubate upside down as with any standard 47 mm membrane.



After the unit has incubated at the required temperature for the appropriate length of time, remove the unit from the incubator and immediately view and count the colonies through the monitor's transparent dome.

NOTE: Count while the unit is still warm. Condensation will form as soon as the unit begins to cool, obscuring the view through the transparent dome.

For specific identification, remove the dome and access the MicropreSure membrane using the MicropreSure MSOpener (see Product Ordering Information section).

Specifications

Monitor height:	45 mm (1.75 in)
Filter diameter:	47 mm
Filter area:	9.10 cm ²
Filter type:	0.45 µm pore size, white, gridded
Pressure limit at 25 °C:	3 bar
Temperature range:	5 °C–90 °C

Materials of Construction

Filtration chamber/base:	Polycarbonate
Membrane:	Mixed ester cellulose, 0.45 µm, white, gridded
Filtration support:	Cellulosic pad

Product Ordering Information

This section lists the catalogue numbers for MicropreSure In-Line Filtration Monitors and accessories. See the Technical Assistance section for information about contacting Millipore. You can also buy Millipore products on-line at www.millipore.com/purecommerce.

Description	Quantity	Catalogue No.
MicropreSure In-Line Filtration Monitor, EO sterilized, 0.45 µm white gridded membrane	48/pk	MSHA WGM 48
MicropreSure In-Line Filtration Monitor, sterile, individually blister packed, 0.45 µm white gridded membrane	48/pk	MSHA WGE 48
MSOpener™ manifold, complete vacuum manifold for removing excess liquid and accessing membrane	1/pk	MSOP ENR 01
MSOpener tulip, for mounting on 3- or 6-place manifold	1/pk	MSOP NMS 01
20 mL plastic sterile syringe	12	XX11 020 12

Technical Assistance

For more information, contact the Millipore office nearest you. In the U.S., call **1-800-MILLIPORE** (1-800-645-5476). Outside the U.S., see your Millipore catalogue for the phone number of the office nearest you or go to our web site at www.millipore.com/offices for up-to-date worldwide contact information. You can also visit the tech service page on our web site at www.millipore.com/techservice.

Standard Warranty

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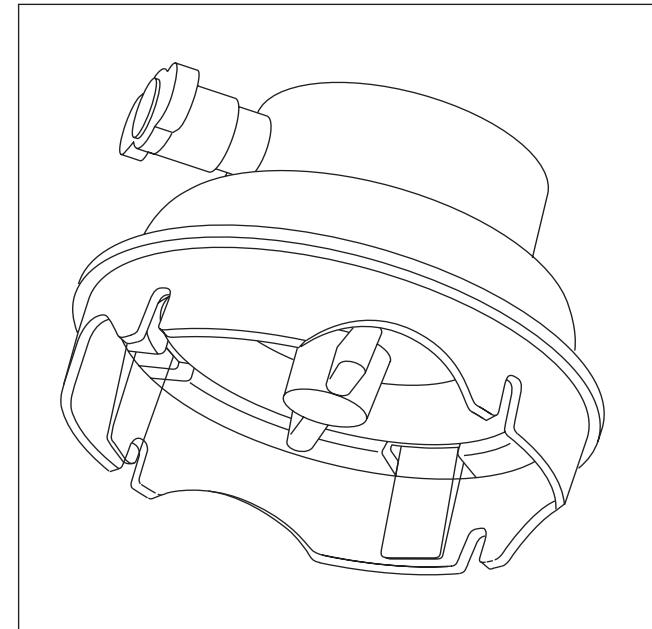
MILLIPORE

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MicropreSure® In-Line Filtration Monitor User Guide



For research use only.
Not for use in clinical applications.
Single use only.

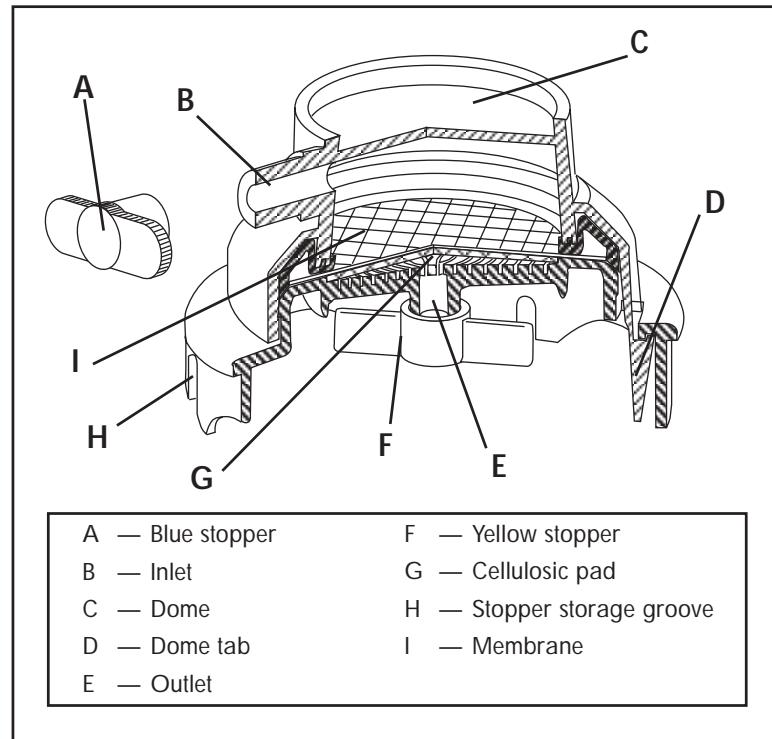
MSHA WGM 48 (48/pk)
MSHA WGE 48 (48/pk)

MILLIPORE

Introduction

Millipore's MicropreSure In-Line Filtration Monitor is used for in-line sampling and filtration of liquids within closed systems, minimizing the risk of false positives from adventitious contamination while sampling in a production environment. Large volumes can be filtered at once, or slowly over an extended period of time. For instance, filtration can be adjusted to the duration of a work shift or a batch. Designed for use with pressurized process lines or reservoirs sampling, the MicropreSure monitor handles pressures up to 3 bar. Liquids enter the MicropreSure monitor and pass through the microporous membrane within its filtration chamber. After the desired sample volume has been filtered, the monitor's inlets and outlets can be sealed for transportation without risk of contamination back to the lab where it can be directly incubated with broth medium.

Diagram of MicropreSure Monitor Components



Precautions

- Do not use with pressures exceeding the recommended 3 bar limit at room temperature.
- Do not use with temperatures exceeding 90 °C.
- Flush the sampling port thoroughly before filtering by opening the valve, then closing the valve.
- Maintain the monitor in a horizontal position while sampling to ensure homogeneous colony distribution.
- Filtration time and throughput will vary depending upon sample pressure and fouling index.
- Remove excess liquid remaining in the MicropreSure monitor after sampling within 2 hours to avoid compromising test results.

Required Equipment

- MicropreSure monitor
- 6 mm I.D. tubing
- Sampling port with male Luer outlet
- 2 mL liquid ampoule medium
- Graduated container (to measure sampled volume)
- Laboratory pen
- Incubator
- Sterile 20 mL syringe

Identifying the Sampling Port Outlet and Choosing the Valve Adapter

- If the sampling port outlet is a male Luer port (such as an ESP or Milliflex®-P valve) use the MicropreSure monitor without a sampling port adapter.
- If the sampling port has a Tri-Clover® fitting or an NPT connection valve, install a MicropreSure sanitary valve. Order the correct valve as follows:

Connection size	Millipore Cat. No.
TC 1 1/2"	MSES PTC L1
NPT 1/4"	MSES P14 N1
NPT 1/8"	MSES P18 N1

Either leave the MicropreSure valve in place or remove the valve after each sampling. The MicropreSure valve is autoclavable.

- If the sampling valve outlet is a simple tubing, measure the tubing's outer diameter and then order the correct valve adapter as follows:

Outer Diameter	Millipore Cat. No.	Outer Diameter	Millipore Cat. No.
3 mm	MSOS T03 03	20 mm	MSOS T20 03
6 mm	MSOS T06 03	3/16"	MSST 316 03
8 mm	MSOS T08 03	1/4"	MSOS T14 03
12 mm	MSOS T12 03	3/8"	MSST T38 03

- If the sampling valve outlet is male threaded connection, check the format and measure the tubing's outer diameter and then order the correct valve adapter as follows:

Outer Diameter	Millipore Cat. No.
1/8" Gas	MSFM 18G 03
1/4" Gas	MSFM 14G 03
1/8" NPT	MSFM 18N 03
1/4" NPT	MSFM 14N 03

- If the sampling valve outlet is female threaded connection, check the format and measure the tubing's outer diameter and then order the correct valve adapter as follows:

Outer Diameter	Millipore Cat. No.
1/8" Gas	MSLM 18G 03
1/4" Gas	MSLM 14G 03
1/8" NPT	MSLM 18N 03
1/4" NPT	MSLM 14N 03

- If the sampling valve outlet is a Tri-Clover fitting, measure the valve outlet's outer diameter and then order the correct valve adapter as follows:

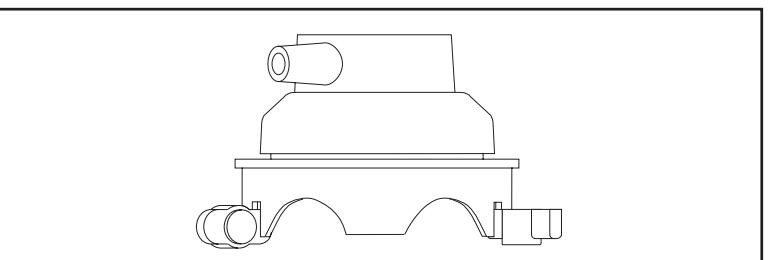
Outer Diameter	Millipore Cat. No.
TC 3/4" (25 mm)	MSOT C34 03
TC Mini-Clamp (34 mm)	MSOT CMC 03
TC 1 1/2" (50.5 mm)	MSOT 120 03

Sampling Procedure

This section outlines the procedures for filtering samples on site, removing excess liquid from the MicropreSure monitor, and adding broth medium to the monitor before incubation.

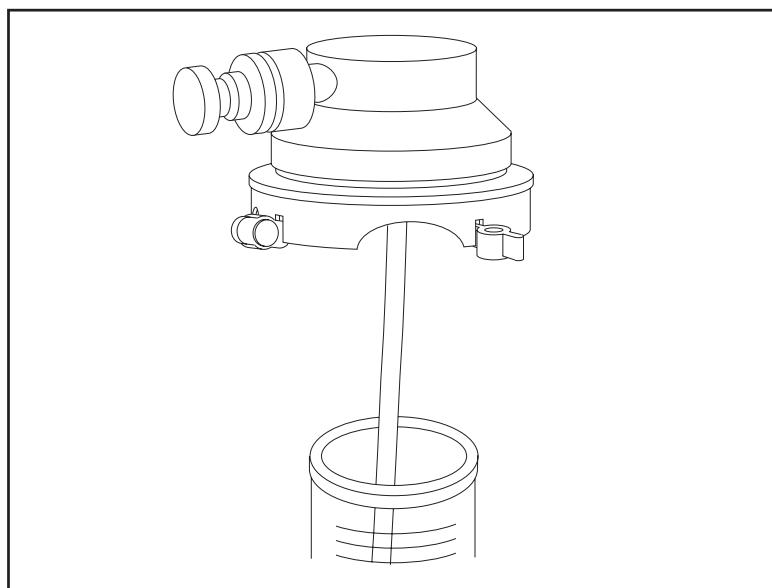
Filtering the Sample

- Open the sanitary valve and flush thoroughly with required volume (or for appropriate time), then close the valve.
- Remove the blue stopper from the MicropreSure inlet and attach to the base.



Filtering the Sample, continued

- Remove the yellow stopper from the MicropreSure outlet on the bottom of the device and attach to the base.
- Fit the MicropreSure outlet to the receiving graduated container. If the MicropreSure monitor does not fit directly on the receiving container, connect a length of tubing to the monitor outlet. Use either tubing with a male Luer connection to fit into the monitor outlet, or connect tubing with an internal diameter of approx. 6 mm (1/4 inch) around the monitor outlet.
- Insert the sanitary sampling valve outlet into the MicropreSure inlet.



- Hold the MicropreSure monitor in position on the valve without tightening the connection. Open the sampling valve until liquid covers the entire filter surface (dome half full) and the desired flow is obtained.
NOTE: This step ensures that the surface of the membrane is fully wetted. If the valve is installed horizontally so that the MicropreSure monitor is oriented parallel to the floor and the liquid flows evenly over the membrane surface, this step is not necessary.
- Secure the MicropreSure monitor in position by firmly pushing it onto the valve (with a slight twisting movement).
- Close the sampling valve when the desired sample volume or the desired sampling time has been reached.
- Disconnect the MicropreSure monitor from the sampling valve by gently pulling it away from the valve, using a twisting movement. Maintain the monitor in a horizontal position.
- Place the yellow stopper onto the monitor outlet and use the blue stopper to seal the monitor inlet.
- Record the sample location, time, and volume on the side of the MicropreSure dome.