Acro™ 50 vent devices with PTFE membrane

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.

Product description



Hydrophobic PTFE membrane prevents the entry of water and aerosols into sensitive equipment and protects the lab environment from aerosolized pathogens.

Self-contained, compact filter device provides high efficiency removal of airborne bacteria and particulate. Applications include venting bioreactors, fermentation tanks, and carboys.

Polypropylene housings have broad chemical compatibility and are suitable for filtering aggressive solvents.

Note: *A bubble point integrity test is recommended before and after filtration using standard technique.*

Sterilization

Autoclaving

Wrap the Acro™ 50 vent filter in autoclave paper and autoclave at 121°C to 123°C (250 to 253 °F) at approximately 1.0 bar (100 kPa, 15 psi) for a maximum of 20 minutes.

Note: *It might be necessary to run a drying cycle or air purge to remove residual condensation from the product before using. Reuse requires individual integrity testing and consideration for other problems including cross-contamination.*

EtO

Specific cycles for sterilization and associated studies must be validated by the user.

Gamma irradiation

Not recommended.

Integrity testing

Bubble point integrity test

Note: *An integrity test kit is available to aid in this test. For ordering information, visit cytiva.com.*

Step	Action
1	Fill a 10 mL or larger syringe with IPA.
2	Insert the syringe male luer into the “printed side” of the Acro 50 vent filter and orient the outlet in an upward direction.
3	Gradually wet the membrane of the Acro 50 vent filter by using low pressure, allowing the IPA to displace the air within the housing.
4	Flush the wetted filter with an additional 10 to 30 mL of IPA at higher syringe pressures to make sure of thorough wetting. ***Note:*** *Using less than 10 mL to flush the wetted filter can result in incomplete wetting.*
5	Attach a syringe pressure gauge to an air filled syringe or pressure vessel.
6	Attach the Acro 50 vent filter and orient the filter in an upward direction.
7	Gradually push the air into the filter by applying constant pressure. Watch continuously for bubbles at the outlet of the Acro 50 vent filter.
8	Read the pressure gauge at the moment that bubbles appear to determine the bubble point. See *Specifications, on page 2* for information on the minimum bubble point.

Water breakthrough integrity test

The water breakthrough test (WBT) is recommended as a routine procedure for integrity testing, which avoids the use of alcohol. The WBT is also referred to in the literature as water intrusion pressure or water entry pressure.

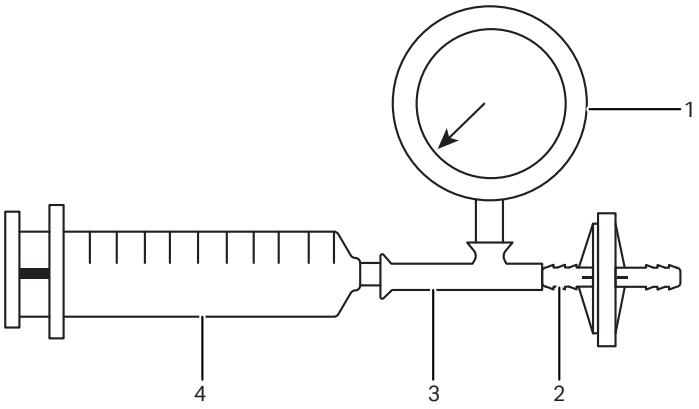
Note: *A WBT cannot be performed on units following an alcohol bubble point test due to the residual alcohol "wetting out" the membrane.*

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The WBT has been adopted by membrane manufacturers and reported in their literature and specifications for hydrophobic membranes. The naturally hydrophobic PTFE membrane resists water penetration. However, water can be forced through the membrane under high pressures. The pressure required to force water through (the water breakthrough point) directly correlates to the pore size of the membrane. Any physical destruction or rupture of the membrane is easily detected. The WBT takes a minute to run and is very reproducible.

Note: *An integrity test kit is available to aid in this test. For ordering information, visit cytiva.com.*

The illustration below shows a WBT setup.



Part	Description
1	Calibrated pressure gauge
2	Acro 50 vent filter (printed side)
3	3-way connector
4	10 mL syringe

Step	Action
1	Fill a 10 mL syringe[1] (male luer) with water.
2	By using a 3-way connector, attach the syringe pressure gauge, syringe, and the external connector of the Acro 50 vent filter. ***Note:*** *The pressure gauge must be able to measure up to 30 psi, 2.1 bar, 210 kPa.*
3	Gently fill the housing and connectors with water.
4	Apply appropriate pressure with syringe plunger and hold this pressure for 15 seconds. *Result:* Integrity of housing and membrane is proven by retention of water in the syringe, and by the pressure remaining steady.
5	If failure occurs, check the connectors for leaks and repeat the steps above. If failure reoccurs, discard the filter unit.
6	After completing the test procedure, aspirate the water back into the syringe by pulling back on the syringe plunger and disconnect the test equipment. ***Tip:*** *Shaking the Acro 50 vent filter by hand aids in further removing residual water in the plastic housing.*

Bubble point and WBT data

Pore size (µm)	IPA bubble point		Water breakthrough point	
	psi	bar	psi	bar
0.2	19	1.31	30	2.1
0.45	5	0.34	-	-
1	3	0.21	-	-

Specifications

Parameter	Specification
Materials of construction	Filter media: PTFE on a polypropylene support Housing: Polypropylene
Filter diameter	50 mm
Effective filtration area	19.6 cm^2
Typical air flow rates	0.2 µm: ≥ 8 Lpm at 0.2 bar (20 kPa, 3 psi) 0.45 µm: ≥ 12 Lpm at 0.2 bar (20 kPa, 3 psi) 1 µm: ≥ 15 Lpm at 0.2 bar (20 kPa, 3 psi)
Maximum operating pressure	4.1 bar (410 kPa, 60 psi) at ambient temperature
Dimensions	Overall Length: 8.2 cm (3.2 inch) Diameter: 7.3 cm (2.9 inch)
Inlet and outlet connections	Stepped hose barbs, 6.4 to 12.7 mm (¼ to ½ inch) diameter. Connections have internal taper design to accept male slip luer. The 0.2 µm pore size devices are available with ⅛ inch MNPT or ⅜ inch (9.5 mm) OD straight type connections. The 1 µm pore size device is also offered with a ⅛ inch MNPT connection.
Minimum bubble point (IPA, 100%)	0.2 µm: 1.31 bar (131 kPa, 19 psi) 0.45 µm: 0.34 bar (34 kPa, 5 psi) 1 µm: 0.21 bar (21 kPa, 3 psi)

Ordering information

Product code	Description and connections	Pkg
4250	0.2 µm PTFE membrane, hose barb	72/pkg
4251	0.2 µm PTFE membrane, hose barb	18/pkg
4400	0.2 µm PTFE membrane, ⅛ inch MNPT	18/pkg
4401	0.2 µm PTFE membrane, ⅜ inch straight pipe	18/pkg
4256	0.45 µm PTFE membrane, hose barb	18/pkg
4258	1 µm PTFE membrane, hose barb	18/pkg
4003	1 µm PTFE membrane, ⅛ inch MNPT	18/pkg
4252	Integrity Test Kit (includes pressure gauge, 3-way valve, and 10 mL syringe)	1/pkg

All units are identified with membrane, pore size, and lot number on the inlet side of each Acro 50 vent filter housing.

For ordering information, visit cytiva.com.

[1] Over a period of time, the syringe and valve can begin to wear and can affect water breakthrough test results. Any standard 10 mL (or greater) syringe with luer slip fittings can be substituted.

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