



Acro[®] 50 Vent Devices with PTFE Membrane

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.

Specifications

Materials of Construction

Filter Media: PTFE on a polypropylene support

Housing: Polypropylene

Filter Diameter

50 mm

Effective Filtration Area

19.6 cm²

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 Temperature

130 °C (266 °F) at 1.0 bar (100 kPa, 15 psi)

Maximum Operating Pressure

4.1 bar (410 kPa, 60 psi) at ambient temperature

Dimensions

Overall Length: 8.2 cm (3.2 in.)

Diameter: 7.3 cm (2.9 in.)

Inlet/Outlet Connections

Stepped hose barbs, 6.4-12.7 mm (1/4-1/2 in.) diameter. Connections have internal taper design to accept male slip luer. The 0.2 µm pore size devices are available with 1/8 in. MNPT or 3/8 in. (9.5 mm) OD straight type connections. The 1 µm pore size device is also offered with a 1/8 in. MNPT connection.



Biological Safety

Passes United States Pharmacopeia (USP) Biological Reactivity Test, *In Vivo* <88>

Minimum Bubble Point (IPA, 100%)

0.2 µm: 1.03 bar (103 kPa, 15 psi)

0.45 µm: 0.34 bar (34 kPa, 5 psi)

1 µm: 0.21 bar (21 kPa, 3 psi)

Sterilization

Autoclaving

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

Note: It may 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 should be validated by the user.

Gamma Irradiation

Not recommended.

Integrity Testing

Bubble Point Method

(An Integrity Test Kit is available to aid in this test. See Ordering Information section above).

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 (with low pressure) wet the Acro 50 vent filter’s membrane, allowing the IPA to displace the air within the housing.
4. Flush the wetted filter with an additional 10-30 mL of IPA at higher syringe pressures to assure thorough wetting (using less than a 10 mL flush may result in incomplete wetting).
5. Attach a syringe pressure gauge to an air filled syringe or pressure vessel. Attach the Acro 50 vent filter and orient the filter in an upward direction.
6. Applying constant pressure, gradually push the air into the filter, constantly watching for bubbles at the outlet of the Acro 50 vent filter.
7. Read pressure gauge at the moment bubbles appear to determine bubble point (see Specifications).

Water Breakthrough Test

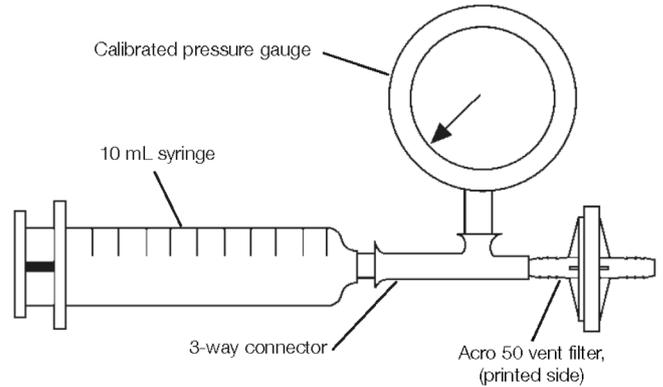
Due to the unacceptable nature of alcohol in many applications, and the need for an easy, routine procedure for integrity testing, we recommend the Water Breakthrough Test (WBT). The WBT is also referred to in the literature as water intrusion pressure or water entry pressure.

Note: A WBT cannot be performed on units following an alcohol Bubble Point Test due to the residual alcohol “wetting out” the membrane.

This relatively simple and reproducible test 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 only a minute to run and is very reproducible. A test kit is available from Pall Laboratory (see Ordering Information section).

Pore Size (µm)	IPA Bubble Point		Water Breakthrough Point	
	psi	bar	psi	bar
0.2	15	1.03	30	2.1
0.45	5	0.34	—	—
1	3	0.21	—	—

Water Breakthrough Integrity Test



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

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

Ordering Information

Part Number	Description/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, 1/8 in. MNPT	18/pkg
4401	0.2 µm PTFE membrane, 3/8 in. 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, 1/8 in. 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.

Complementary Products

Hydrophobic Vent Filters

Part Number	Description	Pkg
4464	Acro 37 TF Vent Device, 0.2 µm, 37 mm	24/pkg
4210	Bacterial Air Vent, 1 µm, nominal, 37 mm	24/pkg
4402	Vacushield™ Vent Filter, 50 mm	3/pkg



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