

# MultiScreen® Solvinert Filter Plates

User Guide PR02152, Rev. A, 07/06

■ For research use only	MSRL N04 10
■ Single use only	MSRL N04 50
■ Non-sterile	MSRP N04 10
	MSRP N04 50

## Introduction

The MultiScreen® Solvinert Filter Plate is a single-use, automation-compatible 96-well device with chemically-resistant 0.45 µm PTFE membrane providing high flow for use in the processing of a wide range of aqueous and organic solutions. It is designed for use with vacuum or centrifugal pressure, accommodates standard 96-well receiver plates for filtrate collection and is provided with a storage lid.

The PTFE membrane and polyolefin polymer used in the construction of the filter plate offer broad chemical compatibility. They have shown very low levels of extractables — when exposed to aqueous buffers and acetonitrile for one hour, as analyzed by HPLC — and exhibit low non-specific binding of small molecules and proteins.

The filter plate meets ANSI guidelines for automation compatibility and features an underdrain designed for discrete transfer of filtrates to a receiver plate without crosstalk. When mounted on a standard receiver plate, it will fit into a standard microtiter plate swinging-bucket rotor.

Available with either hydrophilic or hydrophobic membranes, the MultiScreen Solvinert Filter Plate offers a selection optimized for aqueous or organic solvent sample preparation and is intended for a wide range of applications, including total drug analysis, peptide synthesis, determination of compound solubility, solid-phase combinatorial chemistry, chemical cleavage applications and sample preparation prior to HPLC.

## Operation

### Screening and Rinsing of Filter Plate before Use, for Maximal Sample Recovery (optional)

1. Pre-wet each well with 100 µL of the desired reaction buffer or solvent (e.g., synthesis or cleavage buffer).
2. Filter the buffer or solvent through the filter plate into a chemically-compatible receiver plate (e.g., polypropylene).

### Manual Vacuum Filtration

Manual vacuum filtration is not recommended for use with highly volatile solvents where quantification is a concern. Rinsing of the vacuum manifold after exposure is recommended as it may not be solvent-compatible.

1. Place a chemically-compatible receiver plate in the vacuum manifold to collect the filtrate, when required.
2. Nest the manifold support ring on top of the manifold base.
3. Place the Solvinert filter plate onto the vacuum manifold.
4. Add samples to the filter plate.
5. Apply vacuum.
6. Release the vacuum slowly.
7. Remove the plate carefully to minimize the chance of cross-talk resulting from any hanging drops.

### Centrifugal Filtration

1. Mount the Solvinert filter plate on a chemically-compatible receiver plate to collect the filtrate.
2. Add samples to the filter plate.
3. Place the storage lid on the filter plate.
4. Place the assembled filter and receiver plates, with the lid, into a standard swinging-bucket microtiter plate rotor assembly.
5. Centrifuge.

As a general guideline, centrifugation at 500 × g for 1–2 minutes is sufficient to complete filtration of most solutions.

## Materials Required

### Included

MultiScreen Solvinert Filter Plate with storage lid

### User-Supplied

- 96-well receiver plates (solvent-compatible as required)
- Vacuum manifold suitable for use with 96-well plates  
*or*  
Centrifuge capable of centrifugal forces of at least  $500 \times g$ , with a swinging-bucket rotor and 96-well plate carriers
- Pipettors and/or robotic liquid handlers for handling aqueous samples
- Portable vacuum pump or uniform vacuum source (if vacuum is to be used)

## Precautions and Limitations

The materials used in the construction of the MultiScreen Solvinert Filter Plate offer broad chemical compatibility and very low levels of extractables. See the Chemical Compatibility section for information on the compatibility of the plate and lid with various solvents. To ensure compatibility in a given application, the filter plate and storage lid should be tested with the specific chemicals and under the specific conditions required.

The MultiScreen Solvinert Filter Plate provides the ability to perform extended incubations. While many low surface tension solvents exhibit a low risk of drip-out, it is recommended that incubations be conducted on top of a suitable receiver plate. Care must be taken to avoid evaporation when performing extended incubations with volatile solvents. Use of the storage lid can significantly reduce evaporation. The maximum recommended centrifugal force for use with the filter plate is  $1500 \times g$ . In applications requiring RCF greater than  $1500 \times g$ , receiver plates must be selected and tested for resistance.

## Specifications

### Materials of Construction

Membrane/Substrate	
Hydrophilic (MSRL)	Modified PTFE/PP
Hydrophobic (MSRP)	PTFE/PP
Base Plate	Polyolefin copolymer
Plate Lid	Polystyrene

### Nominal Dimensions

Membrane Pore Size	0.45 $\mu\text{m}$
Membrane Area	0.28 $\text{cm}^2$
Plate Assembly	
Length	127.8 mm
Width	85.5 mm
Depth	14.6 mm
Sample Volume (per well)	
Recommended	0.3 mL
Maximum	0.5 mL

### Operating Parameters

Relative Centrifugal Force (RCF)	
Recommended	500–1500 $\times g$
Maximum	3000 $\times g$
Vacuum	
Recommended	8–18 inches Hg
Maximum	24 inches Hg
Filtration Time (typical, for 300 $\mu\text{L}$ )	10–20 seconds
Temperature	4–25 $^{\circ}\text{C}$

MILLIPORE

## Chemical Compatibility

**NOTE:** The storage lid does not have the same solvent-resistance properties as the filter plate and can be damaged by exposure to some solvent vapors.

Solvent	Plate	Lid
<b>Acids</b>		
Acetic acid, glacial .....	R .....	NR
Hydrochloric acid (37%) .....	R .....	—
Hydrochloric acid (1 N) .....	R .....	R
Hydrochloric acid (6 N) .....	R .....	TST
Hydrochloric acid (conc.) .....	R .....	NR
Nitric acid (30%) .....	R .....	—
Nitric acid (6 N) .....	R .....	NR
Nitric acid (conc.) .....	R .....	NR
Sulfuric acid (conc.) .....	R .....	NR
Trifluoroacetic acid .....	R .....	NR
<b>Alcohols</b>		
Ethyl Alcohol .....	R .....	TST
Isopropyl Alcohol .....	R .....	R
Methyl Alcohol .....	R .....	NR
<b>Bases</b>		
Sodium Hydroxide (70%) .....	R .....	R
Sodium Hydroxide (3 N) .....	R .....	R
Sodium Hydroxide (conc.) .....	R .....	R
Ammonium Hydroxide (conc.) .....	R .....	TST
<b>Glycols</b>		
Glycerine (Glycerol) .....	R .....	R
<b>Aromatic Hydrocarbons</b>		
Benzene .....	R .....	NR
<b>Ketones</b>		
Acetone .....	R .....	NR
Cyclohexanone .....	R .....	NR
<b>Oils</b>		
Cottonseed oil .....	R .....	TST
<b>Miscellaneous</b>		
Acetonitrile (ACN) .....	R .....	NR
Dimethylformamide .....	R .....	NR
Dimethyl Sulfoxide (DMSO) .....	R .....	R
Dioxane .....	R .....	NR
Formaldehyde (35%) .....	R .....	NR
Hexane .....	TST .....	NR
Methylene Chloride .....	L .....	NR
Pyridine .....	R .....	TST

R Recommended:

No significant change was observed in flow rate, nor was there any visible indication of chemical attack.

L Limited Recommendation:

Do not expose for long periods of time. The plate did not show significant physical change after a one-hour incubation.

NR Not Recommended

TST Testing Recommended

— No Data Available

The data presented in this chart are a compilation of testing by Millipore with certain chemicals and manufacturers' compatibility recommendations. These data are intended to provide expected results when filtration devices are exposed to chemicals under static conditions for 48 hours at 25 °C (77 °F), unless otherwise noted.

## 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](http://www.millipore.com/offices) for up-to-date worldwide contact information. You can also visit the tech service page on our web site at <http://www.millipore.com/techservice>.

## Holdup Data

MultiScreen Solvinert Filter Plates are designed to support extended incubation times. For more information, go to the Millipore web site ([www.millipore.com/publications](http://www.millipore.com/publications)).

## Product Ordering Information

This section lists the catalogue numbers for MultiScreen Solvinert Filter Plates and related accessories. See the Technical Assistance section for information about contacting Millipore. You can also buy Millipore products on-line at [www.millipore.com/purecommerce](http://www.millipore.com/purecommerce).

Description	Qty/Pk	Catalogue Number
<b>MultiScreen Solvinert Filter Plates</b>		
Hydrophilic, 0.45 µm	10	MSRL N04 10
Hydrophilic, 0.45 µm	50	MSRL N04 50
Hydrophobic, 0.45 µm	10	MSRP N04 10
Hydrophobic, 0.45 µm	50	MSRP N04 50
<b>Accessories</b>		
MultiScreen Vacuum Manifold	1	MAVM 096 0R
MultiScreen Column Loader, 25 µL	1	MACL 096 25
MultiScreen Column Loader, 45 µL	1	MACL 096 45
MultiScreen Column Loader, 80 µL	1	MACL 096 80
MultiScreen Column Loader, 100 µL	1	MACL 096 00

## Standard Warranty

Millipore Corporation ("Millipore") warrants its products will meet their applicable published specifications when used in accordance with their applicable instructions for a period of one year from shipment of the products. **MILLIPORE MAKES NO OTHER WARRANTY, EXPRESSED OR IMPLIED. THERE IS NO WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.** The warranty provided herein and the data, specifications and descriptions of Millipore products appearing in Millipore's published catalogues and product literature may not be altered except by express written agreement signed by an officer of Millipore. Representations, oral or written, which are inconsistent with this warranty or such publications are not authorized and if given, should not be relied upon.

In the event of a breach of the foregoing warranty, Millipore's sole obligation shall be to repair or replace, at its option, the applicable product or part thereof, provided the customer notifies Millipore promptly of any such breach. If after exercising reasonable efforts, Millipore is unable to repair or replace the product or part, then Millipore shall refund to the customer all monies paid for such applicable product or part. **MILLIPORE SHALL NOT BE LIABLE FOR CONSEQUENTIAL, INCIDENTAL, SPECIAL OR ANY OTHER INDIRECT DAMAGES RESULTING FROM ECONOMIC LOSS OR PROPERTY DAMAGE SUSTAINED BY ANY CUSTOMER FROM THE USE OF ITS PRODUCTS.**