

## User Guide

# Millex® (33 mm) Sterile Syringe Filter

with Durapore® Membrane

**SLVVR33RS**  
**SLGVR33RS**  
**SLGVR33RB**  
**SLHVR33RS**  
**SLHVR33RB**

- Single use only
- Sterile
- Non-pyrogenic
- Contains no natural latex rubber
- For research use only

### Introduction

This document provides compatibility information, operating steps, and specifications for the Durapore® hydrophilic PVDF family of sterile Millex® filters. The Millex® filter's bidirectional support of the filter membrane enables users to filter aqueous solutions in either direction; forward (from the syringe into the container) or backward (from the container into the syringe). The Millex® filter removes microorganisms, particles, precipitates, and undissolved powders larger than the membrane's rated pore size. These single-use filters consist of a membrane filter sealed in an acrylic housing. They are non-pyrogenic and non-toxic.

### Applications

For research use only. Typical research laboratory applications include the sterile filtration (VV/GV) and/or clarification (VV/GV/HV) of protein solutions, tissue culture media, additives, buffers, and water.

### How to Use the Millex® Sterile Filter

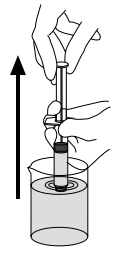
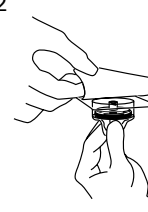
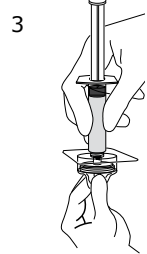
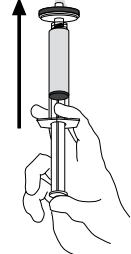
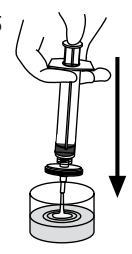
#### WARNINGS:

- To ensure sterility, do not use this product if the package is damaged.
- Do not use this product as an in-line filter for intravenous fluid administration; it was not designed for long-term continuous use.

#### CAUTIONS:

- Do not use the Millex® filter to filter fluids at temperatures above 45 °C (113 °F).
- Do not use the Millex® filter to filter emulsions or suspensions because it was not designed for that purpose.
- Do not use the Millex® filter to filter solutions containing 5 milligrams (mg) or less of materials unless binding studies have been performed.
- Do not use the same Millex® filter to filter solutions in both directions.
- Do not re-sterilize or reuse the Millex® filter, as we cannot assure the sterility, integrity, and performance beyond a single use.

### Instructions for use

<p>1</p>  <p>Fill syringe with solution to be filtered.</p>	<p>2</p>  <p>Aseptically remove cover from package.</p>	<p>3</p>  <p>Attach syringe to filter and remove assembly from package. Attach needle to Luer-slip outlet if necessary.</p>	<p>4</p>  <p>Hold syringe with filter (and needle if attached) pointing up and "top off" by pushing a few drops through. Do not contaminate underside of filter with fingers.</p>	<p>5</p>  <p>Insert needle (if attached) and push plunger to deliver filtered solution.</p>
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## Specifications

### Materials

Membrane	Low binding hydrophilic polyvinylidene fluoride Pore size: Millex®-VV filter: 0.10 µm Millex®-GV filter: 0.22 µm Millex®-HV filter: 0.45 µm
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Housing	Acrylic
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### Dimensions

Inlet to outlet	27 mm (1.06 in.)
Diameter	33 mm (1.30 in.)
Filtration area	4.52 cm <sup>2</sup> (0.70 in <sup>2</sup> )

Temperature limit	45 °C (113 °F) maximum
Housing Pressure at 25 °C	10.3 bar (150 psi) inlet maximum
Filtration volume	10 mL to 100 mL
Hold-up volume	≤ 0.1 mL after air purge
Sterilization method	Gamma irradiation
Connections	Female Luer-Lok™ inlet; male Luer-slip outlet
Flow rate at 2.1 bar (30 psi), 21 °C	Millex®-VV filter: ≥ 25 mL/min Millex®-GV filter: ≥ 40 mL/min Millex®-HV filter: ≥ 300 mL/min

## Chemical Compatibility

The Millex® filter with Durapore® membrane is compatible with most aqueous solutions. Based on information from technical publications, materials suppliers, and laboratory tests, we believe that the agents listed in the following chart are safe to use with Millex® filters. However, because of the effects of variability in temperature, concentrations, duration of exposure, and other factors outside of our control, we do not provide or imply a warranty with respect to this information.

### Chemicals

Acetic acid (5%)	Hexane	Pentane
Alconox® detergent (1%)	Hydrochloric acid (6 N)	Perchloroethylene
Aliphatic ethers	Hydrofluoric acid	Petroleum based oils
Ammonium hydroxide (6 N)	Hydrogen	Petroleum ether
Amyl acetate	Hydrogen peroxide (90%)	Phenol (aqueous solution)
Benzyl alcohol (1%)	HYPO (aqueous solution)	Potassium hydroxide (3 N)
Boric acid (aqueous solution)	Isopropyl acetate	Pyridine
Carbon tetrachloride	Kerosene	Silicone oils
CHAPS (aqueous solution)	Lactic acid (50%)	Sodium carbonate(aqueous solution)
Diethyl pyrocarbonate (0.2%)	Lubrol® PX emulsifier (aqueous solution)	Sodium chloride(aqueous solution)
Ethers	Mercaptoethanol (0.1 M)	Sodium dodecyl sulfate
Ethylene glycol	Mineral spirits	Sodium hydroxide (concentrated)
Formic acid (50%)	Nitric acid (6 N)	Trichloroacetic acid (aqueous solution)
Freon® solvent (TF or PCA)	Nitrogen	Tween® 20 surfactant (aqueous solution)
Gasoline	Nonidet™-P 40 surfactant (aqueous solution)	Urea (8 M)
Glycerine (glycerol)	Ozone	Water (brine)
Guanidine hydrochloride (6 M)	Paraldehyde	Water (deionized)
Guanidine thiocyanate (5 M)		
Helium		

### Active Drug Compounds

Drug	Comments	Drug	Comments	Drug	Comments
Aminophylline	water soluble	Etoposide	30% alcohol	Mitoxantrone	water soluble
Ampicillin	water soluble	Factor III	water soluble	Moxalactam	water soluble
Aspartame	water soluble	Factor IX	water soluble	Nitroglycerin	water soluble
Bleomycins	water soluble	Fentanyl	water soluble	Norepinephrine	water soluble
Caffeine	water soluble	Fluorouracil	water soluble	Penicillin G potassium	water soluble
Cefazolin	water soluble	Folic Acid	water soluble	Phenobarbital	water soluble
Cefoxitin	water soluble	Furosemide	water soluble	Piperacillin	water soluble
Cephalothin	water soluble	Gentamicin	water soluble	Plicamycin	water soluble
Cisplatin	water soluble	Hemin	water soluble	Prochlorperazine	water soluble
Colistin	suspension + surfactant	Heparin	water soluble	Protamines	water soluble
Cytarabine	water soluble	Hydrocortisone 21-glycol sodium succinate	water soluble	Streptokinase	water soluble
Dactinomycin	water soluble	Immunoglobulins	water soluble	Sulfamethomidine	50% alcohol
Daunorubicin	water soluble	Insulin	water soluble	Tobramycin	water soluble
Dexamethasone	5% alcohol	Isoproterenol	water soluble	Trimethoprim	water soluble
Diazepam	40% alcohol	Lidocaine	water soluble	Urokinase	water soluble
Digoxin	50% alcohol	Mannitol	water soluble	Vidarabine	water soluble
Dobutamine	water soluble	Metronidazole	water soluble	Vinblastine	water soluble
Dopamine	water soluble	Mitoguanzone	water soluble	Vincristine	water soluble
Doxorubicin	water soluble	Mitomycins	water soluble		
Ergonovine	water soluble				

## Product Ordering

Purchase products online at [www.sigmaaldrich.com/products](http://www.sigmaaldrich.com/products).

Description	Pore Size, $\mu\text{m}$	Membrane	Cat. No.	Qty/pk
Millex®-VV	0.10	PVDF membrane	<b>SLVVR33RS</b>	50
Millex®-GV	0.22	PVDF membrane	<b>SLGVR33RS</b>	50
Millex®-GV	0.22	PVDF membrane	<b>SLGVR33RB</b>	250
Millex®-HV	0.45	PVDF membrane	<b>SLHVR33RS</b>	50
Millex®-HV	0.45	PVDF membrane	<b>SLHVR33RB</b>	250

### Notice

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### Technical Assistance

Visit the tech service page on our web site at [www.sigmaaldrich.com/techservice](http://www.sigmaaldrich.com/techservice).

### Standard Warranty

The applicable warranty for the products listed in this publication may be found at [www.sigmaaldrich.com/terms](http://www.sigmaaldrich.com/terms).

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