

User Guide

Millex® (33 mm) Sterile Syringe Filter

with MF-Millipore™ Membrane

SLGSR33SS
SLGSR33SB
SLHAR33SS
SLHAR33SB
SLAAR33SS
SLAAR33SB

- 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 MF-Millipore™ (mixed esters of cellulose nitrate and cellulose acetate) 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 (GS) and/or clarification (GS/HA/AA) of protein solutions, tissue culture media, additives, buffers, and water. For laboratory use only.

Instructions for use

- 1 Fill syringe with solution to be filtered.
- 2 Aseptically remove cover from package.
- 3 Attach syringe to filter and remove assembly from package. Attach needle to Luer-slip outlet if necessary.
- 4 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.
- 5 Insert needle (if attached) and push plunger to deliver filtered solution.

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; it was not designed for long-term continuous use.
- Do not use with syringes smaller than 10 mL because pressures in excess of the maximum pressure rating may be reached, potentially causing damage to the filter and/or personal injury.

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 active drug 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.

Specifications

Materials

Membrane	Mixed esters of cellulose nitrate and cellulose acetate Pore size: Millex® -GS filter: 0.22 µm Millex® -HA filter: 0.45 µm Millex® -AA filter: 0.8 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 ² (0.70 in ²)

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	Ethylene oxide gas
Connections	Female Luer-Lok™ inlet; male Luer-slip outlet
Flow rate at 2.1 bar (30 psi), 21 °C	Millex® -GS filter: ≥ 75 mL/min Millex® -HA filter: ≥ 180 mL/min Millex® -AA filter: ≥ 360 mL/min

Chemical Compatibility

The Millex® filter with MF-Millipore™ membrane is compatible with most aqueous solutions. Based on information from technical publications, materials suppliers, and laboratory tests, we believe 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%)	Helium	Perchloroethylene
Alconox® detergent (1%)	Hexane	Petroleum based oils
Aliphatic ethers	Hydrochloric acid (1 N)	Petroleum ether
Ammonium hydroxide (6 N)	Hydrogen	Phenol (aqueous solution)
Benzyl alcohol (1%)	HYPO (aqueous solution)	Silicone oils
Boric acid (aqueous solution)	Kerosene	Sodium carbonate
(aqueous solution)	Lactic acid (50%)	Sodium chloride (2 M)
Formic acid (50%)	Lubrol® PX emulsifier	Sodium dodecyl sulfate
Freon® solvent (TF or PCA)	(aqueous solution)	Sulfuric acid (6 N)
Gasoline	Mineral spirits	Trifluoroacetic acid
Glycerine (glycerol)	Nitrogen	Tween® 20 surfactant
(aqueous solution)	Nonidet™-P 40 surfactant	Urea (8 M)
Guanidine hydrochloride (6 M)	Ozone (aqueous solution)	Water (brine)
Guanidine thiocyanate (5 M)	Pentane	Water (deionized)

Active Drug Compounds

The drug list refers to the compatibility between the drug and filter materials. It does not refer to the specific drug or protein binding to the filter, or the potential loss of the active drug component during filtration. You should qualify specific drugs for protein binding or loss of drug component prior to use. Agents that are not listed should be tested prior to use.

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

Product Ordering

Purchase products online at www.sigmaaldrich.com/products.

Description	Pore Size, μm	Membrane	Cat. No.	Qty/pk
Millex®-GS	0.22	MCE membrane	SLGSR33SS	50
Millex®-GS	0.22	MCE membrane	SLGSR33SB	250
Millex®-HA	0.45	MCE membrane	SLHAR33SS	50
Millex®-HA	0.45	MCE membrane	SLHAR33SB	250
Millex®-AA	0.8	MCE membrane	SLAAR33SS	50
Millex®-AA	0.8	MCE membrane	SLAAR33SB	250

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