User Guide

Millex®-LG and Millex®-LH 4 and 25 mm HPLC Certified Syringe Filters

Non Sterile.
Single Use.
For Research Use Only.

Introduction

This document provides chemical compatibility information, operating steps, and specifications for Millex® 4 and 25 mm (millimeter) non-sterile HPLC certified syringe filters. These filters are recommended for filtration of solutions prior to instrumentation analysis. The single-use, disposable filter unit removes particles larger than the membrane's rated pore size. It consists of a hydrophilic polytetrafluoroethylene (PTFE) membrane sealed in a high density polyethylene housing.

NOTE: The 4 mm syringe filter has a stepped outlet to facilitate filtration into small vials by eliminating air-locks. The outlet of this syringe filter also allows a Luer connection to be made.

The table below lists membrane pore sizes, filter sizes, and recommended filtration volumes.

Syringe Filter	Membrane Pore Size	Filtration Volume	Application
LG	0.20 µm	4 mm up to 1 mL 25 mm 10–100 mL	Filtration of protein-containing solutions, and aqueous or organic solutions
LH	0.45 µm	4 mm up to 1 mL 25 mm 10–100 mL	Clarify aqueous and organic solutions.

HPLC Certification

Millex®-LG and LH syringe filters are tested for UV-absorbing extractables. HPLC analysis of 1 mL samples of acetonitrile collected after discarding the first 1 mL of solvent showed no peaks greater in intensity than 0.004 AUFS (after the column frontal volume) at either 214 nm or 254 nm.

How to Use Millex® Syringe Filters

WARNINGS

- Do not use the Millex® syringe filter for direct patient care applications; it is designed for research use only.
- Do not use syringes smaller than the recommendations below because back pressures in excess of the maximum pressure rating may be reached, potentially causing damage to the syringe filter and/or personal injury.

Syringe filter diameter	Smallest recommended syringe size
4 mm	5 mL
25 mm	10 mL

CAUTIONS

- Do not use the syringe filter at temperatures above 45 °C (113 °F).
- Perform a binding study before use if there is a concern about loss of analyte (proteins, nucleic acids, active pharmaceuticals) due to binding.
- Do not reuse the syringe filter.
- To prevent sample contamination, do not use the same syringe filter to filter different solutions.
- Do not use the same syringe filter to filter solution in both directions.
- Do not use the syringe filter to filter emulsions or suspensions.
- Discard appropriately after single use. See "Disposal" section.

Chemical Compatibility

Millex® syringe filters are compatible with aqueous, mild organic, and organic solutions. You can use them to filter the agents listed in the following table. This information was developed from technical publications, materials suppliers, and laboratory tests and is believed to be accurate and reliable. However, because of variability in temperature, concentrations, exposure time, and other factors outside of our control that may affect the use of the unit, no warranty is provided or implied with respect to such information. Agents not listed below should be tested with the Millex® syringe filter prior to use.

Note: For low extractable HPLC instrumentation analysis applications, it is recommended that you discard the first 1 mL or rinse with 1 to 2 mL of primary solvent before sample filtration.

Chemicals

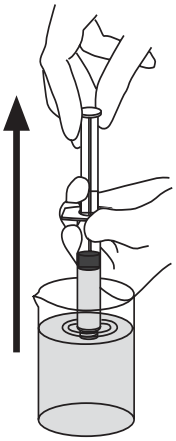
Acetic acid, glacial
Acetone
Acetonitrile
Ammonium hydroxide
Ammonium sulfate (saturated)
Amyl acetate
Amyl alcohol
Boric acid
Butyl alcohol
Cellosolve® (ethyl) solvent
Chloroform
Cyclohexane
Cyclohexanone
Dimethylacetamide
Dimethylformamide
Dimethyl sulfoxide
Ethers
Ethyl acetate
Ethyl alcohol
Ethylene glycol
Formaldehyde
Formic acid (50%)
Freon® (TF or PCA) solvent
Gasoline*
Glycerine (glycerol)
Helium
Hexane*
Hydrochloric acid
Hydrofluoric acid
Hydrogen
Hydrogen peroxide (30%)
Hypo (sodium thiosulfate)
Isobutyl alcohol
Isopropyl acetate
Isopropyl alcohol
Kerosene*
Lactic acid (50%)
Methyl alcohol
Methylene chloride*
Methyl ethyl ketone
Methyl isobutyl ketone
Mineral spirits*
Nitrogen
Ozone (10 ppm in water)
Paraldehyde
Perchloroethylene
Petroleum based oils
Petroleum ether*
Phenol (10%)
Potassium hydroxide (3 N)
Pyridine
Silicone oils
Sodium carbonate (aqueous solution)
Sodium chloride (2 M)
Sodium hydroxide (3 N)
Sulfuric acid (3 N)
Tetrahydrofuran
Toluene*
Trichloroacetic acid (TCA) (aqueous solution)
Trichloroethane*
Trifluoroacetic acid
Urea (8 M)
Xylene*

* Limited compatibility with housing material.

Instructions for Use

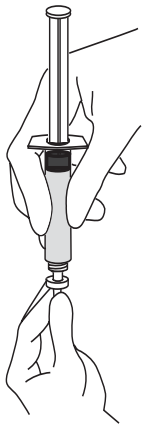
1.

Fill the syringe with the solution to be filtered.



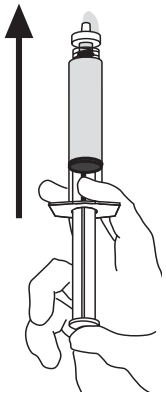
2.

Attach the syringe to the Millex® syringe filter.



3.

Hold the syringe with filter pointing up and "top off" by pushing a few drops through the filter.



4.

Push the syringe plunger to deliver the filtered solution.

Optional: To purge the syringe filter and maximize sample throughput, remove the Millex® filter from the syringe and draw air into the syringe. Then reattach the Millex® filter, and push the plunger to force some of the air through the filter.

Specifications

Housing	High density polyethylene
Membrane	Hydrophilic PTFE
Pore size	LG: 0.20 µm LH: 0.45 µm
Dimensions	
Inlet to outlet	
4 mm	19.7 mm (0.78 in.)
25 mm	19.8 mm (0.78 in.)
Diameter	
4 mm	6.4 mm (0.25 in.)
25 mm	30 mm (1.18 in.)
Filtration surface area	
4 mm	0.1 cm^2 (0.016 in^2)
25 mm	3.9 cm^2 (0.60 in^2)
Pressure limit at 21 °C	
4 mm	200 psi (13.8 bar)
25 mm	100 psi (6.9 bar)
Filtration volume	
4 mm	≤1 mL
25 mm	10–100 mL
Hold-up volume*	
4 mm	≤10 µL
25 mm	≤100 µL
Temperature limit	45 °C (113 °F)
Connections	Female Luer-Lok™ inlet, male Luer-slip outlet **NOTE:** 4 mm filter has a stepped male Luer-slip outlet.

*After air purge at pressure that exceeds bubble point of the membrane.

Product Ordering

Purchase products online at SigmaAldrich.com.

Diameter	Pore size	Qty/pk	Catalogue No.
4 mm	0.20 µm	100	SLLGH04NL
	0.20 µm	1000	SLLGH04NK
	0.45 µm	100	SLLHH04NL
	0.45 µm	1000	SLLHH04NK
25 mm	0.20 µm	50	SLLGH25NS
	0.20 µm	250	SLLGH25NB
	0.20 µm	1000	SLLGH25NK
	0.45 µm	50	SLLHH25NS
	0.45 µm	250	SLLHH25NB
	0.45 µm	1000	SLLHH25NK

Disposal

Follow precautions for disposal of items contaminated with hazardous material according to all applicable international, federal, state, and local regulations.

Notice

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25 mm syringe filters
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Merck Millipore Ltd.
Tullagreen,
Carrigtwohill,
Co. Cork, IRL
an affiliate of Merck KGaA,
Darmstadt, Germany

Millex®-LG and LH
4 mm syringe filters
Made in Japan
Merck Ltd.
Tokyo 153-8927
Japan
an affiliate of Merck KGaA,
Darmstadt, Germany

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