

Micro Float-A-Lyzer[®]

Ready-to-Use Dialysis Device

User Guide



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Customer Support

customerserviceUS@repligen.com

310-885-4600

Repligen Corporation

18617 South Broadwick Street

Rancho Dominguez, California 90220

www.repligen.com

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Abbreviations

CE	Cellulose Ester
DI	Deionized
EtOH	Ethanol
IPA	Isopropanol
kD	Kilodalton
MWCO	Molecular weight cut-off

1. Introduction

Designed to maximize convenience and efficiency, the ready-to-use Micro Float-A-Lyzer® Device from Repligen is ideal for the dialysis of very small sample volumes. Available in two volume sizes, 100 - 200 µl and 400 - 500 µl, the Micro Float-A-Lyzer® Device features proprietary Biotech Grade Cellulose Ester (CE) Membrane from Repligen incorporated into a pre-assembled, leak-proof micro dialysis device.

Available in 7 concise MWCOs with color-coded caps, Biotech CE from Repligen is a synthetic, low-protein binding membrane with no heavy metal and sulfide contaminants. The pre-formed tubular geometry also limits volume increase and sample dilution.

The self-standing and self-floating device is designed with a Luer-lok® sample port to provide quick and easy access for loading, in-process sampling and total sample recovery using a 1 ml syringe (included). Sold 12 per package, individual units can interlock to form a flotilla for the simultaneous dialysis of multiple samples.

Only Micro Float-A-Lyzer® and Float-A-Lyzer® from Repligen assure a 95 - 98% sample recovery, 98% sample purity and < 10% sample dilution; all in an easy-to-use, convenient dialysis device.

SpectraPor® Biotech CE Membranes have good chemical resistance. Variables in temperature, concentrations, durations of exposure and other factors may affect the performance of the membrane. It is always advisable to test the membrane under your application conditions. These membranes are generally compatible with the following groups: common alcohols (low to mid concentration), many dilute acids and bases and some dilute organics. It is incumbent upon user to verify compatibility prior to use with membrane. For membrane compatibility and purchasing information visit the dialysis section of repligen.com.

2. Applications

The Micro Float-A-Lyzer® Device can be used for a variety of small volume applications, such as:

- Buffer change and desalting
- Sample preparation
- Drug dissolution
- Removing sulfate, cesium chloride low molecular weight contaminants or surfactants
- Separation and purifications of substances such as DNA, proteins, viruses, antibodies, peptides or polymers
- Sample concentration when using a solvent absorbent powder such as Spectra/Gel® Absorbent
- Measure the diffusion rates for ions
- Binding studies

3. Specifications

Table 1. Micro Float-A-Lyzer® Device specifications

Specifications	
Luer-lok® cap	Open and close for in-process sampling Color coded for MWCO Leak proof and re-sealable Polypropylene
Body piece	Self-standing and self-buoyant Seals top/bottom ends of membrane Polycarbonate
Membrane	Biotech Grade Cellulose Ester (CE)
Potting	Polyurethane
7 MWCOs	0.1 - 0.5 kD, 0.5 - 1.0 kD, 3.5 - 5 kD, 8 - 10 kD, 20 kD, 50 kD and 100 kD
2 volume sizes	100 - 200 µl and 400 - 500 µl
Pkg and qty	Dry with glycerin, 12/pkg
Sample loading	Disposable 1 ml syringe (included), 12/pkg

Table 2. Dimensions

Dimension	100 - 200 µl	400 - 500 µl
Height	4.4 cm	6.3 cm
Width	4.5 cm	4.5 cm
Depth	1.9 cm	1.9 cm
Membrane flat width	10 mm	10 mm
Membrane diameter	6.4 mm	6.4 mm

Table 3. MWCO and cap colors

MWCO	Cap color
0.1 - 0.5 kD	Green
0.5 - 1.0 kD	Orange
3.5 - 5 kD	Black
8 - 10 kD	Yellow
20 kD	Red
50 kD	White
100 kD	Blue

4. Instructions for fluid loading and removal

Follow these simple steps whenever loading or retrieving any fluid from the sample chamber.

4.1 Fluid loading

Since the sample chamber is very small, it is important to remove the air before loading the fluid.

1. Fill the provided 1 ml syringe with 200 µl or 500 µl of fluid (depending on device size), invert and expel any air from syringe.
2. Remove the device cap, firmly connect fluid-filled syringe (airtight) and aspirate air out of device (flattening the membrane).
3. Firmly hold the connected device and syringe in a vertical orientation (with syringe on top) and give two quick, lateral shakes to force all air to the top and all fluid to the bottom inside syringe barrel. Repeat as needed.
4. Now with all air above fluid in syringe, load only the fluid into the device sample chamber, disconnect the syringe containing the air and replace the cap on the device.

4.2 Fluid removal

1. Remove the device cap and firmly connect an empty 1 ml syringe (airtight).
2. Firmly hold the connected device and syringe in a vertical orientation (with syringe on bottom) and aspirate out the fluid (flattening the membrane) to remove > 95% of the volume.
3. Disconnect syringe and expel fluid into a sample container.

5. Instructions for dialysis

5.1 Membrane preparation

1. Remove the device cap.
2. Use the 1 ml syringe provided to load the device with 10 - 15% isopropanol (IPA) or ethanol (EtOH) and place the device in the same alcohol solution to soak for 15 - 30 minutes.
3. Remove the device from the alcohol solution and use the 1 ml syringe to remove alcohol from the sample chamber (refer to Fluid removal). Expel and rinse out syringe with DI water.
4. Rinse the device with DI water using the provided 1 ml syringe. Flush the alcohol out of the sample chamber by loading and rinsing with water several times.
5. Fill the sample chamber with fresh DI water and place the filled device in DI water to soak for 15 - 30 minutes to remove any remaining traces of alcohol from the membrane.
6. Remove the device from the DI water. Rinse the device with fresh DI water one last time and use the 1 ml syringe to flush the sample chamber again with DI water. Remove the flush water from the sample chamber and the device is ready to use.

5.2 Loading and dialyzing

1. Using a rinsed 1 ml syringe, load the Sample (100 - 200 µl or 400 - 500 µl) into the sample chamber of the Micro Float-A-Lyzer® Device. Loading with smaller than recommended volumes may result in sample volume increase or membrane swelling.
2. Place the device loaded with sample in the dialysate buffer that is at least 10 X the sample volume. Use a stir plate to stir buffer during dialysis.
3. Dialyze sample according to the particular application requirements. Typical dialysis is performed 12 - 24 hours with 3 - 4 buffer changes (after 2 - 4, 6 - 8, and 10 - 14 hours).
4. Upon completion of dialysis, remove the Micro Float-A-Lyzer® Device from the dialysate buffer.
5. Retrieve the sample and dispense into an appropriate receptacle.
6. Optional for maximum recovery: After removing sample, load the empty sample chamber with 50 - 100 µl of appropriate buffer and a small amount of air. Replace cap and gently shake the device several times to rinse the membrane. Recover the rinse volume and combine with the rest of dialysis sample.
7. Discard the Micro Float-A-Lyzer® Device.

5.3 Concentrate sample with SpectraGel™ Absorbent

Use SpectraGel™ Absorbent to concentrate the sample and reduce the volume in the Micro Float-A-Lyzer® Device. Simply pack the dry SpectraGel™ Absorbent substance around the outside of the membrane to draw away and permanently bind water. Since the molecular weight of the polyacrylate-polyalcohol compound is significantly larger than the membrane MWCOs, it does not pass through the membrane into the sample. When the desired volume has been achieved, wipe or rinse away the hydrated SpectraGel™ Absorbent compound and retrieve reduced volume from the Micro Float-A-Lyzer® Device.

6. Storage and shelf life

Storage: Store new and unused Micro Float-A-Lyzer® Devices in a dry place at room temperature. Care should be taken to avoid humid environments.

Shelf Life: 2 years when stored properly.

Sterilization: The common methods of membrane sterilization include exposure to ethylene oxide (EtO) gas and ebeam or gamma irradiation. Repligen does not recommend autoclaving as it may lead to changes in membrane performance.

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