INSTRUCTIONS

Slide-A-Lyzer Dialysis Cassettes

0729.10

Thermo Scientific™ Slide-A-Lyzer™ Dialysis Cassette Product Numbers and Descriptions

	Membrane Molecular-Weight Cutoff (MWCO)				
Cassette Size	**2000**	**3500**	**7000**	**10,000**	**20,000**
0.1-0.5mL*	66205 (10-pk)	66333 (10-pk) 66335 (Kit)	66373 (10-pk) 66375 (Kit)	66383 (10-pk) 66385 (Kit) 66454 (GI)	66005 (10-pk)
0.5-3mL	66203 (10-pk)	66330 (10-pk) 66332 (Kit)	66370 (10-pk) 66372 (Kit)	66380 (10-pk) 66382 (Kit) 66455 (GI)	66003 (10-pk)
3-12mL	66212 (8-pk)	66110 (8-pk) 66107 (Kit)	66710 (8-pk) 66707 (Kit)	66810 (8-pk) 66807 (Kit) 66453 (GI)	66012 (8-pk)
12-30mL	66230 (6-pk)	66130 (6-pk)	NA	66830 (6-pk) 66456 (GI)	66030 (6-pk)

Kits include package of cassettes, plus an equal number of float buoys, syringes and needles.
GI = Gamma (γ) Irradiated package of cassettes.
NA = Not Available.
*****2K MWCO cassettes in this size are best used for 0.2-0.5mL samples

Introduction

The Thermo Scientific™ Slide-A-Lyzer™ Dialysis Cassette is a convenient device for low molecular-weight contaminant removal, buffer exchange, desalting and sample concentration. The cassette membrane is composed of low-binding regenerated cellulose and features a hermetically sealed sample chamber to maintain the highest possible sample retention. These dialysis cassettes are manufactured using clean room conditions to ensure they are contaminant free. Samples are easily added and removed by penetrating the gasket with a hypodermic needle attached to a syringe. Once the needle is removed, the gasket reseals, ensuring that no sample is lost from the cassette during dialysis.

CAUTION: All Slide-A-Lyzer Dialysis Cassettes that have the word “Hydrate” on the cassette pouch must be hydrated before use. Also hydrate all cassettes when using with low sample volumes (i.e., 100-200µL in the 0.1-0.5mL cassettes, 0.5-1mL in the 0.5-3mL cassettes and 3-4mL in the 3-12mL cassettes) before use.

Hydrate Membrane

Perform the following steps for cassettes requiring hydration and for all cassettes used with low sample volumes:

1. Remove Slide-A-Lyzer Cassette from its pouch and slip into the groove of an appropriate size buoy.
2. Immerse cassette in dialysis buffer (Figure 1). Hydrate the 3.5-20K cassettes for 1-2 minutes and the 2K cassettes for at least 2 minutes.
3. Remove cassette from buffer and remove excess liquid by tapping the edge of the cassette gently on paper towels. DO NOT BLOT THE MEMBRANE.

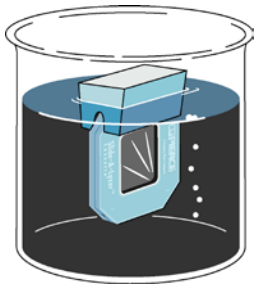

Figure 1. Membrane hydration

Add Sample

Note: Do not allow the needle to contact the membrane.

1. Fill the syringe with the sample, leaving a small amount of air in the syringe.
2. With the bevel sideways, insert the tip of the needle through one of the syringe ports located at a top corner of the cassette.
3. Inject sample slowly. Withdraw air by pulling up on the syringe piston (Figure 2).
4. Remove the syringe needle from the cassette while retaining air in the syringe.

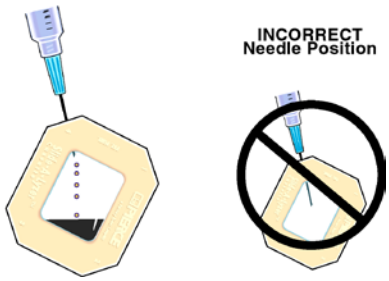

Figure 2. Sample addition

Remove Sample

Note: Use caution to avoid contacting the needle to the membrane.

1. Fill the syringe with a volume of air equal to the sample size. For low-volume samples, fill the syringe with a volume of air approximately equal to two times the sample volume.
2. With the bevel sideways, insert the tip of the needle through another syringe port located at a corner of the cassette. Inject air slowly into the cassette to separate the membranes.
3. Turn the unit so that needle is on the bottom and allow the sample to collect near the port. Withdraw the sample into the syringe (Figure 3).

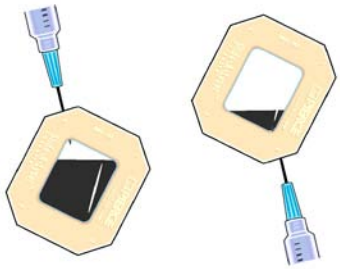

Figure 3. Sample removal

Detailed Procedure for Adding and Removing Samples

Note: Although quality assurance standards are stringent, there is always a slight chance of leakage. When dialyzing valuable samples, check the cassette for leaks by injecting and removing sterile ultrapure water immediately before adding the sample. Perform all cassette manipulations over a clean, dry work surface.

Note: Use white Slide-A-Lyzer Buoys (Product No. 66430) for 0.5 and 3mL cassettes. Use gray Slide-A-Lyzer Buoys (Product No. 66432) for 3-12mL cassettes.

1. Remove the Slide-A-Lyzer Dialysis Cassette from its protective pouch by cutting along the dotted line.

   Note: To prevent contamination, handle the cassette by the plastic frame only. Do not touch the membrane with ungloved hands. The cassette may be placed into the groove of a buoy for use as a cassette stand.

   Note: For cassettes requiring hydration, see Caution (top of Page 1) and Figure 1. Hydration increases membrane flexibility and allows it to adjust more readily to the positive pressure created as the sample is added (Figure 2) and to the vacuum created when air is removed.

2. Attach the hub of the hypodermic needle to the Luer-Lok™ Fitting of the syringe by firmly screwing it into place.

   Note: Do not remove the plastic sheath from the needle until you are ready to fill the syringe with sample. Use caution to avoid injury from the hypodermic needle. Slide-A-Lyzer Dialysis Cassettes are designed for 18-gauge, 1-inch beveled needles (21-gauge, 1-inch beveled needles may also be used).

3. Remove the protective sheath from the hypodermic needle and fill syringe with sample by immersing the needle in the sample and then slowly drawing back on the syringe piston.

   Note: When using small volumes, significant sample loss can occur in the syringe's dead volume or from binding to the syringe surfaces. To minimize sample loss, fill the syringe with a small volume of air before sample uptake and use the air to void the syringe's dead volume. Syringes with low binding potential, such as airtight plastic syringes without rubber or silicon plungers, also might minimize sample loss.

4. Remove cassette from the buoy. Penetrate gasket through one of the syringe ports at a corner of the cassette with the needle and inject sample. Mark the cassette corner with a permanent marker or record the number of the injected port.

   Note: If the sample contains $(NH_4)_2SO_4$, use a fill volume that is ≤ 80% of the cassette's total volume.

   Caution: Penetrate gaskets to a minimal extent with the needle's beveled portion. Overextending the needle into the cavity may puncture the membrane. Figures 2 and 4 illustrate the proper method for filling the cassette. If the sample has a high protein concentration (e.g., 10mg/mL) fill cassette slowly to avoid foaming.

5. With the needle still in the cassette cavity, draw up on the piston to remove air (Figure 5) and to compress the membrane windows so the sample contacts the greatest surface area. Use caution to prevent the needle from contacting the membrane. Minimal air left inside the cassette with low sample volumes should not significantly affect dialysis efficiency.

6. Remove the syringe needle from the cassette while retaining the air in the syringe. The gasket reseals and the membrane cavity has no (or minimal) air in direct contact with the sample.

7. Slip the cassette into the groove of a buoy and float this assembly in the dialysis solution of choice (Figure 6).

   Note: Dialyze for the amount of time sufficient to remove low molecular weight compounds for the specific downstream application. A typical dialysis procedure is as follows: 1) dialyze for 2 hours at room temperature or 4°C; 2) change the dialysis buffer and dialyze for another 2 hours; 3) change the dialysis buffer and dialyze overnight at 4°C. Use the dialysis buffer at 200-500 times the volume of the sample.

8. To remove sample, fill syringe with a volume of air at least equal to the sample size. For low-volume samples, fill syringe with a volume of air approximately equal to two times the sample volume.

9. Penetrate the gasket with the needle through a top, unused syringe guide port. Discharge air into cassette cavity to separate membranes, which prevents needle penetration of the membrane (Figures 3 and 7).

   Note: Avoid penetrating the guide ports more than once to prevent gasket coring and subsequent sample loss.

10. Turn the unit so that needle is on the bottom and allow the sample to collect near the port. Withdraw the sample into the syringe (Figure 8).

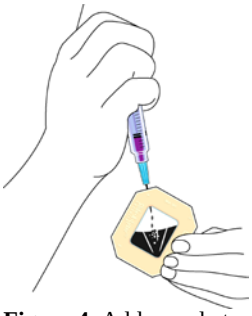

Figure 4. Add sample to the cassette.

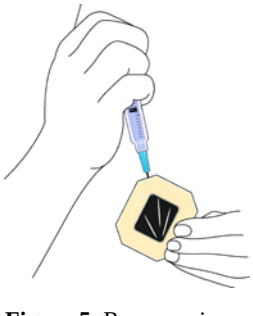

Figure 5. Remove air from cassette.

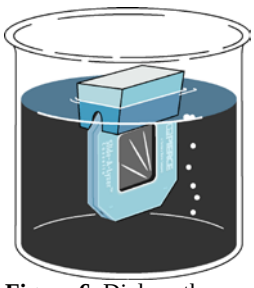

Figure 6. Dialyze the sample.

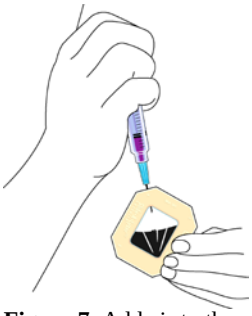

Figure 7. Add air to the cassette containing the sample.

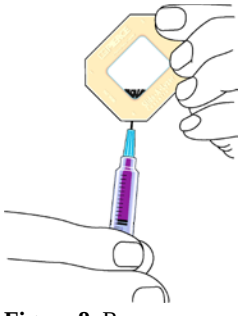

Figure 8. Remove sample from the cassette.

Additional Information

A. Slide-A-Lyzer Dialysis Membrane chemical compatibility and membrane specifications are available on our website at *www.thermoscientific.com/pierce*.

B. Other Information available from our web site

- Tech Tip #20: Dialysis: an overview
- Tech Tip #14: Perform labeling and other reactions in Slide-A-Lyzer Dialysis Cassettes
- Tech Tip #43: Protein stability and storage
- Tech Tip #6: Extinction coefficients guide
- Tech Tip #19: Remove detergent from protein samples

Related Thermo Scientific Products

Many	**Slide-A-Lyzer Cassettes, Mini Devices and Flasks** *www.thermoscientific.com/DialysisProducts*
Many	**Zeba™ Desalting Spin Columns** *www.thermoscientific.com/DesaltingProducts*
Many	**Pierce™ Protein Concentrators** *www.thermoscientific.com/Concentrators*
Many	**Pierce Detergent Removal Spin Columns and Kits** *www.thermoscientific.com/DetergentRemoval*
Many	**Protease and Phosphatase Inhibitor Cocktails and Tablets** *www.thermoscientific.com/ProteaseandPhosphataseInhibitors*