Slide-A-Lyzer™ Dialysis Cassettes

Doc. Part No. 2160729 Pub. No. MAN0011337 Rev. B.0

WARNING! Read the Safety Data Sheets (SDSs) and follow the handling instructions. Wear appropriate protective eyewear, clothing, and gloves. Safety Data Sheets (SDSs) are available from thermofisher.com/support.

Product description

The Slide-A-Lyzer™ Dialysis Cassettes are convenient devices 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. When the needle is removed, the gasket reseals, ensuring that no sample is lost from the cassette during dialysis.

IMPORTANT! 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., 100–200 µL in the 0.1–0.5 mL cassettes, 0.5–1 mL in the 0.5–3 mL cassettes, and 3–4 mL in the 3–12 mL cassettes) before use.

Contents and storage

Cassette Size	Amount	Membrane Molecular Weight Cut-Off (MWCO)					Storage
		2K MWCO	3.5K MWCO	7K MWCO	10K MWCO	20K MWCO	
0.1–0.5 mL[1]	10 cassettes	66205	66333 66335[2]	66373	66383 66454[3] 66385[2]	66005	Room temperature
	50 cassettes	—	—	—	66384	—	
0.5–3 mL	10 cassettes	66203	66330 66332[2]	66370 66372[2]	66380 66455[3] 66382[2]	66003	
	50 cassettes	—	—	—	66381	—	
3–12 mL	8 cassettes	66212	66110 66107[2]	66710 66707[2]	66810 66453[3] 66807[2]	66012	
	40 cassettes	—	—	—	66811	—	
12–30 mL	6 cassettes	66230	66130	—	66830 66456[3]	66030	

[1] Cassettes in this size are best used for 0.2–0.5 mL sample volumes.
[2] Kits include a package of cassettes, plus float buoys, syringes, and needles.
[3] Gamma (γ) irradiated package of cassettes.

Hydrate membrane

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

1. Remove the cassette from its pouch and slip into the groove of an appropriate size buoy.
2. Immerse the 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 the cassette from buffer and remove excess liquid by tapping the edge of the cassette gently on paper towels. **Do not blot the membrane.**

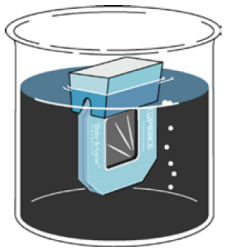

Figure 1 Hydrate the membrane.

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 the 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.

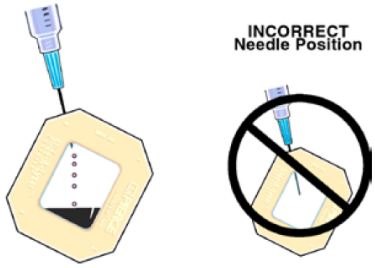

Figure 2 Add sample.

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 2 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).

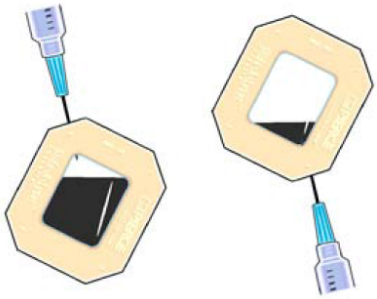

Figure 3 Remove sample.

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™ Cassette Float Buoys (Cat. No. 66430) for 0.5 and 3 mL cassettes. Use gray Slide-A-Lyzer™ Cassette Float Buoys (Cat. No. 66432) for 3–12 mL cassettes.

1. Remove the 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 can be placed into the groove of a buoy for use as a cassette stand.

   Note: For cassettes requiring hydration, see "Product description" on page 1 and Figure 1. Hydration increases membrane flexibility and enables 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.

   CAUTION! Do not remove the plastic sheath from the needle until you are ready to fill the syringe with the 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 can also be used).

3. Remove the protective sheath from the hypodermic needle and fill the syringe with the 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 can minimize sample loss.

4. Remove the cassette from the buoy. Penetrate the gasket through one of the syringe ports at a corner of the cassette with the needle and inject the 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.

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

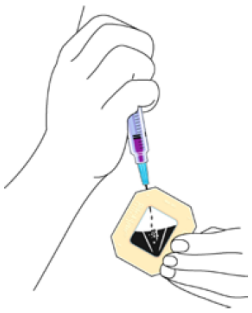

Figure 4 Add sample to the cassette.

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.

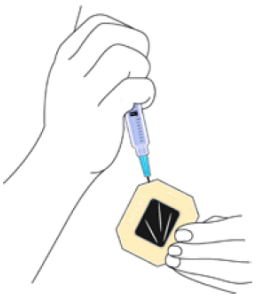

Figure 5 Remove air from the cassette.

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

   Note: Use the dialysis buffer at 200–500 times the volume of the sample.

8. Dialyze for the amount of time sufficient to remove low molecular weight compounds for the specific downstream application. A typical dialysis procedure is:
   a. Dialyze for 2 hours at room temperature or 4°C.
   b. Change the dialysis buffer and dialyze for another 2 hours.
   c. Change the dialysis buffer and dialyze overnight at 4°C.

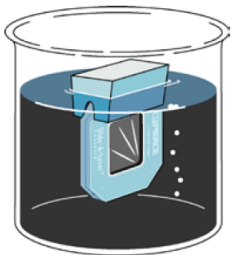

Figure 6 Dialyze the sample.

9. To remove the sample, fill the syringe with a volume of air at least equal to the sample size. For low-volume samples, fill the syringe with a volume of air approximately equal to 2 times the sample volume.

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

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

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

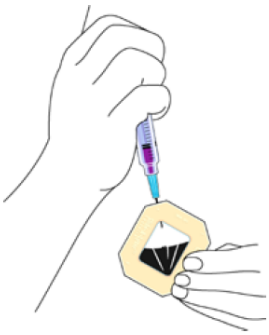

Figure 7 Add air to the cassette containing the sample.

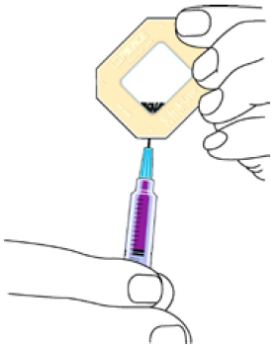

Figure 8 Remove sample from the cassette.

Additional information

For more information and protein dialysis, desalting, and concentration support, go to:

thermofisher.com/us/en/home/technical-resources/technical-reference-library/protein-purification-isolation-support-center/protein-dialysis-desalting-concentration-support

Related products

- Slide-A-Lyzer™ G3 Dialysis Cassettes (**thermofisher.com/us/en/home/life-science/protein-biology/protein-purification-isolation/protein-dialysis-desalting-concentration/dialysis-products/slide-a-lyzer-dialysis-cassettes**)
- Slide-A-Lyzer™ Cassettes, Mini Devices, and Flasks (**thermofisher.com/us/en/home/life-science/protein-biology/protein-purification-isolation/protein-dialysis-desalting-concentration/dialysis-products**)
- Zeba™ Spin Desalting Columns

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- Pierce™ Protein Concentrators (thermofisher.com/us/en/home/life-science/protein-biology/protein-purification-isolation/protein-dialysis-desalting-concentration/protein-concentrators)
- Pierce™ Biotin and Dye Removal Spin Columns (thermofisher.com/us/en/home/life-science/protein-biology/protein-purification-isolation/protein-dialysis-desalting-concentration/small-molecule-removal)
- Protease and Phosphatase Inhibitor Cocktails and Tablets (thermofisher.com/search/browse/category/us/en/90223020)
- Pierce™ Microdialysis Plates (thermofisher.com/us/en/home/life-science/protein-biology/protein-purification-isolation/protein-dialysis-desalting-concentration/dialysis-products/microdialysis)

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For descriptions of symbols on product labels or product documents, go to thermofisher.com/symbols-definition.

Revision history: Pub. No. MAN0011337

Revision	Date	Description
B.0	14 March 2023	The format and content were updated.
A.0	17 October 2015	New document for the Slide-A-Lyzer™ Dialysis Cassettes.