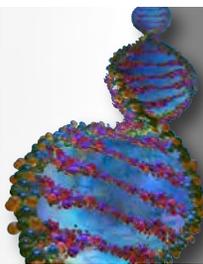


Ready to Use Disposable 96-Sample Equilibrium Dialysis Plates



Ideal for the analysis of free or unbound analytes like free T4, free Cortisol, free Testosterone, or for Protein-Ligand Binding Studies.

This patented, 192-Well, DispoEquilibrium DIALYZER™ provides a simple and reliable method to analyze up to 96 samples simultaneously on disposable dialysis plates. Available from **The Nest Group**, these unique, ready to use, equilibrium dialysis plates are convenient and cost effective tools for ligand binding experiments, including serum protein binding, protein-drug binding, protein-protein binding and protein-DNA binding assays.

Equilibrium Dialysis is recognized as the Gold Standard or the most preferred technique for molecular binding studies, as it allows for the direct assay of molecular interactions at close to physiological conditions, with minimal effect on the equilibrium parameters.

Each test well in the plate consists of two chambers, separated by a regenerated cellulose membrane with a molecular weight cut off of either 5,000 or 10,000 Daltons. Each chamber holds up to 300µl of sample or buffer, and is independent from the other wells on the plate, eliminating cross contamination.

The 96-well plate was designed with a SBS footprint and ASME well spacing to meet automation needs. Not needing to wash these disposable plates between assays improves the reliability of the data and reduces overhead costs for labor as well as liquid waste disposal costs.

To decrease the dialysis time, the plate needs to be rotated through 360° in a vertical position. This keeps the membrane surface in constant contact with the analytes. A 1 or 2 plate rotator, or a temperature controlled 8 plate rotator are available.

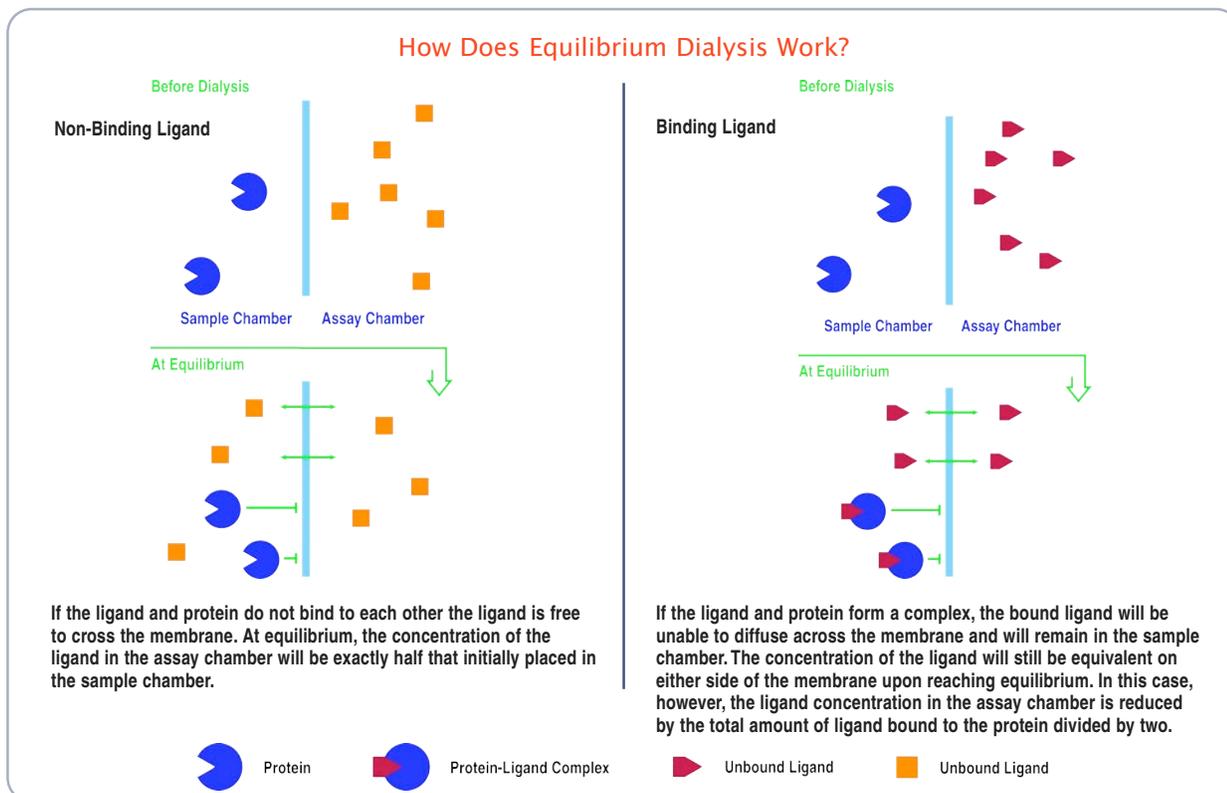


96-Well DispoEquilibrium DIALYZERS™

Order#	Product
SDIS 9605EN	96-Well Equilibrium Dialysis Plate, Membrane MWCO 5,000 Daltons, pkg. of 1
SDIS 9610EN	96-Well Equilibrium Dialysis Plate, Membrane MWCO 10,000 Daltons, pkg. of 1
SDIS 96ENCAP	8-Cap Strips, pkg. of 12
SDIS 96-PAD	Plate Seal Mat with Individual Well Inserts, Pierceable and Self-Sealing, pkg. of 2
SPLR 0000	Single Plate Rotator, pkg. 1
SPLR 0000.1	Dual Plate Rotator, pkg. of 1
SPLR 0008H	8 Plate Rotator Incubator, 110V, pkg. of 1
SPLR 0008HI	8 Plate Rotator Incubator, 220V, pkg. of 1
SPLR 0008C	Carousel, Only for 8-Plate Rotator



Introduction to Equilibrium Dialysis



Equilibrium dialysis is a specific application of dialysis that is important for the study of the binding of small molecules and ions by proteins. It is one of several methods available for this purpose, and its attractive feature continues to be its physical simplicity. Another attractive feature of equilibrium dialysis is the ability to perform interaction studies without the use of fluorescent or radiolabeled tags.

applications

- Protein-drug binding assays
- Receptor binding assays
- Ligand binding assays
- Protein-protein interactions
- Protein-DNA interactions
- Serum protein binding

Generally, the objective of an equilibrium dialysis experiment is to measure the amount of a ligand bound to a macromolecule. This is typically done through an indirect process because in any mixture of the ligand and macromolecule, it is difficult to distinguish between the bound and free ligand. If, however, the free ligand can be dialyzed through a membrane, until its concentration across the membrane is at equilibrium, the free ligand concentration can be measured easily. Data obtained under different experimental conditions then provides information on various binding parameters of the compounds

such as the binding constants and the number of binding sites or binding capacity.

Harvard Apparatus offers five types of Equilibrium DIALYZERS™. These products can meet virtually all of your bind-interaction application requirements:

Fast Micro-Equilibrium DIALYZER™ – Reusable

The reusable Micro-Equilibrium DIALYZER is available as 2-chamber system for quicker equilibration time using dialysis membranes with larger surface areas. It is used to study interactions between biomolecules such as the binding of a ligand to a protein. For sample volumes from 25 µl to 500 µl, see pages 50-51.

Multi-Equilibrium DIALYZER™ – Reusable

For simultaneous and highly reproducible equilibrium dialysis of up to 20 samples with volumes from 0.2 to 5 ml, see page 52.

DispoEquilibrium DIALYZER™ – Single Use

A disposable version of the Micro-Equilibrium DIALYZER suitable for samples from 25 to 75 µl, see page 53.

96-Well DispoEquilibrium DIALYZER™ – Single Use

A 96-well disposable equilibrium dialyzer for high throughput interaction studies. For samples from 50 µl to 300 µl, see page 54.

Fast Micro-Equilibrium DIALYZER

Samples from 25 μ l to 500 μ l (Reusable)

advantages

- Easy to use
- Leak-proof
- Reusable
- Available for a range of sample sizes
- Faster equilibration
- High membrane area/sample volume ratio
- Membranes available with MWCO's to suit almost any application
- Made of Teflon – totally inert
- High sample recovery
- Low protein binding
- Autoclaveable

applications

- Protein binding assays
- Protein-drug binding assays
- Receptor binding assays
- Ligand binding assays
- Protein-protein interactions
- Protein-DNA interactions



The binding and ligand elements are placed in one chamber (the sample chamber) while the other chamber (the assay chamber) contains an equivalent volume of the same buffer without either element. When equilibrium has been reached the concentration of the ligand in the assay chamber can be measured and analyzed to obtain the results of the assay. When the ligand is free in solution it can readily pass through the membrane, but when complexed, it is too large and is retained by the membrane.

The Fast Micro-Equilibrium DIALYZER is a unique equilibrium dialysis chamber for small samples (25 to 1500 μ l) and is simple to use.

Two chambers of equivalent volume are joined together with a membrane between them, as shown. Equal volumes of sample and buffer are loaded into respective chambers (the sample chamber and the assay chamber) and sealed by threaded solid caps. The DIALYZER assembly is rotated along the membrane axis from time to time. The entire system can also be placed in a thermostat for temperature-controlled dialysis. When equilibrium has been reached the chambers can be opened at each end to extract the sample for analysis. When the ligand is free in solution it can readily pass through the membrane, but when complexed, it is too large and is retained by the membrane.

The Fast Micro-Equilibrium DIALYZER uses membranes and chambers with high surface area to sample volume ratios. High ratio and short diffusion distances provide 2 to 5 times faster equilibration.

Each DIALYZER includes two chambers (body plus link) and two solid caps.

Fast Micro-Equilibrium DIALYZERS & Membranes

Ordering Information

Fast Micro-Equilibrium DIALYZERS & Membranes							
Chamber Volume:	25 µl	50 µl	100 µl	250 µl	500 µl	1000 µl	1500 µl
Fast Micro-Equilibrium DIALYZERS							
Qty. of 1	SSF 0050.1	SSF 0100.1	SSF 0200.1	SSF 0500.1	SSF 1000.1	SSF 2000.1	SSF 3000.1
Qty. of 5	SSF 0050	SSF 0100	SSF 0200	SSF 0500	SSF 1000	SSF 2000	SSF 3000
Additional (Link) Chambers							
Qty. of 1	SERF 0025.1	SERF 0050.1	SERF 0100.1	SERF 0250.1	SERF 0500.1	SERF 1000.1	SERF 1500.1
Qty. of 5	SERF 0025.5	SERF 0050.5	SERF 0100.5	SERF 0250.5	SERF 0500.5	SERF 1000.5	SERF 1500.5
Membranes: Pack of 25							
for Chamber Volume:	25µl, 50µl or 100µl			250µl, 500µl, 1000 or 1500µl			
A. Regenerated Cellulose MEMBRANES:							
1k Da MWCO	SBE010S.24			SCE010S.24			
2k Da MWCO	SBE020S.24			SCE020S.24			
5k Da MWCO	SBE050S.24			SCE050S.24			
10k Da MWCO	SBE100S.24			SCE100S.24			
25k Da MWCO	SBE250S.24			SCE250S.24			
50k Da MWCO	SBE500S.24			SCE500S.24			
B. Cellulose Acetate MEMBRANES:							
100-500 Da MWCO	SBE0050K.24			SCE005K.24			
1k Da MWCO	SBE010K.24			SCE010K.24			
2k Da MWCO	SBE020K.24			SCE020K.24			
5k Da MWCO	SBE050K.24			SCE050K.24			
10k Da MWCO	SBE100K.24			SCE100K.24			
25k Da MWCO	SBE250K.24			SCE250K.24			
50k Da MWCO	SBE500K.24			SCE500K.24			
100k Da MWCO	SBE111K.24			SCE111K.24			
300k Da MWCO	SBE333K.24			SCE333K.24			
C. Polycarbonate MEMBRANES:							
0.01 µm Pore Size	SBE0001P.24			SCE0001P.24			
0.05 µm Pore Size	SBE0005P.24			SCE0005P.24			
0.10 µm Pore Size	SBE0010P.24			SCE0010P.24			
0.60 µm Pore Size	SBE0060P.24			SCE0060P.24			

Membranes are supplied either as dry or in 0.05% sodium azide solution. They are ready to use after rinsing with deionized water and buffer.

Regenerated Cellulose membranes are more stable in organic solvents, but the MWCO range is not as sharply defined as that of Cellulose Acetate membranes.

Cellulose Acetate membranes have a sharp MWCO range. They are intended only for aqueous solutions, and the presence of an organic solvent is not recommended.

Polycarbonate membranes are more stable in organic solvents. They are available in four highly controlled pore sizes for a well defined MWCO range.

Multi-Equilibrium DIALYZER™

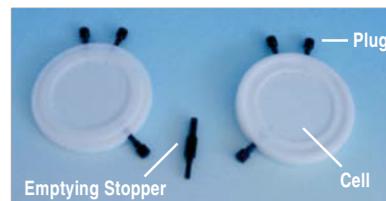
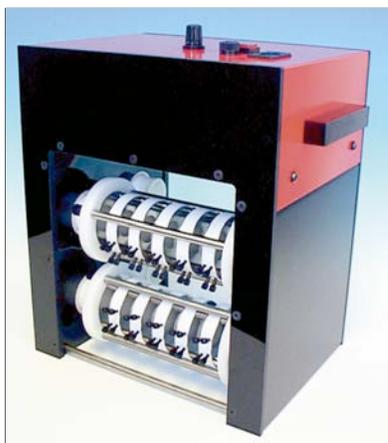
Samples from 0.25 ml to 5 ml (Reusable)

advantages

- Easy to use
- Leak-proof
- Reproducible
- Fast dialysis times
- Available for a range of sample sizes
- Up to 20 parallel, simultaneous assays
- Autoclavable
- Low protein binding
- High sample recovery
- Made of Teflon – totally inert

applications

- Protein binding assays
- Protein-drug binding assays
- Receptor binding assays
- Ligand binding assays
- Protein-protein interactions
- Protein-DNA interactions



The Harvard Apparatus Multi-Equilibrium DIALYZER provides highly standardized equilibrium dialysis conditions for up to 20 parallel assays. The instrument offers outstanding uniformity of: membrane area, sample volume, degree of agitation.

The advantages of this system are that up to 20 cells can be used simultaneously for rapid dialysis under standardized

conditions. Experiments conducted using the Multi-Equilibrium DIALYZER are extremely reproducible and leak-proof and can be performed at a constant temperature.

The dialyzer cells are made of Teflon, an extremely inert material, and will not interfere with the samples. Multiple cell systems are available (5, 10, 15, 20 cells) at various cell volumes (0.2, 1.0, 2.0 and 5.0 ml). The unit can be sterilized by autoclaving and the cells can be filled easily with a filling clamp. Custom systems with alternate chamber sizes, membranes and power supply are available.

Order # Product

Multi-Equilibrium DIALYZER Systems

SED2000 Complete Multi-Equilibrium DIALYZER System

- Ready-to-Use Teflon Macro Dialysis Cells (1 ml) with Large Surface Area and plugs, pkg. of 20
- Macro Spacers, pkg. of 24
- Carriers for 5 Teflon Dialysis Cells, pkg. of 4
- Variable Speed Drive Unit (12 x 12 x 7.5 in) for 20 Cells, and 110V power supply, pkg. of 1
- Power Supply Adapter (110 V)
- Stand, pkg. of 1
- Filling Clamp, pkg. of 1
- Emptying Stoppers, pkg. of 20
- Dialysis Membranes, MWCO 10,000 Daltons, pkg. of 200

Multi-Equilibrium DIALYZER Individual Components

SED0256	Macro Teflon Dialysis Cells, (1 ml), pkg. of 5
SED0252	Macro Teflon Dialysis Cells (2 ml), pkg. of 5
SED0255	Macro Teflon Dialysis Cells (5 ml), pkg. of 5
74-1909	Macro Spacer, pkg. of 6
74-1911	Macro Cell Carrier, pkg. of 1
SED01502	Micro Teflon Dialysis Cells (0.2 ml), pkg. of 5
74-1908	Micro Spacer, pkg. of 6
74-1910	Micro Cell Carrier, pkg. of 1

Multi-Equilibrium DIALYZER Individual Components Continued:

SEDCD	Power Supply Adapter (110 V)
SEDCD2	Power Supply Adapter (220 V)
SEDX200	Filling Clamp, pkg. of 1
SEDX500.32	Black Plugs, pkg. of 32
SEDX400	Emptying Stoppers, pkg. of 5
SEDTANK	Tank with Fittings (14.5 x 9.5 x 8.25 in), pkg. of 1
Membranes for Multi-Equilibrium DIALYZER	
SP1 74-2100	MWCO 5,000 Daltons, pkg. of 200
SP1 74-2102	MWCO 10,000 Daltons, pkg. of 200

DispoEquilibrium DIALYZER™

Samples from 25 µl to 75 µl (Single use)

advantages

- Easy to use & disposable
- Small sample volumes: 25 µl to 75 µl each chamber
- Rapid dialysis due to ultra-thin membrane
- High-quality regenerated cellulose membranes with MWCOs of 5,000 and 10,000 Daltons
- Leak-proof

applications

- Protein and Protein-drug binding assays
- Receptor binding assays
- Ligand binding assays
- Protein-protein and Protein-DNA interactions



Harvard Apparatus DispoEquilibrium DIALYZER is a single use product for interaction studies and is currently the only such device on the market. The DispoEquilibrium DIALYZER is leak-proof and provides high sample recovery (almost 100 percent). This system is designed for one-time use with samples such as radiolabeled compounds, avoiding the hassle associated with cleaning the dialyzer after use.

Each chamber has a capacity of 25 to 75 µl. The DispoEquilibrium DIALYZER utilizes high-quality regenerated cellulose membranes with MWCO's of 5,000 or 10,000 Daltons. Sample recovery is very easy through centrifugation or via removal with micropipettes. Includes two caps (one black, one white), two 0.65 ml sample tubes per chamber and two pipette tips for delivery/recovery.

DispoEquilibrium DIALYZERS – Ordering Information

Membrane MWCO (Daltons)	Qty. of 25	Qty. of 50	Qty. of 100
Regenerated Cellulose			
1,000	SDIS 010JE	SDIS 010KE	SDIS 010ME
5,000	SDIS 050JE	SDIS 050KE	SDIS 050ME
10,000	SDIS 100JE	SDIS 100KE	SDIS 100ME
25,000	SDIS 250JE	–	SDIS 250ME
50,000	–	–	SDIS 500ME
Cellulose Acetate			
100-500	SDIS 005JE	–	–
25,000	–	–	SDIS 250MECA
50,000	–	–	SDIS 500MECA
100,000	–	–	SDIS 1000ME

Other MWCO available upon request.