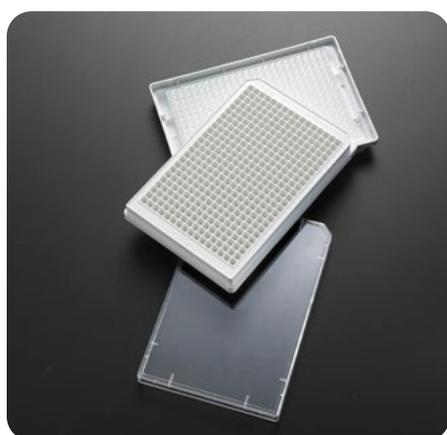


MultiScreen®_{HTS} Filter Plates

Advanced plate design for full automation compatibility applications



- Plate design meets ANSI/SBS standards
- Full selection of membranes and plastics available
- Rigid sidewalls designed for use with gripper arms
- Plates accommodate bar code labels
- Unique membrane access options

Fully Compatible with Automation

High throughput MultiScreen®_{HTS} filter plates are specifically developed for use with automation. The 96-well plates are designed to standardized dimensions and meet ANSI/SBS plate specifications.

They are fully compatible with automated gripper arms, stackers, bar code labels, and plate readers.

Innovative Plate Design

MultiScreen®_{HTS} filter plates provide a complete solution for drug discovery and life science research.

The new plate design incorporates rigid sidewalls aligned for easy handling by robotic gripper arms. The sidewalls also provide ample surfaces for bar code labels.

The plate design also protects the underdrain and eliminates surface contact with individual well “drip directors”. The plastic skirt enables stacking directly with collection plates and improves the vacuum seal when used with a Millipore® vacuum manifold.

The removable underdrain gives full access to membranes and is ideal for applications including ELISpot, radioisotope detection and whole organism visualization.

Extensive Product Offering

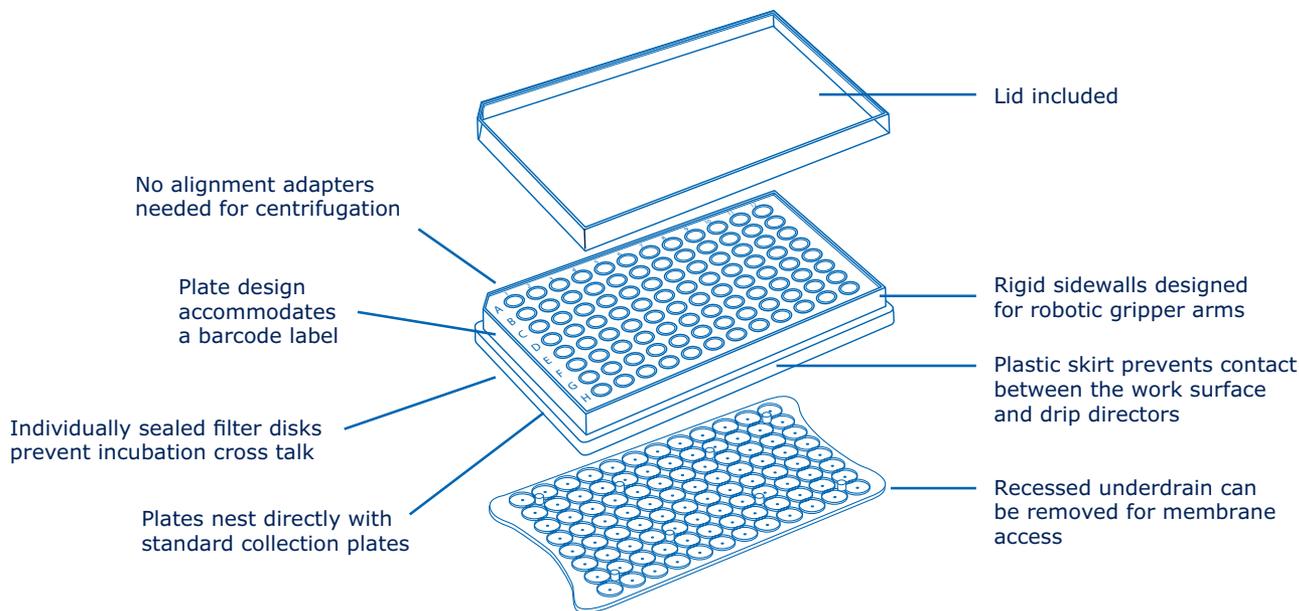
MultiScreen®_{HTS} filter plates are available in a broad range of plastics and membranes. The extensive family of MultiScreen®_{HTS} filter plates supports applications including receptor-ligand binding, general sample preparation, **ELISpot**, enzyme activity, bead-based assays, whole organism visualization and radioisotope detection. MultiScreen® Solubility filter plates are also optimized in HTS format for filtration-based solubility determination.

MultiScreen®_{HTS} filter plates are available in clear, opaque and white. For non-standard plastic and membrane combinations, custom requests are accepted. Available membranes include:

- Hydrophilic Durapore® PVDF membrane
- Glass Fiber
- Hydrophobic Immobilon®-P membrane
- HA Mixed cellulose esters
- Negatively charged phosphocellulose
- Positively charged DEAE
- Track-etched polycarbonate

MultiScreen®_{HTS} Filter Plates Meet ANSI/SBS Standards

Improved design is fully compatible with automation



Performance

MultiScreen®_{HTS} Filter Plate Eliminates Cross Talk

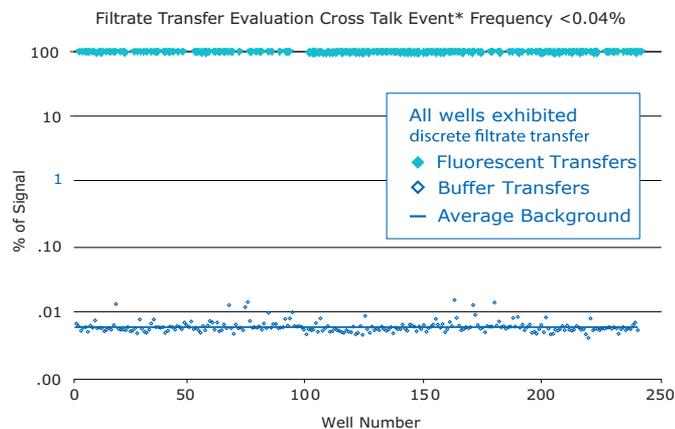


Figure 1. Filtrate Cross Talk Evaluation—A diluted sodium fluorescein stock solution in PBS was transferred in a checkerboard pattern to 48 of 96 wells of a **MultiScreen®_{HTS}** Solubility filter plate. The 48 adjacent wells received an equivalent volume of PBS. The filter plate was subsequently placed on a **MultiScreen®** vacuum manifold containing a 96 well collection plate and the samples were transferred by a single vacuum transfer at 12" Hg for 15 seconds. Collection plate wells were measured for their fluorescent signal in a Molecular Devices Gemini EM. The experiment was repeated for 5 plates and the individual collection plate well values plotted as percentage of signal. Every well in all 5 plates exhibited filtrate transfer with signals at or near background.

* Any buffer well in the filtrate collection plate with a resulting fluorescence >2% of the signal well average is classified as a cross talk event.

Ideal for Liquid Scintillation Microplate Counting

The **MultiScreen®_{HTS}** plate design prevents crosstalk between wells common to other 96-well filter formats. The isolated well design and individually sealed filter discs eliminate the potential for reagent flow from one well to another. The opaque plastic used in the plate construction prevents light transfer between wells during direct scintillation counting, ensuring accurate, reliable detection.

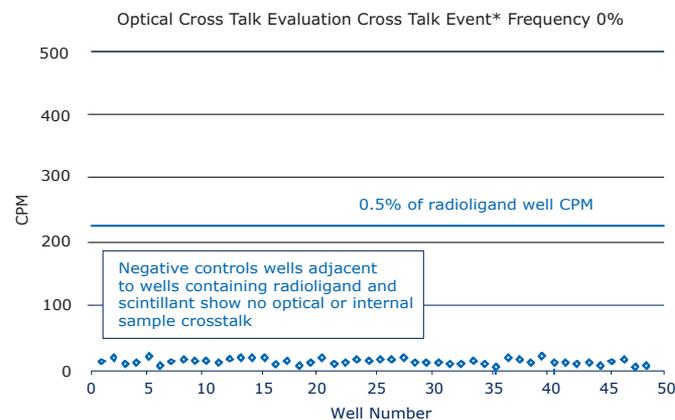


Figure 2. In Plate Cross Talk Evaluation—A 3H labeled ligand in PBS was transferred in pattern to 48 of 96 wells of a **MultiScreen®_{HTS}** FB filter Plate. The 48 adjacent wells received an equivalent volume of PBS. The plate was incubated for 15 minutes and the solutions were removed by a single vacuum transfer at 15" Hg for 30 seconds using the **MultiScreen®** vacuum manifold. Residual radioactivity was then counted after the addition of 50 µl Optifluor™ (PerkinElmer) scintillation cocktail in a PerkinElmer Trilux™ Scintillation and Counter in coincidence counting mode. Results show that there was no internal migration of radioactive material between signal and buffer wells and there was no significant optical cross talk.

* Any buffer well registering CPM greater than >0.5% of the radioligand well CPM, as determined from the signal well average (4.42×10^4 CPM), is classified as a cross talk event.

Specifications	
MultiScreen [®] _{HTS} 96-well Filter Plates	
Materials of Construction	Full range of membranes and plastics available. See ordering information and/or refer to user guide for additional details.
Membrane Area	0.26 cm ²
Well Volume	Recommended 50–250 µL (Maximum 300 µL)
Nominal Plate Dimensions (length x width x depth)	127.8 mm x 85.5 mm x 14.4 mm
Operating Conditions	Vacuum* – Recommended 9" Hg (Maximum 18" Hg) Centrifuge* – Recommended 1000 x g (Maximum 3000 x g)
Average Holdup Volume of 200 µL Sample	
By vacuum at 9" Hg for 30s	Durapore [®] PVDF 6 µL/well
By centrifuge at 1000 x g for 5 mins	Durapore [®] PVDF 5 µL/well

* See User Guide for specific recommendations by product type and additional guidelines on utilization.

Consistent Counting Performance

		Packard Optifluor					
		³ H				¹²⁵ I	
Plate Type	Plate Reader Mode	Counting Efficiency		Signal/Noise Ratio		Counting Efficiency	Signal/Noise Ratio
		Underdrain On	Underdrain Off	Underdrain On	Underdrain Off	Underdrain On	Underdrain On
MultiScreen [®] _{HTS} FB	Coincidence counting	7.9%	20.9%	672:1	3473:1	24.5%	181:1
MultiScreen [®] _{HTS} FB	Top counting	14.0%	11.9%	6:1	7:1	35.7%	15:1
MultiScreen [®] _{HTS} FB	Bottom counting	1.4%	7.1%	5:1	36:1	6.7%	7:1
MultiScreen [®] _{HTS} FC	Coincidence counting	8.9%	14.9%	120:1	1239:1	25.1%	28:1
MultiScreen [®] _{HTS} FC	Top counting	8.5%	7.7%	3:1	4:1	21.7%	4:1
MultiScreen [®] _{HTS} FC	Bottom counting	1.9%	7.4%	6:1	43:1	9.3%	6:1

		Wallac Supermix					
		³ H				¹²⁵ I	
Plate Type	Plate Reader Mode	Counting Efficiency		Signal/Noise Ratio		Counting Efficiency	Signal/Noise Ratio
		Underdrain On	Underdrain Off	Underdrain On	Underdrain Off	Underdrain On	Underdrain On
MultiScreen [®] _{HTS} FB	Coincidence counting	12.4%	25.5%	279:1	4246:1	34.0%	251:1
MultiScreen [®] _{HTS} FB	Top counting	11.5%	19.3%	3:1	11:1	33.8%	15:1
MultiScreen [®] _{HTS} FB	Bottom counting	2.7%	11.8%	9:1	61:1	13.9%	15:1
MultiScreen [®] _{HTS} FC	Coincidence counting	9.9%	18.8%	134:1	1567:1	32.3%	44:1
MultiScreen [®] _{HTS} FC	Top counting	6.8%	9.1%	3:1	5:1	21.0%	5:1
MultiScreen [®] _{HTS} FC	Bottom counting	3.3%	11.8%	10:1	69:1	16.6%	9:1

Table 1. Radioactivity Counting Efficiency Determination – A sample containing 16,000 DPM ³H (Win 35,428 Dopamine Receptor Ligand) or 10,000 DPM ¹²⁵I (IgG) was added to 36 wells of an opaque MultiScreen[®]_{HTS} filter plate and the remaining wells received an equal volume of non-radioactive sample. Following the addition of 50µl of scintillation cocktail to all wells and incubation for 24 to 48 hours, plates were counted with various detector modes in a PerkinElmer Trilux Scintillation Counter. Counting Efficiency is calculated as the ratio of CPM registered to DPM of the sample. Values presented are the average of triplicate efficiency determinations. Signal to noise ratio was determined by dividing CPM values for the isotope containing wells by the CPM measured in the remaining wells without radioactivity.

Compatible Instruments

MultiScreen[®]_{HTS} Filter Plates are compatible with a range of liquid handlers and automated counters.

Robotic workstations:

- Tecan Genesis[®]
- Beckman Biomek[®] FX
- Packard MultiProbe[®]
- PerkinElmer Evolution[™]
- Beckman MultiMek[™] 96

Plate readers:

- Perkin Elmer Trilux, MicroBeta2 & MicroBeta3
- Wallac MicroBeta2
- Wallac Victor2 1420 Multilabel Counter
- PerkinElmer VICTOR2[™] D
- Revvity Perkin EnVision 2104-0010 Multi-Mode Microplate Reader
- Molecular Devices SPECTRAMAX[®] Plus/Gemini XS/ SpectraMax iD3s/SpectraMax iD5e
- Tecan Infinite[®] 200 PRO
- PHERAstar FSX
- BioTek Synergy Neo2 Hybrid Multimode Reader

Ordering Information

Description	Pore Size (µm)	Plate Material/ Plate Color	Sterility (Sterile = S)	Qty/Pk	Cat No.
MultiScreen [®] _{HTS} with hydrophilic Durapore membrane (PVDF)					
	0.22	acrylic	–	10	MSGVN2210
			–	50	MSGVN2250
			S	10	MSGVS2210
	0.22	Barex [®] /TiO ₂	–	50	MSGVN2B50

Description	Pore Size (µm)	Plate Material/ Plate Color	Sterility (Sterile = S)	Qty/Pk	Cat No.
MultiScreen[®]_{HTS} with hydrophilic Durapore membrane (PVDF)					
	0.45	styrene	-	10	MSHVN4510
			-	50	MSHVN4550
			S	10	MSHVS4510
	0.45	Barex/TiO ₂	-	10	MSHVN4B10
			-	50	MSHVN4B50
			S	10	MSHVS4B10
	0.65	styrene	-	10	MSDVN6510
			-	50	MSDVN6550
	0.65	Barex/TiO ₂	-	50	MSDVN6B50
	1.2	styrene	-	10	MSBVN1210
			-	50	MSBVN1250
			S	10	MSBVS1210
	1.2	Barex/TiO ₂	-	50	MSBVN1B50
MultiScreen[®]_{HTS} with hydrophobic Immobilon-P membrane (PVDF)					
	0.45	acrylic	-	10	MSIPN4510
			-	50	MSIPN4550
			S	10	MSIPS4510
	0.45	acrylic white	-	10	MSIPS4W10
	0.45	Barex/TiO ₂	-	10	MSIPN4B10
			-	50	MSIPN4B50
MultiScreen[®]_{HTS} with hydrophilic MCE					
	0.45	styrene	-	10	MSHAN4510
			-	50	MSHAN4550
			S	10	MSHAS4510
	0.45	Barex/TiO ₂	-	50	MSHAN4B50
			S	10	MSHAS4B10
MultiScreen[®] with track-etched polycarbonate					
MultiScreen[®]_{HTS} Solubility Assay System	0.4	styrene	-	10	MSSLBPC10
MultiScreen[®]_{HTS} with glass fiber filter and PVDF support					
	FB w/0.65	Barex/TiO ₂	-	10	MSHAN4510
			-	50	MSHAN4550
	FC w/0.65	Barex/TiO ₂	-	10	MSHAN4B10
			-	50	MSHAN4B50

Accessories

Description	Cat No.
MultiScreen[®] vacuum manifold	MAVM0960R
MultiScreen[®] vacuum pump	115V
	220V
	100V
MultiScreen[®] Column Loader	25 µL
	45 µL
	80 µL
	100 µL

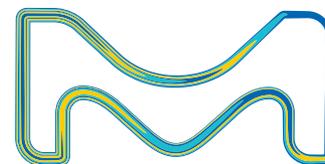
Custom MultiScreen[®] Filter Plates

In need of customized plates? We'll create the perfect plate for your assay, with a combination of filter membrane, housing material and other required specifications.



For more information about MultiScreen[®] filter plates, please visit: SigmaAldrich.com/multiscreen

Merck KGaA
Frankfurter Strasse 250
64293 Darmstadt, Germany



We have built a unique collection of life science brands with unparalleled experience in supporting your scientific advancements.

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