MILLIPORE

DATA SHEET



MultiScreen® HTS Filter Plates

- *Plate design meets ANSI/SBS 2004 standards (1-4)*
- *Full selection of membranes and plastics available*
- *Rigid sidewalls designed for use with gripper arms*
- *Plates accommodate bar code labels*
- *Unique membrane access options*



New plate design for full automation compatibility

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 2004 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 (for more information on MultiScreen$_{HTS}$ for Elispot, see PF025EN00).

Extensive Product Offering

MultiScreen$_{HTS}$ filter plates are available in a broad range of Millipore plastics and membranes. The new 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.

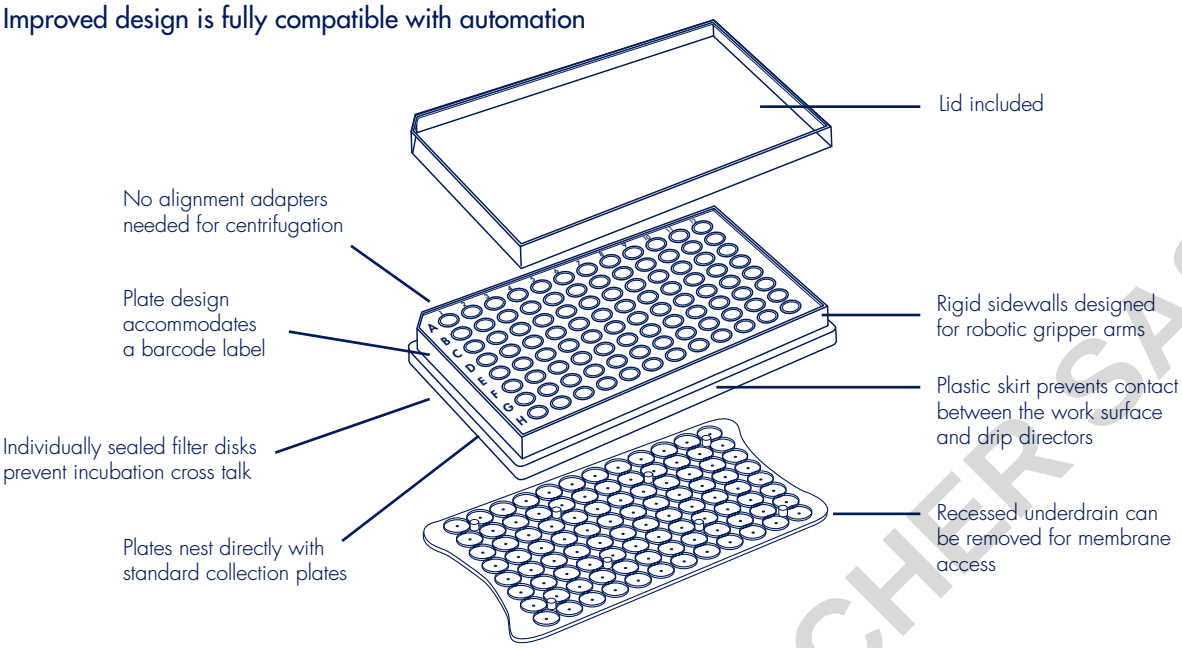
MultiScreen$_{HTS}$ filter plates are available in clear, opaque and white. For non-standard plastic and membrane combinations, custom requests are accepted. Available membranes include:

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

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MultiScreen$_{HTS}$ Filter Plates Meet ANSI/SBS 2004 Standards 1–4

Improved design is fully compatible with automation



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Performance

MultiScreen$_{HTS}$ Filter Plate Eliminates Cross Talk

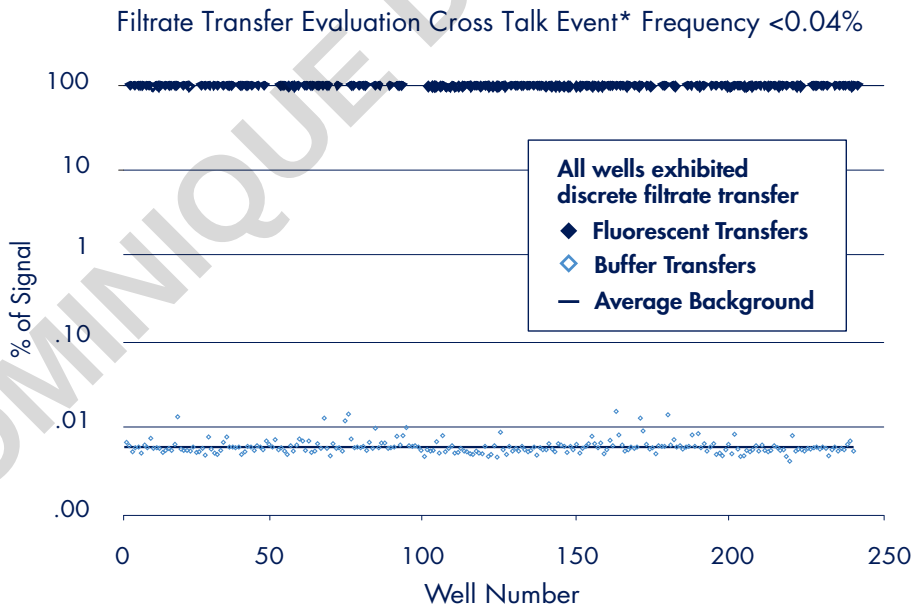


Figure 1. *Filtrate Cross Talk Evaluation—A diluted sodium fluorescein stock solution in PBS was transferred in a checkerboard pattern to 48 of 96 wells of a Multiscreen$_{HTS}$ Solubility filter plate. The 48 adjacent wells received an equivalent volume of PBS. The filter plate was subsequently placed 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.*

Performance

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.

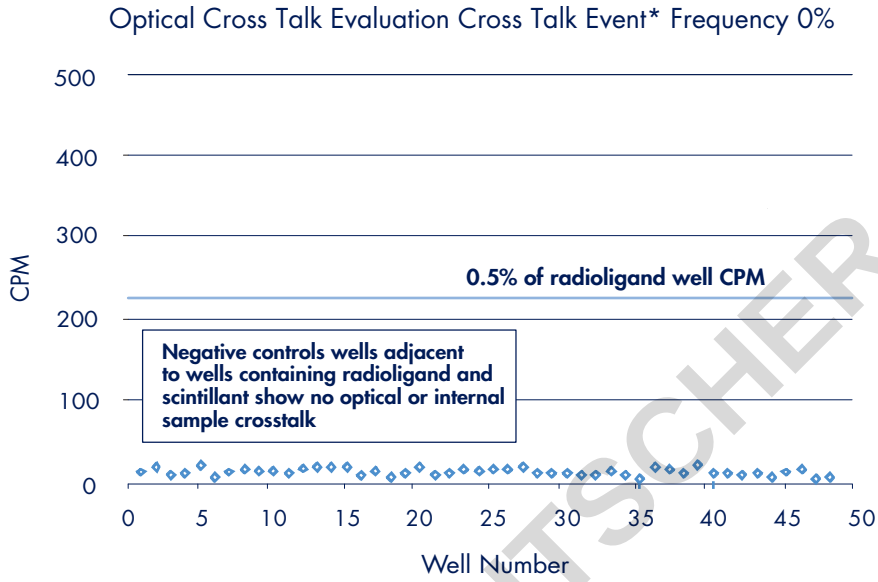


Figure 2. *In Plate Cross Talk Evaluation—A ^{3}H labeled ligand in PBS was transferred in pattern to 48 of 96 wells of a Multiscreen$_{HTS}$ FB filter Plate. The 48 adjacent wells received an equivalent volume of PBS. The plate was incubated for 15 minutes and the solutions were removed by a single 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 x 104 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.*

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Consistent Counting Performance

Packard Optifluor

		^{3}H				^{125}I	
		Counting Efficiency		Signal/Noise Ratio		Counting Efficiency	Signal/Noise Ratio
Plate Type	**Plate Reader Mode**	**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	
		Counting Efficiency		Signal/Noise Ratio		Counting Efficiency	Signal/Noise Ratio
Plate Type	**Plate Reader Mode**	**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 ^{3}H (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.*

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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:

- PerkinElmer Trilux
- Wallac (Perkin-Elmer) Microbeta®
- Wallac Victor^{2}™ 1420 MultiLabel Counter
- Molecular Devices SPECTRAmax® Plus/Gemini XS
- Tecan SpectraFLUOR® Plus

Ordering Information

Description	Pore Size (µm)	Plate Material/ Plate Color	Sterility (Sterile = S)	Qty/Pk	Catalogue No.
MultiScreen$_{HTS}$ with hydrophilic Durapore membrane (PVDF)					
	0.22	acrylic	–	10	MSGV N22 10
			–	50	MSGV N22 50
			S	10	MSGV S22 10
	0.22	Barex®/TiO_2	–	10	MSGV N2B 10
			–	50	MSGV N2B 50
	0.45	styrene	–	10	MSHV N45 10
			–	50	MSHV N45 50
			S	10	MSHV S45 10
	0.45	Barex/TiO_2	–	10	MSHV N4B 10
			–	50	MSHV N4B 50
			S	10	MSHV S4B 10
	0.65	styrene	–	10	MSDV N65 10
			–	50	MSDV N65 50
			S	10	MSDV S65 10
	0.65	Barex/TiO_2	–	10	MSDV N6B 10
			–	50	MSDV N6B 50
	1.2	styrene	–	10	MSBV N12 10
			–	50	MSBV N12 50
			S	10	MSBV S12 10
	1.2	Barex/TiO_2	–	10	MSBV N1B 10
			–	50	MSBV N1B 50
MultiScreen$_{HTS}$ with hydrophobic Immobilon-P membrane (PVDF)					
	0.45	acrylic	–	10	MSIP N45 10
			–	50	MSIP N45 50
			S	10	MSIP S45 10
	0.45	acrylic white	–	10	MSIP S4W 10
	0.45	Barex/TiO_2	–	10	MSIP N4B 10
			–	50	MSIP N4B 50
MultiScreen$_{HTS}$ with hydrophilic MCE					
	0.45	styrene	–	10	MSHA N45 10
			–	50	MSHA N45 50
			S	10	MSHA S45 10
	0.45	Barex/TiO_2	–	10	MSHA N4B 10
			–	50	MSHA N4B 50
			S	10	MSHA S4B 10

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Ordering Information

Description	Pore Size (µm)	Plate Material/ Plate Color	Sterility (Sterile = S)	Qty/Pk	Catalogue No.
MultiScreen with track-etched polycarbonate					
MultiScreen$_{HTS}$ Solubility Assay System	0.4	styrene	–	10	MSSL BPC 10
MultiScreen$_{HTS}$ with negatively charged phosphocellulose	–	Barex/TiO_2	–	10	MSPH N6B 10
			–	50	MSPH N6B 50
MultiScreen$_{HTS}$ with positively charged DEAE	–	Barex/TiO_2	–	10	MSDE N6B 10
			–	50	MSDE N6B 50
MultiScreen$_{HTS}$ with glass fiber filter and PVDF support	FB w/0.65	Barex/TiO_2	–	10	MSFB N6B 10
			–	50	MSFB N6B 50
	FC w/0.65	Barex/TiO_2	–	10	MSFC N6B 10
			–	50	MSFC N6B 50

Accessories

Description		Catalogue No.
MultiScreen vacuum manifold		MAVM 096 0R
MultiScreen vacuum pump	115V	WP6 111 60
	220V	WP6 220 50
	100V	WP6 100 60
MultiScreen Column Loader	25 µL	MACL 096 25
	45 µL	MACL 096 45
	80 µL	MACL 096 80
	100 µL	MACL 096 00

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To Place an Order or Receive Technical Assistance

For additional information call your nearest Millipore office:
In the U.S. and Canada,
call toll-free **1-800-MILLIPORE (1-800-645-5476)**
In the U.S., Canada and Puerto Rico, fax orders to **1-800-MILLIFX (1-800-645-5439)**
Internet: **www.millipore.com**
Technical Service: **www.millipore.com/techservice**

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