

Reference

Chemical Compatibility Guide for MultiScreen® Filter Plates

Ratings are based on 100% or concentrated solutions, unless otherwise indicated. Aromatic hydrocarbons (especially ketones, DMF, DMAC, DMSO, THF, acetonitrile) and chlorinated hydrocarbons will attack both membranes and plastics. A chemical listed as NR may be suitable in low concentrations for short exposures, but this must be determined on an individual assay basis.

Compatibility of MultiScreen®_{HTS} and MultiScreen® Classic Filter Plates with Various Reagents

Plate Material/Membrane	Polyolefin copolymer/PTFE	Acrylic or Classic Styrene/Durapore®	Acrylic or Styrene/MCE	Barex®/TiO ₂ /Durapore®, MCE, DEAE	Acrylic or Barex®/TiO ₂ /Styrene, Immobilon®-P
Acids					
Acetic (5%)	R	R	R	R	R
Acetic, Glacial	R	L to NR	NR	R/L to NR	L
Boric	R	R	R	R	R
Trichloroacetic (< 20%)	R	R	R	R	R
Trichloroacetic (20 to 40%)	R	R	L	R/L to NR	L
Trichloroacetic (> 40%)	R	L to NR	NR	L/NR	NR
Hydrochloric (0.1N)	R	R	R	R	R
Hydrochloric (1N)	R	R	L to NR	R/L to NR	R to L
Hydrochloric (> 1N)	R	R	NR	R/L to NR	R
Hydrofluoric	R	R (20% max.)	NR	NR	R (20% max.)
Nitric (conc)	R	L to NR	NR	NR	L
Sulphuric (conc)	R	L	NR	L/NR	L
Bases					
NH ₄ OH (6N)	R	L to NR	NR	L to NR	R
NaOH (0.1N)	R	R to L	L to NR	R/L to NR	R
NaOH (1N)	R	L to NR	NR	L/NR	L
NaOH (> 6N)	R	NR	NR	NR	NR
Urea	R	R	–	R (Durapore® only)	R
Triethylamine	R	R	R	R	R
Diethanolamine (≤ 3 mol)	R	R	R	R	R
Alcohols					
Amyl	R	R	NR	R/NR	R
Benzyl (1%)	R	R	R	R	R
Butyl	R	R	R	R	R
Ethanol (40%)	R	R	NR	R	R
Ethanol (≥50%)	R	R	NR	R/NR	R (no filtrate collect.)
Isobutyl	R	R	R	R	R
Isopropyl	R	R	L to NR	R/L to NR	R
Methanol	R	R to L	NR	R/NR	R
Triton® X-100* Surfactant (<1%)	R	R	R	R	R

R = Recommended, no known restrictions, NR = Not recommended, membrane or plate severely attacked by chemical, L = Limited, chemical resistance marginal, short time exposures should be tested individually for application. Dilution with water or other non-solvent will likely enhance compatibility

1. Scintillants should only be used with Barex® or SAN plates.

2. Surfactants are in general readily usable with all MultiScreen® plate types. However, before quantitative fluid transfer to a receiver plate, it is essential that the plate be rinsed with non-surfactant containing fluid (e.g., 100 µL PBS) and then the underdrain be thoroughly blotted prior to adding the material which will ultimately be collected. Triton®-x 100 should not be used with MCE membrane in concentrations greater than 5% (the membrane will appear to lose flow).

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Solvents					
Acetone	R	NR	NR	NR	NR
Acetonitrile (no filtrate collect, centrifuge)	R	NR	NR	NR	L (<35%)
Amyl Acetate	R	NR	NR	R/NR	R
Carbon tetrachloride	R	L to NR	L to NR	R	R
Chloroform	R	NR	NR	NR	NR
Cyclohexanone	R	NR to L	NR to L	R/ NR to L	NR to L
DMAC	R	NR	NR	NR	NR
DMF	R	NR	NR	NR	NR
DMSO (no filtrate collect)	R	L (70%)	NR	NR	L (10%) max.
Ethylene Glycol	R	R	R	R	R
Formaldehyde	R	R (10% max.)	NR	R (<40%) /NR	R (<40%)
Hexane	NR	R	R	R	R
Methylene Chloride	L	NR	NR	NR	NR
MEK	R	NR	NR	NR	NR
MIBK	R	NR	NR	L/NR	NR/L
Phenol (5%)	R	L to NR	L to NR	R	R
Pyridine	R	R	R	R	R
Scintillants	NR	NR	NR	R	NR/R ⁽¹⁾
Triethylamine	R	R	R	R	R
Toluene	NR	NR to L	NR to L	R	NR to L/R
THF	R	NR	NR	L/NR	NR/L
Xylene	R	NR	NR	R	R
Other Organics					
Attophos® reagent	R	R	R	R	R
Fluorescein	R	R	R	R	R
Glycerine	R	R	R	R	R
Hydrogen Peroxide	R	R	NR	R (3%)	R
Polyethylene Glycol	R	R	R	R	R
Tween® (<5%) ⁽²⁾	R	R	R	R	R
Triton® X-100® Surfactant (<1%)	R	R	R	R	R
Triton® X-100 Surfactant (<5%)	R	R	L	R/L	R
Inorganic Salts					
Carbon Disulfide	R	NR	NR	NR	NR
Sodium Hypochlorite	R	R	NR	R (5%) / NR	R

R = Recommended, no known restrictions, NR = Not recommended, membrane or plate severely attacked by chemical, L = Limited, chemical resistance marginal, short time exposures should be tested individually for application. Dilution with water or other non-solvent will likely enhance compatibility

1. Scintillants should only be used with Barex® or SAN plates.

2. Surfactants are in general readily usable with all MultiScreen® plate types. However, before quantitative fluid transfer to a receiver plate, it is essential that the plate be rinsed with non-surfactant containing fluid (e.g., 100 µL PBS) and then the underdrain be thoroughly blotted prior to adding the material which will ultimately be collected. Triton®-x 100 should not be used with MCE membrane in concentrations greater than 5% (the membrane will appear to lose flow).

Chemical Compatibility Guide for MultiScreen® Vacuum Manifolds

MultiScreen®_{HTS} and MultiScreen® Resist Manifolds

The following tables outline the solvents that have been evaluated for compatibility with the various components of the MultiScreen®_{HTS} and MultiScreen® Resist vacuum manifolds. In general the manifolds will tolerate the same chemicals as the rest of the system.

However, when using concentrated acids it is important to rinse through the entire manifold at the end of procedures, especially if collection is done through the manifold into a trap, rather than using the collection trays.

MultiScreen®_{HTS} Vacuum Manifold Components

Component	Manifold Base/ Collar Gasket Frame	Gaskets/Tubing	Standard Collar	Support Grid	Tubing Fittings	Droplet Trap Array
Materials of Construction	HDPE/ Polypropylene, Polyolefin	Silicone	Nylon	Stainless Steel	PP with EPDM or FKM Seals	PTFE
Acetone	R	G	G	E	G	E
Acetonitrile	E	G	E	E	G	E
Dimethyl Formamide (DMF)	E	G	R	E	G	E
Dimethyl Sulfoxide (DMSO)	E	G	E	E	G	E
Ethyl Acetate	E	G	E	E	G	E
Ethanol	E	G	G	E	E	E
Formic Acid	E	G	NR	G	G	R
Hexane	NR	NR	R	E	G	E
Hydrochloric Acid (37%)	E	R	NR	R	R	R
Isopropanol	E	E	R	E	E	E
Methanol	E	E	R	E	E	E
Methylene Chloride	NR	NR	R	E	R	E
Sodium Hypochlorite	E	G	NR	G	G	R
Tetrahydrofuran (THF)	R	NR	E	E	NR	E
Toluene	NR	NR	E	E	R	E
Trichloroacetic Acid (TCA)	E	NR	G	G	R	R
Trifluoroacetic Acid (TFA)	E	NR	R	R	G	R

E = Excellent performance, G = Good performance, R = Rinse after contact, NR = Not recommended



Chemical Compatibility Guide for MultiScreen® Vacuum Manifolds

MultiScreen® Resist Vacuum Manifold Components

Component	Manifold Base & Deep Well Ring	Gaskets	Standard Ring	Tubing Inside: Outside	Support Grid	Control Valve	On/Off Valve
Materials of Construction	HDPE	EPDM	Nylon	FEP-lined Tygon	Stainless Steel	Brass socket steel case	PP with EPDM seal
Comments				Crimping can alter resistance		Normally no fluid contact	
Acetone	R-G	G	G-E	E: NR	E	E	G-E
Acetonitrile	E	E	E	E: NR	E	E	G-E
Dimethyl Formamide (DMF)	E	E	R	E: NR	E	E	G
Dimethyl Sulfoxide (DMSO)	E	E	E	E: R	E	E	G
Ethyl Acetate	E	E	E	E: NR	E	G	G-E
Ethanol	E	E	G	E: E	E	E	E
Formic Acid	E	E	NR	G-E: NR	G-E	P-R	G-E
Hexane	R	R	R	R-G: P	E	E	G-E
Hydrochloric Acid	E	E	R-NR	E: R			
Isopropanol	E	E	R	E: G	E	E	E
Methanol	E	E	R	E: G	E	E	E
Methylene Chloride	R	R	R-G	E: NR	E	E	P-R
Sodium Hypochlorite	E	E	NR-P	E: R	G	G	G
Tetrahydrofuran (THF)	R	R	E	E: G	E	E	NR
Toluene	R	R	E	E: R	E	E	R
Trichloroacetic Acid (TCA)	E	E	G	E: G	G-E	R	R-G
Trifluoroacetic Acid (TFA)	E	E	R	E: R	R-G	P-R	G

E = Excellent performance, G = Good performance, R = Rinse after PROLONGED contact, P = Rinse immediately, NR = Not recommended

Chemical Compatibility Guide for Fixation and Staining

Millicell® cell culture inserts (single-well, 24-well plates and 96-well plates) are designed to support all fixation, staining and immunostaining procedures in a single device. The 24 and 96-well plates are also automation compatible. The variety of membranes offered in the inserts allows the fixed and stained cells to be visualized by stereoscopic microscopy, phase contrast microscopy, or fluorescent methods.

The majority of staining procedures employ a fixation step first. Fixation is required to stabilize sub-cellular morphology and prevent degradation of antigens during subsequent staining procedures. Consult the following table for chemical compatibility information with common fixative chemicals and stains.

General Considerations

- If the chemicals are compatible with the membrane but not the polystyrene housing, remove the membrane from the housing before adding the chemical.
- Unless otherwise stated, the chemicals listed are at maximum concentration. If the plastic housing and/or membranes are not compatible with the maximum concentration, they might be compatible at lower concentration.

Chemical Compatibility of Fixation and Staining Reagents

Chemical	Concentration	Polystyrene (PS) housing	HA (Mixed Cellulose) membrane	CM (PTFE)	PCF (Polycarbonate)	PET (polyteterephthalate)
Methanol	90%	R	NR	R	R	R
Ethanol	95%	R	R	R	R	R
Glacial Acetic Acid	1%	R	R	R	R	R
Paraformaldehyde	4%	R	R	R	R	R
Glutaraldehyde	3%	R	R	R	R	R
Formaldehyde	4%	R	R	R	R	R
Formamide	50%	R	NR	R	R	R
Formamide	100%	R	NR	R	R	R
HCL	1.0%	R	R	R	R	R
Osmium tetroxide	1.0%	R	R	R	R	R
Hematoxylin	100%	R	R	R	R	R
Eosin	1.0%	R	R	R	R	R
Tryptan Blue	0.1%	R	R	R	R	R
Nigrosin	0.2%	R	R	R	R	R
Toluidine Blue	0.3%	R	R	R	R	R

R = recommended, NR = not recommended

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