

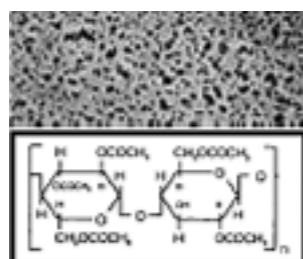
Membrane Filters

CHM® MCA Cellulose Acetate Membrane Low adsorption

Cellulose Acetate membranes, type MCA, for the filtration of aqueous solutions.

These membranes combine high flow rates and thermal stability with very low adsorption characteristics, making the 0.2 µm pore size excellently suited for use in disc filter holders to sterilize aqueous solutions, buffers, sera and media. They are also low in extractables and can be repeatedly autoclaved.

Typical applications include cytology, aqueous solution filtration and filtration of enzyme solutions to minimise protein loss.



Technical Specifications

Extractables with water less than 1%
Autoclaving at 121°C or 134°C
Bubble Point minimum value for 0.2 µm = 3.5 bar (350 kPa), (wetted with water) for 0.45 µm = 2.0 bar (200 kPa), for 0.65 µm = 1.3 bar (130 kPa), for 0.8 µm = 0.8 bar (80 kPa)
Chemical compatibility resistant to aqueous solutions, pH 4–8, against most alcohols, hydrocarbons and oils
Thickness average value 135 µm
Flow rate for water average value per cm ² area at Δp = 1 bar (100 kPa): 22 ml/min for 0.2 µm, 69 ml/min for 0.45 µm, 130 ml/min for 0.65 µm, 200 ml/min for 0.8 µm pore size
Material cellulose acetate
Sterilizing filtration filters with 0.2 µm pore sizes are validated by Bacteria Challenge Tests.
Sterilization by autoclaving, with - radiation, or ethylene oxide
Thermal stability max. 180°C

Order Information

13 mm diameter
MCA080013H 0.8 µm, pack of 100 MCA045013H 0.45 µm, pack of 100 MCA020013H 0.2 µm, pack of 100
25 mm diameter
MCA080025H 0.8 µm, pack of 100 MCA065025H 0.65 µm, pack of 100 MCA045025H 0.45 µm, pack of 100 MCA020025H 0.2 µm, pack of 100
47 mm diameter
MCA080047H 0.8 µm, pack of 100 MCA065047H 0.65 µm, pack of 100 MCA045047H 0.45 µm, pack of 100 MCA020047H 0.2 µm, pack of 100
90 mm diameter
MCA080090T 0.8 µm, pack of 25 MCA065090T 0.65 µm, pack of 25 MCA045090T 0.45 µm, pack of 25 MCA020090T 0.2 µm, pack of 25
142 mm diameter
MCA080142T 0.8 µm, pack of 25 MCA065142T 0.65 µm, pack of 25 MCA045142T 0.45 µm, pack of 25 MCA020142T 0.2 µm, pack of 25
293 mm diameter
MCA080293T 0.8 µm, pack of 25 MCA065293T 0.65 µm, pack of 25 MCA045293T 0.45 µm, pack of 25 MCA020293T 0.2 µm, pack of 25

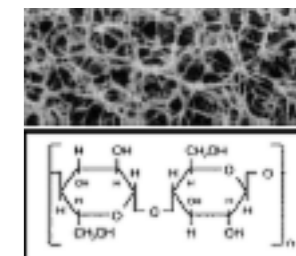
CHM® MRC Regenerated Cellulose Membrane Chemical Resistance

CHM® MRC - Regenerated Cellulose membranes for the filtration of organic solvents. These solvent-resistant, hydrophilic membrane filters are excellently suited for their major application, particle removal from solvents.

The 50 mm diameter, 0.45 µm pore size filter, for example, is standardly used ultraclean and de-gas solvents and mobile phases for HPLC, in combination with the All-glass holder. Regenerated cellulose membranes also feature low non-specific adsorption.

They are compatible with:

Acetone	Acetic acid (96%)	Methylene chloride
Acetonitrile	Ethanol	Methyl ethyl ketone
Gasoline	Ethyl acetate	Pentane
n-Butanol	Ethylene glycol	Tetrahydrofuran
Cellosolve (ethyl)	Freon TF	Toluene
Chloroform	Hexane	Trichloroacetic acid (25%)
Diethyl acetamide	Isobutanol	Trichlorethane
Dimethylsulfoxide	Isopropanol	Water
Dioxane	Methylene	Xylene



Order Information

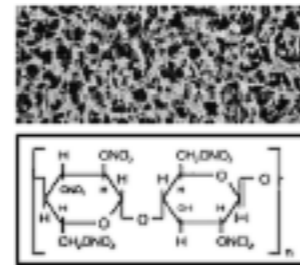
13 mm diameter
MRC045013H 0.45 µm (pack of 100) MRC020013H 0.2 µm (pack of 100)
25 mm diameter
MRC045025H 0.45 µm (pack of 100) MRC020025H 0.2 µm (pack of 100)
47 mm diameter
MRC045047H 0.45 µm (pack of 100) MRC020047H 0.2 µm (pack of 100)
142 mm diameter
MRC045142T 0.42 µm (pack of 25) MRC020142T 0.2 µm (pack of 25)
293 mm diameter
MRC045293T 0.45 µm (pack of 25) MRC020293T 0.2 µm (pack of 25)
<i>Other pore sizes and diameters are available under request</i>

Technical Specifications

Adsorption Ca.24 µg/cm ² for 0.2 µm pore size, 18 µg/cm ² for 0.45 µm pore size
Extractables With water, less than 1%
Bubble-Point Min. values, wetted with water, 4.7 bar (470 kPa) for 0.2 µm, 3.0 bar (300 kPa) for 0.45 µm
Chemical compatibility Resistant to almost all solvents (see table below left) and aqueous solutions in the pH-range 3–12.
Thickness average value 160 µm
Flow rate Average value per cm ² area for water at 1 bar (100 kPa) pressure, 20 ml/min for 0.2 µm, 47 ml/min for 0.45 µm pore size
Material Regenerated cellulose, reinforced with non-woven cellulose
Sterilization By autoclaving (at 121°C or 134°C), Dry heat (180°C), and gamma radiation (25 kGy) or with ethylene oxide
Validation The correlation of the bubble point values of the membranes of 0.2 µm pore size to the reliability of sterilizing filtration has been validated by standard Bacteria Challenge Tests.

CHM® MCN Cellulose Nitrate Membrane High Adsorption

Cellulose Nitrate membranes, type MCN, for sample pretreatment, particle testing and chemotaxis



Technical Specifications

Extractables with water less than 1%

Sterilization by autoclaving, at 121°C

Bubble Point wetted with water, minimum values:
 0.3 bar (30 kPa) for 8 µm pore size
 0.5 bar (50 kPa) for 5 µm pore size
 0.6 bar (60 kPa) for 3 µm pore size
 1.0 bar (100 kPa) for 1.2 µm pore size
 1.4 bar (140 kPa) for 0.8 µm pore size
 2.0 bar (200 kPa) for 0.65 µm pore size
 2.5 bar (250 kPa) for 0.45 µm pore size

Chemical compatibility resistant to aqueous solutions in the pH-range 4–8, to hydrocarbons and to some solvents

Thickness between 90 µm (0.1 µm) and 140 µm (8 µm), according to pore size

Flow rate for water average values per cm² area at Δp = 1 bar (100 kPa):
 750 ml/min for 8 µm pore size
 570 ml/min for 5 µm pore size
 430 ml/min for 3 µm pore size
 320 ml/min for 1.2 µm pore size
 200 ml/min for 0.8 µm pore size
 130 ml/min for 0.65 µm pore size
 69 ml/min for 0.45 µm pore size

Material cellulose nitrate

Sterilization by autoclaving, - radiation (25 kGy) or with ethylene oxide

Thermal stability max. 130°C

Sterile, individually packed membrane filters have long become standard for routine microbiological quality control because of the user benefits they offer. They are ready-to-use and save preparatory time, they avoid the possibility of contamination of remaining filters in opened packs and are TLP conform, having filter identification and lot number printed on each individual envelope.

All of the gridded membranes are made of cellulose nitrate, a material which assures excellent retention and optimum colony growth. The grid size is 3.1 x 3.1 mm. The various colours allow the selection of the type which gives the best contrast to the colonies which are to be counted.

Hydrophobic edge membranes are used mainly in the sterility testing of solutions containing antibiotics.

Order Information

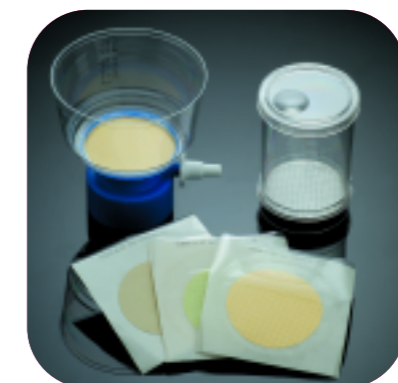
13 mm diameter	25 mm diameter	47 mm diameter
MCN800013H 8 µm, pack of 100 MCN500013H 5 µm, pack of 100 MCN300013H 3 µm, pack of 100 MCN080013H 0.8 µm, pack of 100 MCN045013H 0.45 µm, pack of 100	MCN800025H 8 µm, pack of 100 MCN500025H 5 µm, pack of 100 MCN300025H 3 µm, pack of 100 MCN120025H 1.2 µm, pack of 100 MCN080025H 0.8 µm, pack of 100 MCN065025H 0.65 µm, pack of 100 MCN045025H 0.45 µm, pack of 100	MCN800047H 8 µm, pack of 100 MCN500047H 5 µm, pack of 100 MCN300047H 3 µm, pack of 100 MCN120047H 1.2 µm, pack of 100 MCN080047H 0.8 µm, pack of 100 MCN065047H 0.65 µm, pack of 100 MCN045047H 0.45 µm, pack of 100
90 mm diameter	142 mm diameter	293 mm diameter
MCN500090T 5 µm, pack of 25 MCN120090T 1.2 µm, pack of 25 MCN080090T 0.8 µm, pack of 25 MCN045090T 0.45 µm, pack of 25	MCN500142T 5 µm, pack of 25 MCN120142T 1.2 µm, pack of 25 MCN080142T 0.8 µm, pack of 25 MCN045142H 0.45 µm, pack of 25	MCN500293T 5 µm, pack of 25 MCN120293T 1.2 µm, pack of 25 MCN080293T 0.8 µm, pack of 25 MCN045293 0.45 µm, pack of 25

Order Information

47 mm and 50 mm filters are, in some pore sizes available, sterile, individually packed, in packs of 100.

47 mm diameter

MCN800047H-S 8 µm
 MCN300047H-S 3 µm
 MCN120047H-S 1.2 µm
 MCN080047H-S 0.8 µm
 MCN065047H-S 0.65 µm
 MCN045047H-S 0.45 µm



CHM® CN Cellulose Nitrate Gridded Membrane filters

Cellulose Nitrate Gridded Membranes, sterile and individually packed, for colony counts. Sterile, individually packed membrane filters have long become standard for routine microbiological quality control because of the user benefits they offer. They are ready-to-use and save preparatory time, they avoid the possibility of contamination of remaining filters in opened packs and are GLP conform, having filter identification and lot number printed on each individual envelope.

All of the gridded membranes are made of cellulose nitrate, a material which assures excellent retention and optimum colony growth. The grid size is 3.1 x 3.1 mm. The various colours allow the selection of the type which gives the best contrast to the colonies which are to be counted.

Hydrophobic edge membranes are used mainly in the sterility testing of solutions containing antibiotics.

Order Information for sterile, individually packed membrane filters

1. Type MNW, white with black grid, for colony counts

47 mm diameter discs:

a) In packs of 100
 MNW120047H-SG 1.2 µm
 MNW080047H-SG 0.8 µm
 MNW065047H-SG 0.65 µm
 MNW045047H-SG 0.45 µm
 MNW020047H-SG 0.2 µm

b) In packs of 1000
 MNW120047M-SG 1.2 µm
 MNW080047M-SG 0.8 µm
 MNW045047M-SG 0.45 µm

50 mm diameter discs

a) In packs of 100
 MNW080050H-SG 0.8 µm
 MNW065050H-SG 0.65 µm
 MNW045050H-SG 0.45 µm
 MNW020050H-SG 0.2 µm

b) In packs of 1000
 MNW045050M-SG 0.45 µm

2. Type MNB, gray (black when wet) with white grid, for the detection of yeasts and moulds

47 mm diameter discs

a) In packs of 100
 MNB080047H-SW 0.8 µm
 MNB065047H-SW 0.65 µm
 MNB045047H-SW 0.45 µm

b) In packs of 1000
 MNB080047M-SW 0.8 µm
 MNB045047M-SW 0.45 µm

50 mm diameter discs

a) In packs of 100
 MNB080050H-SW 0.8 µm
 MNB065050H-SW 0.65 µm
 MNB045050H-SW 0.45 µm

b) In packs of 1000
 MNB065050M-SW 0.65 µm
 MNB045050M-SW 0.45 µm

Order Information for sterile, individually packed membrane filters

3. Type MNG, green with dark green grid, for colony counts

47 mm diameter discs

MNG045047H-SV 0.45 µm (pack of 100)
 MNG045047M-SV 0.45 µm (pack of 1000)

50 mm diameter discs

MNG045050H-SV 0.45 µm (pack of 100)
 MNG045050M-SV 0.45 µm (pack of 1000)

4. Type MNW, white with green grid, for E. coli and coliforms

47 mm diameter discs

a) In packs of 100:
 MNW045047H-SV 0.45 µm
b) In packs of 1000:
 MNW045047M-SV 0.45 µm

50 mm diameter discs

a) In packs of 100:
 MNW045050H-SV 0.45 µm
b) In packs of 1000:
 MNW045050M-SV 0.45 µm

5. Type MNW, white with black grid and pink-coloured hydrophobic edge, for sterility testing

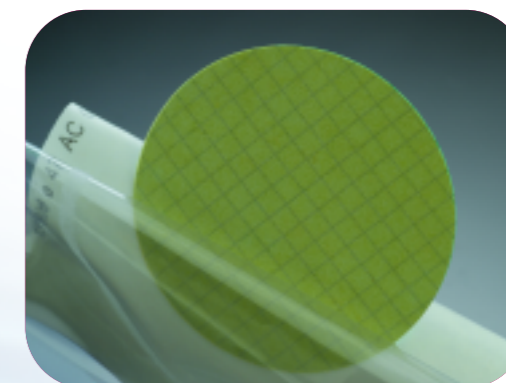
47 mm diameter discs, in packs of 100

MNW045047H-SGP3 0.45 µm
 MNW020047H-SGP3 0.2 µm

50 mm diameter discs in packs of 100

MNW045050H-SGP3 0.45 µm
 MNW020050H-SGP3 0.2 µm

With 3 mm hydrophobic edge (also available with 6mm hydrophobic edge)

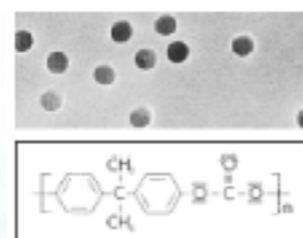


CHM® MPC Polycarbonate Membrane filters

CHM®MPC Polycarbonate Membranes are manufactured from high grade polycarbonate film using track-etch technology. They retain particles on their surfaces. Their capillary pore structure is uniform and precise, with a narrow pore size distribution.

Track-etch membranes are an excellent choice for accurate fractionation of particulates because of their precise pore size. In addition, their smooth, flat surface results in high particulate visibility.

Track-etch technology offers the user distinct performance advantages when excellent surface capture and high sample visibility are required. Applications: Particulate analysis, epifluorescence microscopy, fluid clarification, cytology, cell biology, bioassays, water microbiology, environmental analysis.



Order Information

25 mm diameter

MPC100025H 1.0 μm , pack of 100, diameter 25 mm
 MPC080025H 0.8 μm , pack of 100, diameter 25 mm
 MPC060025H 0.6 μm , pack of 100, diameter 25 mm
 MPC045025H 0.45 μm , pack of 100, diameter 25 mm
 MPC040025H 0.4 μm , pack of 100, diameter 25 mm
 MPC020025H 0.2 μm , pack of 100, diameter 25 mm
 MPC010025H 0.1 μm , pack of 100, diameter 25 mm

47 mm diameter

MPC100047H 1.0 μm , pack of 100, diameter 47 mm
 MPC080047H 0.8 μm , pack of 100, diameter 47 mm
 MPC060047H 0.6 μm , pack of 100, diameter 47 mm
 MPC045047H 0.45 μm , pack of 100, diameter 47 mm
 MPC040047H 0.4 μm , pack of 100, diameter 47 mm
 MPC020047H 0.2 μm , pack of 100, diameter 47 mm
 MPC010047H 0.1 μm , pack of 100, diameter 47 mm

Other pore sizes (3 μm , 5 μm , 8 μm)
 and diameters are available under request



Technical Specifications

Low extractables

Autoclaving, at 121°C

Thermal stability max. temperature 140°C

Bubble Point minimum value for 0.2 μm = 4.8 bar, (wetted with water) for 0.4 μm 2.5 bar

Chemical compatibility see table

Thickness 6 –11 μm

Flow rate for water 20 ml/min/cm² for 0.2 μm , 70 ml/min/cm² for 0.4 μm

Porosity <15 %

Material polycarbonate

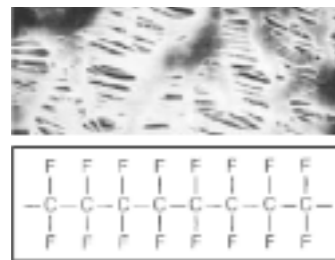
Sterilization by autoclaving

CHM® MTF PTFE Membrane - Hydrophobic

CHM® MTF - PTFE membranes.

The main application of this membrane filter type is air/gas filtration. They are made purely of PTFE (polytetrafluoroethylene), and are therefore permanently hydrophobic. Unlike other (hydrophilic) filter types, they are not wetted by air humidity, allowing unhindered passage of air at low differential pressures.

PTFE membrane filters have an excellent chemical compatibility, so they are also used for the filtration of aggressive chemicals, and acids, to which other filter types are not resistant. Due to their hydrophobic characteristics, they must be pre-wetted with ethanol or methanol before the filtration of aqueous media.



Order Information

13 mm diameter	50 mm diameter
MTF120013H 1.2 µm, pack of 100 MTF045013H 0.45 µm, pack of 100 MTF020013H 0.2 µm, pack of 100	MTF500050H 5 µm, pack of 100 MTF120050H 1.2 µm, pack of 100 MTF045050H 0.45 µm, pack of 100 MTF020050H 0.2 µm, pack of 100
25 mm diameter	142 mm diameter
MTF500025H 5 µm, pack of 100 MTF120025H 1.2 µm, pack of 100 MTF045025H 0.45 µm, pack of 100 MTF020025H 0.2 µm, pack of 100	MTF500142T 5 µm, pack of 25 MTF120142T 1.2 µm, pack of 25 MTF045142T 0.45 µm, pack of 25 MTF020142T 0.2 µm, pack of 25
47 mm diameter	293 mm diameter
MTF500047H 5 µm, pack of 100 MTF120047H 1.2 µm, pack of 100 MTF045047H 0.45 µm, pack of 100 MTF020047H 0.2 µm, pack of 100	MTF045293T 0.45 µm, pack of 25 MTF020293T 0.2 µm, pack of 25
Other pore sizes and diameters are available under request	

Technical Specifications

Adsorption 8 µg/cm² for gamma-globulin (0.2 µm pore size)

Extractables with water none detectable

Autoclaving at 121°C or 134°C

Bubble Point minimum value for 0.2 µm = 1.2 bar (120 kPa), (wetted with isopropanol) for 0.45 µm = 0.8 bar (80 kPa). Average value for 1.2 µm = 0.45 bar (45 kPa), for 5 µm = 0.1 bar (10 kPa)

Chemical compatibility resistant to almost all chemicals

Thickness average values, 65 µm for 0.2 µm and 100 µm for 5 µm pore size

Flow rate for air average values per cm² area at Δp = 0.05 bar (5 kPa): 0.2 l/min for 0.2 µm, 0.3 l/min for 0.45 µm, 1.6 l/min for 1.2 µm and 4 l/min for 5 µm pore size

Material Polytetrafluoroethylene

Sterilization capacity filters with 0.2 µm pore size are validated with the Bacteria Challenge Test.

Sterilization by autoclaving or with ethylene oxide

CHM® MNY Nylon Membrane filters

Nylon membranes, type CHM®MNY.

These solvent-resistant, hydrophilic membrane filters are excellently suited for their major application, particle removal from solvents.

CHM® nylon membrane filters are membranes of hydrophilic nature, chemically resistant to most bases, making them particularly indicated for clarification and sterilization of alkaline solutions.

This type of membranes is compatible with most aqueous samples and some organic solvents, being a good alternative for clarification of the mobile phases for HPLC.

These membranes have high non-specific adsorption, which makes them very useful in blotting techniques, mainly for transfer and immobilization of nucleic acids.

They are not recommended for use sterilizing cellular solutions, for which application it is advisable to use the CHM®MCA cellulose acetate membranes.

Order Information

13 mm diameter
MNY045013H 0.45 µm, pack of 100 MNY020013H 0.2 µm, pack of 100
25 mm diameter
MNY045025H 0.45 µm, pack of 100 MNY020025H 0.2 µm, pack of 100
47 mm diameter
MNY045047H 0.45 µm, pack of 100 MNY020047H 0.2 µm, pack of 100
90 mm diameter
MNY045090T 0.45 µm, pack of 25 MNY020090T 0.2 µm, pack of 25
142 mm diameter
MNY045142T 0.45 µm, pack of 25 MNY020142T 0.2 µm, pack of 25
293 mm diameter
MNY045293T 0.45 µm, pack of 25 MNY020293T 0.2 µm, pack of 25

Technical Specifications

Flow rate value for 0.2 µm = 23ml/min, for 0.45 µm 46ml/min

Thermal stability max. temperature 140°C

Bubble Point minimum value for 0.2 µm = 3.4 bar, (wetted with water) for 0.45 µm 2.2 bar

Chemical compatibility see table

Thickness 125 µm

Material nylon

Chemical compatibility

Filter materials						
SOLVENTS	CA	CN	RC	TF	GF	PC
Acetone	—	—	□	□	□	?
Acetonitrile	?	?	□	□	?	?
Gasoline	□	□	□	□	□	□
Benzene	□	□	□	□	□	?
Benzyl alcohol	X	X	□	□	□	?
n-Butyl acetate	X	—	□	□	□	□
n-Butanol	□	□	□	□	□	□
Cellosolve	□	—	□	□	□	—
Chloroform	—	□	□	□	□	—
Cyclohexane	X	X	□	□	□	□
Cyclohexanone	—	—	□	□	□	□
Diethylacetamide	—	—	□	□	□	?
Diethyl ether	□	—	□	□	□	□
Dimethyl formamide	—	—	X	□	X	—
Dimethylsulfoxide	—	—	□	□	□	—
Dioxane	—	—	□	□	□	—
Ethanol, 98%	□	X	□	□	□	□
Ethyl acetate	—	—	□	□	□	?
Ethylene glycol	□	X	□	□	□	□
Formamide	?	?	?	□	□	—
Glycerin	□	□	□	□	□	□
n-Heptane	□	□	□	□	□	?
n-Hexane	□	□	□	□	□	□
Isobutanol	X	X	□	□	□	□
Isopropanol	□	X	□	□	□	□
Isopropyl acetate	X	—	□	□	□	?
Methanol, 98%	□	—	□	□	□	□
Methyl acetate	—	—	□	□	□	?
Methylene chloride	—	X	□	□	□	—
Methyl ethyl ketone	—	—	□	□	□	?
Methyl isobutyl ketone	□	—	□	□	□	?
Monochlorobenzene	□	□	□	□	□	—
Nitrobenzene	□	X	□	□	□	—
n-Pentane	□	□	□	□	□	□
Perchloroethylene	□	□	□	□	□	□
Pyridine	—	—	□	□	□	—
Carbon tetrachloride	X	□	□	□	□	?
Tetrahydrofuran	—	—	□	□	□	—
Toluol	□	□	□	□	□	?

Chemical compatibility

Filter materials						
SOLVENTS	CA	CN	RC	TF	GF	PC
Trichlorethane	X	□	□	□	□	?
Trichlorethylene	□	□	□	□	□	—
Xylene	□	□	□	□	□	□
ACIDS	CA	CN	RC	TF	GF	PC
Acetic acid, 25%	□	□	□	□	?	?
Acetic acid, 96%	—	—	□	□	?	?
Hydrofluoric acid, 25%	—	X	X	□	?	?
Hydrofluoric acid, 50%	—	—	—	□	?	?
Perchloric acid, 25%	—	X	X	□	?	?
Phosphoric acid, 25%	□	X	X	□	?	?
Phosphoric acid, 85%	X	X	X	□	?	?
Nitric acid, 25%	—	X	—	□	?	?
Nitric acid, 65%	—	—	—	□	?	?
Hydrochloric acid, 25%	—	X	—	□	?	?
Hydrochloric acid, 37%	—	—	—	□	?	?
Sulfuric acid, 25%	—	X	X	□	□	□
Sulfuric acid, 98%	—	—	—	□	?	?
Trichloroacetic acid, 25%	—	X	□	□	?	?
BASES	CA	CN	RC	TF	GF	PC
Ammonium, 1N	□	□	X	□	□	□
Ammonium hydroxide, 25%	—	X	—	X	□	X
Potassium hydroxide, 32%	—	—	X	□	□	X
Sodium hydroxide, 32%	—	—	X	□	□	X
Sodium, 1N	X	—	X	□	□	□
AQUEOUS SOLUTIONS	CA	CN	RC	TF	GF	PC
Formalin, 30%	X	□	X	□	□	□
Sodium hypochlorite, 5%	□	X	□	□	□	?
Hydrogen peroxide, 35%	□	□	X	□	?	?

Key to symbols

- = compatible
- X = limited compatibility
- = not compatible
- ? = not tested

Contact time: 24 hours at 20ÄäC
Chemical compatibilities can be influenced by various factors.
Therefore, we recommend that you confirm compatibility with the liquid you wish to filter by performing a trial filtration run before you begin with actual filtration.