Syringe filters CHROMAFIL®

Sample Clarification

Syringe filters are used for filtration of suspended matter from liquid samples or gases. With CHROMAFIL®, rapid purification and removal of particles is very simple: just place the filter on the syringe, and you are ready for filtration. Special manipulations are not required. Contamination of sensitive instrumentation by solid impurities can be avoided, thus increasing lifetime of chromatographic columns and equipment.

Advantages:

Polypropylene housing

The housing provides a considerably better solvent stability compared to acrylate and polystyrene filters, featuring a low content of extractable substances.

Lowest content of extractable substances

The the housing of every CHROMAFIL® filter is **ultrasonically sealed (welded), not glued,** because glue may have extractable ingredients. Welding leads to a tight connection between both parts, thus the filter can be used in both directions. No fluid can bypass the membrane. The special **thick rim** of the housing is ideal for use in laboratory robots (e. g. SOTAX®, Benchmate™).

Luer lock on the side of entry

For a safe connection on the high-pressure side every filter provides a luer lock on the side of entry.

Luer exit

For 25 and 3 mm filters: standard luer exit
For 15 mm filters: minispike · This luer configuration offers a low hold-up volume and easy filtration into autosampler vials and NMR tubes.

Filter inlet and filter exit can be fitted to all CHROMABOND® columns and accessories for selective sample preparation with the aid of a special adaptor.

No rupture of membrane due to the impact plate

The input solvent stream is broken and distributed by the impact plate, and does not directly hit the membrane: this prevents rupture of the membrane. The high pressure stream is diverted into four lanes.

Optimum flow geometry because of the star-shaped distribution device

The stream of liquid is broken into 4 lanes by the impact plate and then further distributed to 8 slots in the form of a star connected with 5 or 8 circular channels (for 15 mm and 25 mm filters, respectively). Thus, the fluid is able to penetrate the membrane on the whole surface, not only on a small region; the filter is not plugged up rapidly, which results in a high flow efficiency.

Colour coded filters

Filters with 0.2 µm pores have a yellow upper shell, that of filters with 0.45 µm pores is colourless; the different membrane types are distinguished by different colours of the lower shell.

Different pore sizes for versatile filtration applications

Standard **pore sizes** 0.2 and 0.45 µm (additionally: PET filters with 1.2 µm, glass fibre filters with 1 µm, PES filters with 5 µm). Filters with 0.45 µm pore size efficiently remove fine particles that can plug chromatography columns. Filters with 0.2 µm pore size are excellent for filtration of UHPLC samples or other techniques requiring high purity samples.

Filter sizes

25, 15 and 3 mm diameter: the small diameter filters are especially recommended for very small samples, which require extremely low dead volumes: 5 µl for 3 mm ∅, 35 µl for 15 mm ∅, 80 µl for 25 mm ∅

Recommended filter size depending on sample volume

sample volume	recommended filter diameter
≤ 1 ml	3 mm
1 – 5 ml	15 mm
5 – 100 ml	25 mm

Filters can be **autoclaved** at **121 °C / 1.1 bar** for 30 min.

All 25 mm CHROMAFIL® filters are designed to be 100% compatible and reliale for use with the SOTAX® AT70 smart fully automated dissolution testing systems.

Syringe filters CHROMAFIL®

Depending on your filtration task you can choose filter membranes made from different materials:

Material	Page
Combi Filters with glass fibre prefilters	
Polyester (GF/PET)	68
Regenerated cellulose (GF/RC)	68
Polyvinylidene difluoride (GF/PVDF)	68
Syringe filters without prefilters	
Polyester (PET)	69
Regenerated cellulose (RC)	69
Polytetrafluoroethylene (PTFE)	70
Cellulose mixed esters (MV)	70
Cellulose acetate (CA) · sterile and non-sterile	71
Polyamide / Nylon (PA)	71
Polyethersulfone (PES) · sterile and non-sterile	72
Polyvinylidene difluoride (PVDF)	72
Glass fibre (GF)	73

CHROMAFIL® BIG-BOXES

- 400 (25 mm) or 800 (15 mm) colour-coded quality syringe filters · 400 labelled Xtra syringe filters
- food safe PE box with screw cap
- economical prices

CHROMAFIL® Xtra

labelled for method validation and certification

Xtra: imprint for direct identification of the membrane type, diameter and pore size

Xtra: low bleeding PP housing

Xtra: colour-free plain polypropylene

CHROMAFIL® Combi Filters

Combi syringe filters with a coarse glass fibre prefilter and a small-pore membrane as main filter

User benefits:

- for solutions with a high load of particulate matter: lower back pressure, easy filtration
- for high yields of filtrate: more ml of pure filtrate per filter

The technology:

The glass fibre membrane (1.0 µm) removes coarse particles, before they can block the fine main membrane. This results in a better filtration efficiency, especially for highly contaminated samples.

Housing:	solvent-resistant, ultra low bleed polypropylene
Entry:	Luer lock
Exit:	Luer
Pore diameter:	1.0 / 0.20 µm or 1.0 / 0.45 µm
Filter diameter:	25 mm
Void volume:	< 80 µl
Packing unit:	100 filters / BigBoxes with 400 filters

Sample Clarification

CHROMAFIL® Combi filters

Polyester with glass fibre prefilter (GF/PET)

- hydrophilic multipurpose membrane
- for polar as well as nonpolar solvents
  the HPLC filter, especially suited for mixtures of water and organic solvents
- recommended for solutions with a high load of particulate matter or for highly viscous solutions

Ordering information

Type	Pore size [µm]	Membrane diameter [mm]	Colour code top	Colour code bottom	Standard pack filters/pack	Standard pack REF	BIG-BOX filters/pack	BIG-BOX REF
GF/PET-20/25	1.0/0.20	25	blue	orange	100	**729032**	400	**729032.400**
GF/PET-45/25	1.0/0.45	25	black	orange	100	**729033**	400	**729033.400**

Regenerated cellulose with glass fibre prefilter (GF/RC)

- hydrophilic membrane
- for aqueous and organic/aqueous liquids, i.e. polar and medium polar sample solutions
- recommended for solutions with a high load of particulate matter or for highly viscous aqueous solutions

NEW!

Ordering information

Type	Pore size [µm]	Membrane diameter [mm]	Colour code top	Colour code bottom	Standard pack filters/pack	Standard pack REF	BIG-BOX filters/pack	BIG-BOX REF
GF/RC-20/25	1.0/0.20	25	blue	blue	100	**729050**	400	**729050.400**
GF/RC-45/25	1.0/0.45	25	black	blue	100	**729051**	400	**729051.400**

Polyvinylidene difluoride with glass fibre prefilter (GF/PVDF)

- hydrophilic membrane
- recommended for filtration of biological samples with high particle loads. This filter features a high binding capacity for proteins.
- also suited for filtration of polar and nonpolar solutions

Ordering information

Type	Pore size [µm]	Membrane diameter [mm]	Colour code top	Colour code bottom	Standard pack filters/pack	Standard pack REF	BIG-BOX filters/pack	BIG-BOX REF
GF/P-45/25	1.0/0.45	25	black	white	100	**729039**	400	**729039.400**

Polyester (PET)

- hydrophilic multipurpose membrane
- for polar as well as nonpolar solvents

the HPLC filter, especially suited for mixtures of water and organic solvents

for TOC/DOC determination

not cytotoxic, does not inhibit the growth of microorganisms and higher cells

Ordering information · CHROMAFIL® Xtra

Type	Pore size [µm]	Membrane diameter [mm]	Colourless top	Colourless bottom	Standard pack filters/pack	Standard pack REF	BIG-BOX filters/pack	BIG-BOX REF
PET-20/25	0.20	25	labelled	-	100	**729221**	400	**729221.400**
PET-45/25	0.45	25	labelled	-	100	**729220**	400	**729220.400**
PET-120/25	1.2	25	labelled	-	100	**729229**	400	**729229.400**

Ordering information · CHROMAFIL®

Type	Pore size [µm]	Membrane diameter [mm]	Colour code top	Colour code bottom	Standard pack filters/pack	Standard pack REF	BIG-BOX filters/pack	BIG-BOX REF
PET-20/15 MS	0.20	15	yellow	orange	100	**729022**	800	**729022.800**
PET-45/15 MS	0.45	15	colourless	orange	100	**729023**	800	**729023.800**
PET-20/25	0.20	25	yellow	orange	100	**729021**	400	**729021.400**
PET-45/25	0.45	25	colourless	orange	100	**729020**	400	**729020.400**

MS = minispike on filter exit

Regenerated cellulose (RC)

- hydrophilic membrane with very low adsorption
- for aqueous and organic/aqueous liquids, i.e. polar and medium polar sample solutions
- binding capacity for proteins 84 µg/filter

Ordering information · CHROMAFIL® Xtra

Type	Pore size [µm]	Membrane diameter [mm]	Colourless top	Colourless bottom	Standard pack filters/pack	Standard pack REF	BIG-BOX filters/pack	BIG-BOX REF
RC-20/25	0.20	25	labelled	-	100	**729230**	400	**729230.400**
RC-45/25	0.45	25	labelled	-	100	**729231**	400	**729231.400**

Ordering information · CHROMAFIL®

Type	Pore size [µm]	Membrane diameter [mm]	Colour code top	Colour code bottom	Standard pack filters/pack	Standard pack REF	BIG-BOX filters/pack	BIG-BOX REF
RC-20/15 MS	0.20	15	yellow	blue	100	**729036**	800	**729036.800**
RC-45/15 MS	0.45	15	colourless	blue	100	**729037**	800	**729037.800**
RC-20/25	0.20	25	yellow	blue	100	**729030**	400	**729030.400**
RC-45/25	0.45	25	colourless	blue	100	**729031**	400	**729031.400**

MS = minispike on filter exit

Syringe filters CHROMAFIL®

Polytetrafluoroethylene (PTFE)

- hydrophobic membrane
- for nonpolar liquids and gases
- very resistant towards all kinds of solvents as well as acids and bases

  flushing with alcohol, followed by water, makes the originally hydrophobic membrane more hydrophilic

Ordering information · CHROMAFIL® Xtra

Type	Pore size [µm]	Membrane diameter [mm]	Colourless top	Colourless bottom	Standard pack filters/pack	Standard pack REF	BIG-BOX filters/pack	BIG-BOX REF
PTFE-20/25	0.20	25	labelled	-	100	**729207**	400	**729207.400**
PTFE-45/25	0.45	25	labelled	-	100	**729205**	400	**729205.400**

Ordering information · CHROMAFIL®

Type	Pore size [µm]	Membrane diameter [mm]	Colour code top	Colour code bottom	Standard pack filters/pack	Standard pack REF	BIG-BOX filters/pack	BIG-BOX REF
O-20/3	0.20	3	colourless	colourless	100	**729014**		
O-45/3	0.45	3	colourless	colourless	100	**729015**		
O-20/15 MS	0.20	15	yellow	colourless	100	**729008**	800	**729008.800**
O-45/15 MS	0.45	15	colourless	colourless	100	**729009**	800	**729009.800**
O-20/25	0.20	25	yellow	colourless	100	**729007**	400	**729007.400**

MS = minispike on filter exit

Cellulose mixed esters (MV)

- hydrophilic membrane with very low adsorption
- for aqueous or polar solutions

Ordering information · CHROMAFIL® Xtra

Type	Pore size [µm]	Membrane diameter [mm]	Colourless top	Colourless bottom	Standard pack filters/pack	Standard pack REF	BIG-BOX filters/pack	BIG-BOX REF
MV-20/25	0.20	25	labelled	-	100	**729206**	400	**729206.400**
MV-45/25	0.45	25	labelled	-	100	**729204**	400	**729204.400**

Ordering information · CHROMAFIL®

Type	Pore size [µm]	Membrane diameter [mm]	Colour code top	Colour code bottom	Standard pack filters/pack	Standard pack REF	BIG-BOX filters/pack	BIG-BOX REF
A-20/25	0.20	25	yellow	yellow	100	**729006**	400	**729006.400**
A-45/25	0.45	25	colourless	yellow	100	**729004**	400	**729004.400**

Sample Clarification

Cellulose acetate (CA)

- hydrophilic membrane
- for filtration of water-soluble oligomers and polymers, especially suited for biological macromolecules
- very high shape stability in aqueous solutions
- extremely low binding capacity for proteins (21 µg/filter)

- also available in a sterile package (S) for filtration under sterile conditions (each filter individually sealed)

Ordering information · CHROMAFIL® Xtra

Type	Pore size [µm]	Membrane diameter [mm]	Colourless top	Colourless bottom	Standard pack filters/pack	Standard pack REF	BIG-BOX filters/pack	BIG-BOX REF
CA-20/25	0.20	25	labelled	-	100	**729226**	400	**729226.400**
CA-45/25	0.45	25	labelled	-	100	**729227**	400	**729227.400**

Ordering information · CHROMAFIL®

Type	Pore size [µm]	Membrane diameter [mm]	Colour code top	Colour code bottom	Standard pack filters/pack	Standard pack REF	BIG-BOX filters/pack	BIG-BOX REF
CA-20/25	0.20	25	yellow	red	100	**729026**	400	**729026.400**
CA-45/25	0.45	25	colourless	red	100	**729027**	400	**729027.400**
Sterile filters								
CA-20/25 S	0.20	25	yellow	red	50	**729024**		
CA-45/25 S	0.45	25	colourless	red	50	**729025**		

Polyamide (PA) = Nylon

- rather hydrophilic membrane
- for aqueous and organic/aqueous medium polar liquids

Ordering information · CHROMAFIL® Xtra

Type	Pore size [µm]	Membrane diameter [mm]	Colourless top	Colourless bottom	Standard pack filters/pack	Standard pack REF	BIG-BOX filters/pack	BIG-BOX REF
PA-20/25	0.20	25	labelled	-	100	**729212**	400	**729212.400**
PA-45/25	0.45	25	labelled	-	100	**729213**	400	**729213.400**

Ordering information · CHROMAFIL®

Type	Pore size [µm]	Membrane diameter [mm]	Colour code top	Colour code bottom	Standard pack filters/pack	Standard pack REF	BIG-BOX filters/pack	BIG-BOX REF
AO-20/3	0.20	3	light beige	light beige	100	**729010**		
AO-45/3	0.45	3	light beige	light beige	100	**729011**		
AO-20/25	0.20	25	yellow	green	100	**729012**	400	**729012.400**
AO-45/25	0.45	25	colourless	green	100	**729013**	400	**729013.400**

Syringe filters CHROMAFIL®

Polyethersulfone (PES)

- hydrophilic membrane
- for aqueous liquids and aqueous liquids with low organic contents
- very low adsorption for pharmaceuticals and proteins
- good stability against acids and bases
- for sterile filtration of non-sterile solutions we recommend the CHROMAFIL® Sterilizer PES (each filter individually sealed)
- binding capacity for proteins 29 µg/filter

Ordering information · CHROMAFIL® Xtra

Type	Pore size [µm]	Membrane diameter [mm]	Colourless top	Colourless bottom	Standard pack filters/pack	Standard pack REF	BIG-BOX filters/pack	BIG-BOX REF
PES-20/25	0.20	25	labelled	-	100	**729240**	400	**729240.400**
PES-45/25	0.45	25	labelled	-	100	**729241**	400	**729241.400**
PES-500/25	5.0	25	labelled	-	100	**729242**	400	**729242.400**

Ordering information · CHROMAFIL®

Type	Pore size [µm]	Membrane diameter [mm]	Colour code top	Colour code bottom	Standard pack filters/pack	Standard pack REF	BIG-BOX filters/pack	BIG-BOX REF
PES-20/25	0.20	25	yellow	amber	100	**729040**	400	**729040.400**
Sterile filters for sterilisation								
Sterilizer PES	0.20	25	blue rim		50	**729401**		

Polyvinylidene difluoride (PVDF)

- hydrophilic membrane
- for polar and nonpolar solutions, water-soluble oligomers and polymers like proteins
- binding capacity for proteins 82 µg/filter

Ordering information · CHROMAFIL® Xtra

Type	Pore size [µm]	Membrane diameter [mm]	Colourless top	Colourless bottom	Standard pack filters/pack	Standard pack REF	BIG-BOX filters/pack	BIG-BOX REF
PVDF-20/25	0.20	25	labelled	-	100	**729218**	400	**729218.400**
PVDF-45/25	0.45	25	labelled	-	100	**729219**	400	**729219.400**

Ordering information · CHROMAFIL®

Type	Pore size [µm]	Membrane diameter [mm]	Colour code top	Colour code bottom	Standard pack filters/pack	Standard pack REF
PVDF-20/15 MS	0.20	15	yellow	white	100	**729043**
PVDF-45/15 MS	0.45	15	colourless	white	100	**729044**

MS = minispike on filter exit

NEW!

Glass fibre (GF)

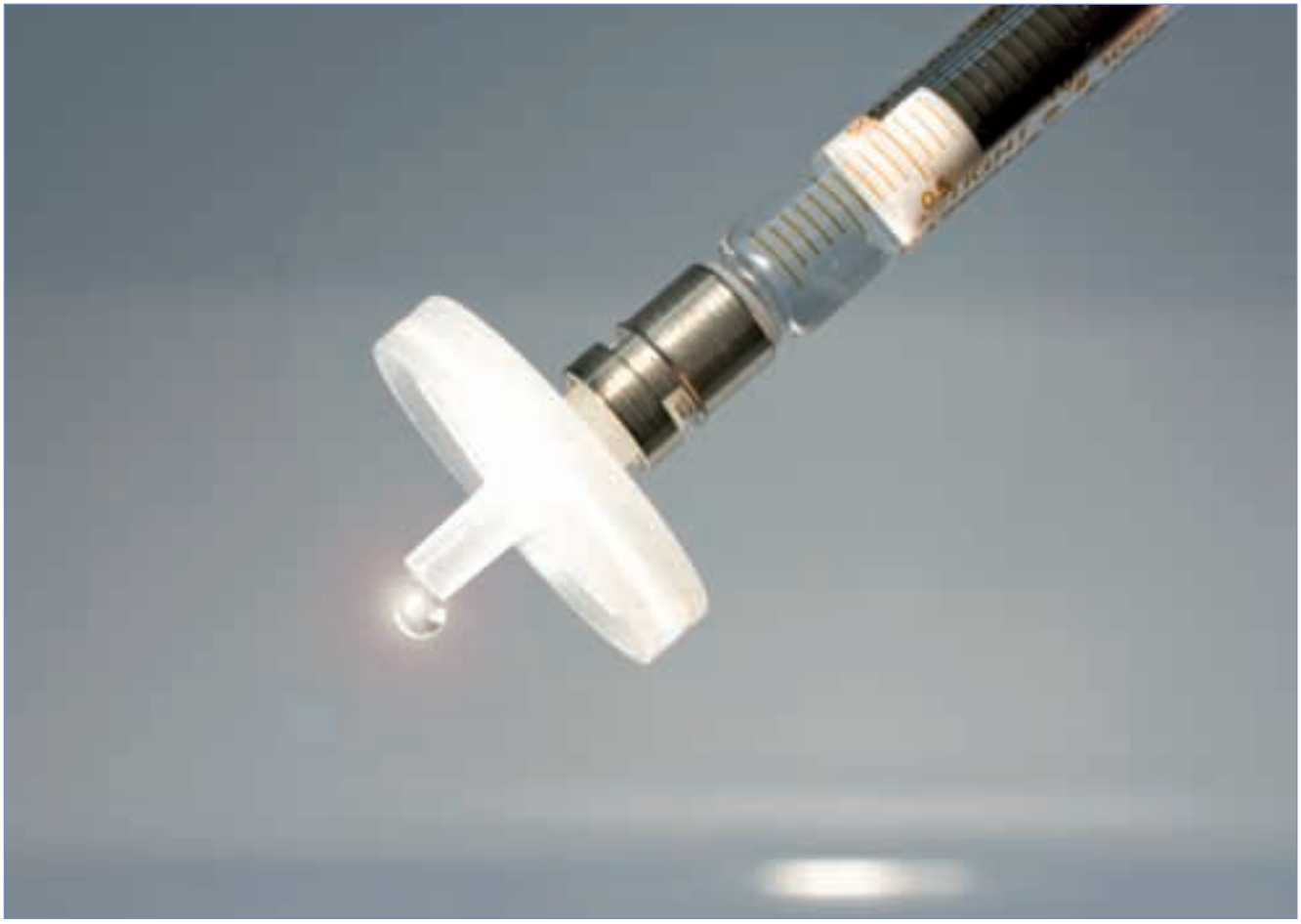
- inert filter, nominal pore size 1 µm, allows higher flow rates than small pore filters
- for solutions with high loads of particulate matter or for highly viscous solutions (e.g. soil samples, fermentation broths)
- as prefilters for other CHROMAFIL® filters, they prevent plugging of the membrane

Ordering information · CHROMAFIL® Xtra

Type	Pore size [µm]	Membrane diameter [mm]	Colourless top	Colourless bottom	Standard pack filters/pack	Standard pack REF	BIG-BOX filters/pack	BIG-BOX REF
GF-100/25	nom. 1.0	25	labelled	-	100	**729228**	400	**729228.400**

Ordering information · CHROMAFIL®

Type	Pore size [µm]	Membrane diameter [mm]	Colour code top	Colour code bottom	Standard pack filters/pack	Standard pack REF	BIG-BOX filters/pack	BIG-BOX REF
GF-100/15 MS	nom. 1.0	15	blue	colourless	100	**729034**		
GF-100/25	nom. 1.0	25	yellow	black	100	**729028**	400	**729028.400**
MS = minispike on filter exit								



Syringe filters CHROMAFIL®

Chemical compatibility of filter materials

The following table lists the chemical compatibility of our CHROMAFIL® materials. The chemical compatibility depends on several parameters such as time, pressure, temperature and concentration. In most cases, CHROMAFIL® filters will have only short contact with a solvent. In these cases they may be used despite of limited compatibility.

For example, a PTFE filter with PP housing does not liberate any UV-detectable substances during filtration of 5 ml THF, although PP shows only limited resistance towards THF.

Solvent	Material									
	MV	CA	RC	PA	PTFE	PVDF	PES	PET	GF	PP
Acetaldehyde	⊖	⊖	⊕	○	⊕	⊕		⊕	⊕	○
Acetic acid, 100 %	⊖	⊖	⊖	⊖	⊕	⊕	⊕	⊕	⊕	⊕
Acetone	⊖	⊖	⊕	⊕	⊕	⊖	⊖	⊕	⊕	⊕
Acetonitrile	⊖	⊖	⊕	⊕	⊕	⊕	⊕	⊕	⊕	⊕
Ammonia, 25 %	⊖	⊖	○	⊖	⊕	⊕	⊕	○	⊕	⊕
Benzene	⊕	⊕	⊕	⊕	⊕	○		⊕	⊕	○
n-Butanol	⊕	⊕	⊕	○	⊕	⊕	⊕	⊕	⊕	⊕
Cyclohexane	⊕	⊕	⊕	○	⊕	⊕	⊕	⊕	⊕	⊕
Dichloromethane	⊕	⊖	⊕	⊖	⊕	⊕	⊖	⊕	⊕	⊖
Diethyl ether	○	○	⊕	⊕	⊕	⊕	⊕	⊕	⊕	○
Dimethylformamide	⊖	⊖	○	⊕	⊕	⊖	⊖	⊕	⊕	⊕
1,4-Dioxane	⊖	⊖	⊕	⊕	⊕	○	⊖	⊕	⊕	○
Ethanol	⊖	⊕	⊕	⊕	⊕	⊕	⊕	⊕	⊕	⊕
Ethyl acetate	⊖	⊖	⊕	⊕	⊕	⊕	⊕	⊕	⊕	○
Ethylene glycol	○	○	⊕	⊕	⊕	⊕	⊕	⊕	⊕	⊕
Formic acid, 100 %	⊕	⊖	○	⊖	⊕	⊕	⊕	○	⊕	⊕
Hydrochloric acid, 30 %	⊖	⊖	⊖	⊖	⊕	⊕	⊕	⊖	⊕	⊕
Methanol	⊖	⊖	⊕	⊕	⊕	⊕	⊕	⊕	⊕	⊕
Nitric acid, 65 %	⊖	⊖	⊖	⊖	○	○		○	⊕	⊖
Oxalic acid, 10 % aqueous	⊕	⊖	⊕	⊖	⊕	⊕		⊕	⊕	⊕
Petroleum ether	⊕	⊕	⊕	⊕	⊕	⊕	⊕	⊕	⊕	⊕
Phosphoric acid, 80 %	⊖	⊖	○	⊖	⊕	○		⊕	⊕	⊕
Potassium hydroxide, 1 mol/l	⊖	⊖	○	⊕	⊕	○	⊕	○	⊕	⊕
2-Propanol	⊕	⊕	⊕	⊕	⊕	⊕	⊕	⊕	⊕	⊕
Sodium hydroxide, 1 mol/l	⊖	⊖	○	⊕	⊕	○	○	○	○	⊕
Tetrachloromethane	⊕	⊖	⊕	⊕	⊕	○		⊕	⊕	○
Tetrahydrofuran	⊖	⊖	⊕	○	⊕	⊕	⊖	⊕	⊕	○
Toluene	⊕	⊖	⊕	⊕	⊕	⊕	⊕	⊕	⊕	○
Trichloroethene	⊕	⊕	⊕	○	⊕	⊕		⊕	⊕	○
Trichloromethane	⊕	⊖	⊕	⊖	⊕	⊕	⊖	⊕	⊕	⊖
Urea	⊕	⊕	⊕	⊕	⊕	⊕		⊕	⊕	⊕
Water	⊕	⊕	⊕	⊕	⊕	⊕	⊕	⊕	⊕	⊕
Xylene	⊕	⊕	⊕	⊕	⊕	○		⊕	⊕	○

Data not guaranteed.

⊕ resistant, ⊖ not resistant, ○ limited resistance

MV = cellulose mixed esters, CA = cellulose acetate, RC = regenerated cellulose, PA = polyamide, PTFE = polytetrafluoroethylene, PVDF = polyvinylidene difluoride, PES = polyethersulfone, PET = polyester, GF = glass fibre, PP = polypropylene (housing material)

CHROMABOND® MULTI 96 filter plates

- 96-well polypropylene plates for simultaneous filtration of 96 samples
- advantages of this high-throughput system are:
  - economical by saving time and solvent
  - use of multi-channel pipettors facilitates liquid transfer steps
  - readily adaptable to all common automated / robotic handling systems
  - minimised dead volume (≤ 40 µl)
- membrane materials correspond to the respective CHROMAFIL® filters

Ordering information

Description	Pack of	REF
Filter plates with cellulose mixed ester filter elements (0.20 µm)	1	**738770.M**
Filter plates with cellulose mixed ester filter elements (0.45 µm)	1	**738771.M**
Filter plates with cellulose mixed ester filter elements (3.0 µm)	1	**738772.M**
Filter plates with RC filter elements (regenerated cellulose, 0.2 µm)	1	**738656.M**
Filter plates with RC filter elements (regenerated cellulose, 0.45 µm)	1	**738657.M**
Filter plates with PTFE filter elements (0.2 µm)	1	**738660.M**
Filter plates with PTFE filter elements (0.45 µm)	1	**738661.M**
Filter plates with PTFE filter elements (1.0 µm)	1	**738662.M**
Filter plates with PTFE filter elements (3.0 µm)	1	**738663.M**
Filter plates with PE filter elements (20 µm)	1	**738655.M**
Filter plates with PE filter elements (50 µm)	1	**738659.M**
Filter plates with glass fibre filter elements (nominal 1 µm)	1	**738655.2M**
Filter plates with glass fibre filter elements (nominal 3 µm)	1	**738658.M**
CHROMABOND® MULTI 96 vacuum manifold for monoblocks, with reservoir tank, vacuum gauge, and control valve, required for filtration with 96-well filter plates	1	**738630.M**

Disposable syringes with luer tip (body and piston made from polypropylene)

Sample volume	Pack of	REF
2 ml	100	**729100**
5 ml	100	**729101**
10 ml	100	**729102**