



Syringe filters CHROMAFIL®

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**
 considerably better solvent stability compared to acrylate and polystyrene filters, low content of extractable substances
- ◆ **Housing ultrasonically sealed, not glued**
 no extractable components from glues
- ◆ The special **thick rim** of the housing is ideal for use of the filters in laboratory robots (e.g. Benchmate™).
- ◆ **Filtration in both directions** possible, the liquid cannot bypass the membrane
- ◆ **Luer lock on side of entry**
 safe connection on the "high pressure" side
- ◆ **Luer exit**
 standard luer for 3 and 25 mm filters, minispikes luer with low dead volume and small OD for 15 mm filters. Filter inlet and filter exit can be fitted to the CHROMABOND® columns for selective sample preparation with the aid of a special adaptor.
- ◆ **Deflector**
 the stream of liquid is broken and distributed, and does not directly hit the membrane: this prevents rupture of the membrane
- ◆ **Star-shaped distribution device**
 the liquid is evenly distributed to the whole membrane surface: this results in a better utilisation of the total area; the filter is not plugged up rapidly; 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
- ◆ Available **pore sizes** 0.2 and 0.45 µm (exceptions: PET filters with 1.2 µm, glass fibre filters with 1 µm, PES filters with 5 µm)
- ◆ **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: 80 µl for 25 mm Ø, 12 µl for 15 mm Ø, 5 µl for 3 mm Ø
- ◆ All filters can be **autoclaved** at 121 °C and 1.1 bar for 30 min.



CHROMAFIL® BIG-BOXES

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

Recommended filter size depending on sample volume

sample volume	recommended filter diameter
≤ 1 ml	3 mm
1 - 10 ml	15 mm
10 - 100 ml	25 mm

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

Material	Page
Polyester (PET) with or without glass fibre prefilter	57
Regenerated cellulose (RC)	58
Teflon® (PTFE)	58
Cellulose mixed esters (MV)	59
Cellulose acetate (CA) · sterile and non-sterile	59
Polyamide / Nylon (PA)	60
Polyethersulfone (PES) · sterile and non-sterile	60
Polyvinylidene difluoride (PVDF) with or without glass fibre prefilter	61
Glass fibre (GF)	61



CHROMAFIL® Xtra

NEW!

labelled for method validation and certification

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

Xtra: new, low bleeding PP housing

Xtra: colour-free plain polypropylene



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
- ◆ polyester filter with integrated glass fibre prefilter (GF/PET): recommended for solutions with a high load of particulate matter or for highly viscous solutions



PET



GF/PET

Ordering information - CHROMAFIL®

Type	Pore size [µm]	Membrane diameter [mm]	Colour code		Standard pack		BIG-BOX	
			top	bottom	filters/pack	Cat. No.	filters/pack	Cat. No.
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
PET-120/25	1.2	25	colourless	black	100	729029	400	729029.400
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

MS = minispikes on filter exit

Ordering information - CHROMAFIL® Xtra

NEW!

(starting autumn 2007)

Type	Pore size [µm]	Membrane diameter [mm]	Colourless		Standard pack		BIG-BOX	
			top	bottom	filters/pack	Cat. No.	filters/pack	Cat. No.
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



Syringe filters CHROMAFIL®

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®

Type	Pore size [µm]	Membrane diameter [mm]	Colour code		Standard pack		BIG-BOX	
			top	bottom	filters/pack	Cat. No.	filters/pack	Cat. No.
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 = minispikes on filter exit

Sample Clarification

Ordering information - CHROMAFIL® Xtra **NEW!** (starting autumn 2007)

Type	Pore size [µm]	Membrane diameter [mm]	Colourless		Standard pack		BIG-BOX	
			top	bottom	filters/pack	Cat. No.	filters/pack	Cat. No.
RC-20/25	0.20	25	labelled	-	100	729230	400	729230.400
RC-45/25	0.45	25	labelled	-	100	729231	400	729231.400

Teflon® (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®

Type	Pore size [µm]	Membrane diameter [mm]	Colour code		Standard pack		BIG-BOX	
			top	bottom	filters/pack	Cat. No.	filters/pack	Cat. No.
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
O-45/25	0.45	25	colourless	colourless	100	729005	400	729005.400

MS = minispikes on filter exit

Ordering information - CHROMAFIL® Xtra **NEW!** (starting autumn 2007)

Type	Pore size [µm]	Membrane diameter [mm]	Colourless		Standard pack		BIG-BOX	
			top	bottom	filters/pack	Cat. No.	filters/pack	Cat. No.
PTFE-20/25	0.20	25	labelled	-	100	729207	400	729207.400
PTFE-45/25	0.45	25	labelled	-	100	729205	400	729205.400



Cellulose mixed esters (MV)

- hydrophilic membrane
- for aqueous or polar solutions



Ordering information - CHROMAFIL®

Type	Pore size [µm]	Membrane diameter [mm]	Colour code		Standard pack		BIG-BOX	
			top	bottom	filters/pack	Cat. No.	filters/pack	Cat. No.
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

Ordering information - CHROMAFIL® Xtra **NEW!** (starting autumn 2007)

Type	Pore size [µm]	Membrane diameter [mm]	Colourless		Standard pack		BIG-BOX	
			top	bottom	filters/pack	Cat. No.	filters/pack	Cat. No.
MV-20/25	0.20	25	labelled	-	100	729206	400	729206.400
MV-45/25	0.45	25	labelled	-	100	729204	400	729204.400

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®

Type	Pore size [µm]	Membrane diameter [mm]	Colour code		Standard pack		BIG-BOX	
			top	bottom	filters/pack	Cat. No.	filters/pack	Cat. No.
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		

Ordering information - CHROMAFIL® Xtra **NEW!** (starting autumn 2007)

Type	Pore size [µm]	Membrane diameter [mm]	Colourless		Standard pack		BIG-BOX	
			top	bottom	filters/pack	Cat. No.	filters/pack	Cat. No.
CA-20/25	0.20	25	labelled	-	100	729226	400	729226.400
CA-45/25	0.45	25	labelled	-	100	729227	400	729227.400



Syringe filters CHROMAFIL®

Polyamide (PA) = Nylon

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



Ordering information - CHROMAFIL®

Type	Pore size [µm]	Membrane diameter [mm]	Colour code		Standard pack		BIG-BOX	
			top	bottom	filters/pack	Cat. No.	filters/pack	Cat. No.
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

Sample Clarification

Ordering information - CHROMAFIL® Xtra **NEW!** (starting autumn 2007)

Type	Pore size [µm]	Membrane diameter [mm]	Colourless		Standard pack		BIG-BOX	
			top	bottom	filters/pack	Cat. No.	filters/pack	Cat. No.
PA-20/25	0.20	25	labelled	-	100	729212	400	729212.400
PA-45/25	0.45	25	labelled	-	100	729213	400	729213.400

Polyethersulfone (PES)

- hydrophilic membrane
- for aqueous and slightly organic liquids with higher flow rates
- 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 for both types 29 µg/filter



Ordering information - CHROMAFIL®

Type	Pore size [µm]	Membrane diameter [mm]	Colour code		Standard pack		BIG-BOX	
			top	bottom	filters/pack	Cat. No.	filters/pack	Cat. No.
PES-20/25	0.20	25	yellow	amber	100	729040	400	729040.400
PES-45/25	0.45	25	colourless	amber	100	729041	400	729041.400
PES-500/25	5.0	25	red	amber	100	729042	400	729042.400

Sterile filters for sterilisation

Sterilizer PES	0.20	25		blue rim	50	729401		
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Ordering information - CHROMAFIL® Xtra **NEW!** (starting autumn 2007)

Type	Pore size [µm]	Membrane diameter [mm]	Colourless		Standard pack		BIG-BOX	
			top	bottom	filters/pack	Cat. No.	filters/pack	Cat. No.
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



Polyvinylidene difluoride (PVDF)

- ◆ hydrophilic membrane
- ◆ for polar and nonpolar solutions, water-soluble oligomers and polymers like proteins
- ◆ binding capacity for proteins 82 µg/filter
- ◆ the PVDF filter with integrated glass fibre prefilter is 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



PVDF



GF/PVDF

Ordering information - CHROMAFIL®

Type	Pore size [µm]	Membrane diameter [mm]	Colour code		Standard pack		BIG-BOX	
			top	bottom	filters/pack	Cat. No.	filters/pack	Cat. No.
P-20/25	0.20	25	yellow	white	100	729018	400	729018.400
P-45/25	0.45	25	colourless	white	100	729019	400	729019.400
GF/P-45/25	1.0/0.45	25	black	white	100	729039	400	729039.400

Ordering information - CHROMAFIL® Xtra **NEW!** (starting autumn 2007)

Type	Pore size [µm]	Membrane diameter [mm]	Colourless		Standard pack		BIG-BOX	
			top	bottom	filters/pack	Cat. No.	filters/pack	Cat. No.
PVDF-20/25	0.20	25	labelled	-	100	729218	400	729218.400
PVDF-45/25	0.45	25	labelled	-	100	729219	400	729219.400

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®

Type	Pore size [µm]	Membrane diameter [mm]	Colour code		Standard pack		BIG-BOX	
			top	bottom	filters/pack	Cat. No.	filters/pack	Cat. No.
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 = minispikes on filter exit

Ordering information - CHROMAFIL® Xtra **NEW!** (starting autumn 2007)

Type	Pore size [µm]	Membrane diameter [mm]	Colourless		Standard pack		BIG-BOX	
			top	bottom	filters/pack	Cat. No.	filters/pack	Cat. No.
GF-100/25	nom. 1.0	25	labelled	-	100	729228	400	729228.400



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.

Sample Clarification

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	⊕	⊖	⊕	⊕	⊕	⊕	⊕	⊕	⊕	⊙
Trichloroethylene	⊕	⊕	⊕	⊙	⊕	⊕		⊕	⊕	⊙
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 (Teflon), 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 ($\leq 40 \mu\text{l}$)
- ◆ membrane materials correspond to the respective CHROMAFIL® filters



Ordering information

Description	Pack of	Cat. No.
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

Sample Clarification

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

Sample volume	Pack of	Cat. No.
2 ml	100	729100
5 ml	100	729101
10 ml	100	729102