Chromatography

CHROMAFIL® Xtra

Pure Filters

MACHEREY-NAGEL

www.mn-net.com

MN Since 1911

CHROMAFIL® - Disposable filters from MACHEREY-NAGEL

Contents

CHROMAFIL®

Ideal for GC, HPLC and UHPLC sample clarification

Introduction

CHROMAFIL® syringe filters are used for filtration of suspended matter from liquid samples (1–100 mL) 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. The filter can be used for the sample preparation for HPLC, GC, ICP, AAS, TOC, DOC, IR, NMR, photometry, spectroscopy, . . .

- ➢ different membrane types to meet multiple filtration needs
- ➢ low content of extractable compounds ensure reliable analyses
- ➢ superior chromatography column protection helps extend column life
- ➢ fast flow geometry for easy filtration
- ➢ low hold-up volume for maximum filtrate recovery
- ➢ HPLC certified
- ➢ designed to be compatible for use on all common automated filtration systems, e.g. SOTAX dissolution systems

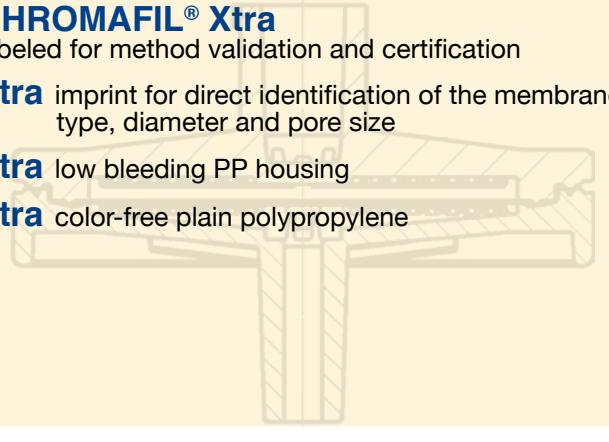
CHROMAFIL® Xtra

labeled for method validation and certification

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

Xtra low bleeding PP housing

Xtra color-free plain polypropylene



Technical Information

- **Low content of extractable substances** due to a high density polypropylene housing combined with ultrapure filtration membranes.

  In comparison to filters made of polycarbonate, polyacrylate or polystyrene, all CHROMAFIL® filters are resistant against nearly all organic solvents.

  (see list of chemical compatibility on page 15)

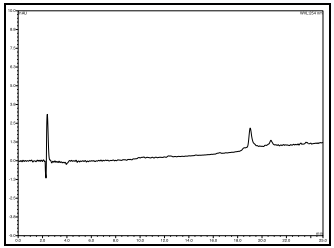
HPLC-test

Conditions:	2 mL of the solvent (specified on top of the chromatograms) were applied to the filter; 100 µL of the filtrate were injected to the HPLC.
Eluent A:	water
Eluent B:	acetonitrile
Gradient:	10 % → 95 % B in 25 minutes
Flow rate:	0.5 mL/min
Sensitivity:	-5 to 10 mAU at 254 nm
Column:	125/4 NUCLEODUR® C_{18} Gravity 5 µm (REF: 760100.40)

Acetonitrile:

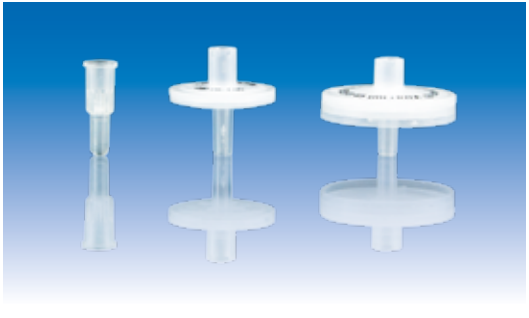
Eluate:

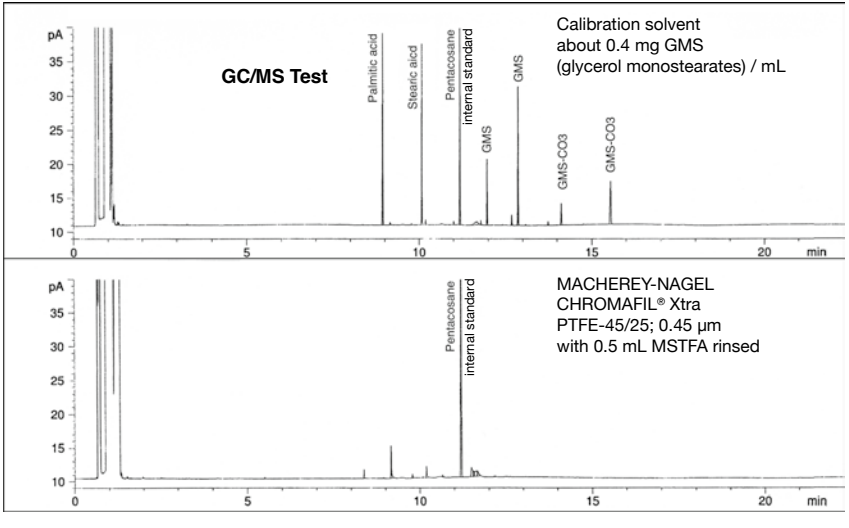
Blanc:



Low Bleeding PP housing

Even a treatment with very aggressive solvents/reagents does not lead to significant blind values or extractables.
For a proof, a filter was rinsed with 0.5 mL MSTFA (N-methyl-N-trimethylsilyl-trifluoroacetamide), a very powerful silylation reagent. The result is shown in the GC / MS chromatogram.





To provide **the lowest content of extractable substances**, the housing of every CHROMAFIL® filter is ultrasonically sealed

- The filters are **welded, not glued**, because glue may have extractable ingredients
- The welding leads to a tight connection between the both parts, thus the filter can be used in both directions. No fluid can leak from the filter housing.

The special **thick rim** of the housing is ideal for use in laboratory robots (e. g. SOTAX, Benchmate™, ...).

For a **safe connection on the „high pressure“ side** every CHROMAFIL® filter provides a **Luer lock on inlet.**

Luer outlet

- For the 3, 13 and 25 mm diameter filter: standard luer outlet This luer configuration offers low hold-up volume and easy filtration into autosampler vials and NMR tubes

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

CHROMAFIL® - Disposable filters from MACHEREY-NAGEL

No breakage of the membrane due to a stabilizing “crash“ plate

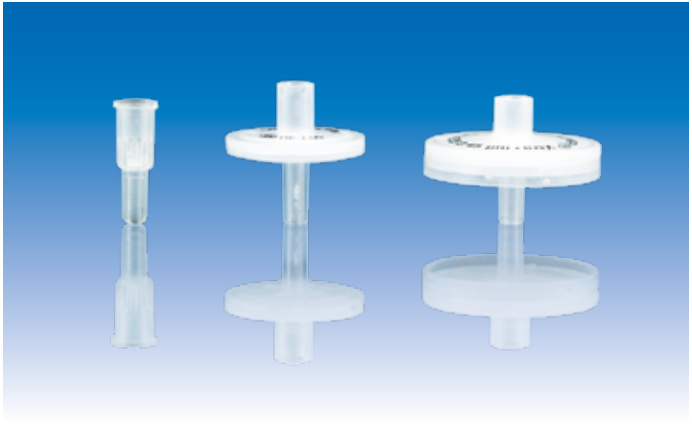
- The sample fluid is deviated in four lanes by the “crash“ plate and does not directly hit the membrane. The resulting pressure distribution protects the membrane against breakage.

Optimal flow geometry by star-shaped distribution plate

- The fluid penetrates the membrane on the whole surface, not only on a small area; the **filter will not clog rapidly**, which guarantees in a high flow efficiency.

Different pore sizes for multiple filtration application

Available **pore sizes** 0.2 and 0.45 µm (additional: PET filters with 1.2 µm, glass fiber filters with 1 µm, PES filters with 5 µm). Filters with 0.45 µm pore size remove fine particles which can clog chromatography columns. **0.2 µm pore size filters are recommended for filtration of UHPLC samples**.



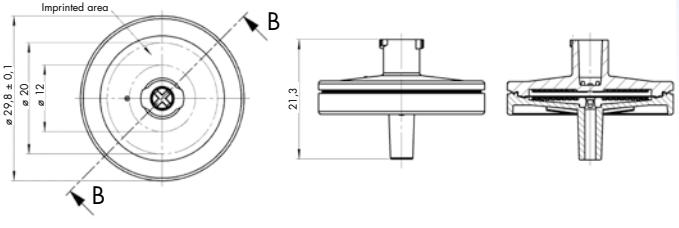

CERTIFICATE

sotax

Filter Sizes

3, 13 and 25 mm effective membrane diameter. The small diameter filters are especially recommended for very small samples, which require extremely low dead volumes.

Sample volume	Recommended membrane diameter	Dead volume	Filtration area
≤ 1 mL	3 mm	5 µL	0.07 cm^2
1-5 mL	13 mm	30 µL	1.33 cm^2
5-100 mL	25 mm	80 µL	4.91 cm^2



All filters can be **autoclaved** at **121 °C** and **1.1 bar** for 30 min.

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

CHROMAFIL® Xtra • 0.20 µm
RC-20/25
MN
CHROMAFIL®
MV-45/25 0.45 µm
NW

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Example of specification data sheet

A specification data sheet

is available for all membranes and filter diameters

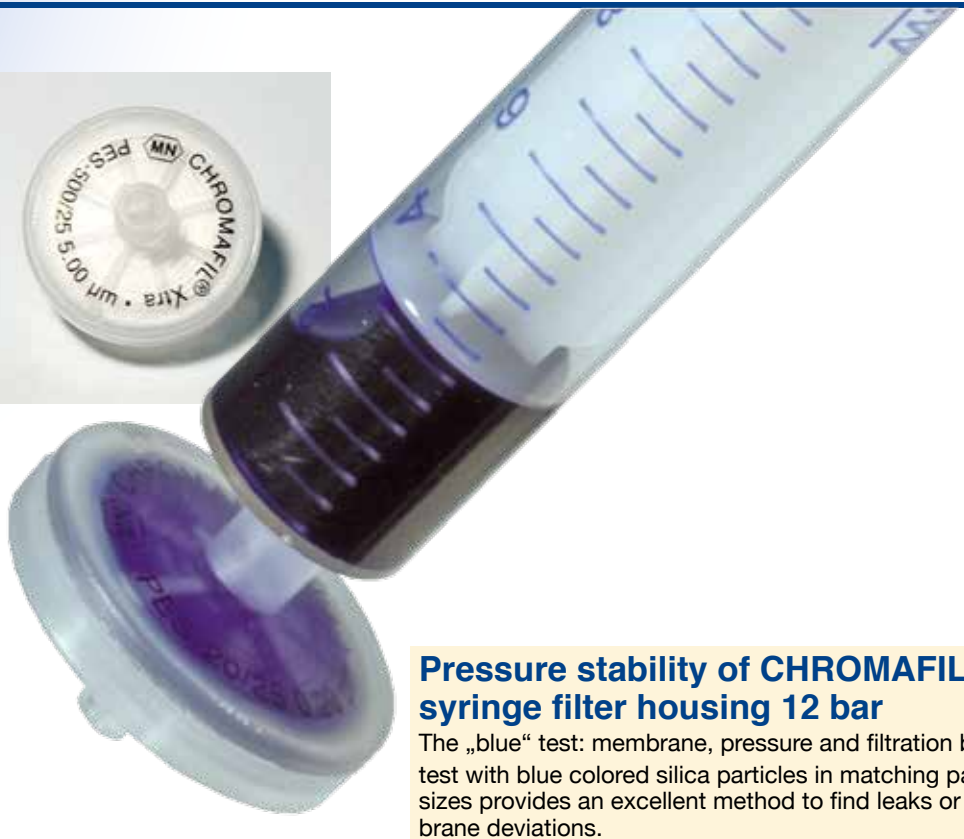
Enhanced quality control for better results

MN certifies CHROMAFIL® syringe filters to be low in UV absorbing extractables.

All filters and membrane types have been HPLC tested for compatibility with the most common HPLC solvents (methanol, water, acetonitrile, see test chromatograms).

HPLC-test certificates are available for every membrane type.

Please visit: *www.mn-net.com*



Pressure stability of CHROMAFIL® syringe filter housing 12 bar

The „blue“ test: membrane, pressure and filtration batch test with blue colored silica particles in matching particle sizes provides an excellent method to find leaks or membrane deviations.

Package sizes

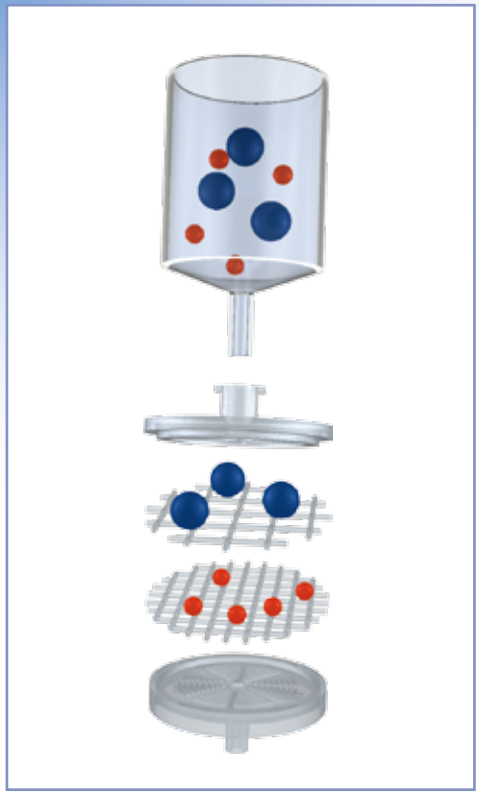
packs of 100 or 400 (BigBoxes) for 25 mm Ø filter
packs of 100 for 13 mm Ø filter
packs of 100 for 3 mm Ø filter
packs of 50 for sterile filter

Different membrane materials for multiple filtration applications

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

Polyester	(PET) with or without **glass fiber prefilter***
Regenerated cellulose	(RC) with or without **glass fiber prefilter***
Polytetrafluoroethylene	(PTFE)
Hydrophilized Polytetrafluoroethylene	(H-PTFE)
Cellulose mixed esters	(MV)
Cellulose acetate	(CA) sterile and non-sterile
Polyamide / Nylon	(PA)
Polyethersulfone	(PES)
Polyvinylidene difluoride	(PVDF) with or without **glass fiber prefilter***
Glass fiber	(GF)

* Filters with (nom. 1 µm) GF prefilter provide a 2-4 times greater throughput than filter without prefilter for extremely viscous and most difficult-to-filter samples



Combi syringe filters with a coarse glass fiber (GF) 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 fiber membrane (1 µm) removes coarse particles, before they can block the fine main membrane. This results in a better filtration efficiency, particularly for highly contaminated samples.

Housing:	solvent-resistant, ultra low bleed polypropylene
Inlet:	Luer lock
Outlet:	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

Available membranes with GF-prefilter:

Polyester (PET)

Regenerated cellulose (RC)

Polyvinylidene Difluoride (PVDF)

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Solvent	Material										
	MV	CA	RC	PA	PTFE	H-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 (Chloroform)	⊕	⊖	⊕	⊖	⊕	⊕	⊕	⊖	⊕	⊕	⊖
Urea	⊕	⊕	⊕	⊕	⊕	⊕	⊕		⊕	⊕	⊕
Water	⊕	⊕	⊕	⊕	⊕	⊕	⊕	⊕	⊕	⊕	⊕
Xylene	⊕	⊕	⊕	⊕	⊕	⊕	○		⊕	⊕	○

The 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 release any UV-detectable substances during filtration of 5 mL THF, although PP shows only limited resistance towards THF.

Data not guaranteed.

⊕ resistant, ⊖ not resistant, ○ limited resistance

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

Optimal use of CHROMAFIL® syringe filter

For achieving the full benefits of filtration we recommend the following instructions.


Draw up the sample into the syringe. Then draw approximately 1 mL of air into the syringe. The air helps to minimize the remaining fluid in the filter.

Tips / additional information
We recommend either discarding the first 1 mL or rinsing the filter unit with 1 mL of primary solvent before sample filtration.


Plug the CHROMAFIL® syringe filter onto the syringe with the luer connection. Ensure a tight connection by gently turning.

In order to avoid breakage of the membrane only syringes with volumes of 10 mL or higher should be used.


Start with gentle pressure to filter your sample into a vial*. This helps to assure maximum throughput.

Do not reuse syringe filters
Do not use at temperatures above 55 °C (131°F)

Warning: CHROMAFIL® syringe filters are intended for laboratory use only. Do not use CHROMAFIL® syringe filters for direct patient care applications.

* MACHEREY-NAGEL offers a wide range of vials and caps. More information at ***www.mn-net.com/vials***

How to select the optimal CHROMAFIL® syringe filter

1. Filter size

sample volume	filter size
5-100 mL	25 mm
1-5 mL	13 mm
< 1 mL	3 mm

2. Pore size of filter membrane

for general purpose

HPLC columns packed with particles > 3 µm, GC, SFC, . . .

recommended for

UHPLC, core-shell and HPLC columns packed with particles < 3 µm, GC, SFC, . . .

pore size	
0.45 µm	
0.20 µm	

3. Membrane type

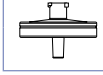
properties of sample		
aqueous, polar hydrophilic low particle-load	PET	H-PTFE, MV, RC
high particle-load, prefiltration required	GF/PET	GF/RC, GF/PVDF
mid-polar e.g. HPLC eluents	PET	PA, RC
proteins protein needed	CA	PVDF, PES
remove protein	GF	GF/PET, GF/PVDF
strong acids and bases	H-PTFE	PTFE
organic, nonpolar, hydrophobic low particle-load	PTFE	PET
high particle-load, prefiltration required	GF/PET	GF/PVDF

CHROMAFIL® - Disposable filters from MACHEREY-NAGEL

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
- PET filters with integrated glass fiber prefilter (**GF / PET**) are recommended for solutions with a high load of particulate matter or for highly viscous solutions

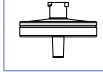
Ordering information · CHROMAFIL®

	Type	Pore size [µm]	Membrane diameter [mm]	Color code top	Color code bottom	Standard pack filters / pack	Standard pack REF	BIG-BOX filters / pack	BIG-BOX REF
	Xtra PET-20/25	0.20	25	labeled		100	**729221**	400	**729221.400**
	Xtra PET-45/25	0.45	25	labeled		100	**729220**	400	**729220.400**
	Xtra PET-120/25	1.2	25	labeled		100	**729229**	400	**729229.400**
	Xtra PET-20/13	0.20	13	labeled		100	**729222**		
	Xtra PET-45/13	0.45	13	labeled		100	**729223**		
	Combi Filters								
	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 (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 per 25 mm filter
- RC filters with integrated glass fiber prefilter* (**GF / RC**) are recommended for solutions with a high load of particulate matter or for highly viscous solutions

Ordering information · CHROMAFIL®

	Type	Pore size [µm]	Membrane diameter [mm]	Color code top	Color code bottom	Standard pack filters / pack	Standard pack REF	BIG-BOX filters/pack	BIG-BOX REF
	Xtra RC-20/25	0.20	25	labeled		100	**729230**	400	**729230.400**
	Xtra RC-45/25	0.45	25	labeled		100	**729231**	400	**729231.400**
	Xtra RC-20/13	0.20	13	labeled		100	**729236**		
	Xtra RC-45/13	0.45	13	labeled		100	**729237**		
	Combi filters								
	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**

* glass fiber exhibits a high protein-binding capacity

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®

	Type	Pore size [µm]	Membrane diameter [mm]		Standard pack filters / pack	Standard pack REF	BIG-BOX filters / pack	BIG-BOX REF
	Xtra PTFE-20/25	0.20	25	labeled	100	**729207**	400	**729207.400**
	Xtra PTFE-45/25	0.45	25	labeled	100	**729205**	400	**729205.400**
	Xtra PTFE-20/13	0.20	13	labeled	100	**729208**		
	Xtra PTFE-45/13	0.45	13	labeled	100	**729209**		
	O-20/3	0.20	3		100	**729014**		
	O-45/3	0.45	3		100	**729015**		

Hydrophilized polytetrafluoroethylene (H-PTFE)

- hydrophobic membrane with additional hydrophilic properties
- for polar and nonpolar sample solutions
- resistant towards all kinds of solvents as well as acids and bases

Ordering information · CHROMAFIL®

	Type	Pore size [µm]	Membrane diameter [mm]		Standard pack filters / pack	Standard pack REF	BIG-BOX filters / pack	BIG-BOX REF
	Xtra H-PTFE-20/25	0.20	25	labeled	100	**729245**	400	**729245.400**
	Xtra H-PTFE-45/25	0.45	25	labeled	100	**729246**	400	**729246.400**
	Xtra H-PTFE-20/13	0.20	13	labeled	100	**729256**		
	Xtra H-PTFE-20/13	0.45	13	labeled	100	**729257**		

Cellulose Mixed Ester (MV)

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

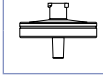
Ordering information · CHROMAFIL®

	Type	Pore size [µm]	Membrane diameter [mm]		Standard pack filters / pack	Standard pack REF	BIG-BOX filters / pack	BIG-BOX REF
	Xtra MV-20/25	0.20	25	labeled	100	**729206**	400	**729206.400**
	Xtra MV-45/25	0.45	25	labeled	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 stability in aqueous solutions
- binding capacity for proteins 21 µg per 25 mm 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]	Color code top	Color code bottom	Standard pack filters / pack	Standard pack REF	BIG-BOX filters / pack	BIG-BOX REF
	Xtra CA-20/25	0.20	25	labeled		100	**729226**	400	**729226.400**
	Xtra CA-45/25	0.45	25	labeled		100	**729227**	400	**729227.400**
	Xtra CA-20/13	0.20	13	labeled		100	**729254**		
	Xtra CA-45/13	0.45	13	labeled		100	**729255**		
	Sterile filters								
	CA-20/25 (S)	0.20	25	yellow	red	50	**729024**		
	CA-45/25 (S)	0.45	25	colorless	red	50	**729025**		

Polyamide (PA) = Nylon

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

Ordering information · CHROMAFIL®

	Type	Pore size [µm]	Membrane diameter [mm]		Standard pack filters / pack	Standard pack REF	BIG-BOX filters / pack	BIG-BOX REF
	Xtra PA-20/25	0.20	25	labeled	100	**729212**	400	**729212.400**
	Xtra PA-45/25	0.45	25	labeled	100	**729213**	400	**729213.400**
	Xtra PA-20/13	0.20	13	labeled	100	**729248**		
	Xtra PA-45/13	0.45	13	labeled	100	**729249**		
	AO-20/3	0.20	3		100	**729010**		
	AO-45/3	0.45	3		100	**729011**		

Polyethersulfone (PES)

- hydrophilic membrane
- for aqueous and slightly organic liquids with higher flow rates
- very low adsorption for pharmaceuticals and proteins
- good stability against organic acids and bases
- binding capacity for proteins 29 µg per 25 mm filter

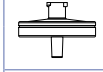
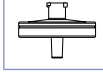
Ordering information · CHROMAFIL®

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

Polyvinylidene Difluoride (PVDF)

- hydrophilic membrane
- for aqueous solutions, water-soluble oligomers and polymers like proteins
- low binding capacity for proteins 20 µg per 25 mm filter
- PVDF filters with integrated glass fiber prefilter* (**GF / PVDF**) are recommended for filtration of biological samples with high particle loads.

Ordering information · CHROMAFIL®

	Type	Pore size [µm]	Membrane diameter [mm]	Color code top	Color code bottom	Standard pack filters / pack	Standard pack REF	BIG-BOX filters / pack	BIG-BOX REF
	Xtra PVDF-20/25	0.20	25	labeled		100	**729218**	400	**729218.400**
	Xtra PVDF-45/25	0.45	25	labeled		100	**729219**	400	**729219.400**
	Xtra PVDF-20/13	0.20	13	labeled		100	**729243**		
	Xtra PVDF-45/13	0.45	13	labeled		100	**729244**		
	Combi filters								
	GF/PVDF-45/25	1.0/0.45	25	black	white	100	**729039**	400	**729039.400**

* glass fiber exhibits a high protein-binding capacity

Glass Fiber (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 clogging of the membrane

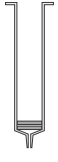
Ordering information · CHROMAFIL®

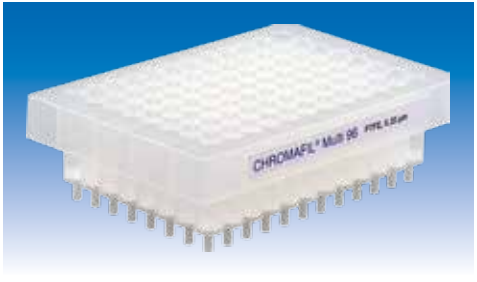
	Type	Pore size [µm]	Membrane diameter [mm]		Standard pack filters / pack	Standard pack REF	BIG-BOX filters / pack	BIG-BOX REF
	Xtra GF-100/25	nom. 1.0	25	labeled	100	**729228**	400	**729228.400**
	GF-100/13	nom. 1.0	13	labeled	100	**729234**		

Filtration cartridges

- Filtration cartridges for sample clarification under vacuum (e.g., using the CHROMABOND® vacuum manifold or SPE automation systems like Gilson Aspec™, Rapidtrace) or by gravity flow.
- Cartridge sizes 3 mL and 6 mL
- Different membranes (PET, RC, PTFE, PVDF, GF) and pore sizes (0.2, 0.45 and 1.0 µm). The membrane materials correspond to the respective CHROMAFIL® syringe filters.

Ordering information · CHROMAFIL® filtration cartridges

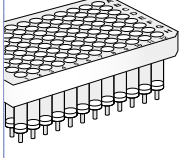
	Type	Pore size [µm]	Pack of	Column volume REF	
				3 mL	6 mL
	PET (polyester)	0.20	100	**730578.320**	**730578.620**
	PET (polyester)	0.45	100	**730578.345**	**730578.645**
	RC (regenerated cellulose)	0.20	100	**730068.320**	**730068.620**
	RC (regenerated cellulose)	0.45	100	**730068.345**	**730068.645**
	PTFE (polytetrafluoroethylene)	0.20	100	**730570.320**	**730570.620**
	PTFE (polytetrafluoroethylene)	0.45	100	**730570.345**	**730570.645**
	PVDF (polyvinylidene difluoride)	0.20	100	**730579.320**	**730579.620**
	PVDF (polyvinylidene difluoride)	0.45	100	**730579.345**	**730579.645**
	GF (glass fiber)	nom. 1.0	100	**730517.3100**	**730517.6100**



MULTI 96 filter plates

- 96-well polypropylene plates for simultaneous filtration of 96 samples
- Advantages of this high-throughput system:
  Economical by saving time and solvent
  Use of multi-channel pipettors facilitates liquid transfer steps
  Readily adaptable to all common automated/robotic handling systems
  Minimized dead volume (≤ 40 µL)
- Membrane materials correspond to the respective CHROMAFIL® syringe filters

Ordering information · CHROMAFIL® MULTI 96 filter plates



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 RC filter elements (regenerated cellulose, 0.20 µm)	1	**738656.M**
Filter plates with RC filter elements (regenerated cellulose, 0.45 µm)	1	**738657.M**
Filter plates with PTFE filter elements (0.20 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 fiber filter elements (nominal 1 µm)	1	**738655.2M**
Filter plates with glass fiber filter elements (nominal 3 µm)	1	**738658.M**

Technical Support and Customer Service

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If you have any questions concerning CHROMAFIL® filters or our chromatography program, or if you are looking for solutions to a special application, please feel free to contact us:

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Our website offers **more than 3000 applications** which might already solve your analytical questions.

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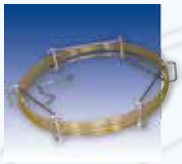
"FilterFinder"online:
THE cross reference for syringe filter
www.mn-net.com/filterfinder

HPLC



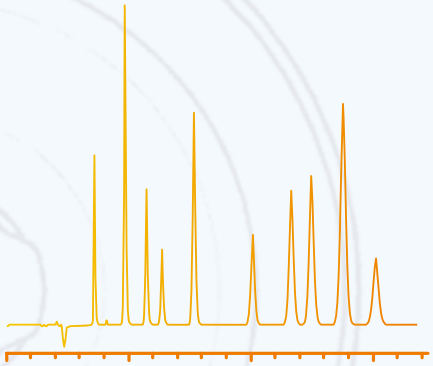
GC

TLC

SPE and Flash

Syringe filters

Vials and caps



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