

Index Filters & Extraction



Filters & Extraction

Content	Page
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Certified Olimpeak™ Syringe Filters 160-168

Olimpeak™ Syringe Filters General Information	160-163
Nylon Olimpeak™ New Certified Syringe Filter with Polypropylene Housing	164
Nylon Low Extractables New Certified Olimpeak™ Syringe Filter with Polypropylene Housing	164
New !!!!! Nylon Econo Syringe Filter	164
PTFE New Certified Olimpeak™ Syringe Filter with Polypropylene Housing	164
Polypropilene New Certified Olimpeak™ Syringe Filter with Polypropylene Housing	165
PVDF New Certified Olimpeak™ Syringe Filter with Polypropylene Housing	165
Regenerated Cellulose New Certified Olimpeak™ Syringe Filter with Polypropylene Housing	165
Polyethersulfone New Certified Olimpeak™ Syringe Filter with Polypropylene Housing	166
Cellulose Acetate New Certified Olimpeak™ Syringe Filter with Polypropylene Housing	166
M.E. Cellulose New Certified Olimpeak™ Syringe Filter with Polypropylene Housing	166
Nitrocellulose New Certified Olimpeak™ Syringe Filter with Polypropylene Housing	167
Glass Microfibre GMF New Certified Olimpeak™ Syringe Filter with Polypropylene Housing	167
MiniTip Certified Olimpeak™ Syringe Filters	167
Filter with Glass prefilter New Certified Olimpeak™ Syringe and Polypropylene Housing	168

Target Syringe Filters 168-169

Target Syringe Filters (4mm Diameter)	168
Target Syringe Filter with polyethersulfone (PES) membrane	168
PES Certified for Ion Chromatography	168
Target Syringe Filters with Glass microfiber membrane	169
Target Syringe Filters 30 mm Diameter	169
Target Syringe Filters 17 mm Diameter	169
750 µL Micro-Centrifugal Filters - Nonsterile	169
2 mL Micro-Centrifugal Filters - Nonsterile	169

New Certified AUTOMATIC OlimPeak Filter for Automatic Equipments 170

Certified Olimpeak™ Filters for Robotic Equipments 170

Certified Olimpeak™ Membrane Filters 171-172

Membrane filters for mobile phase filtration	171
Filtering Equipment	171
Membrane filters for sample filtration	172

Finisterre™ SPE Columns 173-179



Technical Information of Finisterre™ SPE Cartridges	173
Finisterre™ C18 SPE Columns	174
Finisterre™ C8 SPE Columns	174
Finisterre™ C4 SPE Columns	174
Finisterre™ C2 SPE Columns	175
Finisterre™ PH SPE Columns	175
Finisterre™ CN SPE Columns	175
Finisterre™ NH2 SPE Columns	175
Finisterre™ DIOL SPE Columns	176
Finisterre™ FLO SPE Columns	176
Finisterre™ Si SPE Columns	176
Finisterre™ SAX SPE Columns	176
Finisterre™ SCX SPE Columns	177
Finisterre™ Use and Extraction Procedures	177-178
Finisterre™ SPE Applications	179

Vacuum Manifolds for SPE 180-182

Vacuum Manifold	180
Vacuum Pump R-300	180
Drying Attachments	181
Disposable polypropylene waste container	181
Accessories	182
Disposable Teflon Needles	182

Applied Separations SPE Columns & Cartridges 183-185

Applied Separations SPE Products	183-184
Standard Spe-ed Columns	183
Mini Spe-ed Cartridges	184
Mini Spe-ed PlusCartridges	184
Applied Separations SPE Advanta Polymeric Resin	185
Isolation of Polar Organics from aqueous matrizes	185
Standard Spe-ed Advanta	185
Spe-ed Flow Advanta*	185

OlimPeak® Certified Filters by Teknokroma



Introduction

Filtering samples prior to injection will prolong column, frits and valves life, and reduce down time due to less instrument maintenance.

The quality of the filtrate from any sample is dependent on a number of variables, such as, the membrane, the membrane support (if used), the resin used to mold the filter housing, and last but not least, the analyst.

In any laboratory filtration where the purity of the filtrate is important, the analyst must remember three very important words, slower is better. Filtration improves when the sample passes through the filter slowly. Attention should be paid when using a high volume syringe (more than 10 ml), in order to avoid the maximum operating pressure.

Integrity of the Membrane

The best method to guarantee the integrity of the membrane is the control of the bubble point.

The bubble point is the minimum pressure required to create a steady flow of bubbles from a fully wetted membrane (water for hydrophilic materials and alcohols for hydrophobics). Microporous membranes in contact with the wetting liquid, fill their pores following principles associated with the capillary forces. To vent the filled pores requires a differential pressure to be applied across them.

Principal factors affecting bubble point test are: surface tension of the liquid, surface free energy of the membrane, size of pores, temperature and wetting procedure.

In a simplified math-form, the required pressure to vent a liquid filled pore P , has an inverse relationship to the pore diameter, d as described by this bubble point equation:

$$P = \frac{K4\sigma \cos\theta}{d}$$

- P : Bubble point pressure
- σ : Surface tension of wetting fluid
- θ : Contact angle of liquid-solid
- K : Pore shape factor constant (since pores are not simple cylinders in the real filter membranes).
- d : pore diameter.

Syringe Filter Membrane Compatibility Chart

Use this information to determine the ability of a specific syringe filter membrane to withstand exposure to solvent.
All concentrations are 100% unless noted.

Chemical	Nylon	PTFE	PVDF	PES	CA	RC	PP	GMF
ACIDS								
Acetic, Glacial	LC	C	C	C	IC	C	C	C
Acetic, 25%	C	C	C	C	CA	C	C	C
Hydrochloric, Concentrated	IC	C	C	C	IC	IC	C	C
Hydrochloric, 25%	IC	C	C	C	IC	IC	C	C
Sulfuric, Concentrated	IC	C	IC	IC	IC	IC	C	C
Sulfuric, 25%	IC	C	C	C	IC	IC	C	LC
Nitric, Concentrated	IC	C	C	IC	IC	IC	C	LC
Nitric, 25%	IC	C	C	C	IC	IC	C	LC
Phosphoric, 25%	IC	C	ND	ND	CA	LC	C	C
Formic, 25%	IC	C	ND	ND	LC	C	C	C
Trichloroacetic, 10%	IC	C	ND	ND	CA	C	C	ND
ALCOHOLS								
Methanol, 98%	C	C	C	C	C	C	C	C
Ethanol, 98%	C	C	C	C	C	C	C	C
Ethanol, 70%	LC	C	C	C	C	C	C	C
Isopropanol	C	C	C	C	C	C	C	C
n-Propanol	C	C	C	C	C	C	C	C
Amyl Alcohol (Butanol)	C	C	C	C	C	C	C	C
Benzyl Alcohol	C	C	C	ND	LC	C	C	IC
Ethylene Glycol	C	C	C	C	C	C	C	C
Propylene Glycol	C	C	C	C	LC	C	C	C
Glycerol	C	C	C	C	C	C	C	C
ALKALIES								
Ammonium Hydroxide, 25%	C	C	LC	C	C	LC	C	C
Sodium Hydroxide, 3N	C	C	C	C	IC	LC	C	IC
AMINES AND AMIDES								
Dimethyl Formamide	LC	C	IC	IC	IC	LC	C	C
Diethylacetamide	C	C	ND	ND	IC	C	ND	C
Triethanolamine	C	C	ND	ND	C	C	ND	ND
Aniline	ND	C	ND	ND	IC	C	ND	ND
Pyridine	C	C	IC	IC	IC	C	IC	C
Acetonitrile	C	C	C	LC	IC	C	C	C
ESTERS								
Ethyl Acetate/Methyl Acetate	C	C	C	IC	IC	C	LC	C
Amyl Acetate/Butyl Acetate	C	C	IC	IC	LC	C	LC	C
Propyl Acetate	C	C	IC	IC	LC	C	LC	ND
Propylene Glycol Acetate	ND	C	ND	IC	IC	C	C	ND
2-Ethoxyethyl Acetate	ND	C	ND	IC	LC	C	ND	ND
Methyl Cellulose	ND	C	ND	IC	IC	C	C	C
Chemical	Nylon	PTFE	PVDF	PES	CA	RC	PP	GMF
Benzyl Benzoate	C	C	ND	IC	C	C	ND	ND
Isopropyl Myristate	C	C	ND	IC	C	C	ND	ND
Tricresyl Phosphate	ND	C	ND	IC	C	C	ND	ND
HALOGENATED HYDROCARBONS								
Methylene Chloride	LC	C	C	IC	IC	C	LC	C
Chloroform	C	C	C	IC	IC	C	LC	C
Trichloroethylene	C	C	C	IC	IC	C	C	C
Chlorobenzene	C	C	C	LC	C	C	C	C
Freon	C	C	C	LC	C	C	C	C
Carbon Tetrachloride	C	C	C	IC	LC	C	LC	C
HYDROCARBONS								
Hexane/Xylene	C	C	C	IC	C	C	IC	C
Toulene/Benzene	C	C	C	IC	C	C	IC	C
Kerosene/Gasoline	C	C	C	LC	C	C	IC	C
Tetralin/Decalin	ND	C	C	ND	C	C	ND	ND
KETONES								
Acetone	C	C	IC	IC	IC	C	C	C
Cyclohexanone	C	C	IC	IC	IC	C	C	C
Methyl Ethyl Ketone	C	C	LC	IC	LC	C	LC	C
Isopropylacetone	C	C	IC	IC	C	C	ND	C
Methyl Isobutyl Ketone	ND	C	LC	IC	ND	C	LC	C
ORGANIC OXIDES								
Ethyl Ether	C	C	C	C	C	LC	LC	ND
Dioxane	C	C	LC	IC	C	C	C	C
Tetrahydrofuran	C	C	LC	IC	C	C	C	C
Triethanolamine	C	C	ND	C	C	ND	ND	ND
Dimethylsulfoxide (DSMO)	C	C	IC	IC	C	C	C	C
Isopropyl Ether	ND	C	C	C	C	C	C	ND
MISCELLANEOUS								
Phenol, Aqueous Sol., 10%	ND	C	LC	IC	IC	IC	C	C
Formaldehyde, Aqueous Sol. 30%	C	C	C	C	C	LC	C	C
Hydrogen Peroxide, 30%	C	C	ND	ND	C	C	ND	ND
Silicone Oil/Mineral Oil	ND	C	C	C	C	C	C	C

Legend

C Compatible

LC Limited Compatibility (membrane may swell and shrink)

IC Incompatible (not recommended)

ND No compatibility data currently available

PTFE Polytetrafluoroethylene (Teflon®)

PVDF Polyvinylidene

PES Polyethersulfone

CA Cellulose Acetate

RC Regenerated Cellulose

PP Polypropylene

GMF Glass MicroFiber

Tk Certified Olimpeak™ Syringe Filters



Membrane Selection

To select the right membrane for sample and solvent filtration for chromatography, there are several important considerations:

- The membrane and housing must be highly solvent resistant, since most chromatography solvents are aggressive and sometimes corrosive.
- It should not have extractables because they can interfere with analytical results.
- It should present a low protein binding for biological samples.
- Size and amount of particulates in the sample
- Special considerations if you need pre-filter
- Special membrane for filtration of inorganic ions

Guidelines to choose your syringe filter

Sample matrix with organic or/and water solvents:

You can use:

Nylon, Polypropylene, PVDF, PTFE, Regenerated Cellulose

Sample matrix with aqueous solutions:

You can use:

Cellulose Acetate, M.E. Cellulose, PES, Nitrocellulose

Sample matrix with peptides and proteins:

You can use:

Regenerated Cellulose, Acetate Cellulose, Polypropylene, PVDF, PES

Tissue Culture media Filtration:

You can use:

Regenerated Cellulose, Cellulose Acetate, PES, M.E Cellulose

Ion Chromatography Filtration:

You can use:

Certified Polyethersulfone

Samples matrix with excessive amount of particulates:

You can use:

Syringe filter with Glass Prefilter.

General Overview

Filter Housing: High density polypropylene (PP) medical grade: Excellent chemical compatibility with acids, alcohols, bases, ethers, glycols, ketones and oils. Limited resistance for acids > 1N, ethers, aromatics and halogenated hydrocarbons. Maximum operating temperature 135 °C

Standard Connections: Female Luer Lock inlet, male Luer slip outlet as a standard in compliance with ISO 594-1

Minitip Connections: Female Luer Lock inlet, male MiniTip outlet

Robotic Connections: Female Luer Lock inlet, male Minispike outlet

Filter type: Non sterile

Membranes Selection: PP (Polypropylene), Nylon, Nylon Low Extractables, PTFE, M.E. Cellulose, Regenerated Cellulose, PVDF, Nitrocellulose, Cellulose Acetate, Polyethersulfone, and Glass Microfiber

Pore size: 0.2 - 0.45 µm for all filters

Pore size: 1, 2 and 5 µm for Glass microfiber

Pore size 0.45 µm: Most of HPLC application.

Pore size 0.20 µm: we use them in 2 cases:

- 1- In order to eliminate all bacterial contamination.
- 2- When we use 3 µm HPLC column.

Max. Operating pressure: 13 mm D. 750 Kpa and 25 mm D. 550 Kpa

Retention volumes: 13 mm < 30 µl and 25 mmD. < 120 µl

Max. Filtration volume: 13 mm D. 1-10 ml and 25 mm D. > 10 ml

Filtration area: 13 mm D. 0.95 cm² and 25 mm D. 3.55 cm²

For samples with a high amount of particulates it is recommended to use the filters with a glass-fiber pre-filter. This combination eliminates the need for a pre-filtration step.



Introduction of the New line of Olimpeak™ syringe filters

Teknokroma introduces into the market the new range of Certified Syringe Filters **Olimpeak™**.

This new line of Olimpeak™ Certified Filters offers a step further in traceability, method validation and GLP.

Certified Olimpeak™ syringe filters are made using polypropylene medical grade housing with Luer Lock and Luer slip fittings in compliance with ISO 594-1. Each filter is sealed using an external ring insert to maintain the membrane integrity and best performance. Olimpeak™ syringe filters are color coded for an easy identification.

All syringe filters are manufactured in compliance with ISO 9001 and technical procedures and tested according international standards of ISO 17025. Our manufacturing methods eliminate variable results through controlled manufacturing consistency batch to batch, and filter to filter. Samples and raw data of all syringe filter batches and membranes are stored during 5 years from production for reference.

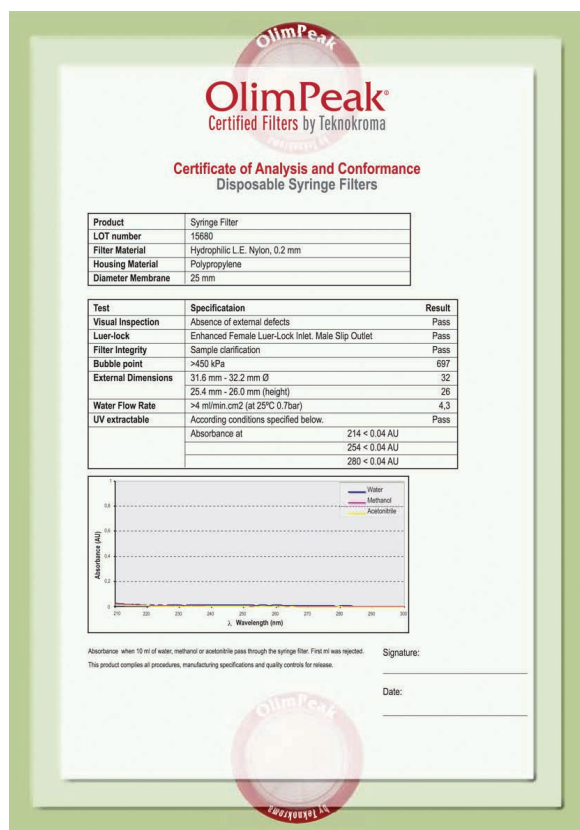
Our new **Certified Syringe Filter Olimpeak™** offer the best value. All filters are supplied with a Certificate of Quality batch to batch as guarantee of product performance and quality.

Each lot is quality monitored for:

- 100 % of the syringe filters are visually inspected following quality specifications
- Each batch of filters is tested for external dimensions
- Bubble Point
- Burst Pressure
- Filter Integrity
- Water Flow Rate
- UV Extractables and compliance with all technical procedures.
- Manufacturing specifications and quality controls for release

Test are carried out by an independent laboratory

(*) For critical applications using chromatography detection at < 210 nm it is recommended to reject the first filtrate ml.



Olimpeak™ Certificate

Teknokroma's Syringes filters are of high quality and their level of extractables is very low. The encapsulating process forces the sample to pass only through the membrane .

They chemically resist a wide range of chemical products and solvents.

Teknokroma's filters avoid any leak or any contamination due to the use of high quality materials.

Easy Identification for Method Validation



In addition to the color code, every single unit of Olimpeak™ Certified Syringe Filter is printed with the membrane type, pore size and batch number. This information makes them uniques for traceability, GLP's and validation purposes.

Tk Certified Olimpeak™ Syringe Filters

Nylon Olimpeak™ New Certified Syringe Filter with Polypropylene Housing



- Hydrophilic membrane.
- Excellent for HPLC samples, can be used for general filtration.
- Nylon is compatible with organic or aqueous solutions
- High bubble point.
- Nylon has high protein retention.
- Maximum operating temperature 100 °C

Don't use with strong acids, or bases, halogenated hydrocarbons, and protein.

Reference	Description	Pk
TR-200100	Nylon Filter, green 0.45 µm, 25 mm D	100
TR-200101	Nylon Filter, light green 0.20 µm, 25 mm D	100
TR-200500	Nylon Filter, green 0.45 µm, 13 mm D	100
TR-200501	Nylon Filter, light green 0.20 µm, 13 mm D	100

Nylon Low Extractables New Certified Olimpeak™ Syringe Filter with Polypropylene Housing



- One of the traditional membranes used for filtration of HPLC samples is supported Nylon 66. Generally, a small quantity of the sample is passed through this filter prior to injection. This is done to reduce unwanted spikes in the chromatogram due to extractables leaching from the support material or membrane.
- The Nylon Low Extractables, is a HPLC certified 13 and 25 mm D. syringe filter with a unique unsupported Nylon

membrane. This new membrane does not release significant levels of extractables following an acetonitrile challenge.

Reference	Description	Pk
TR-200475	Nylon L.E. Filter, green , 0.45 µm, 25 mm D	100
TR-200470	Nylon L.E. Filter light green 0.20 µm, 25 mm D	100
TR-200465	Nylon, L.E. Filter green 0.45 µm, 13 mm D	100
TR-200460	Nylon L.E. Filter light green 0.20 µm, 13 mm D	100

New !!!!! Nylon Econo Syringe Filter

Teknokroma is launching New Nylon Econo Syringe Filters. If you don't need "Certified Nylon Syringe Filters" but still the highest quality and performance of our OlimPeak filtration units, reduce your cost by using the Nylon Econo Syringe Filter.

Econo Syringe Filter is an orange color PP housing with Nylon membrane available in 0,45 µm , 13 and 25 mm diameter and packed in boxes of 1000 pieces.

Reference	Description	Pk
TR-200100E	Nylon, orange 0,45 µm, 25 mm D.	1000

PTFE New Certified Olimpeak™ Syringe Filter with Polypropylene Housing



- The PTFE (polytetrafluoroethylene) is an hydrophobic membrane resistant to strong acids, aggressive solvents, alcohols, bases and aromatics.
- This membrane is ideal for filtration and degassing of chromatography solvents and also for extremely basic mobile phase solutions
- Very low extractables
- This membrane is mechanically strong
- For sterile venting use 0.2 µm pore size, and for transducer protection or air/gas filtration use 1 or 0.45 µm.
- Excellent thermal stability
- Aqueous solutions require pre-wetting with an alcohol
- Maximum operating temperature 100 °C

Reference	Description	Pk
TR-200102	PTFE Filter, blue , 0.45 µm, 25 mm D	100
TR-200103	PTFE Filter, light blue, 0.20 µm, 25 mm D	100
TR-200502	PTFE Filter, blue , 0.45 µm, 13 mm D	100
TR-200503	PTFE Filter, light blue , 0.20 µm, 13 mm D	100

Polypropylene New Certified Olimpeak™ Syringe Filter with Polypropylene Housing



- Polypropylene is a hydrophilic membrane, highly resistant to solvents
- Exhibits a wide range of chemical compatibility to organic solvents
- It is ideal for biological sample filtration due to the low protein binding
- Good choice for chromatography protein analysis and biological sample filtration
- Can be used with acids and bases, and general HPLC analysis
- Maximum operating temperature 110 °C
- Limited resistance to chloroform and MeCl

Reference	Description	Pk
TR-200111	Polypropylene Filter, white 0.45 µm, 25 mm D	100
TR-200112	Polypropylene Filter, natural , 0.20 µm, 25 mm D	100
TR-200509	Polypropylene Filter, white , 0.45 µm, 13 mm D	100
TR-200508	Polypropylene Filter, natural , 0.20 µm, 13 mm D	100

PVDF New Certified Olimpeak™ Syringe Filter with Polypropylene Housing



- PVDF is Polyvinylidene difluoride and is a hydrophilic membrane
- This membrane is solvent resistant and exhibits low levels of extractables
- PVDF is a low protein binding membrane, and can be used with proteins and peptides

- Can be used for sample filtration of aqueous and organic solvents
- Ideal for all the applications for HPLC and general biological filtration
- Maximum operating temperature 110 °C

Don't use it with strong acids, bases or ketones.

Reference	Description	Pk
TR-200106	PVDF Filter, red 0.45 µm, 25 mm D	100
TR-200107	PVDF Filter, rose 0.20 µm, 25 mm D	100
TR-200506	PVDF Filter, red 0.45 µm, 13 mm D	100
TR-200507	PVDF Filter, rose, 0.20 µm, 13 mm D	100

Regenerated Cellulose New Certified Olimpeak™ Syringe Filter with Polypropylene Housing



- Regenerated Cellulose, is a hydrophilic solvent resistant and very low protein binding membrane
- It is also compatible with nearly all common HPLC solvents
- The Regenerated Cellulose is compatible with aqueous samples in a pH from 3 to 12
- These membranes, can used for biological samples filtration and are important for the protein recuperation
- The Regenerated Cellulose is the membrane of choice for low nonspecific binding applications, tissue culture media filtration and biological sample filtration. To improve the filtration use it with Glass pre-filter membrane
- Maximum operating temperature 110 °C

Don't use with strong acids, chloroform, THF.

Reference	Description	Pk
TR-200445	Regenerated Cellulose Filter, brown, 0.45 µm, 25 mm D	100
TR-200440	Regenerated Cellulose Filter, light brown, 0.20 µm, 25 mm D	100
TR-200435	Regenerated Cellulose Filter, brown 0.45 µm, 13 mm D	100
TR-200430	Regenerated Cellulose Filter, light brown, 0.20 µm, 13 mm D	100

Tk Certified Olimpeak™ Syringe Filters

Polyethersulfone New Certified Olimpeak™ Syringe Filter with Polypropylene Housing



- Hydrophilic membrane, very low protein and nucleic acid binding and can be used with high temperature liquids
- This membrane provides high flow rates and good throughput volume
- PES is the filter of choice for tissue culture work, having very low extractables
- The PES is a mechanically strong membrane, and can be used with strong bases, alcohols and resistive proteins
- Good to excellent flow rates
- Maximum operating temperature 100 °C

Don't use it with acids, ketones, ethers, halogenated or aromatic hydrocarbons.

Reference	Description	Pk
TR-200401	Polyethersulfone, violet 0,45 µm, 25 mm D	100
TR-200402	Polyethersulfone, light violet 0,20 µm, 25 mm D	100
TR-200403	Polyethersulfone, violet 0,45 µm, 13 mm D	100
TR-200404	Polyethersulfone, light violet 0,20 µm, 13 mm D	100

Cellulose Acetate New Certified Olimpeak™ Syringe Filter with Polypropylene Housing



- Hydrophilic membrane
- Ideal for aqueous based samples and for tissue culture media filtration and sensitive biological samples

- Very low protein binding membrane, even less than either PVDF or PES membranes
- This membrane has a lower chemical resistance than Regenerated Cellulose
- Maximum operating temperature 110 °C

Don't use it with organic solvents.

Reference	Description	Pk
TR-200406	Cellulose Acetate, orange 0.45 µm, 25 mm D	100
TR-200407	Cellulose Acetate, light orange 0.20 µm, 25 mm D	100
TR-200408	Cellulose Acetate, orange 0.45 µm, 13 mm D	100
TR-200409	Cellulose Acetate, light orange 0.20 µm, 13 mm D	100

M.E. Cellulose New Certified Olimpeak™ Syringe Filter with Polypropylene Housing



- The M.E Cellulose membrane is hydrophilic
- They are used to clean or to sterilize many aqueous solutions
- It is ideal for biological samples or culture media filtration

Reference	Description	Pk
TR-200104	M.E Cellulose Filter, yellow, 0.45 µm, 25 mm D	100
TR-200105	M.E Cellulose Filter, light yellow, 0.20 µm, 25 mm D	100
TR-200504	M.E Cellulose Filter, yellow, 0.45 µm, 13 mm D	100
TR-200505	M.E Cellulose Filter, light yellow, 0.20 µm, 13 mm D	100

Nitrocellulose New Certified Olimpeak™ Syringe Filter with Polypropylene Housing



- A naturally hydrophilic membrane recommended for clarification and filtration of aqueous samples
- For immunoblotting, the high protein retention of Nitrocellulose is ideal to bind DNA

Reference	Description	Pk
TR-200480	Nitrocellulose Filter, pistachio, 0.45 µm, 25 mm D	100
TR-200482	Nitrocellulose Filter, light pistachio, 0.20 µm, 25 mm D	100
TR-200466	Nitrocellulose Filter, pistachio, 0.45 µm, 13 mm D	100
TR-200467	Nitrocellulose Filter, light pistachio, 0.20 µm, 13 mm D	100

Glass Microfibre GMF New Certified Olimpeak™ Syringe Filter with Polypropylene Housing



- GMF membranes are commonly used as pre-filters to remove large particulates to extend the loading capacity of the filter membrane
- Membrane of choice for dissolution test
- Maximum operating temperature 110 °C

Reference	Description	Pk
TR-200000G	Glass Microfiber GMF, Grey, 1,0 µm 25 mm D	100
TR-200006G	Glass Microfiber GMF, Grey, 2,0 µm 25 mm D	100
TR-200007G	Glass Microfiber GMF, Grey, 5,0 µm 25 mm D	100

MiniTip Certified Olimpeak™ Syringe Filters

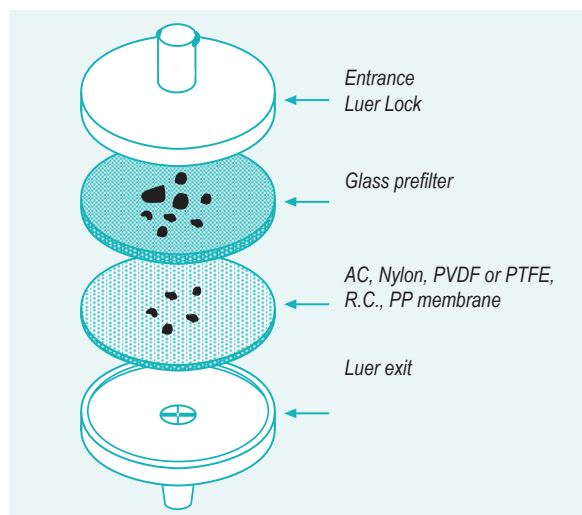


- Teknokroma has designed a new 13 mm syringe filter with a thin outlet called MiniTip, for direct filling of microvials.
- High quality MiniTip syringe filters are available with these membranes: Nylon, PES, PTFE, PVDF, RC, CN, CA, M.E.C and PP.
- Pore size can be 0.45 or 0.20 µm and the lot number of each filter is printed on the PP housing.

Reference	Description	Pk
TR-200500MT5	Mini Tip Nylon 0.45 µm x 13 mm PP, Green	500
TR-200501MT5	Mini Tip Nylon 0.2 µm x 13 mm PP, Light Green	500
TR-200502MT5	Mini Tip PTFE 0.45 µm x 13 mm PP, Blue	500
TR-200503MT5	Mini Tip PTFE 0.2 µm x 13 mm PP, Light Blue	500
TR-200504MT5	Mini Tip M.E.Cellulose 0.45 µm x 13 mm PP, Yellow	500
TR-200505MT5	Mini Tip M.E.Cellulose 0.2 µm x 13 mm PP, Light Yellow	500
TR-200506MT5	Mini Tip PVDF 0.45 µm x 13 mm PP, Red	500
TR-200507MT5	Mini Tip PVDF 0.2 µm x 13 mm PP, Light Red	500
TR-200508MT5	Mini Tip Polypropylene 0.2 µm x 13 mm PP, White	500
TR-200509MT5	Mini Tip Polypropylene 0.45 µm x 13 mm PP, White	500
TR-200430MT5	Mini Tip Regenerated Cellulose 0.2 µm x 13 mm PP, Light Brown	500
TR-200435MT5	Mini Tip Regenerated Cellulose 0.45 µm x 13 mm PP, Brown	500
TR-200465MT10	Mini Tip Nylon L.E. 0.45 µm x 13 mm.D, Green	1000
TR-200460MT10	Mini Tip Nylon L.E. 0.2 µm x 13 mm.D, Light Green	1000
TR-200408MT10	Mini Tip Cellulose Acetate 0.45 µm x 13 mm.D, Orange	1000
TR-200409MT10	Mini Tip Cellulose Acetate 0.2 µm x 13 mm.D, Light Orange	1000
TR-200466MT10	Mini Tip Nitrocellulose 0.45 µm x 13 mm.D, Pistachio	1000
TR-200467MT10	Mini Tip Nitrocellulose 0.2 µm x 13 mm.D, Light Pistachio	1000
TR-200403MT10	Mini Tip Polyethersulfone 0.45 µm x 13 mm.D, Violet	1000
TR-200404MT10	Mini Tip Polyethersulfone 0.2 µm x 13 mm.D, Light Violet	1000

Tk Certified Olimpeak™ Syringe Filters

Filter with Glass prefilter New Certified Olimpeak™ Syringe and Polypropylene Housing



- Teknokroma offers a wide range of syringe filters with a Glass Microfiber membrane used as pre-filter.
- The Glass pre-filter is mounted before the microporous filter membrane. This combination eliminates the need for a pre-filtration step, minimizes sample loss, and prolongs the life of membrane.
- Flow rates are increased and filtrate volume is significantly greater when compared to filters with no pre-filter.
- Regenerated Cellulose membrane with the GMF membrane as a prefilter, is especially useful for tissue culture media filtration, as well as for general biological sample filtration.
- These filters are ideal for general laboratory filtration of samples that contain an excessive amount of particulates.
- The glass pre-filter removes the larger particulates and prevents premature clogging of the filter membrane.

Reference	Pore	Description	Housing	Pk
TR-200100G	0.45 µm	Nylon/Glass fibre 1 µm	PP	100
TR-200101G	0.2 µm	Nylon/Glass fibre 1 µm	PP	100
TR-200102G	0.45 µm	PTFE/Glass fibre 1 µm	PP	100
TR-200103G	0.2 µm	PTFE/Glass fibre 1 µm	PP	100
TR-200111G	0.45 µm	PP/Glass fibre 1 µm	PP	100
TR-200112G	0.2 µm	PP/Glass fibre 1 µm	PP	100
TR-200445G	0.45 µm	RC/Glass fibre 1 µm	PP	100
TR-200440G	0.2 µm	RC/Glass fibre 1 µm	PP	100
TR-200104G	0.45 µm	M.E.C/Glass fibre 1 µm	PP	100
TR-200105G	0.2 µm	M.E.C/Glass fibre 1 µm	PP	100
TR-200106G	0.45 µm	PVDF/Glass fibre 1 µm	PP	100
TR-200107G	0.2 µm	PVDF/Glass fibre 1 µm	PP	100
TR-200406G	0.45 µm	CA/Glass fibre 1 µm	PP	100
TR-200407G	0.20 µm	CA/Glass fibre 1 µm	PP	100
TR-200401G	0.45 µm	PES/Glass fibre 1 µm	PP	100
TR-200402G	0.20 µm	PES/Glass fibre 1 µm	PP	100
TR-200480G	0.45 µm	NC/Glass fibre 1 µm	PP	100
TR-200482G	0.20 µm	NC/Glass fibre 1 µm	PP	100

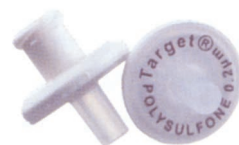
Target Syringe Filters (4mm Diameter)



- Assured quality - each lot independently tested for physical properties and membrane tested for UV extractables.
- Secure Luer Lok inlet
- Solvent resistant, low extractables polypropylene housing.

Reference	Description	Pore	Pk
CC-F2504-1	Nylon 4 mm D	0.45 µm	100
CC-F2504-2	Nylon 4 mm D	0.20 µm	100
CC-F2504-3	PTFE 4 mm D	0.45 µm	100
CC-F2504-4	PTFE 4 mm D	0.20 µm	100
CC-F2504-5	PVDF 4 mm D	0.45 µm	100
CC-F2504-6	PVDF 4 mm D	0.20 µm	100
CC-F2504-7	Regenerated Cellulose 4 mm D	0.45 µm	100
CC-F2504-8	Regenerated Cellulose 4 mm D	0.20 µm	100
CC-F2504-9	Polypropylene 4 mm D	0.45 µm	100
CC-F2504-10	Polypropylene 4 mm D	0.20 µm	100
CC-F2504-15	Cellulose Acetate 4 mm D	0.45 µm	100
CC-F2504-16	Cellulose Acetate 4 mm D	0.20 µm	100

Target Syringe Filter with polyethersulfone (PES) membrane



- Provides high flow rates and good throughput volum. Low protein binding and can be used with high temperature liquids.
- Good to excellent flow rate. PES is certified for Ion Chromatography.

PES Certified for Ion Chromatography

Reference	Description	Pore	Pk
CC-F2513-14	PES (polyethersulfone), 17 mm	0.45 µm	100
CC-F2513-17	PES (polyethersulfone), 17 mm	0.20 µm	100
CC-F2500-14	PES (polyethersulfone), 30 mm	0.45 µm	100
CC-F2500-17	PES (polyethersulfone), 30 mm	0.20 µm	100

Target Syringe Filters with Glass microfiber membrane



- GMB membranes are commonly used as pre-filters to remove large particulates and to extend the load capacity of the membrane.
- Membrane of choice for dissolution test.

Glass Microfiber GMF

Reference	Description	Pore	Pk
CC-F2500-18	GMF Glass Microfiber, 30 mm	0.70 µm	100
CC-F2500-19	GMF Glass Microfiber, 30 mm	1.20 µm	100
CC-F2500-20	GMF Glass Microfiber, 30 mm	3.10 µm	100

Target Syringe Filters 30 mm Diameter

Reference	Membrane	Pore	Diameter	Pk
CC-F2500-1	Nylon	0.45 µm	30 mm	100
CC-F2500-2	Nylon	0.20 µm	30 mm	100
CC-F2500-3	PTFE	0.45 µm	30 mm	100
CC-F2500-4	PTFE	0.20 µm	30 mm	100
CC-F2500-13	PTFE	1.00 µm	30 mm	100
CC-F2500-5	PVDF	0.45 µm	30 mm	100
CC-F2500-6	PVDF	0.20 µm	30 mm	100
CC-F2500-7	Regenerated Cellulose	0.45 µm	30 mm	100
CC-F2500-8	Regenerated Cellulose	0.20 µm	30 mm	100
CC-F2500-9	Polypropylene	0.45 µm	30 mm	100
CC-F2500-10	Polypropylene	0.20 µm	30 mm	100
CC-F2500-15	Cellulose Acetate	0.45 µm	30 mm	100
CC-F2500-16	Cellulose Acetate	0.20 µm	30 mm	100

Target Syringe Filters 17 mm Diameter

Reference	Membrane	Pore	Diameter	Pk
CC-F2513-1	Nylon	0.45 µm	17 mm	100
CC-F2513-2	Nylon	0.20 µm	17 mm	100
CC-F2513-3	PTFE	0.45 µm	17 mm	100
CC-F2513-4	PTFE	0.20 µm	17 mm	100
CC-F2513-5	PVDF	0.45 µm	17 mm	100
CC-F2513-6	PVDF	0.20 µm	17 mm	100
CC-F2513-7	Regenerated Cellulose	0.45 µm	17 mm	100
CC-F2513-8	Regenerated Cellulose	0.20 µm	17 mm	100
CC-F2513-9	Polypropylene	0.45 µm	17 mm	100
CC-F2513-10	Polypropylene	0.20 µm	17 mm	100
CC-F2513-14	Polyethersulfone	0.45 µm	17 mm	100
CC-F2513-17	Polyethersulfone	0.20 µm	17 mm	100
CC-F2513-15	Cellulose Acetate	0.45 µm	17 mm	100
CC-F2500-16	Cellulose Acetate	0.20 µm	17 mm	100

750 µL Micro-Centrifugal Filters - Nonsterile



- Filter volumes as low as 50 µl up to 750 µl with low hold-up volume
- Use with any laboratory microcentrifuge
- Virgin polypropylene filter housing with tapered 2 mL, capped receiver tube

750 µL Micro-Centrifugal Filters - Nonsterile

Reference	Membrane	Pore	Pk
CC-F2517-1	Cellulose Acetate	0.22 µm	100
CC-F2517-2	Cellulose Acetate	0.45 µm	100
CC-F2517-3	Nylon	0.2 µm	100
CC-F2517-4	Nylon	0.45 µm	100

2 mL Micro-Centrifugal Filters - Nonsterile



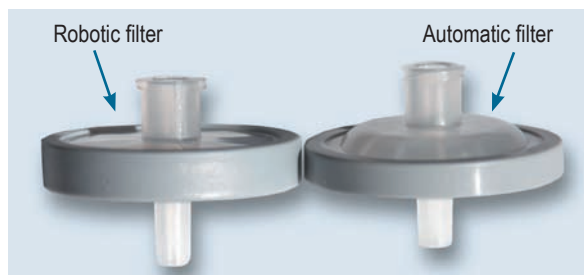
- Filter sample volumes up to 2 mL
- Virgin Polypropylene filter housing with tapered 5mL, capped receiver tube
- Use with benchtop or floor model centrifuges
- 500xG maximum centrifugal force

2mL Micro-Centrifugal Filters - Nonsterile

Reference	Membrane	Pore	Pk
CC-F2520-1	Cellulose Acetate	0.22 µm	25
CC-F2520-2	Cellulose Acetate	0.45 µm	25
CC-F2520-3	Nylon	0.20 µm	25
CC-F2520-4	Nylon	0.45 µm	25
CC-F2520-5	PVDF	0.20 µm	25
CC-F2520-6	PVDF	0.45 µm	25
CC-F2520-7	Regenerated Cellulose	0.20 µm	25
CC-F2520-8	Regenerated Cellulose	0.45 µm	25

Tk Certified Olimpeak™ Robotic Syringe Filters

New Certified AUTOMATIC OlimPeak Filter for automatic equipments Sotax and Zymark

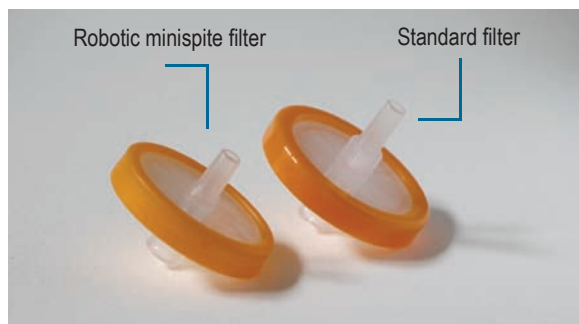


Automatic filter difference

- This filter units are the newest development of Teknokroma filter for automatic equipments.
- The design of this filter is the same than the Robotic Filter except that the upper side is vault shaped.
- The inlet is a female leuer Screw ant the outlet is a male luer Minispike.

Certified Olimpeak™ Filters for Automatic Equipments

Reference	Membrane	Pore	Housing	Pk
TR-200000A	Fiber Glass	1.00 µm	PP	1000
TR-2-200006A	Fiber Glass	2.00 µm	PP	1000
TR-2-200007A	Fiber Glass	5.00 µm	PP	1000
TR-200100A	Nylon	0.45 µm	PP	1000
TR-200102A	PTFE	0.45 µm	PP	1000
TR-200104A	M.E.Cellulose	0.45 µm	PP	1000
TR-200106A	PVDF	0.45 µm	PP	1000
TR-200111A	Polypropylene	0.45 µm	PP	1000
TR-200440A	Regenerated Cellulose	0.45 µm	PP	1000
TR-200480A	Nitrocellulose	0.45 µm	PP	1000
TR-200406A	Cellulose Acetate	0.45 µm	PP	1000
TR-200401A	Polyethersulfone	0.45 µm	PP	1000
TR-200100GA	Nylon/Glass fibre 1 µm	0.45 µm	PP	1000
TR-200102GA	PTFE/Glass fibre 1 µm	0.45 µm	PP	1000
TR-200111GA	PP/Glass fibre 1 µm	0.45 µm	PP	1000
TR-200445GA	RC/Glass fibre 1 µm	0.45 µm	PP	1000
TR-200104GA	M.E.C/Glass fibre 1 µm	0.45 µm	PP	1000
TR-200106GA	PVDF/Glass fibre 1 µm	0.45 µm	PP	1000
TR-200406GA	CA/Glass fibre 1 µm	0.45 µm	PP	1000
TR-200401GA	PES/Glass fibre 1 µm	0.45 µm	PP	1000
TR-200480GA	NC/Glass fibre 1 µm	0.45 µm	PP	1000



Robotic filter difference

Certified Olimpeak™ Filters for Robotic Equipments Zotax and Zymark

- Teknokroma has developed new filters to use with robotic apparatus
- They are available in 25 mm D.
- The inlet is a female "Luer Lock" and the outlet is a male luer "Minispike".
- Pore size is 0.45 or 0.20 µm for the following membranes: Nylon, PVDF, PTFE, M.E. Cellulose, PP, Regenerated Cellulose, Cellulose Acetate Nitrocellulose, PES
- For the Glass Microfibre, the pore size is 1.0 µm
- The robotic filters are under strict quality control for reliable performance.
- Each pack contains 1000 units.
- All these filters can be adapted to automatic equipments as Sotax, Zymark, etc.
- The Glass membrane is the good choice for dissolution test.

Reference	Membrane	Pore	Housing	Pk
TR-200000R	Fiber Glass	1.00 µm	PP	1000
TR-2-200006R	Fiber Glass	2.00 µm	PP	1000
TR-2-200007R	Fiber Glass	5.00 µm	PP	1000
TR-200100R	Nylon	0.45 µm	PP	1000
TR-200102R	PTFE	0.45 µm	PP	1000
TR-200104R	M.E.Cellulose	0.45 µm	PP	1000
TR-200106R	PVDF	0.45 µm	PP	1000
TR-200111R	Polypropylene	0.45 µm	PP	1000
TR-200440R	Regenerated Cellulose	0.45 µm	PP	1000
TR-200480R	Nitrocellulose	0.45 µm	PP	1000
TR-200406R	Cellulose Acetate	0.45 µm	PP	1000
TR-200401R	Polyethersulfone	0.45 µm	PP	1000
TR-200100GR	Nylon/Glass fibre 1 µm	0.45 µm	PP	1000
TR-200102GR	PTFE/Glass fibre 1 µm	0.45 µm	PP	1000
TR-200111GR	PP/Glass fibre 1 µm	0.45 µm	PP	1000
TR-200445GR	RC/Glass fibre 1 µm	0.45 µm	PP	1000
TR-200104GR	M.E.C/Glass fibre 1 µm	0.45 µm	PP	1000
TR-200106GR	PVDF/Glass fibre 1 µm	0.45 µm	PP	1000
TR-200406GR	CA/Glass fibre 1 µm	0.45 µm	PP	1000
TR-200401GA	PES/Glass fibre 1 µm	0.45 µm	PP	1000
TR-200480GA	NC/Glass fibre 1 µm	0.45 µm	PP	1000

Olimpeak™ Membrane Filters for Mobile Phase Tk

Membrane Filters



- Protect your instruments and columns eliminating particulates and gases from mobile phase
- Nylon and PVDF membrane filters are resistant to a wide range of organic and aqueous solvents.
- M.E. Cellulose membranes are used for filtration of aqueous mobile phase
- PTFE membrane filters are ideal for organic solvent

Membrane filters for mobile phase filtration 47 mm D.



Reference	Membrane	Pore Size µm	Diameter mm	Pk
TR-200 140	Nylon	0.45	47	50
TR-200 150	Nylon	0.20	47	50
TR-200 200	PTFE	0.45	47	50
TR-200 210	PTFE	0.20	47	50
TR-200 260	M.E. Cellulose	0.45	47	50
TR-200 270	M.E. Cellulose	0.20	47	50
TR-200 320	PVDF	0.45	47	50
TR-200 330	PVDF	0.20	47	50
TR-200 380	Polipropylene	0.45	47	50
TR-200 390	Polipropylene	0.20	47	50
TR-200 420	Regenerated cellulose	0.45	47	50
TR-200 425	Regenerated cellulose	0.20	47	50
TR-200 456	Nitrocellulose	0.45	47	50
TR-200 457G	Glass Microfiber	1.00	47	50
TR-200 458	Cellulose Acetate	0.45	47	50



Filtering Equipment

- 47 mm filtration apparatus is recommended for filtration of mobile phase and removal of particles from HPLC solvents.
- Manufactured with first quality glass, tube of galss DURAN from Scchott.
- The porosity of the filtration plate is of number 3, which means a nominal pore size of 16-40 micrometers.

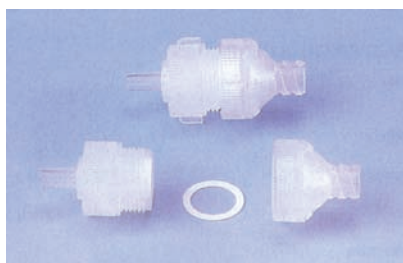
Reference	Description
TR-F1000	Complete Filtering Equipment 1.000 ml vessel and 250 ml funnel.
TR-F1002	Complete Filtering Equipment 2.000 ml vessel and 250 ml funnel.
TR-F1010	Filtration vessel, frosted glass and 1.000 ml capacity
TR-F1012	Filtration vessel, frosted glass and 2.000 ml capacity
TR-F1022	Fritted glass support, with screw fitting.
TR-F1016	Aluminium plier for the filtering equipment.
TR-F1018	Galss Funnel with 250 ml capacity for the filtering equipment.

Tk Olimpeak™ Membrane Filters for Sample Filtration

Membrane filters for sample filtration
(need the holder 13/25 mm D.)



Reference	Membrane	Pore Size mm	Diameter mm	Pk
TR-200109	Nylon	0.45	13	100
TR-200110	Nylon	0.20	13	100
TR-200220	M.E. Cellulose	0.45	13	100
TR-200230	M.E. Cellulose	0.20	13	100
TR-200160	PTFE	0.45	13	100
TR-200170	PTFE	0.20	13	100
TR-200280	PVDF	0.45	13	100
TR-200290	PVDF	0.20	13	100
TR-200340	Polipropylene	0.45	13	100
TR-200350	Polipropylene	0.20	13	100
TR-200400	Regenerated cellulose	0.45	13	100
TR-200405	Regenerated cellulose	0.20	13	100
TR-200120	Nylon	0.45	25	50
TR-200130	Nylon	0.20	25	50
TR-200240	M.E. Cellulose	0.45	25	50
TR-200250	M.E. Cellulose	0.20	25	50
TR-200180	PTFE	0.45	25	50
TR-200190	PTFE	0.20	25	50
TR-200300	PVDF	0.45	25	50
TR-200310	PVDF	0.20	25	50
TR-200360	Poliypropylene	0.45	25	50
TR-200370	Polypropylene	0.20	25	50
TR-200410	Regenerated cellulose	0.45	25	50
TR-200415	Regenerated cellulose	0.20	25	50
TR-200002 G	Glass microfibre	1.00	25	50



SX00 01300 - Holder 13 mm D

Holder for 13 mm. D Membrane

Reference	Description	Pk
SX00 01300	Milipore Swinex Holder 13 mm. D	10



Finisterre by Teknokroma™



Technical Information of Finisterre™ SPE Cartridges

Teknokroma introduces in the market the new line of Finisterre™ Solid Phase Extraction columns for a fast and efficient sample clean-up and concentration prior to analysis through GC, HPLC, and/or other instrumental methods.

SPE method concentrates and purifies analytes from solution by sorption onto a disposable solid phase cartridge, followed by elution of the analyte with an appropriate solvent for instrumental analysis. The Finisterre™ SPE columns improve sample purity, quantification, and HPLC column life.

Our unic packing process **Filling PRIM™** guarantees unsurpassed accuracy by strictly monitoring the amount of packing in each individual column.

The dosification control by weight, column by column, using an automated specially designed machine, permits to assure results with high accuracy and less variability.

The irregular silica shape with an average particle size of 50 µm and no fines, avoid silica contamination in your final product. The pore diameter used in the Finisterre™ packing is 60Å.

The very tight particle size distribution used to manufacture SPE Finisterre™ packing provides a very good separation, as the sample and solvent flow uniformly through the sorbent bed, incrementing the contact with the packing.

Finisterre™ SPE columns consist of molded high purity polypropylene bodies with two 20 µm polyethylene frits that contain the packing material.

Finisterre™ SPE columns are equipped with male Luer-tips and designed for elution using either a syringe, a filter flask or a vacuum manifold.

Finisterre™ SPE products are manufactured in compliance with ISO 9001 and technical procedures and tested according international standards ISO 17025.

Teknokroma Finisterre™ SPE cartridges are available in four sizes (1, 3, 6 and 12 mL) and different packing materials (C18, C8, C4, C2, PH, SI, CN, NH₂, DIOL, Florisil™, SAX, SCX).

Sorbent weights ranged from 100 mg to 1 g.

Samples and raw data of all Finisterre™ SPE cartridges batches are stored during 5 years from production for reference.



Product Presentation

Tk Finisterre OA™ Polymeric SPE Columns

Finisterre OA™ HLB



Description:

Finisterre OA™ HLB is a wettable copolymer presenting a Hydrophobic-Lipophilic Balance (HLB) permitting a strong retention for neutral, acidic and basic compounds and a high stability in organic solvents.

Particle Size: 40 µm
Pore Diameter: 110 Å
Surface Area: 850 m²/g
pH Stability: 0 to 14

Applications

- Drugs & metabolites in biological fluids
- API from tablets, creams, in waste water & drinking water
- Environmental analysis: trace of PAHs, pesticides, herbicides, phenols & PCB in water
- Antibiotics and pesticides in food & beverage

Cat.No	Description		pk
TR-F034300	Finisterre OA™ HLB	30mg/1ml	100
TR-F034302	Finisterre OA™ HLB	60mg/3ml	50
TR-F034304	Finisterre OA™ HLB	100mg/6ml	30
TR-F034306	Finisterre OA™ HLB	200mg/6ml	30
TR-F034308	Finisterre OA™ HLB	500mg/6ml	30

Finisterre OA™ SCX



Description:

Finisterre OA™ SCX is a polystyrene-divinylbenzene copolymer functionalized by a strong cation exchanger presenting a high selectivity for acids (pK_a 2 - 10). It is highly stable in organic solvents.

Particle Size: 85 µm
Pore Diameter: 60 Å
Surface Area: 800 m²/g
pH Stability: 0 to 14
Ionic Capacity: 0.85 meq/g

Applications

- Basic Drugs & metabolites in biological fluids
- Pesticides, herbicides, fungicides & melamine from food & beverage.

Cat.No	Description		pk
TR-F034320	Finisterre OA™ SCX	30mg/1ml	100
TR-F034322	Finisterre OA™ SCX	60mg/3ml	50
TR-F034324	Finisterre OA™ SCX	100mg/6ml	30
TR-F034326	Finisterre OA™ SCX	200mg/6ml	30
TR-F034328	Finisterre OA™ SCX	500mg/6ml	30

Finisterre OA™ DVB



Description:

Finisterre OA™ DVB is a polystyrene-divinylbenzene copolymer presenting a high hydrophobicity used as reversed-phase for extraction of neutral, acidic and basic compounds in viscous matrices.

Particle Size: 85 µm
Pore Diameter: 60 Å
Surface Area: 1000 m²/g
pH Stability: 0 to 14

Applications

- Drugs & metabolites in biological fluids
- API from tablets, creams, in waste water & drinking water
- Environmental analysis: trace of PAHs, pesticides, herbicides, phenols & PCB in water

Cat.No	Description		pk
TR-F034310	Finisterre OA™ DVB	30mg/1ml	100
TR-F034312	Finisterre OA™ DVB	60mg/3ml	50
TR-F034314	Finisterre OA™ DVB	100mg/6ml	30
TR-F034317	Finisterre OA™ DVB	200mg/6ml	30
TR-F034318	Finisterre OA™ DVB	500mg/6ml	30

Finisterre OA™ SAX



Description:

Finisterre OA™ SAX is a polystyrene-divinylbenzene copolymer functionalized by a strong anion exchanger presenting a high selectivity for acids (pK_a 2 - 8). It is highly stable in organic solvents.

Particle Size: 85 µm
Pore Diameter: 60 Å
Surface Area: 900 m²/g
pH Stability: 1 to 14
Ionic Capacity: 0.25 meq/g

Applications

- Acidic compounds & metabolites from biological fluids & tissues
- Food additives & contaminants
- Acidic phenols
- Acidic herbicides

Cat.No	Description		pk
TR-F034330	Finisterre OA™ SAX	30mg/1ml	100
TR-F034332	Finisterre OA™ SAX	60mg/3ml	50
TR-F034334	Finisterre OA™ SAX	100mg/6ml	30
TR-F034336	Finisterre OA™ SAX	200mg/6ml	30
TR-F034338	Finisterre OA™ SAX	500mg/6ml	30

Finisterre OA™ Polymeric SPE Columns **Tk**

Finisterre OA™ WCX



Description:

Finisterre OA™ WCX is a polystyrene-divinylbenzene copolymer functionalized by a weak cation exchanger used to catch and release strong basic compounds (pKa >10). It is highly stable in organic solvents.

Particle Size: 85 µm
Pore Diameter: 60 Å
Surface Area: 800 m²/g
pH Stability: 0 to 14
Ionic Capacity: 0.70 meq/g

Applications

- Strong basic compounds from biological fluids & tissues
- Streptomycin from food

Cat.No	Description		pk
TR-F034340	Finisterre OA™ WCX	30mg/1ml	100
TR-F034342	Finisterre OA™ WCX	60mg/3ml	50
TR-F034344	Finisterre OA™ WCX	100mg/6ml	30
TR-F034346	Finisterre OA™ WCX	200mg/6ml	30
TR-F034348	Finisterre OA™ WCX	500mg/6ml	30

Finisterre OA™ WAX



Description:

Finisterre OA™ WAX is a polystyrene-divinylbenzene copolymer functionalized by a weak anion exchanger used to catch and release strong acidic compounds (pKa <2). It is highly stable in organic solvents.

Particle Size: 85 µm
Pore Diameter: 60 Å
Surface Area: 800 m²/g
pH Stability: 1 to 14
Ionic Capacity: 0.50 meq/g

Applications

- Strong acidic compounds & metabolites from biological fluids & tissues
- Sulfonates & perfluorinated surfactants

Cat.No	Description		pk
TR-F034350	Finisterre OA™ WAX	30mg/1ml	100
TR-F034352	Finisterre OA™ WAX	60mg/3ml	50
TR-F034354	Finisterre OA™ WAX	100mg/6ml	30
TR-F034356	Finisterre OA™ WAX	200mg/6ml	30
TR-F034358	Finisterre OA™ WAX	500mg/6ml	30

Equivalences

Teknokroma	Waters	Phenomenex	Agilent	Agilent	Biotage
Finisterre OA™ HLB	Waters Oasis® HLB	Phenomenex Strata™-X	Agilent Bond Elut Plexa	Agilent Nexus	Biotage Evolute® ABN
Finisterre OA™ DVB	Waters Oasis® HLB	Phenomenex Strata™-X	Agilent Bond Elut PPL	Agilent SimpliQ DVB	Biotage Evolute® ABN
Finisterre OA™ SCX	Waters Oasis® MCX	Phenomenex Strata™-X-C	Agilent Bond Elut Plexa PCX	Agilent SimpliQ SCX	Biotage Evolute® CX
Finisterre OA™ SAX	Waters Oasis® MAX			Agilent SimpliQ SAX	Biotage Evolute® AX
Finisterre OA™ WCX	Waters Oasis® WCX	Phenomenex Strata™-X-CW		Agilent SimpliQ WCX	Biotage Evolute® WCX
Finisterre OA™ WAX	Waters Oasis® WAX	Phenomenex Strata™-X-AW		Agilent SimpliQ WAX	Biotage Evolute® WAX

Finisterre™ C18 SPE Columns



Is the traditional matrix for reversed-phase chromatography. The high loading provides the highest degree of hydrophobicity

Retention Mechanism: Reverse phase, one of the most hydrophobic phases

Functional Group: Polymerically bonded octadecyl C18 endcapped. High Capacity C18

Endcapped: yes

Higher Carbon Load: 17.0 %

Silica Base: Irregular Shape

Average Particle Size: 50 µm

Pore Diameter: 60 Å

Hardware: Polypropylene

Frit: Polyethylene 20 µm porosity

Applications

Isolation of hydrophobic species from solution

Compounds retained are Non- polar to moderately polar in a polar matrix.

- Drugs in serum, plasma and urine
- Desalting of peptides
- Organic acids in wine
- Pesticides in water by trace enrichment.

Finisterre™ C18 High Capacity C18 are Equivalent to:

Baker C18, Macherey –Nagel C18–ec, Macherey –Nagel C18–ecf, Phenomenex C 18-E, Supelco DSC-18, Supelco ENVI-18, Varian C 18, Waters C18, Whatman ODS-5

Cat.No	Description	pk
TR-F034000	Finisterre SPE Columns C18/17% 100mg/1ml	100
TR-F034002	Finisterre SPE Columns C18/17% 200mg/3ml	50
TR-F034004	Finisterre SPE Columns C18/17% 500mg/3ml	50
TR-F034006	Finisterre SPE Columns C18/17% 500mg/6ml	30
TR-F034008	Finisterre SPE Columns C18/17% 1000mg/6ml	30
TR-F034010	Finisterre SPE Columns C18/17% 1000mg/12ml	20

Finisterre™ C8 SPE Columns



Retention Mechanism: Reverse phase.

Functional Group: Octyl (C8)

Endcapped: yes

Higher Carbon Load: 8.5 %

Silica Base: Irregular Shape

Average Particle Size: 50 µm

Pore Diameter: 60 Å

Hardware: Polypropylene

Frit: Polyethylene 20 µm porosity

Applications

For compounds retained too strongly on C18

Cat.No	Description	pk
TR-F034020	Finisterre SPE Columns C8 100mg/1ml	100
TR-F034022	Finisterre SPE Columns C8 200mg/3ml	50
TR-F034024	Finisterre SPE Columns C8 500mg/3ml	50
TR-F034026	Finisterre SPE Columns C8 500mg/6ml	30
TR-F034028	Finisterre SPE Columns C8 1000mg/6ml	30
TR-F034030	Finisterre SPE Columns C8 1000mg/12ml	20

Finisterre™ C4 SPE Columns



Retention Mechanism: Reverse phase.

Functional Group: Butyl (C4)

Endcapped: yes

Higher Carbon Load: 5.0 %

Silica Base: Irregular Shape

Average Particle Size: 50 µm

Pore Diameter: 60 Å

Hardware: Polypropylene

Frit: Polyethylene 20 µm porosity

Applications

For compounds retained too strongly on C18 or C8

- Analgesics from blood

Cat.No	Description	pk
TR-F034040	Finisterre SPE Columns C4 100mg/1ml	100
TR-F034042	Finisterre SPE Columns C4 200mg/3ml	50
TR-F034044	Finisterre SPE Columns C4 500mg/3ml	50
TR-F034046	Finisterre SPE Columns C4 500mg/6ml	30
TR-F034048	Finisterre SPE Columns C4 1000mg/6ml	30
TR-F034050	Finisterre SPE Columns C4 1000mg/12ml	20

Finisterre™ SPE Columns **Tk**

Finisterre™ C2 SPE Columns



Retention Mechanism: Reverse phase.
Functional Group: Ethyl (C2)
Endcapped: yes
Higher Carbon Load: 5.5 %
Silica Base: Irregular Shape
Average Particle Size 50 µm
Pore Diameter: 60 Å
Hardware: Polypropylene
Frit: Polyethylene 20 µm porosity

Applications

Antiepileptics from plasma

Cat.No	Description		pk
TR-F034060	Finisterre SPE Columns C2	100mg/1ml	100
TR-F034062	Finisterre SPE Columns C2	200mg/3ml	50
TR-F034064	Finisterre SPE Columns C2	500mg/3ml	50
TR-F034066	Finisterre SPE Columns C2	500mg/6ml	30
TR-F034068	Finisterre SPE Columns C2	1000mg/6ml	30
TR-F034070	Finisterre SPE Columns C2	1000mg/12ml	20

Finisterre™ PH SPE Columns



Retention Mechanism: Reverse phase.
Functional Group: Phenyl (PH)
Endcapped: yes
Higher Carbon Load: 3.8 %
Silica Base: Irregular Shape
Average Particle Size 50 µm
Pore Diameter: 60 Å
Hardware: Polypropylene
Frit: Polyethylene 20 µm porosity

Applications

Choose for highly aromatic compounds.

Cat.No	Description		pk
TR-F034080	Finisterre SPE Columns PH	100mg/1ml	100
TR-F034082	Finisterre SPE Columns PH	200mg/3ml	50
TR-F034084	Finisterre SPE Columns PH	500mg/3ml	50
TR-F034086	Finisterre SPE Columns PH	500mg/6ml	30
TR-F034088	Finisterre SPE Columns PH	1000mg/6ml	30
TR-F034090	Finisterre SPE Columns PH	1000mg/12ml	20

Finisterre™ CN SPE Columns



Retention Mechanism: Normal phase -weak/moderate non-polar with aqueous matrix, or polar with non polar organic matrix
Functional Group: Cyanopropyl (CN)
Endcapped: yes
Higher Carbon Load: 4.0 %
Silica Base: Irregular Shape
Average Particle Size 50 µm
Pore Diameter: 60 Å
Hardware: Polypropylene
Frit: Polypropylene 20 µm porosity

Applications

Compounds retained are polar compounds in a non-polar matrix

- Analytes in aqueous or organic solvents
- Drugs and metabolites in physiological fluids.

Cat.No	Description		pk
TR-F034100	Finisterre CN SPE Columns	100mg/1ml	100
TR-F034102	Finisterre CN SPE Columns	200mg/3ml	50
TR-F034104	Finisterre CN SPE Columns	500mg/3ml	50
TR-F034106	Finisterre CN SPE Columns	500mg/6ml	30
TR-F034108	Finisterre CN SPE Columns	1000mg/6ml	30
TR-F034110	Finisterre CN SPE Columns	1000mg/12ml	20

Finisterre™ NH₂ SPE Columns



Retention Mechanism: Weak anion exchange with aqueous matrix, normal phase with non-polar organic matrix.
Functional Group: Aminopropyl (NH₂)
Endcapped: no
Higher Carbon Load: 5.0 %
Silica Base: Irregular Shape
Average Particle Size 50 µm
Pore Diameter: 60 Å
Hardware: Polypropylene
Frit: Polypropylene 20 µm porosity

Applications

Compounds retained are polar compounds in a non-polar matrix

Cat.No	Description		pk
TR-F034140	Finisterre SPE Columns NH2	100mg/1ml	100
TR-F034142	Finisterre SPE Columns NH2	200mg/3ml	50
TR-F034144	Finisterre SPE Columns NH2	500mg/3ml	50
TR-F034146	Finisterre SPE Columns NH2	500mg/6ml	30
TR-F034148	Finisterre SPE Columns NH2	1000mg/6ml	30
TR-F034150	Finisterre SPE Columns NH2	1000mg/12ml	20

Tk Finisterre™ SPE Columns

Finisterre™ DIOL SPE Columns



Retention Mechanism: Normal phase
Functional Group: DIOL (2OH)
Endcapped: no
Higher Carbon Load: 6.0 %
Silica Base: Irregular Shape
Average Particle Size 50 µm
Pore Diameter: 60 Å
Hardware: Polypropylene
Frit: Polypropylene 20 µm porosity

Applications

Compounds retained are polar compounds in a non-polar matrix

- Analytes in aqueous or organic solvents
- Drugs and metabolites in physiological fluids

Cat.No	Description		pk
TR-F034180	Finisterre Diol SPE Columns	100mg/1ml	100
TR-F034182	Finisterre Diol SPE Columns	200mg/3ml	50
TR-F034184	Finisterre Diol SPE Columns	500mg/3ml	50
TR-F034186	Finisterre Diol SPE Columns	500mg/6ml	30
TR-F034188	Finisterre Diol SPE Columns	1000mg/6ml	30
TR-F034190	Finisterre Diol SPE Columns	1000mg/12ml	20

Finisterre™ FLO SPE Columns



Retention Mechanism: Normal phase
Functional Group: Florisil® (FLO)
Base: Magnesium Silicate
Average Particle Size 75-100 µm
Pore Diameter: 85 Å
Hardware: Polypropylene
Frit: Polypropylene 20 µm porosity

Applications

Compounds retained are polar compounds in a non-polar matrix
 Isolation of low to moderate polarity species from non-aqueous solution

- Pesticides in food and feeds
- Polychlorinated biphenyls in transformer oil
- Clean up of pesticides from soil extraction and food residue

Cat.No	Description		pk
TR-F034160	Finisterre SPE Column Florisil	100mg/1ml	100
TR-F034162	Finisterre SPE Column Florisil	200mg/3ml	50
TR-F034164	Finisterre SPE Column Florisil	500mg/3ml	50
TR-F034166	Finisterre SPE Column Florisil	500mg/6ml	30
TR-F034168	Finisterre SPE Column Florisil	1000mg/6ml	30
TR-F034170	Finisterre SPE Column Florisil	1000mg/12ml	20

Finisterre™ Si SPE Columns



Retention Mechanism: Normal phase, polar neutral phase
Functional Group: Silica (Si)
Base: Silica
Average Particle Size 50 µm
Pore Diameter: 60 Å
Hardware: Polypropylene
Frit: Polypropylene 20 µm porosity

Applications

Isolation of low to moderate polarity species from non-aqueous solution.

Compounds retained are Polar compounds in a non-polar matrix

- Lipid classification
- Separation of plant pigments
- Removal of fat soluble vitamins
- Clean up of pesticides from soil extraction and food residue

Cat.No	Description		pk
TR-F034120	Finisterre SPE Columns Silica	100mg/1ml	100
TR-F034122	Finisterre SPE Columns Silica	200mg/3ml	50
TR-F034124	Finisterre SPE Columns Silica	500mg/3ml	50
TR-F034126	Finisterre SPE Columns Silica	500mg/6ml	30
TR-F034128	Finisterre SPE Columns Silica	1000mg/6ml	30
TR-F034130	Finisterre SPE Columns Silica	1000mg/12ml	20

Finisterre™ SAX SPE Columns



Retention Mechanism: Anion exchange
Functional Group: Tetramethyl ammonium
Base: Silica
Counter Ion: Acetate
Average Particle Size 50 µm
Hardware: Polypropylene
Frit: Polypropylene 20 µm porosity

Applications

Retains (-) charged compounds

Cat.No	Description		pk
TR-F034200	Finisterre SAX SPE Columns	100mg/1ml	100
TR-F034202	Finisterre SAX SPE Columns	200mg/3ml	50
TR-F034204	Finisterre SAX SPE Columns	500mg/3ml	50
TR-F034206	Finisterre SAX SPE Columns	500mg/6ml	30
TR-F034208	Finisterre SAX SPE Columns	1000mg/6ml	30
TR-F034210	Finisterre SAX SPE Columns	1000mg/12ml	20

Finisterre™ SCX SPE Columns



Retention Mechanism: Cation exchange
Functional Group: Benzene sulfonic acid
Base: Silica
Counter Ion: Hydrogen
Exchange Capacity: 0.24 meq/100 mg
Average Particle Size 50 µm
Hardware: Polypropylene
Frit: Polypropylene 20 µm porosity

Applications

Retains (+) charged compounds

Cat.No	Description		pk
TR-F034220	Finisterre SCX SPE Columns	100mg/1ml	100
TR-F034222	Finisterre SCX SPE Columns	200mg/3ml	50
TR-F034224	Finisterre SCX SPE Columns	500mg/3ml	50
TR-F034226	Finisterre SCX SPE Columns	500mg/6ml	30
TR-F034228	Finisterre SCX SPE Columns	1000mg/6ml	30
TR-F034230	Finisterre SCX SPE Columns	1000mg/12ml	20

Finisterre™ SPE columns are simple to use and allow four-steps sample preparation

1. Conditioning
2. Sample Application
3. Washing
4. Elution

The capacity of SPE columns are defined as the amount of analyte that a packing bed will retain from a sample matrix. There are some variables that affect capacity, basically: sample matrix, analyte, structure and other compound than compete with the analyte. But in general, with 60 Å bonded silica phases will retain approximately 1 % of their bed weight.

For example, a 200 mg bed will retain approximately 2 mg of all compounds in a sample that have an affinity for the sorbent. But the best system to determine the capacity for an SPE column is experimentally.

1. Conditioning

The conditioning wets the packing surface, making the packing functional group fully accessible to the sample. In general for 100 mg of packing you can pass 2 ml of two solvent, generally methanol followed of water in reverse phase. In normal phase are usually conditioned with the solvent that is weaker than the sample matrix.

It is important that the tube should not be dried before adding the sample.

2. Sample application

A general rule use a sample volume equal to half the tube volume, for example 1 ml for 200 mg tubes.

The flow rate of elution of sample about 1 ml/min. for 100 mg tubes, 2 ml /min. for 200 mg tubes, and 3 ml/min. for 500 mg tubes.

3. Washing

Select a wash solvent that has the same, or slightly greater, elution strength as the sample matrix.

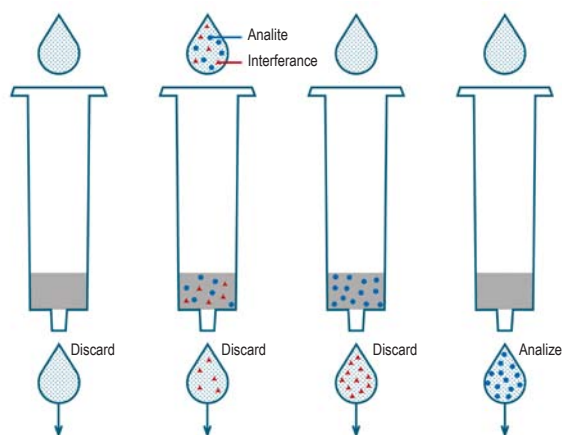
Wash solvents should remove weakly retained interferences without being strong enough to elute the analyte.

4. Elution

Select a solvent with more elution strength than the sample matrix.

As standard use 250 µl of solvent for 100 mg of packing, in general the solvents use for elution should be strong enough to completely elute an analyte in a small volume 1 or 2 ml. Attention should be paid to solvent strength relative to the packing material.

Tk Select the Different Extraction Procedures



Select the different Extraction Procedures Methods:

Extraction Procedures for Reversed Phases

Packings of Reverse Phase are composed of a silica backbone bonded with hydrocarbon chains.

Packings of Reverse Phase are used to isolate relatively non-polar compounds from a polar matrix.

Reverse Phase packings require conditioning with an organic solvent followed by an aqueous solvent prior to use.

Elution of non-polar compounds requires less polar solvents, and moderately polar compounds are accomplished with middle polarity solvents.

1. Conditioning:

Rinse packing bed with 3-5 ml of methanol followed by 3-5 ml of water or buffer (don't let packing bed dry before adding sample).

2. Sample application:

Apply sample solution to the top of the packing bed. Push or draw the sample through the bed at a flow rate of 1-5 ml/min. Collect sample for analysis if desired compound has passed through the packing bed without being retained.

3. Wash:

If the desired compound was retained, wash off any weakly retained interfering compound(s) with a polar solvent.

4. Elution:

Elute desired compound with 1-2 ml of a non-polar solvent and collect for analysis.

Extraction Procedures for Normal Phases

Packings of Normal-phase are composed of a silica backbone bonded with carbon chains containing polar functional groups. Packings of Normal Phase are used to isolate polar compounds from a non-polar matrix.

Normal Phase packings require conditioning with non-polar solvents.

Elution is accomplished with more polar solvents.

1. Conditioning:

Rinse packing bed with 3-5 ml of non-polar solvent (don't let packing bed dry before adding sample).

2. Sample application:

Apply sample solution to the top of the packing bed. Push or draw the sample through the bed at a flow rate of 1-5 ml/min. Collect sample for analysis if desired compound has passed through the packing bed without being retained.

3. Wash:

If the desired compound was retained, wash off any weakly retained interfering compound(s) with a non-polar solvent.

4. Elution:

Elute desired compound with 1-2 ml of a polar solvent and collect for analysis.

Extraction Procedures for Ion-Exchange

Packings of Ion Exchange are composed of different materials backbone bonded with carbon chains terminated by a negatively or positively charged functional groups.

Packings of Ion Exchange are used to isolate charged or potentially charged compounds.

Anions and cations are retained on the corresponding resin by exchanging the anion or cation in the sample with the anion or cation on the resin.

1. Conditioning:

Rinse packing bed with 3-5 ml of de-ionized water or low ionic strength buffer (e.g. 0.0001M-0.01M).

2. Sample application:

Apply sample to the top of the packing bed. Push or draw the sample through the bed at a flow rate of 1-2 ml/min. Collect sample for analysis if desired compound has passed through the packing bed without being retained.

3. Wash:

If the desired compound was retained, wash off any weakly retained interfering compound(s) with de-ionized water or low strength buffer.

4. Elution:

Elute desired compound with 1-5 ml of a high salt concentration solution (e.g. 0.1M- 0.5M) or change elution buffer pH such that the sample compound is no longer ionized and collect for analysis.

Finisterre™ SPE Applications

Extraction of Catecholamines from Urine

SPE column: TR-F034000 Finisterre™ C18/17% 100 mg/1mL column
Sample preparation: Urine, pH 8.5 with 2 M ammonium hydroxide
Conditioning: 2 x 1mL of methanol, followed by 2 x 1mL of ammonium chloride/0.5% EDTA, pH 8.5
Sample application: Addition of 1 mL of sample
Wash: 2 x 1mL of 0.2 M ammonium chloride, pH 8.5, followed by 1mL of ammonium chloride / methanol (80:20), pH 8.5
Elution: Air dry for 2 min and elute with 2 x 1mL of 0.08 M acetic acid

Extraction of Vitamin D from Serum

SPE column: TR-F034124 Finisterre™ Si 500 mg/3mL column
Sample preparation: Serum, 2 mL extracted with 7.5 mL of methylene chloride/methanol (33:67). Add 2.5mL of methylene chloride and shake. Allow phases to separate and collect the lower methylene-chloride layer
Conditioning: 3mL of anhydrous ether/hexane (1:9)
Sample application: Addition of extracted sample
Wash: 10mL of anhydrous ether/hexane (1:9)
Elution: 7.5mL of anhydrous ether/hexane (33:67)

Organochlorine Pesticides in Water

SPE column: TR-F034106 Finisterre™ CN 500 mg/6mL column
Sample preparation: River water 100 mL
Conditioning: 2.5mL methanol
 2.5mL ethyl acetate
 2.5mL methanol
 2.5mL distilled water
Sample application: Addition of sample
Wash: Force residual water out of sorbent with air.
Elution: 2.5mL ethyl acetate

Extraction of Pyridonecarboxylic-Acid Antibacterials (PCAs) from Fish Tissue

SPE column: TR-F034146 Finisterre™ NH2 500 mg/6mL column
Sample preparation: Blend 5 g of sample is extracted with hexane/ethyl acetate 1:3 and 10 g of sodium sulfate. High speed blend and decant. Repeat and combine extracts
Conditioning: 10mL methanol, followed by 5mL of hexane/ethyl acetate 1:3
Sample application: Addition of the sample
Wash: 5mL of hexane/ethyl acetate 1:3
Elution: 10mL of acetonitrile/methanol/0.01M aqueous oxalic acid pH=3 with NaOH

Extraction of Antibiotics from Ointment

SPE column: TR-F034184 Finisterre™ Diol 500 mg/3mL column
Sample preparation: 50 mg of ointment is extracted with 2 mL of hexane. The sample forms an insoluble suspension.
Conditioning: 3mL of hexane.
Sample application: Addition of the suspension.
Wash: 2 x 1mL of hexane. Air dry the column.
Elution: 2 x 1mL of methanol/0.1 N HCl 1:1

Extraction of Polychlorinated Biphenyls (PCBs) from transformer Oil

SPE column: TR-F034168 Finisterre™ Florisil 1000 mg/6mL column
Sample preparation: 200 mg of transformer oil
Conditioning: 2 x 2mL of hexane.
Sample application: Addition of the transformer oil directly into the column.
Wash: No wash steps are needed.
Elution: 25mL of hexane and evaporate for GC/MS analysis.

Tk Vacuum Manifolds for SPE

Vacuum Manifold



Teknokroma vacuum manifolds simplify SPE sample processing. These manifolds permit consistent extraction and filtration results. Analyst can save time, since these manifolds allow simultaneous multiple sample processing.

The manifolds yield consistent extraction, elution and filtration results for up to 24 columns, cartridges or 25 mm syringe filters. Filters should not be attached to the vacuum manifold port prior to elution. Filters will air-lock and prevent fluid passage if used during column conditioning, sample application, or column wash. Using filters during the final elution step will ensure a clean sample for injection. Parallel processing of this kind greatly reduces the time required to prep multiple samples.

The manifolds consist of a clear glass chamber to which vacuum is applied to draw a sample through on SPE column, cartridge, or disk.

Adjustable racks placed in the glass vacuum chamber will accommodate a variety of sample collection vessels, including test tubes, autosamplers, vials, volumetric flasks, and Erlenmeyer flasks.

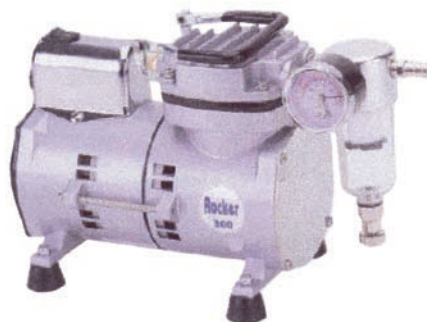
Eluants are deposited directly into the collection vessel of choice via polypropylene, optional stainless steel, or Teflon needles.

Vacuum manifolds for SPE sample preparation, filtration, and elution are available in 12, 16, and 24 port configurations.

Port Vacuum Manifold complete set include: Glass chamber, cover gasket & 12 stopcocks, vacuum valve and gauge, collections racks plates (13 mm, 16 mm tubes, volumetric flask, plate base, plate dimple, lid legs, propylene needles, retaining clips for collections racks.

Cat.No	Description
TR-004012	12 Port Vacuum Manifold, Complete Set
TR-004416	16 Port Vacuum Manifold, Complete Set
TR-004824	24 Port Vacuum Manifold, Complete Set

Vacuum Pump R-300



Vacuum Pump impulsed by serving dish, without oil, declaring the innovative silent technology and mechanics.

The R-300 is adaptable to many requirements of laboratory:

- **Slow vibration and silent**
Motor directly conducted without the mechanism of transmission and rubber feet of quality that maintain the noise level only upon approximately 50 dB.
- **Weigh compact and light**
The aluminum mold and its precise construction make the R-300 so little and compact, with a weight of only 4,1 kg.
- **Cleanliness and maintenance**
The design without oil makes the R-300 clean and free of maintenance, we guarantee the free supply of spare parts during two years of 3000 working hours (except humidity filter).

Cat.No	Description
BOVT 0300	Vacuum Pump R-300

Specifications	
Maximum vacuum	650 mm. Hg
Vacuum Velocity	(2.5 L tank):
0 mmHg:	17/min = 9.6 CFM
100 mmHg:	14 l/min = 0.49 CFM
200 mmHg:	12 l/min = 0.42 CFM
300 mmHg:	9.5 l/min = 0.34 CFM
400 mmHg:	7 l/min = 0.25 CFM
500 mmHg:	4.5 l/min = 0.16 CFM
600 mmHg:	1.5 l/min = 0.05 CFM
Maximum flow:	13 l/min
Motive rotation:	1450 rpm
Potency:	1/8 CV/HP
Poles Nbr.:	4 P
Gross weight:	5.1 kg
Net weight:	4.1 kg
Entrance screw:	1/8 PS
Noise level:	50 dB

Description	12 Positions	Pk	16 Positions	Pk	24 Positions	Pk
Glass Chamber	TR-004013	1	TR-004417	1	TR-004825	1
Cover, gasket & 12 stopcocks	TR-004014	1	TR-004418	1	TR-004826	1
Gaskets	TR-004015	2	TR-004419	2	TR-004827	1
Vacuum gauge, valve & glass chamber	TR-004016	1	TR-004420	1	TR-004828	1
Needles - Polypropylene	TR-004017	12	TR-004421	12	TR-004829	12
Needles - Stainless Steel	TR-004018	12	TR-004422	12	TR-004830	12
Collection Rack-shelves, legs, chips & posts	TR-004019	1	TR-004423	1	TR-004831	1
Plate - 13 mm	TR-004020	1	TR-004424	1	TR-004832	1
Plate - volumetric flask	TR-004021	1	---	---	---	---
Plate - 16 mm test tube	TR-004022	1	TR-004426	1	TR-004834	1
Plate - autosampler vial	TR-004023	1	---	---	---	---
Plate - dimple	TR-004024	1	TR-004428	1	TR-004836	1
Plate - base	TR-004025	1	TR-004429	1	TR-004837	1
Stopcocks	TR-004026	1	TR-004430	1	TR-004838	1

Drying Attachments



Drying attachments are available for the 12 and 24 port manifolds, which will direct the flow of air or nitrogen into the collection vessels to concentrate eluants, prior to further analysis.

Drying attachments can be connected, via adapters, to SPE columns or cartridges in order to dry the column or cartridge prior to final elution.

Cat.No	Description
TR-004027	12 Positions Drying Attachment
TR-004431	16 Positions Drying Attachment
TR-004839	24 Positions Drying Attachment

Disposable polypropylene waste container



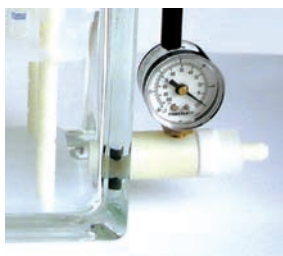
The disposable polypropylene waste container simplifies clean-up of the vacuum chamber in 12 port manifolds. The disposable waste liner is a molded solvent resistant polypropylene liner that fits into the vacuum chamber of the 12 port manifolds. The liner is designed to contain all liquids used in SPE sample preparation. To use the liner, remove the manifold lid and take out the rack and shelf set. Place the disposable liner into the glass vacuum chamber, and replace the manifold lid. Proceed with all conditioning and sample preparation steps. Just prior to final elution, the liner, containing the waste solvents, is removed from the vacuum chamber.

There are small handles at each end of the waste liner to facilitate its removal.

Replace the lid, and proceed with the final elution of the analyze. Waste solvents should be properly discarded from the liner. The liner can be cleaned and re-used a number of times, prior to discarding.

Cat.No	Description	Pk
TR-004028	12 Positions PP Vacuum Waste Container	10

Accessories



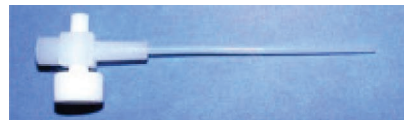
Cat.No	Description	Pk
TR-004102	Female Luer Fittings	2
TR-004103	Male Luer Fittings	2
TR-004104	Support post for rack	3
TR-004105	Legs for cover- black	4
TR-004106	Vacuum gauge & valve assembly	1
TR-004107	Valve assembly only	1
TR-004108	Vacuum gauge	1
TR-004109	Retaining clips	12
TR-004110	Vacuum manifolds plugs	50
AP-2402	Adapters for columns SPE 1, 3 and 6 ml	10

Disposable Teflon Needles

Teflon needles



Teflon control valves



Disposable teflon needles and teflon needles with flow control valves are designed to fit through the manifold's lid via the luer fitting. These needles deliver the eluant directly from the SPE extraction columns or cartridge into the collection vessel in the vacuum chamber. These needles, when used in conjunction with teflon columns and teflon frits ensure zero extractables from the column, frits, and fluid path. This combination is especially useful for critical sample analysis, such as environmental samples.

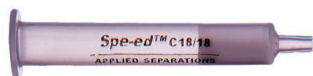
Excellent solvent resistant and direct flow into the sample chambers are the key benefits.

Cat.No	Description	Pk
TR-004210	Teflon Needles	100
TR-004212	Teflon Needles	500
TR-004202	Teflon Control Valve	25
TR-004204	Teflon Control Valve	50

Applied Separations SPE Products

Applied Separations offers an extended range of kinds and configurations in SPE.

With Applied Separations extraction systems, you can assure results reproducible, less variability, and easy conversion to automatic processes thanks to the strict particle size quality control, the surface activity, pH, the flow, and the interferences.



Spe-ed Standard Columns

Extraction columns in sizes: 1ml, 3ml, 6ml and 12 ml.



Mini Spe-ed Cartridges

Cartridges designed for its manual use but also to be used in Manifolds. The Mini Spe-ed capacity is 1 ml. For silica gel, the content is 450 mg.



Mini Spe-ed Plus Cartridges

With the same configuration as Mini Spe-ed Cartridges, but with a major capacity (2,8 ml). For silica gel, the content is 1.265 mg.

Standard Spe-ed Columns



	100 mg 1ml	200 mg 3 ml	500 mg 3 ml	500 mg 6 ml	1000 mg 6 ml	1000 mg 12 ml
Quantity per Box	100 units	50 units	50 units	30 units	30 units	20 units
C18 Octadecyl C18/18%	AP-12001	AP-12002	AP-12003	AP-12006	AP-12007	AP-12009
C18 Octadecyl C18/14%	AP-2001	AP-2002	AP-2003	AP-2006	AP-2007	AP-2009
C18 Octadecyl C18/22%	AP-12101	AP-12102	AP-12103	AP-12106	AP-12107	AP-12109
C18 Octadecyl C18/OH	AP-12201	AP-12202	AP-12203	AP-12206	AP-12207	AP-12209
C8 Octyl	AP-2011	AP-2012	AP-2013	AP-2016	AP-2017	AP-2019
PH Phenyl	AP-2081	AP-2082	AP-2083	AP-2086	AP-2087	AP-2089
CH Cyclohexyl	AP-2071	AP-2072	AP-2073	AP-2076	AP-2077	AP-2079
C4 Butyl	AP-2021	AP-2022	AP-2023	AP-2026	AP-2027	AP-2029
C2 Ethyl	AP-2061	AP-2062	AP-2063	AP-2066	AP-2067	AP-2069
C1 Methyl	AP-2051	AP-2052	AP-2053	AP-2056	AP-2057	AP-2059
CNe Cyanopropyl (endcaped)	AP-2221	AP-2222	AP-2223	AP-2226	AP-2227	AP-2229
CN Cyanopropyl	AP-2201	AP-2202	AP-2203	AP-2206	AP-2207	AP-2209
SI Silica Gel	AP-2101	AP-2102	AP-2103	AP-2106	AP-2107	AP-2109
FLO Florisil	AP-2111	AP-2112	AP-2113	AP-2116	AP-2117	AP-2119
ALN Alumina (Neutral)	AP-2121	AP-2122	AP-2123	AP-2126	AP-2127	AP-2129
ALA Alumina (Acidic)	AP-2131	AP-2132	AP-2133	AP-2136	AP-2137	AP-2139
ALB Alumina (Basic)	AP-2141	AP-2142	AP-2143	AP-2146	AP-2147	AP-2149
DIO Diol	AP-2151	AP-2152	AP-2153	AP-2156	AP-2157	AP-2159
NH₂ Aminopropyl	AP-2211	AP-2212	AP-2213	AP-2216	AP-2217	AP-2219
SAX N+ Quaternary Amino	AP-2301	AP-2302	AP-2303	AP-2306	AP-2307	AP-2309
COOH Carboxylic Acidic	AP-2311	AP-2312	AP-2313	AP-2316	AP-2317	AP-2319
SCX Benzenesulfonic Acid	AP-2321	AP-2322	AP-2323	AP-2326	AP-2327	AP-2329
PSA Pri/Sec Amino	AP-2241	AP-2242	AP-2243	AP-2246	AP-2247	AP-2249
DEA Diethylamino	AP-2331	AP-2332	AP-2333	AP-2336	AP-2337	AP-2339
PBA Phenylboronic Acid	AP-2341	AP-2342	AP-2343	AP-2346	AP-2347	AP-2349

Mini Spe-ed Cartridges



Description	Cat.No	Pk
C18 Octadecyl C18/18%	AP-14002	50
C18 Octadecyl C18/14%	AP-14001	50
C18 Octadecyl C18/22%	AP-14003	50
C18 Octadecyl C18/OH	AP-14004	50
C8 Octyl	AP-14005	50
PH Phenol	AP-14006	50
CH Cyclohexyl	AP-14007	50
C4 Butyl	AP-14009	50
C2 Ethyl	AP-14010	50
C1 Methyl	AP-14011	50
CNe Cyanopropyl (endcaped)	AP-14012	50
CN Cyanopropyl	AP-14013	50
SI Silica Gel	AP-14014	50
FLO Florisil	AP-14015	50
ALN Alumina (Neutral)	AP-14016	50
ALA Alumina (Acidic)	AP-14017	50
ALB Alumina (Basic)	AP-14018	50
DIO Diol	AP-14019	50
NH₂ Aminopropyl	AP-14022	50
SAX N+ Quaternary Amino	AP-14025	50
COOH Carboxylic Acidic	AP-14020	50
SCX Benzenesulfonic Acid	AP-14021	50
PSA Pri/Sec Amino	AP-14023	50
DEA Diethylamino	AP-14024	50

Mini Spe-ed PlusCartridges



Description	Cat.No	Pk
C18 Octadecyl C18/18%	AP-24002	50
C18 Octadecyl C18/14%	AP-24001	50
C18 Octadecyl C18/22%	AP-24003	50
C18 Octadecyl C18/OH	AP-24004	50
C8 Octyl	AP-24005	50
PH Phenol	AP-24006	50
CH Cyclohexyl	AP-24007	50
C4 Butyl	AP-24009	50
C2 Ethyl	AP-24010	50
C1 Methyl	AP-24011	50
CNe Cyanopropyl (endcaped)	AP-14012	50
CN Cyanopropyl	AP-24013	50
SI Silica Gel	AP-24014	50
FLO Florisil	AP-24015	50
ALN Alumina (Neutral)	AP-24016	50
ALA Alumina (Acidic)	AP-24017	50
ALB Alumina (Basic)	AP-24018	50
DIO Diol	AP-24019	50
NH₂ Aminopropyl	AP-24022	50
SAX N+ Quaternary Amino	AP-24025	50
COOH Carboxylic Acidic	AP-24020	50
SCX Benzenesulfonic Acid	AP-24021	50
PSA Pri/Sec Amino	AP-24023	50
DEA Diethylamino	AP-24024	50

Isolation of Polar Organics from aqueous matrizes

Sped-ed Advanta is a chemically modified polymeric resin for solid phase extraction SPE .

Sped-ed Advanta is packed in standard 1, 3, and 6 ml SPE cartridges and is effective in removing polar organic compounds from aqueous samples.

Unlike standard C18 and polystyrene divinylbenzene SPE cartridges, the Spe-ed Advanta is:

- Easy wetted with water
- Requires no tedious conditioning steps
- Eliminates poor recoveries associated with the drying of a conditioned sorbent bed

Sped-ed Advanta markedly increases the recoveries of phenols, aromatic and polyhydroxyaromatic compounds from water when compared to C18 and polystyrene divinylbenzene SPE cartridges. In addition to numerous environmental applications, Spe-ed Advanta is successful for preparation of pharmaceutical environmental, biological, clinical, biotechnical, food, and cosmetic samples.

Recoveries of phenols, aromatic compounds and polyhydroxy aromatic compounds by SPE under wet and dry loading conditions.

Compound	Recovery Percentage					
	C18		PS/DVB**		Advanta	
	Wet	Dry	Wet	Dry	Wet	Dry
Phenol	6	3	91	3	100	93
p-Cresol	16	4	91	12	101	94
p-Ethylphenol	66	15	96	37	101	99
Nitrobenzene	54	27	92	51	100	97
2,4 Dimethylphenol	71	21	95	42	100	98
Aniline	9	≥5	94	26	100	96
Benzyl alcohol	10	≥5	92	17	99	99
2,4 Dinitrofluorobenzene	44	4	83	23	98	94
Methoxyhydroquinone	0	0	77	0	99	94

* Recovery data for additional analytes available upon request.

** Polystyrene Divinyl Benzene

Standard Spe-ed Advanta

Cat.No	Description	Pk
AP-4261	Standard Spe-ed Cartridges 30 mg/1 mL	100
AP-4262	Standard Spe-ed Cartridges 50mg/1 mL	100
AP-4263	Standard Spe-ed Cartridges 100 mg/1 mL	100
AP-4264	Standard Spe-ed Cartridges 100 mg/3 mL	50
AP-4265	Standard Spe-ed Cartridges 200 mg/3 mL	50
AP-4266	Standard Spe-ed Cartridges 500 mg/6 mL	50

Spe-ed Flow Advanta*

Cat.No	Description	Pk
AP-4267	Spe-ed Flow Cartridges 30 mg/1 mL	100
AP-4268	Spe-ed Flow Cartridges 50 mg/1 mL	100
AP-4269	Spe-ed Flow Cartridges 100 mg/1 mL	100
AP-4270	Spe-ed Flow Cartridges 100 mg/3 mL	50
AP-4271	Spe-ed Flow Cartridges 200 mg/3 mL	50
AP-4272	Spe-ed Flow Cartridges 500 mg/6 mL	50

* Spe-ed Flow Cartridges are specially designed to allow for the fast, free flowing direct addition of suspended solid laden samples into an SPE cartridge. Please refer to the Spe-ed Flow literature for additional information.

Larger cartridge configurations are available upon request.