

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™ SPE Columns

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™ 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-F034120	Finisterre Si SPE Column	100mg/1ml	100
TR-F034122	Finisterre Si SPE Column	200mg/3ml	50
TR-F034124	Finisterre Si SPE Column	500mg/3ml	50
TR-F034126	Finisterre Si SPE Column	500mg/6ml	30
TR-F034128	Finisterre Si SPE Column	1000mg/6ml	30
TR-F034130	Finisterre Si SPE Column	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 metanol 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.

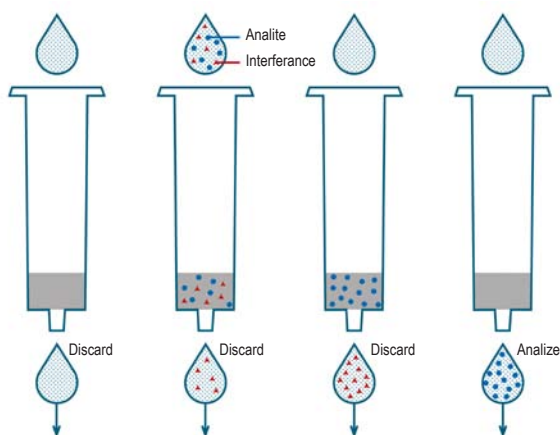
Wash solvents should remove weakly retained interferences without being strong enough to elute the analyte.

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 is 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.

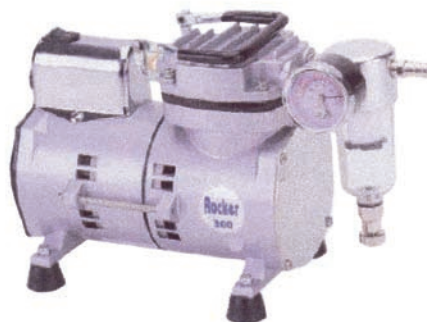
Eluants are deposited directly into the collection vessel of choice via polypropylene, optional stainless steel, or Teflon needles.

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 impuled 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



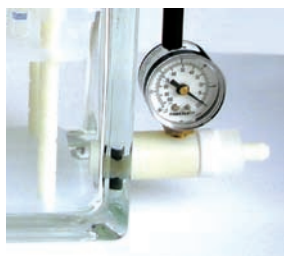
The disposable polypropylene waste container simplifies clean-up of the vacuum chamber in 12 port manifolds. The disposable waste liner is a molded solvent resistant polypropylene liner that fits into the vacuum chamber of the 12 port manifolds. The liner is designed to contain all liquids used in SPE 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



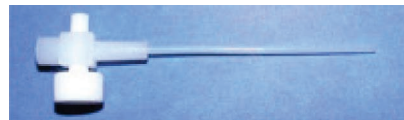
Cat.No	Description	Pk
TR-004102	Female Luer Fittings	2
TR-004103	Male Luer Fittings	2
TR-004104	Support post for rack	3
TR-004105	Legs for cover- black	4
TR-004106	Vacuum gauge & valve assembly	1
TR-004107	Valve assembly only	1
TR-004108	Vacuum gauge	1
TR-004109	Retaining clips	12
TR-004110	Vacuum manifolds 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 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.

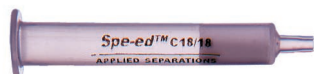
Excellent solvent resistant and direct flow into the sample chambers are the key benefits.

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

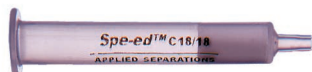
Cartridges designed for its manual use but also to be used in Manifolds. The Mini Spe-ed capacity is 1 ml. For silica gel, the content is 450 mg.



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
NH ₂ 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

TK Applied Separations SPE Cartridges

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 matrices

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 Sped-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, Sped-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
Methylhydroquinone	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.