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Quality Control

There have been significant advances in innovation in analytical instrumentation, making it much easier to perform trace analysis. However, no matter how well the instruments are developed, sample preparation and pretreatment are still inevitable. There is a wide variety of techniques available for sample pretreatment, such as mechanical grinding, dissolution and extraction.

This chapter describes the use of solid phase extraction (SPE), a sample pretreatment technique which is fast, clean and economical when compared with the traditional method of liquid-liquid extraction.

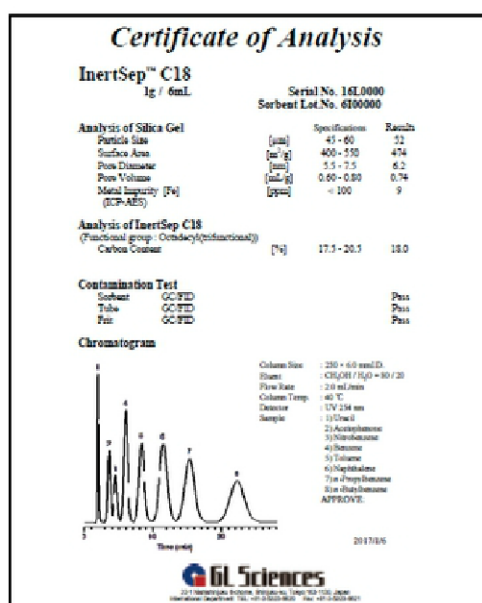
Systematic errors can greatly affect the overall accuracy and precision of analysis. To overcome these problems, solid phase extraction can be done using a range of automation technologies. Automation of sample pretreatment greatly improves the reproducibility, reliability and robustness of SPE. The reliability of SPE packing materials has also become increasingly important.

GL Sciences is committed to providing our customers with 'Excellent Products, Quick Delivery' together with 'Fast Technical Support'; giving you confidence in our products to achieve your goals.

Quality Control of InertSep Products

The InertSep series is an original GL Sciences brand produced in our own factory through development, manufacturing, quality control and inspection. Our Fukushima Manufacturing factory has obtained the International Organization for Standardization ISO-9001 certification. All solid-phase extraction products are manufactured under strict quality control and widely used in the analysis of food and water samples. All products are inspected and only those which pass our stringent criteria are shipped to customers.

On request, we can provide a customization service and custom-made multi-sorbent beds in a cartridge.



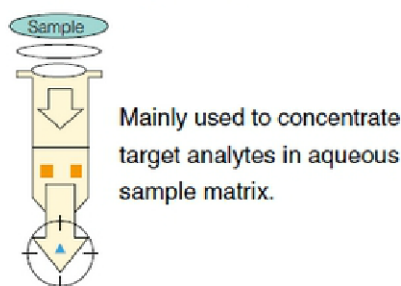
Objective of Solid Phase Extraction (SPE)

Objective of Solid Phase Extraction (SPE)

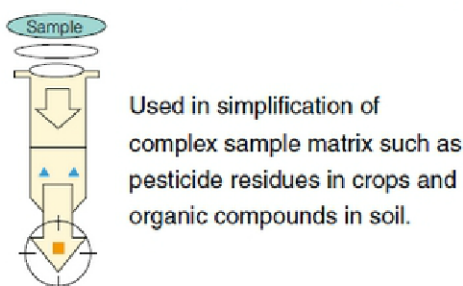
Separation and Purification of Target Analytes

The principle of SPE is divided into the following two methods.

① Retaining the target analyte

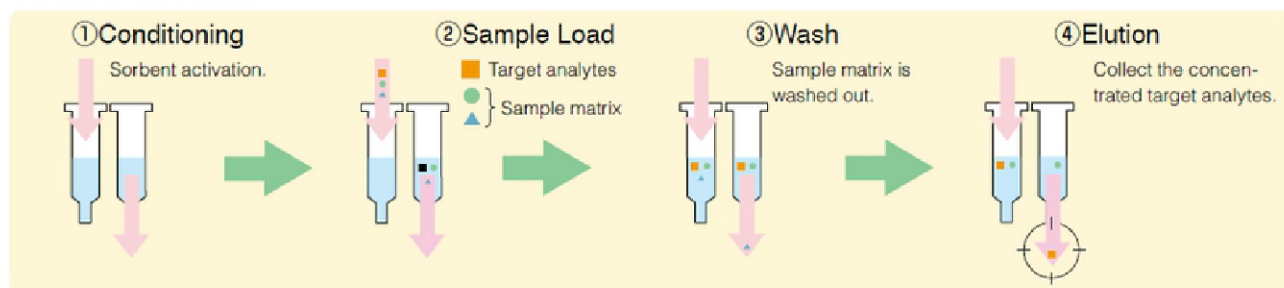


② Retaining the sample matrix and letting the target analytes pass through

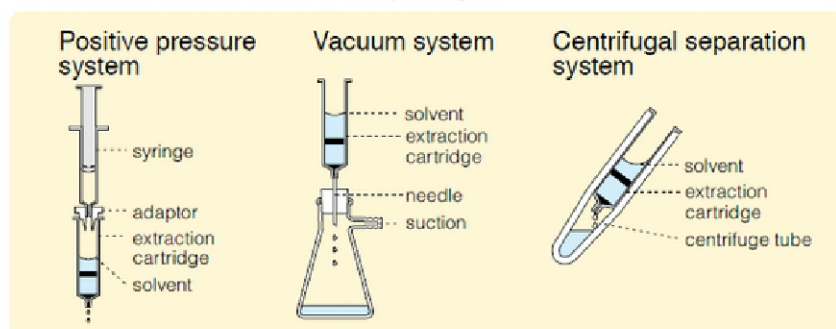


■ Target analyte
▲ Sample matrix

General Four Steps

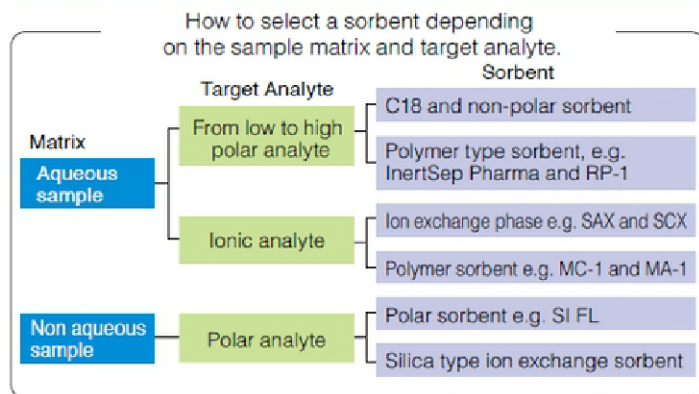


General Methods for Processing Sample



SPE Cartridge Selection Guide

How to Select a Sorbent

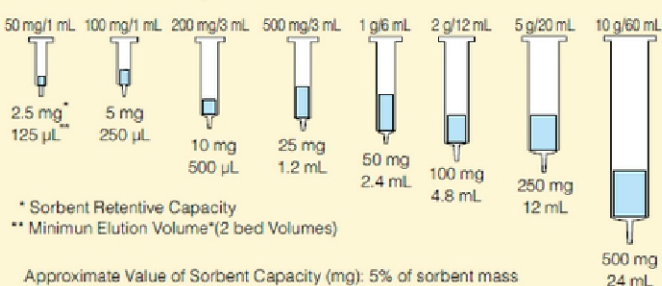


One of the most important elements to achieve successful of solid phase extraction is the selection of a sorbent suitable for both the sample matrix and the target analyte.

The sorbent should be carefully selected by taking into account the chemical and physical properties of both the target analyte and the sample matrix. In addition, it is important to develop conditions that are optimal for retaining the target analyte, while removing the sample matrix, then selecting an elution solvent for maximum recovery of the target analyte.

Retentive Capacity of a Sorbent Compared to Sorbent Mass

Sorbent Mass / Cartridge size



*Bed volume is the quantity of the solvent necessary to replace the air trapped in the solid phase.
Void volume is equivalent to the bed volume

Recommendation for Selecting an Ion Exchange Sorbent

Target Analytes	InertSep	pKa*	Structure	Target Ion		
				Weak Ion	Strong Ion	
Acidic	Anion Exchange	MA-1 4Class Amine	-CH ₂ -N ⁺ (R) ₃	✓	x	
		MA-2 2Class Amine	11.0	-CH ₂ -N (R) ₂	✓	x
		NH ₂ Aminopropyl	9.8	-CH ₂ CH ₂ CH ₂ NH ₂	x	✓
		PSA 1Class, 2Class Amine	10.1,10.9	-CH ₂ CH ₂ CH ₂ NHCH ₂ CH ₂ NH ₂	x	✓
		SAX Tri-Methylaminopropyl	-	-CH ₂ CH ₂ CH ₂ N ⁺ (CH ₃) ₃	✓	x
		SAX-2	-	-CH ₂ CH ₂ CH ₂ N ⁺ (CH ₃) ₃	✓	x
Basic	Cation Exchange	MC-1 Sulfonic Acid	1.0	-CH ₂ -SO ₃ ⁻	✓	x
		MC-2 Carboxylic Acid	4.5	-CH ₂ -COO ⁻	✓	x
		CBA Ethyl Carboxylic Acid	4.8	-CH ₂ CH ₂ COO ⁻	x	✓
		PRS Propyl Sulfonic Acid	1.0	-CH ₂ CH ₂ CH ₂ SO ₃ ⁻	✓	x
		SCX Benzene Sulfonic Acid	1.0	-CH ₂ CH ₂ C ₆ H ₄ SO ₃ ⁻	✓	x
		SCX-2	-	-CH ₂ CH ₂ C ₆ H ₄ SO ₃ ⁻	✓	x

* pKa reference value for each functional group.

■ InertSep Series Sorbent Specifications

● Polymer-based Sorbent Specifications

To conduct solid phase extraction, it is necessary to choose the sorbent best suited for the properties of your target compound and sample matrix. The advantages of polymer-based sorbent are the availability in the wide pH range and the absence of secondary interaction which can occur with silica-based sorbents.

Separation mode	InertSep	Base gel	Functional group	Particle size (µm)	Surface area (m ² /g)	Pore volume (mL/g)	Pore size (nm)	Ion exchange capacity (meq/g)	pH range
Reversed phase	PLS-2	SDB* ¹	-	70	700	1.1	7	-	1-14
	PLS-3	N-MA-SDB* ¹	-	60	600	1.1	7	-	
	RP-1 (mini)	MA-DVB* ^{1,2}	-	70	650	1.5	9	-	
	RP-2	SDB	weak anion exchanger	90	700	0.7	4	-	
	Pharma (FF)	N-MA-SDB* ¹	-	60	600	1.1	7	-	
Ion exchange	RP-C18	SDB* ¹	Octadecyl	45	110	0.5	18	-	1-13
	MA-1 (mini)	MA* ²	Quaternary ammonium	70	250	0.7	13	0.5	1-14
	MA-2 (mini)	MA* ²	Diethyl amine	70	250	0.8	13	0.5	
	MC-1 (mini)	MA* ²	Sulfonic acid	70	80	0.4	20	0.5	
	MC-2 (mini)	MA* ²	Carboxylic acid	70	80	0.4	18	0.5	1-13
	MPC	SDB* ¹	C18, Sulfonic acid	40	100	-	18	-	
	ME-1	MA* ²	Iminodiacetic acid	70	80	0.5	21	Cu ²⁺ 0.3 mmol/g	
	ME-2	MA* ²	Iminodiacetic acid + Tertiary amine	70	80	0.5	21	Cu ²⁺ 0.3 mmol/g	1-14

*1 : In short time, it can be used pH 1 to 14 depending on method.

● Silica-based Sorbent Specifications

The silica-based sorbent materials are more cost-effective and have a higher physical strength compared with polymer-based sorbent materials. Silica offers a wide variety of separation mechanisms using a combination of primary functional group interaction with secondary interactions due to the nature of silica.

Separation mode	InertSep	Base gel	Functional group	End capped ¹	Particle size (µm)	Carbon loading (%)	Surface area (m ² /g)	Pore volume (mL/g)	Pore size (nm)	Ion exchange capacity	pH range
Reversed phase	C18 (FF)	SiO ₂	Octadecyl (trifunctional)	Excellent	60 (120)	19	450	0.7	6	-	2-8 ²
	C18-B (FF)		Octadecyl (monofunctional)	Good	45 (120)	14		0.7	6	-	
	C18-C (FF)		Octadecyl (trifunctional)	Fair	60 (120)	16		0.7	6	-	
	C18-ENV		Octadecyl (trifunctional)	Fair	60	16		0.7	6	-	
	C8		Octyl	Good	60	12		0.7	6	-	
	C8-NE		Octyl	Poor	60	12		0.7	6	-	
	C2		Ethyl	Good	60	5.5		0.7	6	-	
	CH		Cyclohexyl	Good	60	7.5		0.7	6	-	
Ion exchange	PH	Phenyl	Good	60	10	0.7	6	-	2-8 ²		
	SCX	SiO ₂	Benzenesulfonic acid	None	45	8.5	450	0.7		6	0.6
	SCX-2		Benzenesulfonic acid	None	60	17		0.7		6	1.2
	PRS		Propylsulfonic acid	None	45	8.5		0.7		6	1.2
	CBA		Propylcarboxylic acid	None	45	8.5		0.7		6	1.2
	SAX		Quaternary ammonium	None	45	7		0.7		6	0.7
	SAX-2		Quaternary ammonium	None	60	11.5		0.7		6	0.45
	PSA		Ethylendiamine-N- propyl	None	60	11.5 (10.0-13.0)		0.7		6	1.5 (1.45-1.90)
NH2	AminoPropyl		None	60	10	0.7		6	0.9		
Normal phase	CN	SiO ₂	Cyanopropyl	None	45	0.7	450	0.7	6	-	2-8 ²
	2OH		Diol	None	60	10		0.7	6	-	
	SI	-	None	60	-	0.7	6	-			
	AL	Al ₂ O ₃	Aluminium oxide	None	100	-	130	0.3	8	-	
	FL	MgO	Magnesium silicate	None	50-200	-	230	0.5	9	-	
FL-PR	SiO ₂	None		100-300	-	230	0.5	9	-		

*1 : Styrene divinylbenzene copolymer

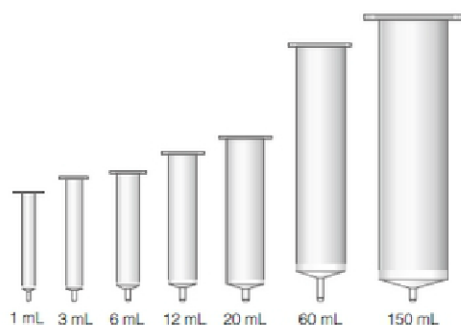
*2 : Methacrylate polymer

● Specialty Phases

InertSep	Base gel	Particle size	Surface area (m ² /g)	Pore volume (mL/g)	Pore size (nm)
GC	Graphite Carbon	120/400 mesh	85	1	45
GC-e	Graphite Carbon	100/200 mesh	90	1	50
AC	Activated Carbon	65/150 mesh	800-1200	-	-

InertSep Format Guide

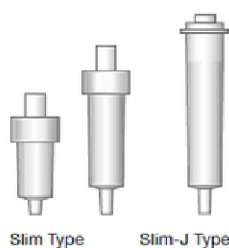
InertSep Format



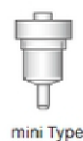
Cartridge volume : 1, 3, 6, 12, 20, 60, 150 mL
Cartridge material : PP housing and PE frit
Purpose : Processing of small liquid samples up to bulk

Cartridge Type

Dimensions : Slim : 8.8 mm O.D. length 32 mm, 21 mm
Slim-J : 8.8 mm O.D. length 51 mm, 31 mm
Cartridge material : PP housing and PE frit
Purpose : Tandem processing and automatic SPE system

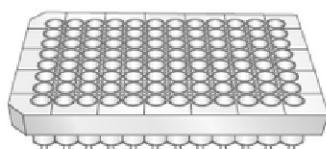


Dimensions : 12.7 mm O.D. length 32 mm, 21 mm
Cartridge material : PP housing and PE frit
Purpose : manual processing, Tandem processing and automatic SPE system



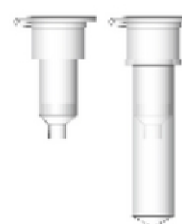
Luer Device Type

Cartridge volume : 1.2 mL
Cartridge material : PP housing and PE frit
Purpose : Rapid processing for multiple samples



96-well Plates Type

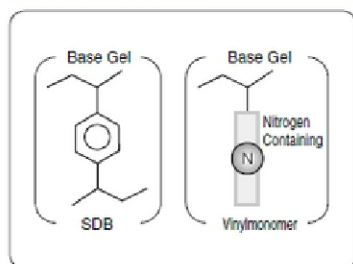
Cartridge volume : 1 mL
Cartridge material : PP housing
Purpose : Extraction by centrifuge



Spin Column
Spin Column Type



InertSep HLB



Average Particle Size : 30 μm
 Surface Area : 720 m^2/g
 Pore Volume : 1.3 mL/g
 Pore Size : 7 nm
 pH Range : 1 – 14

InertSep HLB is a reversed phase sorbent made of styrene-divinylbenzene (SDB) and a nitrogen-containing vinyl monomer.

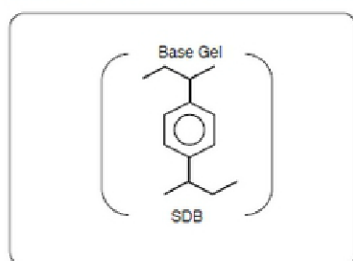
Cartridges

Description	Bed Weight/Volume	Qty.	Cat.No.
InertSep HLB (average particle size 30 μm)	10 mg/1 mL	100 pcs	5010-27520
	30 mg/1 mL	100 pcs	5010-27521
	60 mg/3 mL	50 pcs	5010-27522
	200 mg/6 mL	30 pcs	5010-27523
	500 mg/6 mL	30 pcs	5010-27524
	96 WP 10 mg	1 pc	5010-66440
96 WP 30 mg	1 pc	5010-66441	

Luer Devices

Description	Bed Weight/Volume	Qty.	Cat.No.
InertSep HLB FF (average particle size 60 μm)	60 mg/3 mL	50 pcs	5010-27532
	200 mg/6 mL	30 pcs	5010-27533
	200 mg/20 mL	20 pcs	5010-27535
	500 mg/6 mL	30 pcs	5010-27534
	500 mg/20 mL	20 pcs	5010-27536

InertSep PLS-2



Average Particle Size : 70 μm
 Surface Area : 700 m^2/g
 Pore Volume : 1.1 mL/g
 Pore Size : 7 nm
 pH Range : 1 – 14

InertSep PLS-2 is a SDB polymer-based reversed phase sorbent. Compared to silica based C18 sorbents, InertSep PLS-2 has a quite higher retention capacity and better stability in a wide pH range.

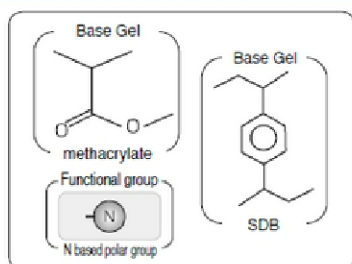
Cartridges

Description	Bed Weight/Volume	Qty.	Cat.No.
InertSep PLS-2	265 mg/6 mL	50 pcs	5010-27430
	265 mg/20 mL	20 pcs	5010-27431
	270 mg/6 mL	50 pcs	5010-25020
	500 mg/6 mL	30 pcs	5010-25025
	1 g/6 mL	20 pcs	5010-25030
	270 mg/20 mL	20 pcs	5010-25035
500 mg/20 mL	20 pcs	5010-25036	

Luer Devices

Description	Bed Weight	Qty.	Cat.No.
InertSep Slim-J PLS-2	230 mg	50 pcs	5010-65720
	265 mg	50 pcs	5010-65721
InertSep Slim-J PLS-2 for AQUA	265 mg	50 pcs	5010-65726

■ InertSep PLS-3



Average Particle Size : 60 μm
 Surface Area : 600 m^2/g
 Pore Volume : 1.1 mL/g
 Pore Size : 7 nm
 pH Range : 1 – 14

InertSep PLS-3 is a copolymer-based sorbent comprised of nitrogen-containing methacrylate and SDB, exhibiting adequate retention for a variety of compounds from highly polar to hydrophobic compounds.

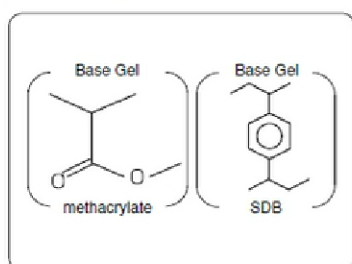
Cartridges

Description	Bed Weight/Volume	Qty.	Cat.No.
InertSep PLS-3	200 mg/6 mL	30 pcs	5010-25050
	200 mg/20 mL	20 pcs	5010-25051
InertSep Glass PLS-3	200 mg/6 mL	20 pcs	5010-26020

Luer Devices

Description	Bed Weight	Qty.	Cat.No.
InertSep Slim-J PLS-3	230 mg	50 pcs	5010-25200
		500 pcs	5010-25205
InertSep Slim-J PLS-3 for AQUA	230 mg	50 pcs	5010-65775

■ InertSep RP-1



Average Particle Size : 70 μm
 Surface Area : 650 m^2/g
 Pore Volume : 1.5 mL/g
 Pore Size : 9 nm
 pH Range : 1 – 14

InertSep RP-1 is a copolymer based sorbent comprised of methacrylate and SDB and exhibits adequate retention for a variety of compounds from low-polar to hydrophobic compounds.

Cartridges

Description	Bed Weight/Volume	Qty.	Cat.No.
InertSep RP-1	30 mg/1 mL	100 pcs	5010-27001
	60 mg/3 mL	100 pcs	5010-27002
	250 mg/6 mL	30 pcs	5010-27000
	500 mg/6 mL	30 pcs	5010-27004
	500 mg/12 mL	20 pcs	5010-27005
	1 g/20 mL	20 pcs	5010-27006
	2 g/20 mL	20 pcs	5010-27007

Luer Devices

Description	Bed Weight	Qty.	Cat.No.
InertSep Slim-J RP-1	230 mg	50 pcs	5010-65730
		500 pcs	5010-65731
InertSep mini RP-1	230 mg	50 pcs	5010-27200
		500 pcs	5010-27220
InertSep Slim-J RP-1 for AQUA	230 mg	50 pcs	5010-65735

96-well Plates

Description	Bed Weight	Qty.	Cat.No.
InertSep 96WP RP-1	30 mg	1 pc	5010-66200
	60 mg	1 pc	5010-66201

SAMPLE PREPARATION

LIFE SCIENCE

LC ACCESSORIES

AIR SAMPLING

GC CAPILLARY COLUMNS

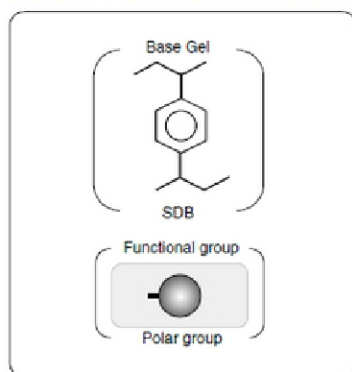
GC PACKED COLUMNS

GC ACCESSORIES

BELTS

VALVES

InertSep RP-2



Average Particle Size : 90 µm
 Surface Area : 700 m²/g
 Pore Volume : 0.7 mL/g
 Pore Size : 4 nm
 pH Range : 1 – 14

The retention of InertSep RP-2 is attributed to hydrophobic interactions of SDB polymer, weak anion exchange and hydrogen bonding of polar functional groups. This sorbent is suited for concentration of polar compounds weakly retained by RP-1, and simultaneous screening by polar interactions.

Cartridges

Description	Bed Weight/Volume	Qty.	Cat.No.
InertSep RP-2	60 mg/3 mL	100 pcs	5010-27022
	200 mg/6 mL	30 pcs	5010-27023
	500 mg/6 mL	30 pcs	5010-27024
	2 g/20 mL	20 pcs	5010-27027

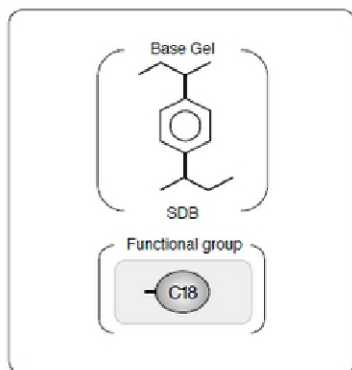
Luer Devices

Description	Bed Weight	Qty.	Cat.No.
InertSep Slim RP-2	230 mg	50 pcs	5010-27700

96-well Plates

Description	Bed Weight	Qty.	Cat.No.
InertSep 96WP RP-2	30 mg	1 pc	5010-66210
	60 mg	1 pc	5010-66211

InertSep RP-C18



Average Particle Size : 45 µm
 Surface Area : 110 m²/g
 Pore Volume : 0.5 mL/g
 Pore Size : 18 nm
 pH Range : 1 – 13
 Remark : Dichloromethane is not available

InertSep RP-C18 is a SDB polymer-based sorbent modified with alkyl chains.

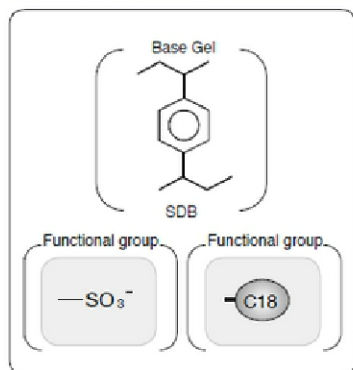
Cartridges

Description	Bed Weight/Volume	Qty.	Cat.No.
InertSep RP-C18	30 mg/1 mL	100 pcs	5010-27130
	60 mg/3 mL	100 pcs	5010-27131
	200 mg/6 mL	30 pcs	5010-27133
	500 mg/6 mL	30 pcs	5010-27134
	500 mg/20 mL	20 pcs	5010-27135

Luer Device

Description	Bed Weight	Qty.	Cat.No.
InertSep Slim-J RP-C18	230 mg	50 pcs	5010-65760

InertSep MPC



Average Particle Size : 40 μm
 Surface Area : 100 m^2/g
 Pore Size : 18 nm
 pH Range : 1 – 13
 Remark : Dichloromethane is not available

InertSep MPC is a SDB polymer-based sorbent modified with strong cation exchange and C18 functional groups.

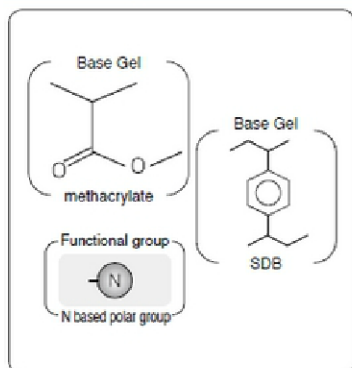
Cartridges

Description	Bed Weight/Volume	Qty.	Cat.No.
InertSep MPC	30 mg/1 mL	100 pcs	5010-27120
	60 mg/3 mL	100 pcs	5010-27121
	150 mg/6 mL	30 pcs	5010-27122
	200 mg/6 mL	30 pcs	5010-27123
	500 mg/6 mL	30 pcs	5010-27124

Luer Device

Description	Bed Weight	Qty.	Cat.No.
InertSep Slim-J MPC	230 mg	50 pcs	5010-65750

InertSep Pharma



Average Particle Size : 30 μm
 Surface Area : 600 m^2/g
 Pore Volume : 1.1 mL/g
 Pore Size : 7 nm
 pH Range : 1 – 14

InertSep Pharma is a copolymer-based sorbent comprised of nitrogen-containing methacrylate and SDB. This sorbent was developed for simultaneous screening of drug metabolites in biological samples.

Cartridges

Description	Bed Weight/Volume	Qty.	Cat.No.
InertSep Pharma	30 mg/1 mL	100 pcs	5010-27100
	60 mg/3 mL	100 pcs	5010-27101
	200 mg/6 mL	30 pcs	5010-27103
	500 mg/6 mL	30 pcs	5010-27104
	500 mg/12 mL	20 pcs	5010-27105

96-well Plates

Description	Bed Weight	Qty.	Cat.No.
InertSep 96WP Pharma	30 mg	1 pc	5010-66230
	60 mg	1 pc	5010-66231

SAMPLE PREPARATION

LIFE SCIENCE

LC ACCESSORIES

AIR SAMPLING

GC CAPILLARY COLUMNS

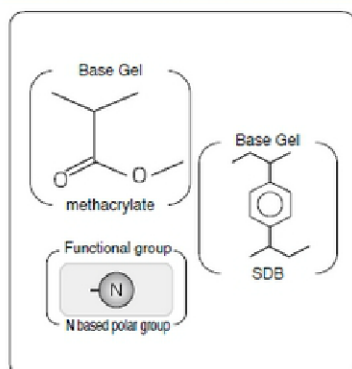
GC PACKED COLUMNS

GC ACCESSORIES

BELTS

VIALS

InertSep Pharma FF



Average Particle Size : 60 μm
 Surface Area : 600 m^2/g
 Pore Volume : 1.1 mL/g
 Pore Size : 7 nm
 pH Range : 1 – 14

InertSep Pharma FF is a modified version of InertSep Pharma for high flow rates. This sorbent is suitable for viscous biological samples and large volume samples.

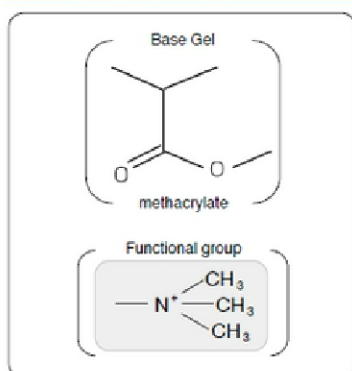
Cartridges

Description	Bed Weight/Volume	Qty.	Cat.No.
InertSep Pharma FF	60 mg/3 mL	100 pcs	5010-27111
	200 mg/6 mL	30 pcs	5010-27113
	500 mg/6 mL	30 pcs	5010-27114

Luer Device

Description	Bed Weight	Qty.	Cat.No.
InertSep Slim-J Pharma FF	230 mg	50 pcs	5010-65740

InertSep MA-1



Average Particle Size : 70 μm
 Surface Area : 250 m^2/g
 Pore Volume : 0.7 mL/g
 Pore Size : 13 nm
 Ion exchange capacity : 0.5 meq/g
 pH Range : 1 – 14
 Remark : Cl^- ion pair

InertSep MA-1 is a methacrylate polymer-based sorbent modified with strong anion exchange functional groups. This sorbent is highly hydrophilic, and retained anions can be easily eluted.

Cartridges

Description	Bed Weight/Volume	Qty.	Cat.No.
InertSep MA-1	30 mg/1 mL	100 pcs	5010-27304
	60 mg/3 mL	100 pcs	5010-27305
	100 mg/3 mL	50 pcs	5010-27300
	250 mg/6 mL	30 pcs	5010-27301
	500 mg/6 mL	30 pcs	5010-27302
	1 g/20 mL	20 pcs	5010-27306
	2 g/20 mL	20 pcs	5010-27307

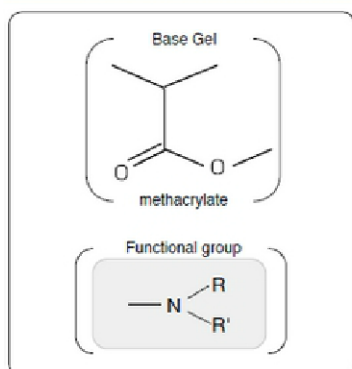
Luer Device

Description	Bed Weight	Qty.	Cat.No.
InertSep mini MA-1	280 mg	50 pcs	5010-27205

96-well Plates

Description	Bed Weight	Qty.	Cat.No.
InertSep 96WP MA-1	30 mg	1 pc	5010-66700
	60 mg	1 pc	5010-66701

InertSep MA-2



Average Particle Size : 70 μm
 Surface Area : 250 m^2/g
 Pore Volume : 0.8 mL/g
 Pore Size : 13 nm
 Ion exchange capacity : 0.5 meq/g
 pH Range : 1 – 14
 Remark : Cl^- ion pair

*: mini type

InertSep MA-2 is a methacrylate polymer based sorbent modified with weak anion exchange groups. Suppressed secondary interactions of methacrylate polymer gel enables SPE solely by ion exchange.

Cartridges

Description	Bed Weight/Volume	Qty.	Cat.No.
InertSep MA-2	30 mg/1 mL	100 pcs	5010-27324
	60 mg/3 mL	100 pcs	5010-27325
	100 mg/3 mL	50 pcs	5010-27320
	250 mg/6 mL	30 pcs	5010-27321
	500 mg/6 mL	30 pcs	5010-27322
	1 g/20 mL	20 pcs	5010-27326
	2 g/20 mL	20 pcs	5010-27327

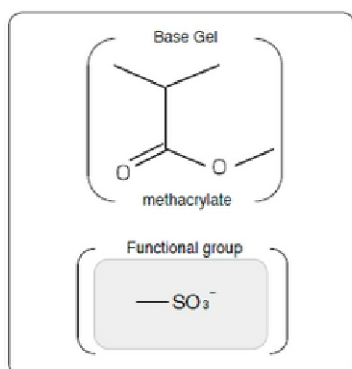
Luer Device

Description	Bed Weight	Qty.	Cat.No.
InertSep mini MA-2	280 mg	50 pcs	5010-27235

96-well Plates

Description	Bed Weight	Qty.	Cat.No.
InertSep 96WP MA-2	30 mg	1 pc	5010-66710
	60 mg	1 pc	5010-66711

InertSep MC-1



Average Particle Size : 70 μm
 Surface Area : 80 m^2/g
 Pore Volume : 0.4 mL/g
 Pore Size : 20 nm
 Ion exchange capacity : 0.5 meq/g
 pH Range : 1 – 14
 Remark : Na^+ ion pair

InertSep MC-1 is a methacrylate polymer based sorbent modified with strong cation exchange functional groups. This sorbent is highly hydrophilic, and retained cations can be easily eluted.

Cartridges

Description	Bed Weight/Volume	Qty.	Cat.No.
InertSep MC-1	30 mg/1 mL	100 pcs	5010-27354
	60 mg/3 mL	100 pcs	5010-27355
	100 mg/3 mL	50 pcs	5010-27350
	250 mg/6 mL	30 pcs	5010-27351
	500 mg/6 mL	30 pcs	5010-27352
	1 g/20 mL	20 pcs	5010-27356
	2 g/20 mL	20 pcs	5010-27357

Luer Device

Description	Bed Weight	Qty.	Cat.No.
InertSep mini MC-1	280 mg	50 pcs	5010-27210

96-well Plates

Description	Bed Weight	Qty.	Cat.No.
InertSep 96WP MC-1	30 mg	1 pc	5010-66500
	60 mg	1 pc	5010-66501

SAMPLE PREPARATION

LIFE SCIENCE

LC ACCESSORIES

AIR SAMPLING

GC CAPILLARY COLUMNS

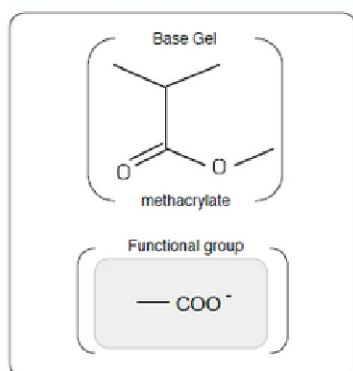
GC PACKED COLUMNS

GC ACCESSORIES

BELTS

VIALS

InertSep MC-2



Average Particle Size : 70 μm
 Surface Area : 80 m^2/g
 Pore Volume : 0.4 mL/g
 Pore Size : 18 nm
 Ion exchange capacity : 0.5 meq/g
 pH Range : 1 – 14
 Remark : Na^+ ion pair

InertSep MC-2 is a methacrylate polymer based sorbent modified with weak cation exchange functional groups. This sorbent is suitable for SPE of strong anion compounds in ion exchange mode. Suppressed secondary interactions of methacrylate polymer gel enables SPE solely by ion exchange.

Cartridges

Description	Bed Weight/Volume	Qty.	Cat.No.
InertSep MC-2	30 mg/1 mL	100 pcs	5010-27374
	60 mg/3 mL	100 pcs	5010-27375
	100 mg/3 mL	50 pcs	5010-27370
	250 mg/6 mL	30 pcs	5010-27371
	500 mg/6 mL	30 pcs	5010-27372
	1 g/20 mL	20 pcs	5010-27376
	2 g/20 mL	20 pcs	5010-27377

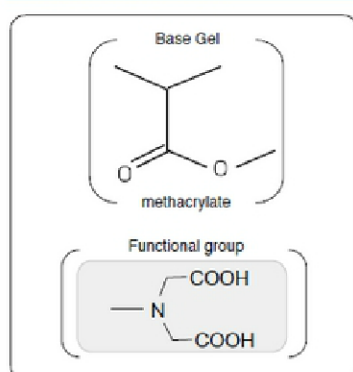
Luer Device

Description	Bed Weight	Qty.	Cat.No.
InertSep mini MC-2	280 mg	50 pcs	5010-27240

96-well Plates

Description	Bed Weight	Qty.	Cat.No.
InertSep 96WP MC-2	30 mg	1 pc	5010-66510
	60 mg	1 pc	5010-66511

InertSep ME-1



Average Particle Size : 70 μm
 Surface Area : 80 m^2/g
 Pore Volume : 0.5 mL/g
 Pore Size : 21 nm
 Ion exchange capacity : Cu^{2+} 0.3 mmol/g
 pH Range : 1 – 14
 Remark : H^+ ion pair

InertSep ME-1 is a methacrylate copolymer based solid sorbent modified with iminodiacetic acid, weak cation exchange functional groups. It is highly hydrophilic and does not retain monovalent Na ion or K ion, but it does retain metal divalent or more cations. This offers selective concentration of such metal ions and is suitable for custom made of Ni affinity plates for protein purification.

Cartridges

Description	Bed Weight/Volume	Qty.	Cat.No.
InertSep ME-1	30 mg/1 mL	100 pcs	5010-27404
	60 mg/3 mL	100 pcs	5010-27405
	100 mg/3 mL	50 pcs	5010-27400
	250 mg/6 mL	30 pcs	5010-27401
	500 mg/6 mL	30 pcs	5010-27402
	1 g/20 mL	20 pcs	5010-27406
	2 g/20 mL	20 pcs	5010-27407

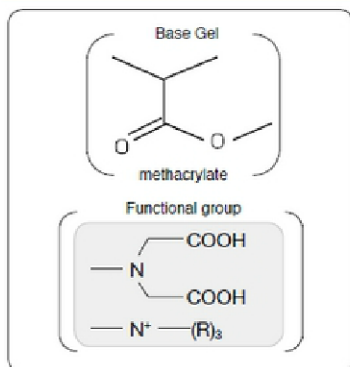
Luer Device

Description	Bed Weight	Qty.	Cat.No.
InertSep mini ME-1	280 mg	50 pcs	5010-27215

96-well Plates

Description	Bed Weight	Qty.	Cat.No.
InertSep 96WP ME-1	30 mg	1 pc	5010-66800
	60 mg	1 pc	5010-66801

InertSep ME-2



Average Particle Size : 70 µm
 Surface Area : 80 m²/g
 Pore Volume : 0.5 mL/g
 Pore Size : 21 nm
 Ion exchange capacity : Cu²⁺ 0.3 mmol/g
 pH Range : 1 – 14
 Remark : H⁺ ion pair

InertSep ME-2 is a chelating resin sorbent, developed for SPE of trace metal ions in seawater. As this sorbent does not retain Ca and Mg ions, desalting can be achieved by passing the sample through the sorbent and wash with purified water.

Cartridges

Description	Bed Weight/Volume	Qty.	Cat.No.
InertSep ME-2	30 mg/1 mL	100 pcs	5010-27414
	60 mg/3 mL	100 pcs	5010-27415
	100 mg/3 mL	50 pcs	5010-27410
	250 mg/6 mL	30 pcs	5010-27411
	500 mg/6 mL	30 pcs	5010-27412

Luer Device

Description	Bed Weight	Qty.	Cat.No.
InertSep mini ME-2	280 mg	50 pcs	5010-27216

SAMPLE PREPARATION

LIFE SCIENCE

LC ACCESSORIES

AIR SAMPLING

GC CAPILLARY COLUMNS

GC PACKED COLUMNS

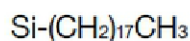
GC ACCESSORIES

BELS

VIALS

Silica-Based Reversed Phase (Non-Polar) SPE

InertSep C18



Average Particle Size	: 60 µm
Carbon Load	: 19 %
End-Capping	: High
Surface Area	: 450 m ² /g
Pore Volume	: 0.7 mL/g
Pore Size	: 6 nm
pH Range	: 2 – 8

InertSep C18 is a silica-based sorbent modified with C18 for non-polar interactions. With our high-level end-capping technology, cation exchange by interaction with the residual silanol groups is suppressed, which reduces adsorption of basic compounds. This sorbent is suitable for removing lipid for simultaneous analysis of pesticide residues in agricultural products.

Cartridges

Description	Bed Weight/Volume	Qty.	Cat.No.
InertSep C18	50 mg/1 mL	100 pcs	5010-61000
	100 mg/1 mL	100 pcs	5010-61001
	200 mg/1 mL	50 pcs	5010-61016
	500 mg/3 mL	50 pcs	5010-61003
	500 mg/6 mL	30 pcs	5010-61004
	500 mg/20 mL	20 pcs	5010-61013
	1 g/6 mL	30 pcs	5010-61005
	1 g/12 mL	20 pcs	5010-61015
	2 g/12 mL	20 pcs	5010-61006
	1 g/20 mL	20 pcs	5010-61014
	5 g/20 mL	20 pcs	5010-61007
	10 g/60 mL	16 pcs	5010-61008
	20 g/60 mL	16 pcs	5010-61009
	25 g/150 mL	8 pcs	5010-61010
	50 g/150 mL	8 pcs	5010-61011
	70 g/150 mL	8 pcs	5010-61012

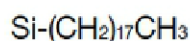
Luer Devices

Description	Bed Weight	Qty.	Cat.No.
InertSep Slim-J C18	500 mg	50 pcs	5010-65000
	1000 mg	50 pcs	5010-65001
InertSep Slim C18	400 mg	50 pcs	5010-65005
	900 mg	50 pcs	5010-65006

96-well Plates

Description	Bed Weight	Qty.	Cat.No.
InertSep 96WP C18	50 mg	1 pc	5010-66000
	100 mg	1 pc	5010-66001

InertSep C18 FF



Average Particle Size	: 120 µm
Carbon Load	: 19 %
End-Capping	: High
Surface Area	: 450 m ² /g
Pore Volume	: 0.7 mL/g
Pore Size	: 6 nm
pH Range	: 2 – 8

InertSep C18 FF is a modified version of InertSep C18 for high flow lates. This sorbent is also suitable for viscous biological samples and large volume samples to increase the throughput.

Cartridges

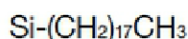
Description	Bed Weight/Volume	Qty.	Cat.No.
InertSep C18 FF	50 mg/1 mL	100 pcs	5010-62000
	100 mg/1 mL	100 pcs	5010-62001
	200 mg/3 mL	50 pcs	5010-62002
	500 mg/3 mL	50 pcs	5010-62003
	500 mg/6 mL	30 pcs	5010-62004
	1 g/6 mL	30 pcs	5010-62005
	2 g/12 mL	20 pcs	5010-62006
	5 g/20 mL	20 pcs	5010-62007
	10 g/60 mL	16 pcs	5010-62008

96-well Plates

Description	Bed Weight	Qty.	Cat.No.
InertSep 96WP C18 FF	50 mg	1 pc	5010-66010
	100 mg	1 pc	5010-66011

Silica-Based Reversed Phase (Non-Polar) SPE

InertSep C18-B



Average Particle Size	: 45 µm
Carbon Load	: 14 %
End-Capping	: Middle
Surface Area	: 450 m ² /g
Pore Volume	: 0.7 mL/g
Pore Size	: 6 nm
pH Range	: 2 – 8

InertSep C18-B is a silica-based sorbent modified with monofunctional C18 groups for non-polar interactions. In addition to the interaction, secondary interaction can be expected.

Cartridges

Description	Bed Weight/Volume	Qty.	Cat.No.
InertSep C18-B	50 mg/1 mL	100 pcs	5010-61020
	100 mg/1 mL	100 pcs	5010-61021
	200 mg/3 mL	50 pcs	5010-61022
	500 mg/3 mL	50 pcs	5010-61023
	500 mg/6 mL	30 pcs	5010-61024
	1 g/6 mL	30 pcs	5010-61025
	2 g/12 mL	20 pcs	5010-61026
	5 g/20 mL	20 pcs	5010-61027
	10 g/60 mL	16 pcs	5010-61028

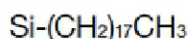
Luer Devices

Description	Bed Weight	Qty.	Cat.No.
InertSep Slim-J C18-B	500 mg	50 pcs	5010-65020
	1000 mg	50 pcs	5010-65021
InertSep Slim C18-B	360 mg	50 pcs	5010-65025
	840 mg	50 pcs	5010-65026

96-well Plates

Description	Bed Weight	Qty.	Cat.No.
InertSep 96WP C18-B	50 mg	1 pc	5010-66020
	100 mg	1 pc	5010-66021

InertSep C18-B FF



Average Particle Size	: 120 µm
Carbon Load	: 14 %
End-Capping	: Middle
Surface Area	: 450 m ² /g
Pore Volume	: 0.7 mL/g
Pore Size	: 6 nm
pH Range	: 2 – 8

InertSep C18-B FF is a modified version of InertSep C18-B for high flow rates. This sorbent is also suitable for viscous biological samples and large volume samples to increase the throughput.

Cartridges

Description	Bed Weight/Volume	Qty.	Cat.No.
InertSep C18-B FF	50 mg/1 mL	100 pcs	5010-62020
	100 mg/1 mL	100 pcs	5010-62021
	200 mg/3 mL	50 pcs	5010-62022
	500 mg/3 mL	50 pcs	5010-62023
	500 mg/6 mL	30 pcs	5010-62024
	1 g/6 mL	30 pcs	5010-62025
	2 g/12 mL	20 pcs	5010-62026
	5 g/20 mL	20 pcs	5010-62027
	10 g/60 mL	16 pcs	5010-62028

SAMPLE PREPARATION

LIFE SCIENCE

LC ACCESSORIES

AIR SAMPLING

GC CAPILLARY COLUMNS

GC PACKED COLUMNS

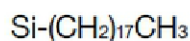
GC ACCESSORIES

BELTS

VIALS

Silica-Based Reversed Phase (Non-Polar) SPE

InertSep C18-C



Average Particle Size	: 60 µm
Carbon Load	: 16 %
End-Capping	: Low
Surface Area	: 450 m ² /g
Pore Volume	: 0.7 mL/g
Pore Size	: 6 nm
pH Range	: 2 – 8

InertSep C18-C is a silica-based sorbent modified with trifunctional C18 groups for non-polar interactions. In addition to the non-polar interactions, secondary interaction between unbonded silanol groups on silica substrate and analytes can be expected.

Cartridges

Description	Bed Weight/Volume	Qty.	Cat.No.
InertSep C18-C	50 mg/1 mL	100 pcs	5010-61040
	100 mg/1 mL	100 pcs	5010-61041
	200 mg/3 mL	50 pcs	5010-61042
	500 mg/3 mL	50 pcs	5010-61043
	500 mg/6 mL	30 pcs	5010-61044
	1 g/6 mL	30 pcs	5010-61045
	2 g/12 mL	20 pcs	5010-61046
	5 g/20 mL	20 pcs	5010-61047
	10 g/60 mL	16 pcs	5010-61048
	20 g/60 mL	16 pcs	5010-61049

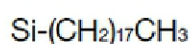
Luer Devices

Description	Bed Weight	Qty.	Cat.No.
InertSep Slim-J C18-C	500 mg	50 pcs	5010-65040
	1000 mg	50 pcs	5010-65041
InertSep Slim C18-C	360 mg	50 pcs	5010-65045
	840 mg	50 pcs	5010-65046

96-well Plates

Description	Bed Weight	Qty.	Cat.No.
InertSep 96WP C18-C	50 mg	1 pc	5010-66030
	100 mg	1 pc	5010-66031

InertSep C18-C FF



Average Particle Size	: 120 µm
Carbon Load	: 16 %
End-Capping	: Low
Surface Area	: 450 m ² /g
Pore Volume	: 0.7 mL/g
Pore Size	: 6 nm
pH Range	: 2 – 8

InertSep C18-C FF is a modified version of InertSep C18-C for high flow rates. This sorbent is also suitable for viscous biological samples and large volume samples to increase the throughput.

Cartridges

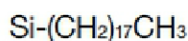
Description	Bed Weight/Volume	Qty.	Cat.No.
InertSep C18-C FF	50 mg/1 mL	100 pcs	5010-62040
	100 mg/1 mL	100 pcs	5010-62041
	200 mg/3 mL	50 pcs	5010-62042
	500 mg/3 mL	50 pcs	5010-62043
	500 mg/6 mL	30 pcs	5010-62044
	1 g/6 mL	30 pcs	5010-62045
	2 g/12 mL	20 pcs	5010-62046
	5 g/20 mL	20 pcs	5010-62047
	10 g/60 mL	16 pcs	5010-62048

96-well Plates

Description	Bed Weight	Qty.	Cat.No.
InertSep 96WP C18-C FF	50 mg	1 pc	5010-66040
	100 mg	1 pc	5010-66041

Silica-Based Reversed Phase (Non-Polar) SPE

InertSep C8



Average Particle Size	: 60 µm
Carbon Load	: 12 %
End-Capping	: Middle
Surface Area	: 450 m ² /g
Pore Volume	: 0.7 mL/g
Pore Size	: 6 nm
pH Range	: 2 – 8

InertSep C8 is a silica-based sorbent modified with C8 groups that offers weaker non-polar interactions than C18. InertSep C8 is used for analytes that are too strongly retained on C18. With our high-level end-capping, cation exchange by the residual silanol groups is suppressed and adsorption of basic compounds is reduced.

Cartridges

Description	Bed Weight/Volume	Qty.	Cat.No.
InertSep C8	50 mg/1 mL	100 pcs	5010-61080
	100 mg/1 mL	100 pcs	5010-61081
	200 mg/3 mL	50 pcs	5010-61082
	500 mg/3 mL	50 pcs	5010-61083
	500 mg/6 mL	30 pcs	5010-61084
	1 g/6 mL	30 pcs	5010-61085
	2 g/12 mL	20 pcs	5010-61086
	5 g/20 mL	20 pcs	5010-61087
	10 g/60 mL	16 pcs	5010-61088
	20 g/60 mL	16 pcs	5010-61089

Luer Devices

Description	Bed Weight	Qty.	Cat.No.
InertSep Slim-J C8	500 mg	50 pcs	5010-65080
	1000 mg	50 pcs	5010-65081

96-well Plates

Description	Bed Weight	Qty.	Cat.No.
InertSep 96WP C8	50 mg	1 pc	5010-66050
	100 mg	1 pc	5010-66051

SAMPLE PREPARATION

LIFE SCIENCE

LC ACCESSORIES

AIR SAMPLING

GC CAPILLARY COLUMNS

GC PACKED COLUMNS

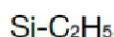
GC ACCESSORIES

BELTS

VIALS

Silica-Based Reversed Phase (Non-Polar) SPE

InertSep C2



Average Particle Size	: 60 µm
Carbon Load	: 5.5 %
End-Capping	: Middle
Surface Area	: 450 m ² /g
Pore Volume	: 0.7 mL/g
Pore Size	: 6 nm
pH Range	: 2 – 8

InertSep C2 is silica-based sorbent modified with C2 groups for weaker non-polar interactions than C8. InertSep C2 is used for analytes that are too strongly retained on C8. With our high-level end-capping, cation exchange by the residual silanol groups is suppressed resulting in reduced adsorption of basic compounds.

Cartridges

Description	Bed Weight/Volume	Qty.	Cat.No.
InertSep C2	50 mg/1 mL	100 pcs	5010-61120
	100 mg/1 mL	100 pcs	5010-61121
	200 mg/3 mL	50 pcs	5010-61122
	500 mg/3 mL	50 pcs	5010-61123
	500 mg/6 mL	30 pcs	5010-61124
	1 g/6 mL	30 pcs	5010-61125
	2 g/12 mL	20 pcs	5010-61126
	5 g/20 mL	20 pcs	5010-61127
	10 g/60 mL	16 pcs	5010-61128
	20 g/60 mL	16 pcs	5010-61129

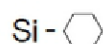
Luer Devices

Description	Bed Weight	Qty.	Cat.No.
InertSep Slim-J C2	500 mg	50 pcs	5010-65120
	1000 mg	50 pcs	5010-65121

96-well Plates

Description	Bed Weight	Qty.	Cat.No.
InertSep 96WP C2	50 mg	1 pc	5010-66070
	100 mg	1 pc	5010-66071

InertSep CH



Average Particle Size	: 60 µm
Carbon Load	: 7.5 %
End-Capping	: Middle
Surface Area	: 450 m ² /g
Pore Volume	: 0.7 mL/g
Pore Size	: 6 nm
pH Range	: 2 – 8

InertSep CH is a silica-based sorbent modified with cyclohexyl functional groups that gives this sorbent a similar moderate polarity with InertSep C2. InertSep CH offers a unique selectivity for the extraction of certain chemical compounds, compared with C18, C8, C2 and PH.

Cartridges

Description	Bed Weight/Volume	Qty.	Cat.No.
InertSep CH	50 mg/1 mL	100 pcs	5010-61160
	100 mg/1 mL	100 pcs	5010-61161
	200 mg/3 mL	50 pcs	5010-61162
	500 mg/3 mL	50 pcs	5010-61163
	500 mg/6 mL	30 pcs	5010-61164
	1 g/6 mL	30 pcs	5010-61165
	2 g/12 mL	20 pcs	5010-61166
	5 g/20 mL	20 pcs	5010-61167
	10 g/60 mL	16 pcs	5010-61168

Luer Devices

Description	Bed Weight	Qty.	Cat.No.
InertSep Slim-J CH	500 mg	50 pcs	5010-65160
	1000 mg	50 pcs	5010-65161

96-well Plates

Description	Bed Weight	Qty.	Cat.No.
InertSep 96WP CH	50 mg	1 pc	5010-66090
	100 mg	1 pc	5010-66091

Silica-Based Reversed Phase (Non-Polar) SPE

InertSep PH



Average Particle Size	: 60 µm
Carbon Load	: 10 %
End-Capping	: Middle
Surface Area	: 450 m ² /g
Pore Volume	: 0.7 mL/g
Pore Size	: 6 nm
pH Range	: 2 – 8

InertSep PH is a silica-based sorbent modified with phenyl groups having a similar non-polar interaction to C8. The selectivity of PH to aromatic compounds is higher than that of C8 because of the π bonds of the phenyl groups.

Cartridges

Description	Bed Weight/Volume	Qty.	Cat.No.
InertSep PH	50 mg/1 mL	100 pcs	5010-61180
	100 mg/1 mL	100 pcs	5010-61181
	200 mg/3 mL	50 pcs	5010-61182
	500 mg/3 mL	50 pcs	5010-61183
	500 mg/6 mL	30 pcs	5010-61184
	1 g/6 mL	30 pcs	5010-61185
	2 g/12 mL	20 pcs	5010-61186
	5 g/20 mL	20 pcs	5010-61187
	10 g/60 mL	16 pcs	5010-61188
	20 g/60 mL	16 pcs	5010-61189

Luer Devices

Description	Bed Weight	Qty.	Cat.No.
InertSep Slim-J PH	500 mg	50 pcs	5010-65180
	1000 mg	50 pcs	5010-65181

96-well Plates

Description	Bed Weight	Qty.	Cat.No.
InertSep 96WP PH	50 mg	1 pc	5010-66100
	100 mg	1 pc	5010-66101

SAMPLE PREPARATION

LIFE SCIENCE

LC ACCESSORIES

AIR SAMPLING

GC CAPILLARY COLUMNS

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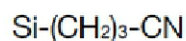
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Silica-Based Normal Phase (Polar) SPE

InertSep CN



Average Particle Size	: 45 μm
Carbon Load	: 7.5 %
Surface Area	: 450 m^2/g
Pore Volume	: 0.7 mL/g
Pore Size	: 6 nm
pH Range	: 2 – 8

InertSep CN is a silica-based sorbent modified with cyanopropyl groups, which enable both non-polar and polar interactions. This feature is useful not only for non-polar analytes irreversibly retained on non-polar sorbents such as C18 or C8, but also for polar analytes irreversibly retained on polar sorbents such as SI or 2OH.

Cartridges

Description	Bed Weight/Volume	Qty.	Cat.No.
InertSep CN	50 mg/1 mL	100 pcs	5010-61300
	100 mg/1 mL	100 pcs	5010-61301
	200 mg/3 mL	50 pcs	5010-61302
	500 mg/3 mL	50 pcs	5010-61303
	500 mg/6 mL	30 pcs	5010-61304
	1 g/6 mL	30 pcs	5010-61305
	2 g/12 mL	20 pcs	5010-61306
	5 g/20 mL	20 pcs	5010-61307
	10 g/60 mL	16 pcs	5010-61308

Luer Devices

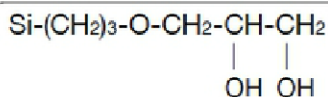
Description	Bed Weight	Qty.	Cat.No.
InertSep Slim-J CN	500 mg	50 pcs	5010-65300
	1000 mg	50 pcs	5010-65301

96-well Plates

Description	Bed Weight	Qty.	Cat.No.
InertSep 96WP CN	50 mg	1 pc	5010-66300
	100 mg	1 pc	5010-66301

Silica-Based Normal Phase (Polar) SPE

InertSep 2OH



Average Particle Size	: 60 µm
Carbon Load	: 10 %
Surface Area	: 450 m ² /g
Pore Volume	: 0.7 mL/g
Pore Size	: 6 nm
pH Range	: 2 – 8

InertSep 2OH is a silica-based sorbent modified with diol groups. Being a fairly polar sorbent, InertSep 2OH is typically used for extraction of polar compounds from low or non-polar solvents.

Cartridges

Description	Bed Weight/Volume	Qty.	Cat.No.
InertSep 2OH	50 mg/1 mL	100 pcs	5010-61320
	100 mg/1 mL	100 pcs	5010-61321
	200 mg/3 mL	50 pcs	5010-61322
	500 mg/3 mL	50 pcs	5010-61323
	500 mg/6 mL	30 pcs	5010-61324
	1 g/6 mL	30 pcs	5010-61325
	2 g/12 mL	20 pcs	5010-61326
	5 g/20 mL	20 pcs	5010-61327
	10 g/60 mL	16 pcs	5010-61328
	20 g/60 mL	16 pcs	5010-61329
	25 g/150 mL	8 pcs	5010-61330
	50 g/150 mL	8 pcs	5010-61331
	70 g/150 mL	8 pcs	5010-61332

Luer Devices

Description	Bed Weight	Qty.	Cat.No.
InertSep Slim-J 2OH	500 mg	50 pcs	5010-65320
	1000 mg	50 pcs	5010-65321
InertSep Slim 2OH	360 mg	50 pcs	5010-65325

96-well Plates

Description	Bed Weight	Qty.	Cat.No.
InertSep 96WP 2OH	50 mg	1 pc	5010-66310
	100 mg	1 pc	5010-66311

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Silica-Based Normal Phase (Polar) SPE

InertSep SI

Si-OH

Average Particle Size : 60 µm
 Surface Area : 450 m²/g
 Pore Volume : 0.7 mL/g
 Pore Size : 6 nm
 pH Range : 2 – 8

InertSep SI is a bare silica for strong polar interactions. It offers selective separation for structurally similar compounds using low-polar solvents. InertSep SI is the most polar sorbent in our lineup.

Cartridges

Description	Bed Weight/Volume	Qty.	Cat.No.
InertSep SI	50 mg/1 mL	100 pcs	5010-61340
	100 mg/1 mL	100 pcs	5010-61341
	200 mg/3 mL	50 pcs	5010-61342
	500 mg/3 mL	50 pcs	5010-61343
	500 mg/6 mL	30 pcs	5010-61344
	1 g/6 mL	30 pcs	5010-61345
	2 g/12 mL	20 pcs	5010-61346
	5 g/20 mL	20 pcs	5010-61347
	10 g/60 mL	16 pcs	5010-61348
	20 g/60 mL	16 pcs	5010-61349
	25 g/150 mL	8 pcs	5010-61350
	50 g/150 mL	8 pcs	5010-61351
	70 g/150 mL	8 pcs	5010-61352

Luer Devices

Description	Bed Weight	Qty.	Cat.No.
InertSep Slim-J SI	500 mg	50 pcs	5010-65340
	1000 mg	50 pcs	5010-65341
InertSep Slim SI	690 mg	50 pcs	5010-65345

96-well Plates

Description	Bed Weight	Qty.	Cat.No.
InertSep 96WP SI	50 mg	1 pc	5010-66320
	100 mg	1 pc	5010-66321

InertSep SI FF

Si-OH

Average Particle Size : 120 µm
 Surface Area : 450 m²/g
 Pore Volume : 0.7 mL/g
 Pore Size : 6 nm
 pH Range : 2 – 8

InertSep SI FF is a modified version of InertSep SI for high flow lates. This sorbent is also suitable for viscous samples and large volume samples to increase the throughput.

Cartridges

Description	Bed Weight/Volume	Qty.	Cat.No.
InertSep SI FF	50 mg/1 mL	100 pcs	5010-62340
	100 mg/1 mL	100 pcs	5010-62341
	200 mg/3 mL	50 pcs	5010-62342
	500 mg/3 mL	50 pcs	5010-62343
	500 mg/6 mL	30 pcs	5010-62344
	1 g/6 mL	30 pcs	5010-62345
	2 g/12 mL	20 pcs	5010-62346
	5 g/20 mL	20 pcs	5010-62347
	10 g/60 mL	16 pcs	5010-62348

InertSep AL-A

Al₂O₃

Average Particle Size : 100 µm
 Surface Area : 130 m²/g
 Pore Volume : 0.3 mL/g
 Pore Size : 8 nm
 pH : 3.5 – 5.0 (acid)

InertSep AL-A is packed with alumina (Al₂O₃). Available in Al₂O₃ acidic format.

Cartridges

Description	Bed Weight/Volume	Qty.	Cat.No.
InertSep AL-A	50 mg/1 mL	100 pcs	5010-61360
	100 mg/1 mL	100 pcs	5010-61361
	200 mg/3 mL	50 pcs	5010-61362
	500 mg/3 mL	50 pcs	5010-61363
	500 mg/6 mL	30 pcs	5010-61364
	1 g/6 mL	30 pcs	5010-61365
	2 g/12 mL	20 pcs	5010-61366
	5 g/20 mL	20 pcs	5010-61367
	10 g/60 mL	16 pcs	5010-61368

Luer Devices

Description	Bed Weight	Qty.	Cat.No.
InertSep Slim-J AL-A	500 mg	50 pcs	5010-65360
	1000 mg	50 pcs	5010-65361
	1710 mg	50 pcs	5010-65362

InertSep AL-B

Al₂O₃

Average Particle Size : 100 µm
 Surface Area : 130 m²/g
 Pore Volume : 0.3 mL/g
 Pore Size : 8 nm
 pH : 9.0 – 10.5 (basic)

InertSep AL-B is packed with alumina (Al₂O₃). Available in Al₂O₃ basic format.

Cartridges

Description	Bed Weight/Volume	Qty.	Cat.No.
InertSep AL-B	50 mg/1 mL	100 pcs	5010-61380
	100 mg/1 mL	100 pcs	5010-61381
	200 mg/3 mL	50 pcs	5010-61382
	500 mg/3 mL	50 pcs	5010-61383
	500 mg/6 mL	30 pcs	5010-61384
	1 g/6 mL	30 pcs	5010-61385
	2 g/12 mL	20 pcs	5010-61386
	5 g/20 mL	20 pcs	5010-61387
	10 g/60 mL	16 pcs	5010-61388

Luer Devices

Description	Bed Weight	Qty.	Cat.No.
InertSep Slim-J AL-B	500 mg	50 pcs	5010-65380
	1000 mg	50 pcs	5010-65381
	1710 mg	50 pcs	5010-65382

SAMPLE PREPARATION

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InertSep AL-N

Al₂O₃

Average Particle Size : 100 µm
 Surface Area : 130 m²/g
 Pore Volume : 0.3 mL/g
 Pore Size : 8 nm
 pH : 6.0 – 7.5 (neutral)

InertSep AL-N is packed with alumina (Al₂O₃). Available in Al₂O₃ neutral format.

Cartridges

Description	Bed Weight/Volume	Qty.	Cat.No.
InertSep AL-N	50 mg/1 mL	100 pcs	5010-61400
	100 mg/1 mL	100 pcs	5010-61401
	200 mg/3 mL	50 pcs	5010-61402
	500 mg/3 mL	50 pcs	5010-61403
	500 mg/6 mL	30 pcs	5010-61404
	1 g/6 mL	30 pcs	5010-61405
	2 g/12 mL	20 pcs	5010-61406
	5 g/20 mL	20 pcs	5010-61407
	10 g/60 mL	16 pcs	5010-61408

Luer Devices

Description	Bed Weight	Qty.	Cat.No.
InertSep Slim-J AL-N	500 mg	50 pcs	5010-65400
	1000 mg	50 pcs	5010-65401
	1710 mg	50 pcs	5010-65402
	1850 mg	50 pcs	5010-65403

InertSep FL

MgO·SiO₂

Average Particle Size : 50 – 200 µm
 Surface Area : 230 m²/g
 Pore Volume : 0.5 mL/g
 Pore Size : 9 nm

InertSep FL is packed with synthetic magnesium silicate. This sorbent strongly adsorbs polar compounds from non polar matrices and is typically used for sample cleanup of organic extracts.

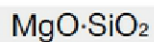
Cartridges

Description	Bed Weight/Volume	Qty.	Cat.No.
InertSep FL	50 mg/1 mL	100 pcs	5010-61420
	100 mg/1 mL	100 pcs	5010-61421
	200 mg/3 mL	50 pcs	5010-61422
	500 mg/3 mL	50 pcs	5010-61423
	500 mg/6 mL	30 pcs	5010-61424
	1 g/6 mL	30 pcs	5010-61425
	2 g/12 mL	20 pcs	5010-61426
	5 g/20 mL	20 pcs	5010-61427
	10 g/60 mL	16 pcs	5010-61428

Luer Devices

Description	Bed Weight	Qty.	Cat.No.
InertSep Slim-J FL	500 mg	50 pcs	5010-65420
	900 mg	50 pcs	5010-65422
	1000 mg	50 pcs	5010-65421

InertSep FL-PR



Average Particle Size : 100 – 300 µm
 Surface Area : 230 m²/g
 Pore Volume : 0.5 mL/g
 Pore Size : 9 nm

InertSep FL-PR cartridges are packed with FL-PR, which is used for sample cleanup for analysis of residual pesticides in crops. This sorbent is also suitable for viscous samples and large volume samples to increase the throughput.

Cartridges

Description	Bed Weight/Volume	Qty.	Cat.No.
InertSep FL-PR	50 mg/1 mL	100 pcs	5010-61440
	100 mg/1 mL	100 pcs	5010-61441
	200 mg/3 mL	50 pcs	5010-61442
	500 mg/3 mL	50 pcs	5010-61443
	500 mg/6 mL	30 pcs	5010-61444
	910 mg/20 mL	20 pcs	5010-61453
	1 g/6 mL	30 pcs	5010-61445
	2 g/12 mL	20 pcs	5010-61446
	5 g/20 mL	20 pcs	5010-61447
	10 g/60 mL	16 pcs	5010-61448

Luer Devices

Description	Bed Weight	Qty.	Cat.No.
InertSep Slim-J FL-PR	500 mg	50 pcs	5010-65440
	900 mg	50 pcs	5010-65442
	1000 mg	50 pcs	5010-65441

SAMPLE PREPARATION

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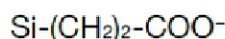
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VIALS

Silica-Based Ion Exchange SPE

InertSep CBA



Average Particle Size	: 45 µm
Carbon Load	: 8.5 %
Surface Area	: 450 m ² /g
Pore Volume	: 0.7 mL/g
Pore Size	: 6 nm
Ion exchange capacity	: 1.2 meq/g
pH Range	: 2 – 8
Remark	: H ⁺ ion pair

InertSep CBA is a silica-based sorbent modified with carboxylethyl functional groups. The primary interactions of this sorbent are cation exchange and the secondary interactions are weak-polar and non-polar. This sorbent is suitable for extraction of drugs with strongly cationic amine groups.

Cartridges

Description	Bed Weight/Volume	Qty.	Cat.No.
InertSep CBA	50 mg/1 mL	100 pcs	5010-61500
	100 mg/1 mL	100 pcs	5010-61501
	200 mg/3 mL	50 pcs	5010-61502
	250 mg/3 mL	50 pcs	5010-61509
	500 mg/3 mL	50 pcs	5010-61503
	250 mg/6 mL	30 pcs	5010-61510
	500 mg/6 mL	30 pcs	5010-61504
	1 g/6 mL	30 pcs	5010-61505
	2 g/12 mL	20 pcs	5010-61508
	5 g/20 mL	20 pcs	5010-61507
	10 g/60 mL	16 pcs	5010-61508

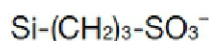
Luer Devices

Description	Bed Weight	Qty.	Cat.No.
InertSep Slim-J CBA	500 mg	50 pcs	5010-65500
	1000 mg	50 pcs	5010-65501

96-well Plates

Description	Bed Weight	Qty.	Cat.No.
InertSep 96WP CBA	50 mg	1 pc	5010-66400
	100 mg	1 pc	5010-66401

InertSep PRS



Average Particle Size	: 45 µm
Carbon Load	: 8.5 %
Surface Area	: 450 m ² /g
Pore Volume	: 0.7 mL/g
Pore Size	: 6 nm
Ion exchange capacity	: 1.2 meq/g
pH Range	: 2 – 8
Remark	: H ⁺ ion pair

InertSep PRS is a silica-based sorbent modified with sulfonylpropyl groups. The primary interactions of this sorbent are anion exchange and secondary interactions are slightly non-polar.

Cartridges

Description	Bed Weight/Volume	Qty.	Cat.No.
InertSep PRS	50 mg/1 mL	100 pcs	5010-61520
	100 mg/1 mL	100 pcs	5010-61521
	200 mg/3 mL	50 pcs	5010-61522
	500 mg/3 mL	50 pcs	5010-61523
	500 mg/6 mL	30 pcs	5010-61524
	1 g/6 mL	30 pcs	5010-61525
	2 g/12 mL	20 pcs	5010-61526
	500 mg/20 mL	20 pcs	5010-61529
	5 g/20 mL	20 pcs	5010-61527
	10 g/60 mL	16 pcs	5010-61528

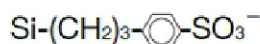
Luer Devices

Description	Bed Weight	Qty.	Cat.No.
InertSep Slim-J PRS	500 mg	50 pcs	5010-65520
	1000 mg	50 pcs	5010-65521

96-well Plates

Description	Bed Weight	Qty.	Cat.No.
InertSep 96WP PRS	50 mg	1 pc	5010-66410
	100 mg	1 pc	5010-66411

InertSep SCX



Average Particle Size	: 45 µm
Carbon Load	: 8.5 %
Surface Area	: 450 m ² /g
Pore Volume	: 0.7 mL/g
Pore Size	: 6 nm
Ion exchange capacity	: 0.6 meq/g
pH Range	: 2 – 8
Remark	: H ⁺ ion pair

InertSep SCX is a silica-based sorbent modified with propylbenzenesulfonyl groups. The primary interactions of this sorbent are both non-polar and strong cation exchange. Because the non-polar interactions on InertSep SCX is stronger than those on InertSep PRS, it is suitable for extractions which require both non-polar interactions and strong cation exchange.

Cartridges

Description	Bed Weight/Volume	Qty.	Cat.No.
InertSep SCX	50 mg/1 mL	100 pcs	5010-61540
	100 mg/1 mL	100 pcs	5010-61541
	200 mg/3 mL	50 pcs	5010-61542
	500 mg/3 mL	50 pcs	5010-61543
	500 mg/6 mL	30 pcs	5010-61544
	500 mg/20 mL	20 pcs	5010-61553
	1 g/6 mL	30 pcs	5010-61545
	2 g/12 mL	20 pcs	5010-61546
	5 g/20 mL	20 pcs	5010-61547
	10 g/60 mL	16 pcs	5010-61548
	20 g/60 mL	16 pcs	5010-61549
	25 g/150 mL	8 pcs	5010-61550
	50 g/150 mL	8 pcs	5010-61551
	70 g/150 mL	8 pcs	5010-61552

Luer Devices

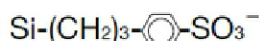
Description	Bed Weight	Qty.	Cat.No.
InertSep Slim-J SCX	500 mg	50 pcs	5010-65540
	1000 mg	50 pcs	5010-65541

96-well Plates

Description	Bed Weight	Qty.	Cat.No.
InertSep 96WP SCX	50 mg	1 pc	5010-66420
	100 mg	1 pc	5010-66421

Silica-Based Ion Exchange SPE

InertSep SCX-2



Average Particle Size	: 60 μm
Carbon Load	: 17 %
Surface Area	: 450 m ² /g
Pore Volume	: 0.7 mL/g
Pore Size	: 6 nm
Ion exchange capacity	: 1.2 meq/g
pH Range	: 2 – 8
Remark	: Na ⁺ ion pair

InertSep SCX-2 employs the same chemical modification with InertSep SCX. The only difference is that propylbenzenesulfonyl groups are bonded more densely on the silica surface to increase ion exchange capacity and retentivity.

Cartridges

Description	Bed Weight/Volume	Qty.	Cat.No.
InertSep SCX-2	50 mg/1 mL	100 pcs	5010-61720
	100 mg/1 mL	100 pcs	5010-61721
	200 mg/3 mL	50 pcs	5010-61722
	500 mg/3 mL	50 pcs	5010-61723
	500 mg/6 mL	30 pcs	5010-61724
	500 mg/20 mL	20 pcs	5010-61733
	1 g/6 mL	30 pcs	5010-61725
	2 g/12 mL	20 pcs	5010-61726
	5 g/20 mL	20 pcs	5010-61727
	10 g/60 mL	16 pcs	5010-61728
	20 g/60 mL	16 pcs	5010-61729
	25 g/150 mL	8 pcs	5010-61730
	50 g/150 mL	8 pcs	5010-61731
	70 g/150 mL	8 pcs	5010-61732

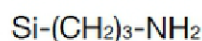
Luer Devices

Description	Bed Weight	Qty.	Cat.No.
InertSep Slim-J SCX-2	500 mg	50 pcs	5010-65660
	1000 mg	50 pcs	5010-65661

96-well Plates

Description	Bed Weight	Qty.	Cat.No.
InertSep SCX-2	50 mg	1 pc	5010-66430
	100 mg	1 pc	5010-66431

InertSep NH2



Average Particle Size	: 60 μm
Carbon Load	: 10 %
Surface Area	: 450 m ² /g
Pore Volume	: 0.7 mL/g
Pore Size	: 6 nm
Ion exchange capacity	: 0.9 meq/g
pH Range	: 2 – 8

InertSep NH2 is a silica-based sorbent modified with an aminopropyl groups. Anion exchange and polar interaction are combined as the primary interactions. As the secondary interactions, it has weak non-polar interactions. Similar to InertSep 2OH and InertSep SI used in normal phase mode, InertSep NH2 can be used for the separation of structural isomers.

Cartridges

Description	Bed Weight/Volume	Qty.	Cat.No.
InertSep NH2	50 mg/1 mL	100 pcs	5010-61600
	100 mg/1 mL	100 pcs	5010-61601
	200 mg/3 mL	50 pcs	5010-61602
	500 mg/3 mL	50 pcs	5010-61603
	500 mg/6 mL	30 pcs	5010-61604
	1 g/6 mL	30 pcs	5010-61605
	2 g/12 mL	20 pcs	5010-61606
	5 g/20 mL	20 pcs	5010-61607
	10 g/60 mL	16 pcs	5010-61608
	20 g/60 mL	16 pcs	5010-61609

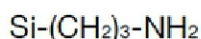
Luer Devices

Description	Bed Weight	Qty.	Cat.No.
InertSep Slim-J NH2	500 mg	50 pcs	5010-65600
	1000 mg	50 pcs	5010-65601
InertSep Slim NH2	360 mg	50 pcs	5010-65605

96-well Plates

Description	Bed Weight	Qty.	Cat.No.
InertSep 96WP NH2	50 mg	1 pc	5010-66600
	100 mg	1 pc	5010-66601

■ InertSep NH2 FF



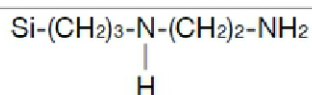
Average Particle Size	: 120 µm
Carbon Load	: 10 %
Surface Area	: 450 m ² /g
Pore Volume	: 0.7 mL/g
Pore Size	: 6 nm
Ion exchange capacity	: 0.9 meq/g
pH Range	: 2 – 8

InertSep NH2 FF is a modified version of InertSep NH2 for high flow rates. This sorbent is also suitable for viscous samples and large volume samples to increase the throughput.

Cartridges

Description	Bed Weight/Volume	Qty.	Cat.No.
InertSep NH2 FF	50 mg/1 mL	100 pcs	5010-62600
	100 mg/1 mL	100 pcs	5010-62601
	200 mg/3 mL	50 pcs	5010-62602
	500 mg/3 mL	50 pcs	5010-62603
	500 mg/6 mL	30 pcs	5010-62604
	1 g/6 mL	30 pcs	5010-62605
	2 g/12 mL	20 pcs	5010-62606
	5 g/20 mL	20 pcs	5010-62607
	10 g/60 mL	16 pcs	5010-62608

■ InertSep PSA



Average Particle Size	: 60 µm
Carbon Load	: 11.5 %
Surface Area	: 450 m ² /g
Pore Volume	: 0.7 mL/g
Pore Size	: 6 nm
Ion exchange capacity	: 1.5 meq/g
pH Range	: 2 – 8

InertSep PSA is a silica-based sorbent modified with ethylene-diamine-N-propyl groups. The primary interactions of this sorbent are anion exchange and secondary interactions are weak non-polar.

Cartridges

Description	Bed Weight/Volume	Qty.	Cat.No.
InertSep PSA	50 mg/1 mL	100 pcs	5010-61620
	100 mg/1 mL	100 pcs	5010-61621
	200 mg/3 mL	50 pcs	5010-61622
	500 mg/3 mL	50 pcs	5010-61623
	500 mg/6 mL	30 pcs	5010-61624
	500 mg/20 mL	20 pcs	5010-61629
	1 g/6 mL	30 pcs	5010-61625
	2 g/12 mL	20 pcs	5010-61626
	5 g/20 mL	20 pcs	5010-61627
	10 g/60 mL	16 pcs	5010-61628

Luer Devices

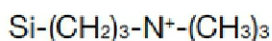
Description	Bed Weight	Qty.	Cat.No.
InertSep Slim-J PSA	500 mg	50 pcs	5010-65620
	1000 mg	50 pcs	5010-65621

96-well Plates

Description	Bed Weight	Qty.	Cat.No.
InertSep 96WP PSA	50 mg	1 pc	5010-66610
	100 mg	1 pc	5010-66611

Silica-Based Ion Exchange SPE

InertSep SAX



Average Particle Size	: 45 µm
Carbon Load	: 7 %
Surface Area	: 450 m ² /g
Pore Volume	: 0.7 mL/g
Pore Size	: 6 nm
Ion exchange capacity	: 0.7 meq/g
pH Range	: 2 – 8
Remark	: OH ⁻ ion pair

InertSep SAX is a silica-based sorbent modified with trimethylaminopropyl groups. Primary interactions are very strong anion exchange. Secondary interactions are non-polar. It is generally used for the extraction of weak anions such as carboxylic acids.

Cartridges

Description	Bed Weight/Volume	Qty.	Cat.No.
InertSep SAX	50 mg/1 mL	100 pcs	5010-61640
	100 mg/1 mL	100 pcs	5010-61641
	200 mg/3 mL	50 pcs	5010-61642
	500 mg/3 mL	50 pcs	5010-61643
	500 mg/6 mL	30 pcs	5010-61644
	1 g/6 mL	30 pcs	5010-61645
	2 g/12 mL	20 pcs	5010-61646
	5 g/20 mL	20 pcs	5010-61647
	10 g/60 mL	16 pcs	5010-61648
	20 g/60 mL	16 pcs	5010-61649
	25 g/150 mL	8 pcs	5010-61650
	50 g/150 mL	8 pcs	5010-61651
	70 g/150 mL	8 pcs	5010-61652

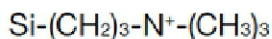
Luer Devices

Description	Bed Weight	Qty.	Cat.No.
InertSep Slim-J SAX	500 mg	50 pcs	5010-65640
	1000 mg	50 pcs	5010-65641

96-well Plates

Description	Bed Weight	Qty.	Cat.No.
InertSep 96WP SAX	50 mg	1 pc	5010-66620
	100 mg	1 pc	5010-66621

InertSep SAX-2



Average Particle Size	: 60 µm
Carbon Load	: 11.5 %
Surface Area	: 450 m ² /g
Pore Volume	: 0.7 mL/g
Pore Size	: 6 nm
Ion exchange capacity	: 0.45 meq/g
pH Range	: 2 – 8
Remark	: Cl ⁻ ion pair

InertSep SAX is a modified version of InertSep SAX for stronger non-polar interactions.

Cartridges

Description	Bed Weight/Volume	Qty.	Cat.No.
InertSep SAX-2	50 mg/1 mL	100 pcs	5010-61700
	100 mg/1 mL	100 pcs	5010-61701
	200 mg/3 mL	50 pcs	5010-61702
	500 mg/3 mL	50 pcs	5010-61703
	500 mg/6 mL	30 pcs	5010-61704
	500 mg/20 mL	20 pcs	5010-61713
	1 g/6 mL	30 pcs	5010-61705
	2 g/12 mL	20 pcs	5010-61706
	5 g/20 mL	20 pcs	5010-61707
	10 g/60 mL	16 pcs	5010-61708
	20 g/60 mL	16 pcs	5010-61709
	25 g/150 mL	8 pcs	5010-61710
	50 g/150 mL	8 pcs	5010-61711
	70 g/150 mL	8 pcs	5010-61712

Luer Devices

Description	Bed Weight	Qty.	Cat.No.
InertSep Slim-J SAX-2	500 mg	50 pcs	5010-65650
	1000 mg	50 pcs	5010-65651

96-well Plates

Description	Bed Weight	Qty.	Cat.No.
InertSep 96WP SAX-2	50 mg	1 pc	5010-66640
	100 mg	1 pc	5010-66641

InertSep AC (Active Carbon)



Base Gel : Active Carbon
 Average Particle Size : 60/150 mesh
 Surface Area : 800 – 1200 m²/g

InertSep AC is packed with active carbon particles classified for high liquid permeability. There is no impurity elution from the purified active carbon. Good retentivity of this sorbent for highly polar compounds ensures high recovery and reproducibility. Luer device format supports automation of SPE procedures.

Luer Device

Description	Bed Weight	Qty.	Cat.No.
InertSep Slim-J AC	400 mg	50 pcs	5010-25500

InertSep GC (Carbograph, Graphite Carbon)



Base Gel : Graphite Carbon
 Average Particle Size : 120/400 mesh
 Surface Area : 85 m²/g
 Pore Volume : 1 mL/g
 Pore Size : 45 nm

InertSep GC is packed with graphite carbon, which has a planar structure. This sorbent is generally used for removal of pigments from crop homogenates. In conjunction with other various normal phase sorbents and ion exchange sorbents, this sorbent can be used for a wide variety of applications as a cleanup sorbent.

Cartridges

Description	Bed Weight/Volume	Qty.	Cat.No.
InertSep GC	150 mg/3 mL	50 pcs	5010-68000
	250 mg/3 mL	50 pcs	5010-68005
	300 mg/6 mL	30 pcs	5010-68001
	500 mg/6 mL	30 pcs	5010-68002
	1 g/12 mL	20 pcs	5010-68003
	2 g/12 mL	20 pcs	5010-68006
	500 mg/20 mL	20 pcs	5010-68004

Luer Device

Description	Bed Weight	Qty.	Cat.No.
InertSep Slim GC	400 mg	50 pcs	5010-65710

InertSep GC-e



Base Gel : Graphite Carbon
 Average Particle Size : 100/200 mesh
 Surface Area : 90 m²/g
 Pore Volume : 1 mL/g
 Pore Size : 50 nm

InertSep GC-e is packed with graphite carbon, which has a slightly larger surface area and wider pores compared to InertSep GC. InertSep GC-e provides the same extraction performance as InertSep GC at low cost.

Cartridges

Description	Bed Weight/Volume	Qty.	Cat.No.
InertSep GC-e	150 mg/3 mL	50 pcs	5010-68300
	250 mg/3 mL	50 pcs	5010-68301
	250 mg/6 mL	30 pcs	5010-68302
	300 mg/6 mL	30 pcs	5010-68303
	500 mg/6 mL	30 pcs	5010-68304
	500 mg/20 mL	20 pcs	5010-68305

InertSep GC/NH₂, GC/PSA



6 mL type



20 mL type

These two-layer cartridges are packed with graphite carbon for removing pigments and NH₂ or PSA sorbent for sample cleanup of organic extracts. The two-layer format yields high sample cleanup performance never achieved with the single-layer format.

Two Layer Cartridges

Description	Bed Weight/Volume	Qty.	Cat.No.
InertSep GC/NH ₂	50 mg/50 mg/1 mL	50 pcs	5010-68016
	50 mg/125 mg/1 mL	50 pcs	5010-68017
	250 mg/250 mg/3 mL	50 pcs	5010-68020
	500 mg/500 mg/6 mL	30 pcs	5010-68022
	500 mg/500 mg/20 mL	20 pcs	5010-68024
InertSep GC/PSA	1 g/1 g/20 mL	20 pcs	5010-68025
	300 mg/500 mg/6 mL	30 pcs	5010-68011
	500 mg/500 mg/6 mL	30 pcs	5010-68012
	500 mg/500 mg/20 mL	20 pcs	5010-68014
	1 g/500 mg/6 mL	30 pcs	5010-68013
	1 g/1 g/20 mL	20 pcs	5010-68015

InertSep GC-e/NH₂, GC-e/PSA



6 mL type



20 mL type

These two-layer cartridges are packed with GC-e graphite carbon for removing pigments and NH₂ or PSA sorbent for sample cleanup of organic extracts. Due to the cost reduction of GC-e, these two-layer cartridges achieve high sample cleanup performance at low cost.

Two Layer Cartridges

Description	Bed Weight/Volume	Qty.	Cat.No.
InertSep GC-e/NH ₂	500 mg/500 mg/6 mL	30 pcs	5010-68322
		300 pcs	5010-68326
	500 mg/500 mg/20 mL	20 pcs	5010-68324
		200 pcs	5010-68327
InertSep GC-e/PSA	300 mg/500 mg/6 mL	30 pcs	5010-68311
	500 mg/500 mg/6 mL	30 pcs	5010-68312
		300 pcs	5010-68316
	500 mg/500 mg/20 mL	20 pcs	5010-68314
		200 pcs	5010-68317
	1 g/1 g/20 mL	20 pcs	5010-68315

■ InertSep GC/PSA/SI, GC/SAX/PSA



InertSep GC/PSA/SI is more efficient for removing a wide variety of polar matrix compounds than GC/PSA. InertSep GC/SAX/PSA can be used for clean up of processed food.

Three Layer Cartridges

Description	Bed Weight/Volume	Qty.	Cat.No.
InertSep GC/PSA/SI	500 mg/500 mg/500 mg/20 mL	20 pcs	5010-68034
InertSep GC/SAX/PSA	500 mg/500 mg/500 mg/20 mL	20 pcs	5010-68044

■ InertSep GC-e/SAX-2/PSA



Due to the cost reduction of GC-e, this three-layer cartridge achieves high sample cleanup performance at low cost.

Three Layer Cartridge

Description	Bed Weight/Volume	Qty.	Cat.No.
InertSep GC-e/SAX-2/PSA	500 mg/500 mg/500 mg/20 mL	20 pcs	5010-68344

■ InertSep GC/SAX/PSA/SI



InertSep GC/SAX/PSA/SI is a four-layer SPE cartridge. GC efficiently removes pigments. SAX, PSA and SI offer superior cleanup when conducting multi-residue pesticide analysis.

Four Layer Cartridge

Description	Bed Weight/Volume	Qty.	Cat.No.
InertSep GC/SAX/PSA/SI	500 mg/500 mg/500 mg/500 mg/20 mL	20 pcs	5010-68054

■ InertSep SAX/PSA



InertSep SAX/PSA is a two-layer SPE cartridge packed with SAX and PSA. It is specifically used to remove agrochemical compounds that are often difficult to remove from crop samples by polar interactions.

Two Layer Cartridges

Description	Bed Weight/Volume	Qty.	Cat.No.
InertSep SAX/PSA	250 mg/250 mg/3 mL	50 pcs	5010-68100
	500 mg/500 mg/6 mL	30 pcs	5010-68101
	500 mg/500 mg/20 mL	20 pcs	5010-68104
	1 g/1 g/20 mL	20 pcs	5010-68105

■ InertSep SAX/PSA/SI



InertSep SAX/PSA/SI is a three-layer SPE cartridge for cleanup. It is available for sample cleanup to make analysis of residual pesticides.

Three Layer Cartridge

Description	Bed Weight/Volume	Qty.	Cat.No.
InertSep SAX/PSA/SI	500 mg/500 mg/500 mg/20 mL	20 pcs	5010-68114

■ InertSep PCB



InertSep PCB is a two-layer SPE cartridge packed with SCX and SI. It has been designed for the extraction of PCBs from complex matrix.

Two Layer Cartridges

Description	Bed Weight/Volume	Qty.	Cat.No.
InertSep PCB	1 g/3 mL	50 pcs	5010-68121
	1 g/6 mL	30 pcs	5010-68120

InertSep for AQUA



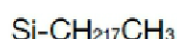
InertSep for AQUA

InertSep for AQUA is a SPE cartridge with low background contamination. Without conditioning, it is possible to conduct sample preparation easily and decrease solvent consumption by 50 %.

Luer Device Compatible Cartridges

Description	Bed Weight	Qty.	Cat.No.
InertSep Slim-J RP-1 for AQUA	230 mg	50 pcs	5010-65735
InertSep Slim-J PLS-2 for AQUA	265 mg	50 pcs	5010-65726
InertSep Slim-J PLS-3 for AQUA	230 mg	50 pcs	5010-65775

InertSep C18-ENV



Average Particle Size	: 60 µm
Carbon Load	: 16 %
End-Capping	: Low End-Capping
Surface Area	: 450 m ² /g
Pore Volume	: 0.7 mL/g
Pore Size	: 6 nm
pH Range	: 2 – 8

InertSep C18-ENV is designed for water quality analysis and useful for pretreatment of surfactants in water.

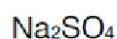
Cartridge

Description	Bed Weight/Volume	Qty.	Cat.No.
InertSep C18-ENV	500 mg/6 mL	30 pcs	5010-61204

Luer Device Compatible Cartridges

Description	Bed Weight	Qty.	Cat.No.
InertSep Slim-J C18-ENV	500 mg	50 pcs	5010-65200
		500 pcs	5010-65205
	1000 mg	50 pcs	5010-65201

InertSep Slim-J DRY



InertSep Slim-J DRY cartridge is packed with anhydrous Na₂SO₄ for dehydration.

Luer Device Compatible Cartridges

Description	Bed Weight	Qty.	Cat.No.
InertSep Slim-J DRY	1.4 g	50 pcs	5010-65700
	2.8 g	50 pcs	5010-65701

InertSep C18/DRY



InertSep C18/DRY is a two-layer SPE cartridge and designed for sample preparation for residual pesticide analysis. C18 is to remove lipids and DRY is for dehydration.

Two Layer Cartridge

Description	Bed Weight/Volume	Qty.	Cat.No.
InertSep C18/DRY	1 g/3 g/12 mL	20 pcs	5010-68133

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AIR SAMPLING

GC CAPILLARY COLUMNS

GC PACKED COLUMNS

GC ACCESSORIES

BELTS

VIALS

InertSep Phase Separator



InertSep PS-SH

InertSep PS-SL

Note:

If the sample forms an emulsion, it will not be possible to make a separation.

InertSep PS-SH

InertSep PS-SH is used for separation of organic and aqueous phases during traditional liquid-liquid extraction procedures. This cartridge fitted with a selectively permeable frit is suitable for the separation of heavier chlorinated solvents from water.

Cartridges

Description	Volume	Qty.	Cat.No.
InertSep PS-SH	1 mL	100 pcs	5010-67000
	6 mL	100 pcs	5010-67002
	12 mL	100 pcs	5010-67003
	20 mL	100 pcs	5010-67004
	60 mL	50 pcs	5010-67005

96-well Plate

Description	Qty.	Cat.No.
InertSep 96WP PS-SH	1 pc	5010-67008

InertSep PS-SL

InertSep PS-SL is used for separation of an upper organic phase from an aqueous phase in extraction procedures. It is suitable when the organic phase is ethyl acetate, hexanes, toluene etc.

Cartridges

Description	Volume	Qty.	Cat.No.
InertSep PS-SL	1 mL	100 pcs	5010-67010
	6 mL	100 pcs	5010-67012
	12 mL	100 pcs	5010-67013
	20 mL	100 pcs	5010-67014
	60 mL	50 pcs	5010-67015

InertSep Phospholipid Remover



InertSep Phospholipid is developed for selective removal of phospholipids and can minimize ion suppression of LC/MS/MS analysis. It can remove more than 90 % of phospholipids.

Cartridges

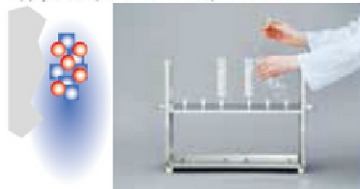
Description	Bed Weight/Volume	Qty.	Cat.No.
InertSep Phospholipid Remover	50 mg/1 mL	100 pcs	5010-27810
	100 mg/3 mL	50 pcs	5010-27811

InertSep K-solute (Diatomaceous Earth)



InertSep K-solute

Procedure 1
Apply a sample on to InertSep K-solute



Procedure 2
Leave it to stand for 5 to 15 minutes



Procedure 3
Elute with an elution solvent



InertSep K-solute is packed with diatomaceous earth and ideal for the sample to form an emulsion during liquid-liquid extraction procedures. Dedicated rack for InertSep makes the operation simple and efficient further more.

Volume of Used Reservoir	O.D.	Length
12 mL	18 mm	90 mm
20 mL	23 mm	99 mm
60 mL	30 mm	155 mm
150 mL	41 mm	172 mm

Cartridges

Description	Sample Volume	Reservoir Volume	Qty.	Cat.No.
InertSep K-solute	2 mL	12 mL	100 pcs	5010-68125
	5 mL	20 mL	100 pcs	5010-68127
	10 mL	60 mL	25 pcs	5010-68208
			100 pcs	5010-68218
	20 mL	60 mL	25 pcs	5010-68209
			100 pcs	5010-68219
	50 mL	150 mL	25 pcs	5010-68210
			50 pcs	5010-68220

Bulk

Description	Qty.	Cat.No.
Diatomaceous Earth for Sorbent Supported Liquid Extraction	1 kg	5010-69500

Adaptors

Description	Qty.	Cat.No.
Connecting Adaptor (PP) 12, 20 mL Reservoir	12 pcs	5010-60001
Connecting Adaptor (PP) 60 mL Reservoir	12 pcs	5010-60002
Connecting Adaptor (PP) 150 mL Reservoir	1 pc	5010-50336

Reservoir with Adaptors

Description	Qty.	Cat.No.
50 mL Reservoir with Adaptor for 12, 20 mL	12 pcs	5010-60016
200 mL Reservoir with Adaptor for 60 mL Reservoir	12 pcs	5010-60017

SAMPLE PREPARATION

LIFE SCIENCE

LC ACCESSORIES

AIR SAMPLING

GC CAPILLARY COLUMNS

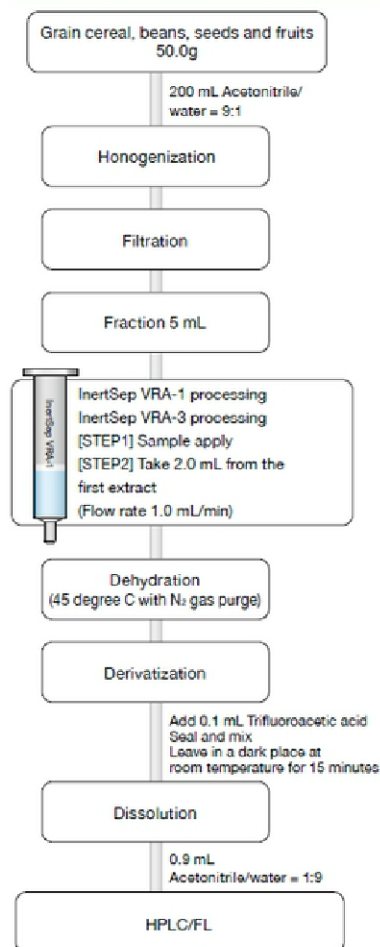
GC PACKED COLUMNS

GC ACCESSORIES

BELTS

VIALS

InertSep VRA (Multifunctional Cleanup SPE Cartridge for Aflatoxins)



Total Aflatoxin Analysis

A number of mycotoxins are contained in natural food products. Among these, Aflatoxins produced by fungi such as *Aspergillus flavus* are carcinogenic to liver cells, and have attracted considerable attention in food safety.

InertSep VRA Series

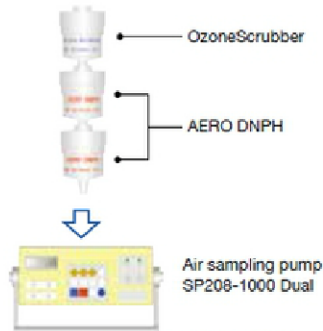
InertSep VRA series are multifunctional solid phase extraction cartridges for cleanup samples in complex organic matrices.

● Feature

These multifunctional cartridges have the advantages of both reversed phase and ion exchange silica-based sorbents.

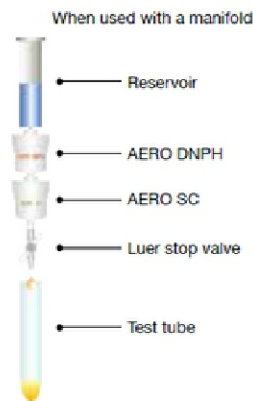
Description	Details	Qty.	Cat.No.
InertSep VRA-1	Mix mode: Reversed and ion exchange phase (Column size : 6 mL)	30 pcs	5010-68140
InertSep VRA-2	Economy model of VRA-1 (Column size : 6 mL)	30 pcs	5010-68141
InertSep VRA-3	Strong reversed phase model (Column size : 6 mL)	30 pcs	5010-68142

InertSep mini AERO series



Ex 1) How to use InertSep mini AERO

Note) Use the OzonScrubber depending on the requirement



Ex 2) How to use InertSep mini AERO

InertSep mini AERO series are active samplers for the analysis of aldehydes and ketones in outdoor gas, car cabin and exhaust gas in compliance with: Offensive Odor Control Law, Clean Air Act, and EPA. There are four types: AERO DNP, AERO DNP-HR, AERO OzonScrubber, and AERO SC, InertSep mini AERO series.

● Features

InertSep mini AERO DNP

This active sampler is packed with spherical silica coated with 2,4-Dinitrophenylhydrazine reagent for derivatization of aldehydes and ketones. The size of 120 μm spherical silica allows for high air permeability, resulting in high collection efficiency of the target compounds and low blank compared with irregular silica.

InertSep mini AERO DNP-HR

This is newly developed and offers improved efficiency for acrolein collection, which is difficult to collect with the conventional DNP cartridges.

InertSep mini AERO OzonScrubber

Potassium iodide is used to remove ozone interference. It is known that the DNP derivatives are decomposed by ozone, which affects the results. InertSep AERO OzonScrubber is used in series with DNP cartridge at its inlet side.

InertSep mini AERO SC

This cartridge is packed with polymeric packing material of strong cation exchange to remove unreacted DNP.

Unreacted DNP interferes with GC analysis, so is connected to the outlet side of DNP cartridge.

Description	Bed Weight	Qty.	Cat.No.
InertSep mini AERO DNP [●R/F]	300 mg	20 pcs	5010-23500
InertSep mini AERO DNP-HR [●R/F]	300 mg	20 pcs	5010-23501
InertSep mini AERO OzonScrubber	1.5 g	20 pcs	5010-23510
InertSep mini AERO SC	250 mg	20 pcs	5010-23520

Note: [●R/F] Refrigerated/Freezing

InertSep Slim-J AERO SDB400

InertSep Slim-J AERO SDB400 is used for extraction of semi-volatile organic compounds like insecticides and fire retardants in air.

Description	Bed Weight	Qty.	Cat.No.
InertSep Slim-J AERO SDB400	400 mg	20 pcs	5010-65780

■ Cleanup Bulks for Dioxin Analysis



These bulks are used for sample cleanup for dioxin analysis and are supplied in a glass bottle put in a light-shielding bag.

Description	Volume	Cat.No.
Activated alumina 90 neutral, activity I, 70/230 mesh	1 kg	1050-22133
10 % Silver Nitrate Silicagel 70/200 mesh [■D/G]	100 g	5010-29014
22 % Sulfuric Acid Silicagel 70/200 mesh [■D/G]	100 g	5010-29012
44 % Sulfuric Acid Silicagel 70/200 mesh [■D/G]	100 g	5010-29013
2 % Potassium Hydroxide Silicagel 70/200 mesh [■D/G]	100 g	5010-29015
Silicagel conditioned with Hexane 70/200 mesh	100 g	5010-29011

Note: [■D/G] dangerous goods

■ Multi-Layer Cleanup Cartridges for Dioxin Analysis



These cartridges are designed for sample cleanup for dioxin analysis in compliance with JIS K-0311-1999, K-0312-1999. The cartridges are made of PP and compatible with automated instruments.

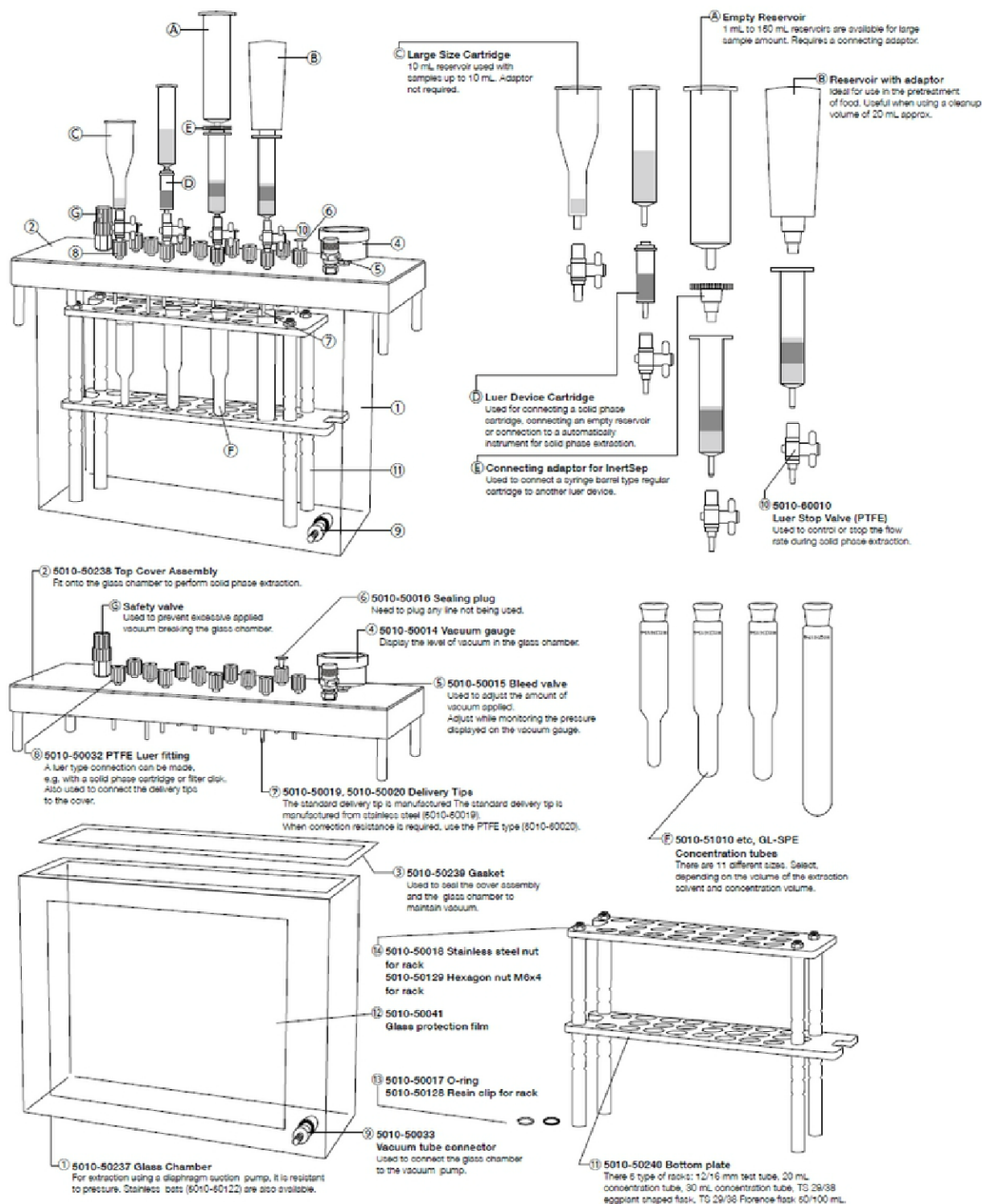
Description	Qty.	Cat.No.
PP 2Layer Cartridges		
10 % Silver Nitrate Silicagel (3.0 g) /44 % Sulfuric Acid Silicagel (4.5 g) [■D/G]	10 pcs	1050-24011
PP 4Layer Cartridges		
10 % Silver Nitrate Silicagel (3.0 g) /44 % Sulfuric Acid Silicagel (4.5 g) / 22 % Sulfuric Acid Silicagel (6.0 g) /2 % Potassium Hydroxide Silicagel (3.0 g) [■D/G]	5 pcs	1050-24031

Note: [■D/G] dangerous goods

InertSep Vacuum Manifold

InertSep Vacuum Manifold System

InertSep vacuum manifold is specially developed for performing efficient solid phase extraction. According to the application there are various kinds of useful kits and options.



SAMPLE PREPARATION

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LC ACCESSORIES

AIR SAMPLING

GC CAPILLARY COLUMNS

GC PACKED COLUMNS

GC ACCESSORIES

CELLS

VALVES

GL-SPE Vacuum Manifold

GL-SPE Vacuum Manifold Kit

SAMPLE PREPARATION

LIFE SCIENCE

LC ACCESSORIES

SAMPLING

GC CAPILLARY COLUMNS

GC PACKED COLUMNS

GC ACCESSORIES

CELLS

VIALS



5010-50000



5010-50006

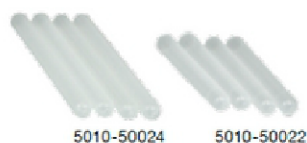


5010-50007

Description	Details	Qty.	Cat.No.
InertSep Vacuum Manifold Kit	Glass Chamber 1 pc	1 set	5010-50230
	Cover 1 pc		
	Gasket 1 pc		
	Vacuum Gauge 1 pc		
	Bleed Valve 1 pc		
	Safety Valve 1 pc		
	Plug 12 pcs		
	Cartridge Adaptor 12 pcs		
	PTFE Female Luer 12 pcs		
	Stainless Delivery Tip 12 pcs		
	PTFE Delivery Tip 12 pcs		
	12/16 mm Rack 1 pc		
	12 mm Waste Liquid Funnel 12 pcs		
16 mm Waste Liquid Funnel 12 pcs			
InertSep Vacuum Manifold Kit (for 4 eggplant-shaped flasks)	Glass Chamber 1 pc	1 set	5010-50234
	Cover 1 pc		
	Gasket 1 pc		
	Vacuum Gauge 1 pc		
	Bleed Valve 1 pc		
	Safety Valve 1 pc		
	Plug 4 pcs		
	PTFE Female Luer 12 pcs		
	Stainless Delivery Tip 12 pcs		
	TS29/38 Rack for 4 Florence Flasks 1 pc		
PTFE Delivery Tip 4 pcs			
InertSep Vacuum Manifold Kit 20 (for 20 samples)	Glass Chamber 1 pc	1 set	5010-50235
	Gasket 1 pc, plug 20 pcs		
	Stainless Delivery Tip 20 pcs		
	PTFE Delivery Tip 20 pcs		
	Rack for 20/30 mL Concentration Tube 1 pc		
	Vacuum Controller 1 pc		

Accessories for InertSep Vacuum Manifold

Accessories for InertSep Vacuum Manifold



Accessories for InertSep Vacuum Manifold Kit

No.	Item	Specification	Qty.	Cat.No.
1	Glass Chamber	Suction Tube Connector 1 pc	1 pc	5010-50237
2	Top Cover Assembly (PE)	For General Analysis	1 pc	5010-50238
		Eggplant Flask 4 pcs	1 pc	5010-50247
		For 20 Samples	1 pc	5010-50251
3	Gasket	Polystyrene Foam	2 pcs	5010-50239
4	Vacuum Gauge	For General Analysis (brass)	1 pc	5010-50014
5	Bleed Valve	For General Analysis (brass)	1 pc	5010-50015
6	Plug	PP	12 pcs	5010-50016
7	Stainless Delivery Tip	Stainless	12 pcs	5010-50019
		PTFE Delivery Tip	PTFE	12 pcs
—	12 mm Waste Funnel	PP	12 pcs	5010-50022
—	16 mm Waste Funnel	PP	12 pcs	5010-50024
8	Luer Fitting	PTFE	12 pcs	5010-50032
9	Vacuum Tube Connector	PP	1 pc	5010-50033
10	Luer Stop Valve	PTFE	12 pcs	5010-60010

Accessories for InertSep

Description	Qty.	Cat.No.
Cartridge Holder for InertSep mini Jr.	5 pcs	5010-52003
Connector Tubing	1 pc	5010-52021
	5 pcs	5010-52022
Male Luer Union for Backflush	10 pcs	5010-52012
Female Luer Union for Backflush	10 pcs	5010-52013
LS Tube without Adaptor	1 pc	5010-50214
5 mL Syringe for Elution with DNPH	6 pcs	3008-41151
Backflush Adaptor	5 pcs	5010-52011

Accessories for GL-SPE Vacuum Manifold

Description	Qty.	Cat.No.
Waste Container (Stainless)	1 pc	5010-50122
Glass Protection Film	2 pcs	5010-50041
O-ring for GL-SPE Vacuum Manifold	10 pcs	5010-50017
Stainless Steel Nut for GL-SPE Vacuum Manifold	4 pcs	5010-50018

Note: When using 5010-50131, 5010-50130 is needed.

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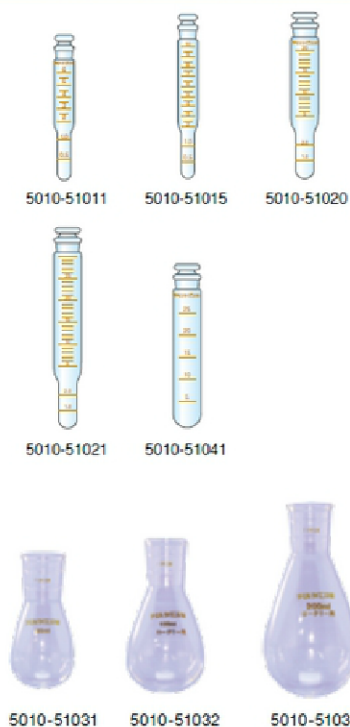
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Accessories for InertSep Vacuum Manifold

Accessories for InertSep Vacuum Manifold



InertSep Concentration tubes, Test tubes and Eggplant-shaped Flasks

Description	Scale (Volume) mL	Plug	Qty.	Cat.No.
Co-Stoppered Graduated Tube 12 mm	6 mL		20 pcs	5010-51001
Co-Stoppered Graduated Tube 16 mm	14 mL		20 pcs	5010-51002
GL-SPE Concentration Tube (Clear) 1.0 mL for measurement	6 mL	Co-Stoppered	10 pcs	5010-51010
GL-SPE Concentration Tube (Clear) 0.5, 1.0 mL for measurement			10 pcs	5010-51011
GL-SPE Concentration Tube (Amber) 0.5, 1.0 mL for measurement			10 pcs	5010-51012
GL-SPE Concentration Tube (Clear) 0.5, 1.0 mL for measurement		Tapered	10 pcs	5010-51013
GL-SPE Concentration Tube (Amber) 0.5, 1.0 mL for measurement			10 pcs	5010-51014
GL-SPE Concentration Tube (Clear) 0.5, 1.0 mL for measurement		10 mL	Co-Stoppered	10 pcs
GL-SPE Concentration Tube (Amber) 0.5, 1.0 mL for measurement	10 pcs			5010-51016
GL-SPE Concentration Tube (Clear) 1, 2, 5 mL for measurement	6 mL	Co-Stoppered	10 pcs	5010-51017
GL-SPE Concentration Tube (Clear) 1.0, 2.0 mL for measurement	20.5 mL		6 pcs	5010-51020
GL-SPE Concentration Tube (Clear) 1.0, 2.0 mL for measure	30 mL		6 pcs	5010-51021
GL-SPE Test Tube (Clear) 5.0 mL for measurement	16 mL	Tapered	10 pcs	5010-51040
GL-SPE Test Tube (Amber) 5.0 mL for measurement	9 mL		10 pcs	5010-51042
GL-SPE Test Tube (Clear)	25 mL		6 pcs	5010-51041

Caution: Upper Scales than 2.0 mL are rough indications.

Description	Scale (volume)	Qty.	Cat.No.
Eggplant-shaped Flask	50 mL	2 pcs	5010-51031
	100 mL	2 pcs	5010-51032
	200 mL	2 pcs	5010-51033

Solvent Container Cap

Solvent container cap includes four ports to fix 3 mm O.D. tubings and purge solvent with He.



Description	Qty.	Cat.No.
Solvent Container Cap for 500 mL Container	1 pc	6010-81140
Solvent Container Cap for 3000 mL Container	1 pc	6010-81150

Tube Clip

The tube clip is convenient to fix tubing with a beaker and/or a container.



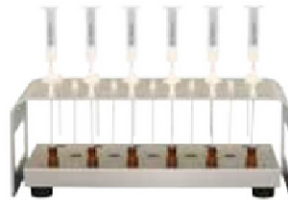
Description	Qty.	Cat.No.
Tube Clip	5 pcs	6010-81160

Note: Not able to fix tubing with glassed/containers of more than 4 mm thickness.

GL-SPE Gravity Flow Manifold



5010-50430



Example with vial rack

● Features

- Simple design
- Optimal performance for Mycotoxins sample preparation
- Gravity flow is improved with the delivery tips
- Luer stop valve offers the adjustment of flow rate
- Optional extension panels for concentration tubes and eggplant flasks are available

Description	Qty.	Cat.No.
GL-SPE Gravity Flow Manifold	1 pc	5010-50430
4 mL Vial Tray for GL-SPE Gravity Flow Manifold	1 pc	5010-50432

● Options

Description	Qty.	Cat.No.
GL-SPE Gravity Flow Manifold Extension Panel	1 pc	5010-50431
20 mL Concentration Tube Tray for GL-SPE Gravity Flow Manifold	1 pc	5010-50433
200/300 mL Eggplant Flask Tray for GL-SPE Gravity Flow Manifold	1 pc	5010-50434
GL-SPE Delivery Tip for GL-SPE Gravity Flow Manifold	24 pcs	5010-50420
	100 pcs	5010-50421
Luer Stop Valve (PTFE)	12 pcs	5010-60010

SPE Gravity Flow Rack



SPE Gravity Flow Rack

SPE Gravity Flow Rack can be used for the SPE procedure performed under gravity flow with InertSep K-solute. The sizes of collection vessels and stands can be selected by adjusting the height of the rack.

Description	Qty.	Cat.No.
SPE Gravity Flow Rack Base Unit	1 pc	5010-50410
Gravity Flow Collection Stand for Eggplant-shaped Flask 50/100 mL	1 pc	5010-50422
Gravity Flow Collection Stand for Eggplant-shaped Flask 200/300 mL	1 pc	5010-50423
Luer Stop Valve (PTFE)	12 pcs	5010-60010
	24 pcs	5010-50420
GL-SPE Delivery Tip for GL-SPE Gravity Flow Manifold	100 pcs	5010-50421
Gravity Flow Collection Stand for GL-SPE Concentration Tube 20/30 mL	1 pc	5010-50424
Gravity Flow Collection Stand for Centrifuge Tube 50 mL	1 pc	5010-50425
20 mL Rack for 30 mL Eggplant-shaped Flask	1 pc	5010-50400

GL-SPE mini Vacuum Manifold



GL-SPE mini Vacuum Manifold

GL-SPE mini vacuum manifold kit is space-saving, and kit 12C for cartridges and kit 96W for 96-well plates are available. Kit 12C can be used with SPE cartridge of up to 6 mL. As its option, vials can be placed.

Features

- Two types for cartridges or 96-well plates
- Space-saving
- Concentration tubes, 7 mL test tubes and tubes with 16 mm O.D. x 100 mm length are placeable as connection tubes.

Description	Format	Qty.	Cat.No.
GL-SPE Mini Vacuum Manifold Kit 12C (12 place positions for SPE cartridges)	Cartridge	1 pc	5010-50150
GL-SPE Mini Vacuum Manifold Kit 96W	96-well plate	1 pc	5010-50155
Vacuum Controller	Common	1 pc	5010-33071

Note: GL-SPE mini manifold kit 12C and 96W don't include the vacuum controller.

Accessories for GL-SPE Mini Manifold

Description	Qty.	Cat.No.
GL-SPE Mini Vacuum Manifold Chamber for 12C	1 pc	5010-50160
GL-SPE Mini Vacuum Manifold Top Plate for 12C *1	1 pc	5010-50161
GL-SPE Mini Vacuum Manifold Concentration Rack for 12C	1 pc	5010-50162
GL-SPE Mini Vacuum Manifold Delivery Tip for 12C	15 pcs	5010-50163
GL-SPE Mini Vacuum Manifold Chamber for 96W	1 pc	5010-50165
GL-SPE Mini Vacuum Manifold Base Unit (Common)	1 pc	5010-50166
GL-SPE Mini Vacuum Manifold Drain Plate (Common)	1 pc	5010-50167
GL-SPE Mini Vacuum Manifold Shim Set 1 t x 2 pcs, 2 t x 1 pc for 96W	1 set	5010-50168
GL-SPE Mini Vacuum Manifold Gasket Set *2 (Common)	1 set	5010-50169

*1 : Top Plate doesn't include delivery tip.

*2 : Gasket set contains a gasket for top side and a gasket for bottom side.

InertSep Reservoir



Reservoirs with Adaptor

Description	Specification	Qty.	Cat.No.
Reservoir with Adaptor for 1, 3, 6 mL SPE Cartridges	25 mL	12 pcs	5010-60015
Reservoir with Adaptor for 12, 20 mL SPE Cartridges	50 mL	12 pcs	5010-60016
Reservoir with Adaptor for 60 mL SPE Cartridges	200 mL	12 pcs	5010-60017

Empty Cartridges

Description	Specification	Qty.	Cat.No.
Empty Cartridge (PP) without Frit	1 mL	50 pcs	5010-60100
	3 mL	50 pcs	5010-60101
	6 mL	30 pcs	5010-60102
	12 mL	20 pcs	5010-60103
	20 mL	20 pcs	5010-60104
	60 mL	10 pcs	5010-60105
	150 mL	10 pcs	5010-60106
Empty Cartridge (PP) with Frit	1 mL	50 pcs	5010-60120
	3 mL	50 pcs	5010-60121
	6 mL	30 pcs	5010-60122
	12 mL	20 pcs	5010-60123
	20 mL	20 pcs	5010-60124
	60 mL	10 pcs	5010-60125
	150 mL	10 pcs	5010-60126
Frit (PE)	for 1 mL cartridge	100 pcs	5010-60150
	for 3 mL cartridge	100 pcs	5010-60151
	for 6 mL cartridge	60 pcs	5010-60152
	for 12 mL cartridge	40 pcs	5010-60153
	for 20 mL cartridge	40 pcs	5010-60154
	for 60 mL cartridge	20 pcs	5010-60155
	for 150 mL cartridge	20 pcs	5010-60156

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Syringe Filters

GL Chromatodisc



GL Chromatodisc is a disposable syringe filter, which is composed of Polypropylene (PP) housing and filters. It can easily be connected to a syringe by the luer lock at the inlet connection. Prewashed membranes of the filters make extremely low back ground contamination. They are ideal for filtering samples or solvents being introduced into the chromatograph.

Specifications

Dimension	Filter Diameter	4 mm	13 mm	25 mm
	Housing	8 x 18 mm	18 x 22 ^{*1} mm	29 x 24 ^{*3} mm
Housing material	PP (Polypropylene)			
Sample Filtration Volume (mL)	less 1	less 0.5 – 10	less 3 – 50	
Bed Volume (μL)	less 10	less 30	less 100	
Effective Filtering Area (cm ²)	0.07	0.8	4.0	
Maximum Pressure (MPa)	0.49	0.49	0.49	
Inlet Connection	Luer lock	Luer lock ^{*2}	Luer lock	
Outlet Connection	Luer Slip	Luer Slip	Luer Slip	

*1 : A type 13S includes a syringe (all-in-one type) and the dimension is 19 x 94 mm.

*2 : A housing dimension of 25APF is 29 x 27 mm.

*3 : Maximum pressure of 25APF and AHF is 0.46 MPa.

A Type Filters for Hydrophilic Samples (Olefin Polymer Membrane)

A type filters configured with olefin polymer membrane are suitable for filtering protein samples.



Type	Filter Diameter*	Pore Size	Qty.	Cat.No.
4A	4 mm	0.2 μm	100 pcs	5040-28500
		0.45 μm	100 pcs	5040-28510
13A	13 mm	0.2 μm	100 pcs	5040-28501
		0.45 μm	100 pcs	5040-28511
25A	25 mm	0.2 μm	100 pcs	5040-28502
		0.45 μm	100 pcs	5040-28512
13S	13 mm	0.45 μm	50 pcs	5040-28513

*: Filter (Olefin polymer)

Note: Sterilized A Type Filters by Ethylene oxide gas are available.

High Flow A Type Filters (AHF) for Hydrophilic Samples (Olefin Polymer Membrane)

The flow rate can be doubled with High Flow A Type filters compared to the normal A Type filters.



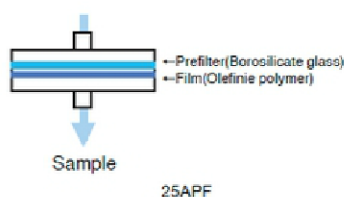
Type	Filter Diameter*	Pore Size	Qty.	Cat.No.
25AHF	25 mm	0.45 μm	100 pcs	5040-28602

*: Filter (Olefin polymer)

Note: Sterilized A Type Filters by Ethylene oxide gas are available.

A Type Filters with Pre-Filter (APF) for Hydrophilic Samples (Olefin Polymer Membrane)

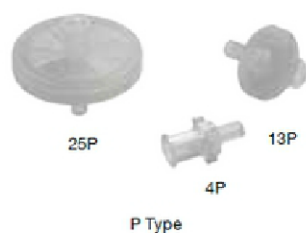
This filter is made up of a borosilicate glass pre-filter and an olefin polymer membrane to prevent clogging by highly contaminated samples.



Type	Filter Diameter*	Pore Size	Qty.	Cat.No.
25APF	25 mm	0.45 μm	100 pcs	5040-28702

*: Filter (Olefin polymer)

Note: Sterilized A Type Filters by Ethylene oxide gas are available.



P Type Filters for Hydrophilic Samples/Hydrophobic Samples (Hydrophilic polytetrafluoroethylene Membrane)

Both hydrophilic and hydrophobic samples can be filtered without any pre-wetting treatment. Up to 100 % acetonitrile can be used. Ideal for filtration of alcohols, ethers, esters, ketones, and hexanes.

Type	Filter Diameter*	Pore Size	Qty.	Cat.No.
4P	4 mm	0.45 μm	100 pcs	5040-28540
		0.2 μm	100 pcs	5040-28551
13P	13 mm	0.45 μm	100 pcs	5040-28541
		0.2 μm	100 pcs	5040-28552
25P	25 mm	0.45 μm	100 pcs	5040-28542
		0.2 μm	100 pcs	5040-28542

*: Filter (Hydrophilicity polymer)

Note: Sterilized P Type Filters by Autoclaving/Ethylene oxide gas are available.



N Type Filters for Hydrophobic Samples (PTFE Membrane)

N Type filters have superior chemical compatibility and are ideal for filtration of solvents, strong acids and alkali solutions. Also they can be used as air-venting filters.

Type	Filter Diameter*	Pore Size	Qty.	Cat.No.
4N	4 mm	0.2 μm	100 pcs	5040-28503
		0.45 μm	100 pcs	5040-28530
13N	13 mm	0.2 μm	100 pcs	5040-28504
		0.45 μm	100 pcs	5040-28531
25N	25 mm	0.1 μm	100 pcs	5040-28560
		0.2 μm	100 pcs	5040-28505
		0.45 μm	100 pcs	5040-28532

*: Filter (Hydrophilicity polymer)

Note: Sterilized N Type Filters by Autoclaving/Ethylene oxide gas are available.



AI Type Filters for Ion Chromatography Samples (Deionized Olefin polymer Membrane)

The concentrations of metals eluting from the membrane are lower than the values listed below. This filter is ideal for the sample preparation for ion chromatography.

	4 mm Diameter	13 mm Diameter	25 mm Diameter
Na	0.0009 ppm	0.006 ppm	0.011 ppm
K	0.0015 ppm	0.025 ppm	0.2 ppm
Ca	0.002 ppm	0.007 ppm	0.01 ppm

Type	Filter Diameter*	Pore Size	Qty.	Cat.No.
4AI	4 mm	0.2 μm	100 pcs	5040-28506
		0.45 μm	100 pcs	5040-28520
13AI	13 mm	0.2 μm	100 pcs	5040-28507
		0.45 μm	100 pcs	5040-28521
25AI	25 mm	0.2 μm	100 pcs	5040-28508
		0.45 μm	100 pcs	5040-28522

*: Filter (Hydrophilicity polymer)

Note: Sterilized AI Type Filters by Autoclaving/Ethylene oxide gas are available.

GL Chromatodisc

Chemical Resistance

✓: Resistance △: Limited resistance ×: Not resistant

	Reagent	A and AI Type	P Type	N Type		Reagent	A and AI Type	P Type	N Type	
Acid	Glacial acetic acid	△		△	Ester	Butyl acetate	×			
	Acetic acid (90 %)	△		△		Amyl acetate	×			
	Acetic acid (30 %)	✓		✓		Cellosolve acetate	×			
		Acetic acid (10 %)	✓		✓	Ketone	Acetone	×	✓	
		Hydrochloric acid (Conc.)	×	×	×		Cyclohexanone	×		
		Hydrochloric acid (6 N)	×	✓	△		Methyl Ethyl Ketone	×	✓	
		Sulfuric acid (Conc.)	×	×	×		Methyl isobutyl ketone	×		
		Sulfuric acid (6 N)	×	✓	△	Aromatic hydrocarbon	Benzene	×	✓	
		Nitrate acid (Conc.)	×	×	×		Toluene	×	✓	
	Nitrate acid (6 N)	×	✓	△	Xylene		×	✓		
	Alcohol (6 N)	△		△	Halogenated hydrocarbon		Dichloroethane	×		
Alkali	Alcohol (3 N)	✓		✓		Ethylene chloride	×	✓		
	Potassium hydroxide (3 N)	△		✓		Chloroform	×	✓		
	Sodium hydroxide (6 N)		✓			Carbon tetrachloride	×			
	Sodium hydroxide (5 N)	△	✓	✓		Perchloroethylene	×			
	Sodium hydroxide (3 N)	△	✓	✓		Trichloroethylene	×			
	Sodium hydroxide (1 N)	✓				Freon TF	×	✓	✓	
Alcohol	Methanol	✓	✓	✓		Freon TMC	×			
	Ethanol	✓	✓	✓	Oil	Cotton oil	✓			
	Propanol	✓		✓		Lubricant	×			
	Isopropanol	✓	✓	✓		Earthnut oil	✓			
	Butanol	✓	✓	✓		Sesame oil	✓			
	Amyl alcohol	✓		✓		The others	Acetonitrile	×	✓	
	Ethylene glycol	✓		✓			Aniline	×		
	Propylene glycol	✓		✓			Gasoline	✓		
Glycerin	✓		✓	Kerosene			✓			
Ether	Ethyl ether	✓	✓	✓	Dimethylformamide		×	✓		
	Isopropyl ether	✓		✓	Dimethyl sulfoxide		×	✓		
	Dioxane	×	✓	✓	Terpene oil		✓			
Ester	Tetrahydrofuran	×	✓	✓	Pyridine		×			
	Methyl acetate	×	✓	✓	Phenol (Liquid)	×				
	Ethyl acetate	×	✓	✓	Hexane	✓	✓			
	Isopropyl acetate	×		✓	Formaldehyde (37 %)	✓				

Note: The above data is used as the indication.

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