



# Alltech® Maxi-Clean™ Cartridges

## Save Time and Maximize Sample Preparation Efficiency

Maxi-Clean™ cartridges have the same bed dimensions as 4mL SPE columns for easy method cross-over. Process a single cartridge by syringe or multiple cartridges by vacuum. Maxi-Clean™ cartridges allow you to stack different cartridges for multi-step extractions. Use top and bottom caps for easy transport of field samples. Here's 10 different ways these cartridges can be used to address difficult extractions and SPE protocols.

### 1. Bulk Preconditioning on a Vacuum Manifold

Save time and solvents by preconditioning Maxi-Clean™ Cartridges on a vacuum manifold. Double stack for even faster preparation.



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### 2. Direct Substitution into Methods Using Standard 4mL Columns

Maxi-Clean™ Cartridges have the same bed dimensions as traditional 4mL SPE columns, for easy substitution into established protocols.



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### 3. Stack Two Cartridges in Series for Complex Separations

Maxi-Clean™ Cartridges can be stacked to combine two phases into one extraction step for complex analyses. You can even elute each phase individually, if desired.



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### 4. Elute Anywhere

Use a syringe to elute your analyte anywhere—directly into an injection valve, or into other receiver vessels. You can even attach a needle and elute directly through a septa or 96-well sealing mat.



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### 5. Combine SPE with Filtration by Adding a Filter Tube or Syringe Filter in Series

The Maxi-Clean™ Cartridge's luer connections allow you to add a syringe filter or a fritted SPE tube to remove particulates before your sample enters the SPE bed.



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### 6. Easy to Transport and Store

Use top and bottom caps to transport or store a Maxi-Clean™ Super Cartridge containing your analyte, without risking contamination or dehydration.



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### 7. Process Individually or in Parallel

Do you only have a few samples to process? Process them with a syringe, instead of setting up a vacuum manifold. Do you have a lot of samples to process? Add an empty reservoir to process them simultaneously on your manifold.



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### 8. Use In-line

The Maxi-Clean™ cartridge's luer connections allow you to use them in-line, to remove contaminants or act as a "guard" cartridge in low-pressure applications.



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### 9. Custom-fit to Your Sample Size

By changing reservoir sizes, you can customize a Maxi-Clean™ Cartridge to fit your sample size without changing the bed dimensions.



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### 10. Choose from many Chemistries

The Maxi-Clean™ line is offered in many of the same media as the Extract-Clean™ line, but slightly paired down, with over 20 chemistries available.



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solid phase extraction

# Alltech® Maxi-Clean™ Cartridges



## Reversed-Phase Cartridges

- Same bed dimensions as 4mL SPE columns for method cross-over
- Process a single cartridge by syringe or multiple cartridges by vacuum
- Stack different cartridges for multi-step extractions
- Use top and bottom caps for easy transport of field samples



Reversed-Phases (Non-Polar) Sorbent Specifications							
Packing	Base	% Carbon	End-capped	Average Particle Size	Pore Size	Features	Benefits
Prevail™ C18	Silica	11.0%	Yes	50µm	60Å	100% water wetttable	Hydrophilic/hydrophobic retention. Phase remains active even when completely dry. Can omit preconditioning step.
Standard C18	Silica	6.0%	Yes	50µm	60Å	Low carbon load C18	General purpose phase.
High-Flow C18	Silica	8.0%	Yes	100µm	60Å	Large particle	Less flow resistance for faster flow rates of large volume sample.
High-Capacity C18	Silica	17.0%	Yes	50µm	60Å	High carbon load	Maximum capacity phase.
Large Pore C18	Silica	14.0%	Yes	50µm	150Å	Larger than average pore size	Ideal for compounds >1500MW.
Octyl (C8)	Silica	4.5%	Yes	50µm	60Å	Less hydrophobic than C18	Less retention of highly hydrophobic compounds. Use when C18 is too retentive.

solid phase extraction

### Maxi-Clean™ Reversed-Phase Cartridges

Packing	Bed Weight	Qty.	Part No.
Prevail™ C18	300mg	50	<b>605926</b>
	500mg	50	<b>605929</b>
	900mg	50	<b>605942</b>
Standard C18	300mg	50	<b>20926</b>
	300mg	100	<b>20928</b>
	600mg	50	<b>20934</b>
	600mg	100	<b>20936</b>
	900mg	50	<b>20942</b>
	900mg	100	<b>20944</b>
High-Capacity C18	300mg	50	<b>20945</b>
Large Pore C18	300mg	100	<b>22012</b>
	600mg	100	<b>22017</b>
	900mg	100	<b>220215</b>
Octyl (C8)	300mg	50	<b>20950</b>
	600mg	50	<b>20958</b>
	900mg	50	<b>20966</b>

### tech tip

#### What is a Maxi-Clean™ cartridge?

A Maxi-Clean™ cartridge is an alternative format for SPE. It uses the same high-quality packing materials as the Extract-Clean™ columns but has a polypropylene housing with both a female luer inlet and a male luer outlet tip. This allows use of positive pressure from a syringe or negative pressure from a vacuum manifold. 20µm polyethylene frits are placed at each end of the sorbent bed. The packing material is packed and compressed to improve or optimize flow characteristics.



### related products

**Looking for vacuum manifolds?** See pages 314–315 for vacuum manifolds to process samples.

### more info

For SPE Applications, see pages 494–502.

### Maxi-Clean™ Drying Cartridges

Packing	Bed Weight	Qty.	Part No.
Sodium Sulfate	3g	100	<b>219001</b>

# Alltech® Maxi-Clean™ Cartridges



## Normal-Phase Cartridges

- Same bed dimensions as 4mL SPE columns for method cross-over
- Process a single cartridge by syringe or multiple cartridges by vacuum
- Stack different cartridges for multi-step extractions
- Use top and bottom caps for easy transport of field samples



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Normal-Phases (Polar) Sorbent Specifications							
Packing	Base	% Carbon	End-capped	Average Particle Size	Pore Size	Features	Benefits
Silica (SI)	Silica	—	—	50µm	60Å	Highly polar surface	Most common polar phase.
Aminopropyl (NH <sub>2</sub> )	Silica	5.0%	No	50µm	60Å	Polar phase with slight anion exchange properties	Ideal for carbohydrates or generally with analyses containing hydroxyl functional groups.
Florisil® (FL)	Magnesium Silicate	—	—	75–150µm	60Å	Highly polar surface	Referenced in many EPA methods. Ideally suited for pesticides and metals.
Florisil®-PR (FL-PR)	Magnesium Silicate	—	—	75–150µm	60Å	Specifically tested for chlorinated pesticides	Ensures most inert batches suitable for highly active compounds.
Alumina Neutral (AL-N)	Aluminum Oxide	—	—	130µm	100Å	Alumina washed with neutral surface	Interacts with highly aromatic compounds and neutral hydroxyls.

### Maxi-Clean™ Normal-Phase Cartridges

Packing	Bed Weight	Qty.	Part No.
Silica (SI)	300mg	50	<b>20974</b>
	300mg	100	<b>20976</b>
	600mg	50	<b>20982</b>
	600mg	100	<b>20984</b>
	900mg	50	<b>20990</b>
	900mg	100	<b>20992</b>
Aminopropyl (NH <sub>2</sub> )	300mg	50	<b>210044</b>
	300mg	100	<b>210046</b>
	900mg	100	<b>210047</b>
Florisil® (FL)	300mg	50	<b>210054</b>
	300mg	100	<b>210056</b>
	900mg	50	<b>210057</b>
	900mg	100	<b>210061</b>
Florisil®-PR (FL-PR)	300mg	50	<b>210074</b>
	300mg	100	<b>210076</b>
	900mg	50	<b>210079</b>
	900mg	100	<b>210075</b>
Alumina Neutral (AL-N)	300mg	25	<b>210095</b>
	1800mg	25	<b>210098</b>

### related products

Looking for standard luer-hub syringes to process Maxi-Clean™ cartridges?  
See page 347.



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### technical assistance

Contact Tech Support: Phone: 1.800.255.8324 (North America)  
Email: [contact.alltech@grace.com](mailto:contact.alltech@grace.com)  
Online: [www.discoverysciences.com](http://www.discoverysciences.com)

# Alltech® Maxi-Clean™ Cartridges



## Ion-Exchange Cartridges

- Eliminate matrix interferences before ion analysis
- Seven chemistries solve a variety of specific problems



The most difficult part of many IC applications is eliminating interfering components from the sample matrix. These interferences may co-elute or mask peaks of interest, overload the column, or shorten the column life by binding irreversibly to the column packing. The Alltech® unique ion-exchange SPE cartridge eliminates many of these interferences<sup>1,2</sup>.

Each metal-free polypropylene cartridge contains 0.5mL or 1.5mL of purified polystyrene resin, contained by 20µm polyethylene frits. The resin is functionalized to retain specific types of components from the sample.

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<sup>1</sup>R. Saari-Nordhaus, J.M. Anderson, Jr., and I.K. Henderson, *Am. Lab.* August (1990) 19.  
<sup>2</sup>I.K. Henderson, R. Saari-Nordhaus, and J.M. Anderson, Jr., *J. Chromatogr.* 546 (1991) 61.

Ion-Exchange Sorbent Specifications							
Packing	Base	Counter Ion	Particle Size	Functional Group	Exchange Capacity	Retains	Applications
SCX	Styrene-DVB	Hydrogen	50µm	Benzene Sulfonic Acid	2.0meq/mL	Cations, (+) charged compounds	Remove/concentrate basic compounds.
SAX	Styrene-DVB	Acetate	50µm	Tetramethyl Ammonium	1.0meq/mL	Anions, (-) charged compounds	Remove/concentrate basic compounds.

Ion Chromatography Sorbent Specifications							
Packing	Base	Counter Ion	Particle Size	Molecular Exclusion Limit	Exchange Capacity	Retains	Applications
IC-OH	Styrene-DVB	Hydroxide	50µm	1000 Daltons	1.0meq/mL	Anions	Exchanges anions for hydroxide. May be used to remove or concentrate anions from sample and to increase pH of acidic samples. Removes cations that form insoluble hydroxide salts.
IC-H	Styrene-DVB	Hydronium	50µm	1000 Daltons	2.0meq/mL	Cations	Exchanges cations for H <sup>+</sup> . May be used to remove or concentrate cations from sample and to reduce pH of basic samples.
IC-Ag	Styrene-DVB	Silver	50µm	1000 Daltons	2.0meq/mL	Chloride Iodide Bromide	Removes excess halides through formation of Ag-halide salts.
IC-Ba	Styrene-DVB	Barium	50µm	1000 Daltons	2.0meq/mL	Sulfate	Removes excess sulfate through formation of BaSO <sub>4</sub> .
IC-Na	Styrene-DVB	Sodium	50µm	1000 Daltons	2.0meq/mL	Cations	Exchanges cations for Na <sup>+</sup> . May be used to remove or retain cations from sample without changing the pH of the sample.
IC-Chelate	Styrene-DVB	Sodium	50µm	1000 Daltons	0.4meq/mL	Polyvalent metal ions	Exchanges transition metals and divalent cations for Na <sup>+</sup> . May be used to remove or retain divalent cations and transition metals from sample.
IC-RP	Polystyrene	—	550µm	—	—	Hydrophobic components	Removes surfactants, organic acids, and other organic substances. Inorganic ions pass through.

solid phase extraction

### General Ion-Exchange Maxi-Clean™ Cartridges

Packing	Bed Weight	Qty.	Part No.
SCX	600mg	50	<b>21902</b>
	600mg	100	<b>21903</b>
SAX	600mg	50	<b>21907</b>
	600mg	100	<b>21908</b>

### Ion Chromatography Maxi-Clean™ Cartridges

Packing	Bed Weight	Qty.	Part No.
IC-OH	0.5mL	50	<b>30262</b>
IC-OH	1.5mL	25	<b>30254</b>
IC-H	0.5mL	50	<b>30264</b>
IC-H	1.5mL	25	<b>30256</b>
IC-Ag	0.5mL	50	<b>30266</b>
IC-Ag	1.5mL	25	<b>30258</b>
IC-Ba	0.5mL	50	<b>30268</b>
IC-Ba	1.5mL	25	<b>30261</b>
IC-Na	0.5mL	50	<b>30270</b>
IC-Na	1.5mL	25	<b>30263</b>
IC-Chelate	0.5mL	50	<b>30250</b>
IC-Chelate	1.5mL	25	<b>30265</b>
IC-RP	0.5mL	50	<b>30260</b>
IC-RP	1.5mL	25	<b>30252</b>