

# Alltech® Extract-Clean™ and Ultra-Clean™ Columns

## Reversed-Phase Sorbents



### Extract-Clean™ Columns



- Available: Prevail™ C18, Standard C18, High-Flow C18, High-Capacity C18, Octyl (C8), Phenyl (PH)
- General purpose SPE column with the most comprehensive sorbent offering

### Ultra-Clean™ Columns



- Available: Standard C18, Octyl (C8)
- Low extractable version for highly sensitive applications—fluorinated polypropylene columns with PTFE frits

### Reversed-Phases (Non-Polar) Sorbent Specifications

Functional Group	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.
Phenyl (PH)	Silica	3.8%	Yes	50µm	60Å	Aromatic structure	Highly selective for aromatic compounds.

### Alltech® Reversed-Phase Extract-Clean™ Columns

Bed Weight	Column Size	Qty.	Part No.
<i>Prevail™ C18</i>			
100mg	1.5mL	100	<b>605001</b>
500mg	4.0mL	50	<b>605250</b>
500mg	8.0mL	30	<b>605350</b>
1000mg	8.0mL	30	<b>605430</b>
<i>Standard C18</i>			
50mg	1.5mL	100	<b>204900</b>
100mg	1.5mL	100	<b>205000</b>
200mg	4.0mL	50	<b>205150</b>
500mg	4.0mL	50	<b>205250</b>
500mg	8.0mL	30	<b>205350</b>
1000mg	8.0mL	30	<b>205430</b>
2000mg	8.0mL	30	<b>205450</b>
2000mg	15mL	30	<b>205462</b>
5000mg	25mL	20	<b>225450</b>
10,000mg	75mL	16	<b>235410</b>
<i>High-Flow C18</i>			
500mg	4.0mL	50	<b>215250</b>
1000mg	8.0mL	30	<b>215430</b>
<i>High-Capacity C18</i>			
100mg	1.5mL	100	<b>255100</b>
200mg	4.0mL	50	<b>255200</b>
500mg	4.0mL	50	<b>255300</b>
500mg	8.0mL	30	<b>255350</b>
1000mg	8.0mL	30	<b>255430</b>
2000mg	15mL	30	<b>255440</b>
5000mg	25mL	20	<b>255450</b>
10,000mg	75mL	16	<b>255460</b>

### Alltech® Reversed-Phase Extract-Clean™ Columns (continued)

Bed Weight	Column Size	Qty.	Part No.
<i>Octyl (C8)</i>			
100mg	1.5mL	100	<b>206000</b>
200mg	4.0mL	50	<b>206150</b>
500mg	4.0mL	50	<b>206250</b>
500mg	8.0mL	30	<b>206350</b>
<i>Phenyl (PH)</i>			
500mg	4.0mL	50	<b>232300</b>

### Alltech® Reversed-Phase Ultra-Clean™ SPE Columns

Bed Weight	Column Size	Qty.	Part No.
<i>Standard C18</i>			
200mg	4.0mL	50	<b>505150</b>
500mg	8.0mL	30	<b>505355</b>
<i>Octyl (C8)</i>			
200mg	4.0mL	50	<b>506151</b>
500mg	4.0mL	50	<b>506251</b>
500mg	8.0mL	30	<b>506351</b>

### more info

For SPE Applications, see pages 494–502.

# Alltech® Extract-Clean™ and Ultra-Clean™ Columns

## Normal-Phase Sorbents



### Extract-Clean™ Columns

- Available: Silica (SI), Aminopropyl (NH<sub>2</sub>), Cyanopropyl (CN), Diol (2OH), Florisil® (FL), Florisil®-PR (FL-PR), Alumina Acidic (AL-A), Alumina Acidic (AL-B), Alumina Neutral (AL-N)
- General purpose SPE column with the most comprehensive sorbent offering



### Ultra-Clean™ Columns

- Available: Silica (SI), Aminopropyl (NH<sub>2</sub>), Florisil® (FL), Florisil®-PR (FL-PR)
- Low extractable version for highly sensitive applications—fluorinated polypropylene columns with PTFE frits



Normal-Phases (Polar) Sorbent Specifications							
Functional Group	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.
Cyanopropyl (CN)	Silica	6.0%	Yes	50µm	60Å	Unique selectivity	Can be used in normal-phase or reversed-phase modes.
Diol (2OH)	Silica	4.0%	No	50µm	60Å	Polar surface with minor hydrophobic retention	
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 Acidic (AL-A)	Aluminum Oxide	—	—	130µm	100Å	Alumina washed with acid surface	Increase capacity for acidic compounds.
Alumina Basic (AL-B)	Aluminum Oxide	—	—	130µm	100Å	Alumina washed with base surface	Increase capacity for basic compounds.
Alumina Neutral (AL-N)	Aluminum Oxide	—	—	130µm	100Å	Alumina washed with neutral surface	Interacts with highly aromatic compounds and neutral hydroxyls.

### Alltech® Normal-Phase Extract-Clean™ Columns

Bed Weight	Column Size	Qty.	Part No.
<i>Silica (SI)</i>			
50mg	1.5mL	100	209062
100mg	1.5mL	100	209000
200mg	4.0mL	50	209150
500mg	4.0mL	50	209250
500mg	8.0mL	30	209200
1000mg	8.0mL	30	209100
2000mg	8.0mL	30	209202
2000mg	15mL	30	209362
5000mg	25mL	20	22935
10,000mg	25mL	20	239300
10,000mg	75mL	16	239310
20,000mg	75mL	16	239322
<i>Aminopropyl (NH<sub>2</sub>)</i>			
100mg	1.5mL	100	211000
200mg	4.0mL	50	211025
500mg	4.0mL	50	211150
500mg	8.0mL	30	211256
1000mg	8.0mL	30	211153
<i>Cyanopropyl (CN)</i>			
200mg	4.0mL	50	209450
500mg	4.0mL	50	209550
500mg	8.0mL	30	209650
<i>Diol (2OH)</i>			
100mg	1.5mL	100	208000
200mg	4.0mL	50	208150
500mg	4.0mL	50	208250
<i>Florisil® (FL)</i>			
100mg	1.5mL	100	204500
500mg	4.0mL	50	204650
1000mg	8.0mL	30	207930
2000mg	15mL	30	207962

### Alltech® Normal-Phase Extract-Clean™ Columns (continued)

Bed Weight	Column Size	Qty.	Part No.
<i>Florisil® (FL) (continued)</i>			
5000mg	25mL	20	227950
10,000mg	75mL	16	237910
<i>Florisil®-PR (FL-PR)</i>			
1000mg	8.0mL	30	250020
<i>Alumina Acidic (AL-A)</i>			
100mg	1.5mL	100	228200
500mg	4.0mL	50	228350
<i>Alumina Basic (AL-B)</i>			
500mg	4.0mL	50	228150
<i>Alumina Neutral (AL-N)</i>			
100mg	1.5mL	100	228400
500mg	4.0mL	50	228550
2000mg	15mL	30	22856

### Alltech® Normal-Phase Ultra-Clean™ SPE Columns

Bed Weight	Column Size	Qty.	Part No.
<i>Silica (SI)</i>			
200mg	4.0mL	50	509150
500mg	8.0mL	30	509225
5000mg	25mL	20	509010
<i>Aminopropyl (NH<sub>2</sub>)</i>			
200mg	4.0mL	50	511025
500mg	4.0mL	50	511150
<i>Florisil® (FL)</i>			
500mg	4.0mL	50	507851
1000mg	8.0mL	30	507930
<i>Florisil®-PR (FL-PR)</i>			
500mg	4.0mL	50	504651
1000mg	8.0mL	30	507900

solid phase extraction

# Alltech® Extract-Clean™ and Ultra-Clean™ Columns

## Ion-Exchange Sorbents



### Extract-Clean™ Columns

- Available: SCX, SAX, IC-OH, IC-H, IC-Ag, IC-Ba, IC-Na, IC-Chelate, IC-RP
- General purpose SPE column with the most comprehensive sorbent offering



### Ultra-Clean™ Columns

- Available: SCX, SAX
- Low extractable version for highly sensitive applications—fluorinated polypropylene columns with PTFE frits



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 Extract-Clean™ Columns

Bed Weight	Column Size	Qty.	Part No.
<b>SCX</b>			
100mg	1.5mL	100	<b>209800</b>
500mg	4.0mL	50	<b>209950</b>
1000mg	8.0mL	30	<b>209930</b>
<b>SAX</b>			
100mg	1.5mL	100	<b>209600</b>
200mg	4.0mL	50	<b>209625</b>
500mg	4.0mL	50	<b>209750</b>
1000mg	8.0mL	30	<b>209850</b>

### General Ion-Exchange Ultra-Clean™ Columns

Bed Weight	Column Size	Qty.	Part No.
<b>SCX</b>			
200mg	4.0mL	50	<b>509826</b>
500mg	4.0mL	50	<b>509951</b>
<b>SAX</b>			
200mg	4.0mL	50	<b>509626</b>
500mg	4.0mL	50	<b>509751</b>

### Ion Chromatography Extract-Clean™ Columns

Packing	Bed Weight	Column Size	Qty.	Part No.
IC-OH	0.5mL	4.0mL	50	<b>40262</b>
IC-OH	1.5mL	4.0mL	30	<b>140254</b>
IC-H	0.5mL	4.0mL	50	<b>40264</b>
IC-H	1.5mL	4.0mL	30	<b>140256</b>
IC-Ag	0.5mL	4.0mL	50	<b>105050</b>
IC-Ag	1.5mL	4.0mL	30	<b>140258</b>
IC-Ba	0.5mL	4.0mL	50	<b>40268</b>
IC-Ba	1.5mL	4.0mL	30	<b>140261</b>
IC-Na	0.5mL	4.0mL	50	<b>40270</b>
IC-Na	1.5mL	4.0mL	30	<b>140263</b>
IC-Chelate	0.5mL	4.0mL	50	<b>40250</b>
IC-Chelate	1.5mL	4.0mL	30	<b>140265</b>
IC-RP	0.5mL	4.0mL	50	<b>40260</b>
IC-RP	1.5mL	4.0mL	30	<b>140252</b>

### more info

For SPE Applications, see pages 494–502.

# Alltech® Extract-Clean™ and Ultra-Clean™ Columns

## Specialty Sorbents



### Extract-Clean™ Columns

- Available: DVB, Carbograph, AFT, Filter, Phase Separator, Drying
- General purpose SPE column with the most comprehensive sorbent offering



### Ultra-Clean™ Columns

- Available: Carbograph
- Low extractable version for highly sensitive applications—fluorinated polypropylene columns with PTFE frits



Specialty Packings Specifications							
Packing	Base	% Carbon	End-capped	Average Particle Size	Pore Size	Features	Benefits
DVB	100% DVB	—	—	40µm	—	100% DVB	Greater capacity than C18 for general SPE. Also free vinyl surface groups make a suitable solid-phase synthesis support.
Carbograph	Graphitized Carbon	—	—	38–125µm	—	Graphitized carbon	Retains polar organics in aqueous matrices. Ideally suited for acid, base-neutral extraction of pesticides and herbicides.
AFT	C18, Silica, and Alumina	6	—	50–130µm	—	Unique blend of reversed and normal phases	Ideal for Aflatoxins.

### DVB Extract-Clean™ Columns

- Greater sample capacity than C18
- 100% divinylbenzene reduces swelling
- 40µm average particle size

#### DVB Extract-Clean™ Columns

Bed Weight	Column Size	Qty.	Part No.
500mg	4.0mL	50	<b>220500</b>

### Carbograph Extract-Clean™ Columns

- Graphitized carbon retains polar organics in aqueous matrices
- Acid, base-neutral extraction of pesticides and herbicides
- 100m<sup>2</sup>/g surface area

#### Carbograph Extract-Clean™ Columns

Bed Weight	Column Size	Qty.	Part No.
150mg	4.0mL	50	<b>210142</b>
300mg	8.0mL	30	<b>210101</b>
500mg	8.0mL	30	<b>210150</b>
1000mg	15mL	20	<b>210121</b>

#### Carbograph Ultra-Clean™ Columns

Bed Weight	Column Size	Qty.	Part No.
150mg	4.0mL	50	<b>510142</b>
300mg	8.0mL	30	<b>510101</b>

### AFT Extract-Clean™ Columns

This blend of C18 and Alumina materials offers unique selectivity for Mycotoxin removal. AFT Tubes are ideal for food and beverage analysis.

#### AFT Extract-Clean™ Columns

Bed Weight	Column Size	Qty.	Part No.
8.0mL	1000mg	100	<b>229101</b>

### Phase Separator Extract-Clean™ Columns

Use for fast and simple separation of organic and aqueous mixed samples. The column contains a 20µm polyethylene frit and a hydrophobic silicone membrane that allows the hydrophobic phase to pass through, while the aqueous phase is retained in the upper chamber.

#### Phase Separator Extract-Clean™ Columns

Column Size	Qty.	Part No.
4.0mL	100	<b>205289</b>
8.0mL	100	<b>205389</b>
25mL	100	<b>205589</b>

### Filter Columns

Filter columns are Extract-Clean™ reservoirs with two frits at the outlet end. They remove particulate matter down to 20µm from samples. Syringe adapters will connect filter columns to the tops of Extract-Clean™ columns.

#### Extract-Clean™ Filter Columns

Description	Qty.	Part No.
1.5mL Filter Columns	100	<b>211101</b>
4.0mL Filter Columns	50	<b>211104</b>
8.0mL Filter Columns	50	<b>211108</b>
75.0mL Filter Columns	50	<b>210775</b>

### Drying Tubes

Packed with anhydrous sodium sulfate, use these to remove residual water from SPE extracts. They are suitable for pesticide analysis.

#### Drying Tubes

Bed Weight	Qty.	Part No.
Extract-Clean™ Column, 3g	100	<b>219002</b>