



# **HICHROM**

**Chromatography Columns and Supplies**

## **SAMPLE PREPARATION Solid Phase Extraction - SOLA & HyperSep**

**Catalogue 9**

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## THERMO SCIENTIFIC SOLID PHASE EXTRACTION PRODUCTS

Thermo Scientific manufacture a wide range of SPE products for sample preparation, in both column and 96 well plate formats. The wide range of phases is suitable for use in application areas such as pharmaceutical, biochemical, environmental and food and beverage. The polypropylene columns are chemically resistant and are available in a range of bed weights. Samples can be processed through the columns by vacuum, by positive pressure or by centrifugation. Thermo Scientific offer two main SPE ranges, SOLA™ (innovative fritless SPE products) and HyperSep™.

### SOLA™

- First fritless SPE product
- Higher reproducibility
- Higher extract cleanliness
- Increased sensitivity
- Reduced solvent requirements

Thermo Scientific have introduced SOLA, the first fritless SPE product range. SOLA provides greater reproducibility with cleaner, more consistent extracts. The proprietary manufacturing process involved in the production of SOLA products eliminates issues that can be associated with conventional loose-packed SPE products.

Conventional SPE cartridges and well plates are packed with loose silica or polymeric material positioned between two frits. These packed beds are potentially prone to settling and voiding in production or transportation, thus creating phase channelling and packing irreproducibility. SOLA fritless SPE products have been designed to overcome these potential inconsistencies by combining the polyethylene frit material and the media components into a uniform sorbent bed, removing the need for frits.

The manufacturing process has the additional benefit of removing extractables from component parts, resulting in cleaner sample extracts. SOLA products provide reduced failure rates, higher analysis speeds and lower solvent requirements.

SOLA products are available in 10mg/1ml cartridge and 10mg/2ml 96 well plate formats.

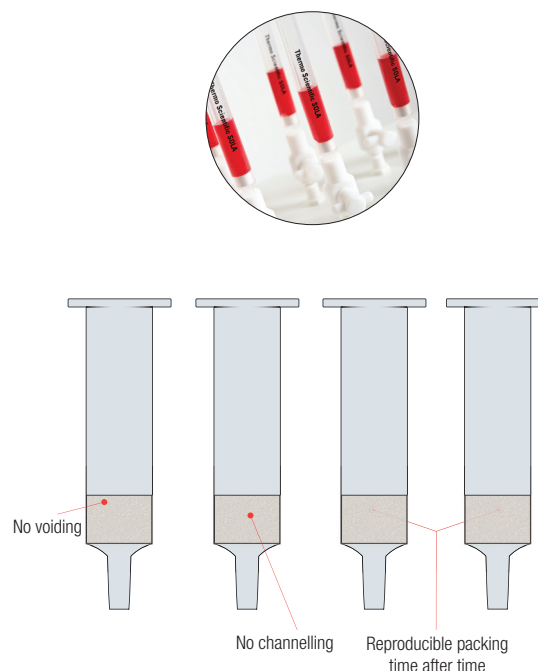


Figure 2. SOLA eliminates common issues associated with conventional SPE

### Ordering Information - SOLA SPE Cartridges<sup>1</sup>

Description	Bed Weight (mg)	Column Volume (ml)	Cat. No.	Quantity	Price
SOLA HRP	10	1	60109-001	100	£129
SOLA SCX	10	1	60109-002	100	£129
SOLA SAX	10	1	60109-003	100	£129

<sup>1</sup> New WCX and WAX phases also available – please enquire

### Ordering Information - SOLA 96 Well Plates<sup>1</sup>

Description	Bed Weight (mg)	Volume (ml)	Cat. No.	Quantity	Price
SOLA HRP	10	2	60309-001	1	£199
SOLA SCX	10	2	60309-002	1	£199
SOLA SAX	10	2	60309-003	1	£199

<sup>1</sup> New WCX and WAX phases also available – please enquire

## HyperSep™ Solid Phase Extraction Products

Thermo Scientific's HyperSep SPE products are available in both SPE column and 96 well plate formats and a wide range of phases for all applications.

### HyperSep Retain

- Exceptional recoveries for polar and non-polar analytes
- High and consistent recoveries
- pH stable 0 to 14



The HyperSep Retain range is based on a high purity, highly porous polystyrene-divinylbenzene polymer. In the Retain PEP product (Polar Enhanced Polymer), this polymer is modified with urea functional groups to give balanced retention of both polar and non-polar analytes. The polymeric adsorbent does not dry out after conditioning, enabling consistent recovery levels to be achieved. It is ideal for the retention of drugs and metabolites from biological fluids.

HyperSep Retain-CX and Retain-AX are high capacity materials, where the polymer is partially modified with sulphonic acid or quaternary ammonium groups, respectively. They are suitable for the analysis of a wide range of drugs of abuse and their metabolites.

## HyperSep™ Solid Phase Extraction Products (continued)

### HyperSep Servo+™ and HyperSep Servo™

HyperSep Servo+™ and HyperSep Servo™ cartridges and 96 well plates provide optimised SPE solutions for the analysis of drugs of abuse. They offer high levels of reproducibility and cleanliness of extract for dealing with difficult to analyse biological sample matrices. Servo+ cartridges and plates provide the additional benefit of greater selectivity, higher loading capacities and improved robustness. Both HyperSep Servo+ and HyperSep Servo ranges offer optimised solutions for different compound classes.

Phase	Application
Total	Screening of a wide range of unknown components
Total A	Screening of a wide range of unknown acidic compounds
Total B	Screening of a wide range of unknown basic compounds
THC	For dedicated extraction of THC and associated metabolites
Opiates	For dedicated extraction of opiate class compounds
AMP	For dedicated extraction of amphetamine class compounds
PCP	For dedicated extraction of PCP (phenylcyclidine) class compounds
Cocaine	For dedicated extraction of cocaine class compounds



Please contact Hichrom for ordering information for HyperSep Servo+ and HyperSep Servo SPE products.

### HyperSep Hypercarb

HyperSep Hypercarb, based on 100% porous graphitic carbon, can retain highly polar compounds through a dipole-dipole type of interaction. The high capacity factor of Hypercarb for polar analytes allows large volumes of water samples to be handled, without breakthrough.

### HyperSep Silica Sorbents

A range of trifunctional bonded silica phases (C18, C8, Phenyl, Aminopropyl, Cyano, Diol, SAX, SCX) and unbonded silica are available in SPE column format, in addition to 96 well plates and individual plates.

### HyperSep Verify-CX and -AX

The Verify SPE products are mixed mode sorbents based on two functional groups – C8 and an ion-exchanger (benzenesulphonic acid for Verify-CX and a quaternary amine for Verify-AX). Verify-CX is copolymerised on a rigid, purified silica support and is suitable for the extraction of basic drugs from biological matrices. Verify-AX is a rigid silica support to which the two functionalities are copolymerised. It is suitable for the extraction of acidic drugs such as THC.

## QuEChERS Dispersive SPE Products

- Determine greater number of pesticides than with standard SPE
- Easy to use
- Available in a number of configurations

The QuEChERS (**Q**uick, **E**asy, **C**heap, **E**ffective, **R**ugged and **S**afe) method is gaining popularity for multi-residue pesticide analysis in food and agricultural products. The method is a two-step process involving extraction followed by clean-up.

The extraction step products use  $MgSO_4$  to reduce water in the sample along with either NaCl or anhydrous sodium acetate (for use with base-sensitive compounds). These products are supplied in 50ml polypropylene centrifuge tubes. For the clean-up step, different sorbent combinations are available dependent upon the application. PSA (primary/secondary amine) removes polar organic acids, pigments and sugars. Some products couple the PSA with endcapped C18 for the removal of most lipids and sterols, or graphitised carbon for the removal of sterols and pigments such as chlorophyll.

### Product Selection

Matrix Type	Examples	Sorbent Requirements
General matrices	Apples, cucumber, melon	$MgSO_4$ , PSA
Fatty matrices	Milk, cereals, fish	$MgSO_4$ , PSA, C18
Pigmented matrices	Lettuce, carrots, wine	$MgSO_4$ , PSA, C18, graphitised carbon black
Highly pigmented matrices	Spinach, red peppers	$MgSO_4$ , PSA, C18, graphitised carbon black



## Ordering Information

HyperSep™ Polypropylene Columns<sup>1</sup>

Phase	Sorbent Mass/Volume Capacity <sup>2</sup>					
	50mg/1ml	100mg/1ml	200mg/3ml	500mg/3ml	500mg/6ml	1000mg/6ml
<b>Pack Size</b>	<b>50</b>	<b>30</b>	<b>30</b>	<b>-</b>	<b>20</b>	<b>10</b>
Hypercarb	60106-303 <b>£200</b>	60106-302 <b>£240</b>	60106-301 <b>£321</b>	-	60106-402 <b>£384</b>	60106-403 <b>£417</b>
<b>Pack Size</b>	<b>100</b>	<b>100</b>	<b>50</b>	<b>50</b>	<b>30</b>	<b>30</b>
C18	60108-390 <b>£112</b>	60108-302 <b>£116</b>	60108-303 <b>£74</b>	60108-304 <b>£81</b>	60108-305 <b>£77</b>	60108-301 <b>£81</b>
C8	60108-391 <b>£112</b>	60108-392 <b>£116</b>	60108-393 <b>£74</b>	60108-309 <b>£81</b>	60108-394 <b>£77</b>	60108-427 <b>£81</b>
Phenyl	60108-516 <b>£112</b>	60108-386 <b>£116</b>	60108-387 <b>£91</b>	60108-388 <b>£86</b>	60108-389 <b>£90</b>	60108-517 <b>£81</b>
Silica	60108-409 <b>£112</b>	60108-317 <b>£116</b>	60108-410 <b>£71</b>	60108-315 <b>£67</b>	60108-411 <b>£71</b>	60108-426 <b>£74</b>
SAX	60108-417 <b>£116</b>	60108-418 <b>£126</b>	60108-419 <b>£104</b>	60108-521 <b>£98</b>	60108-360 <b>£90</b>	60108-434 <b>£102</b>
SCX	60108-420 <b>£126</b>	60108-421 <b>£132</b>	60108-422 <b>£102</b>	60108-423 <b>£115</b>	60108-520 <b>£115</b>	60108-433 <b>£102</b>
Aminopropyl	60108-424 <b>£126</b>	60108-364 <b>£135</b>	60108-425 <b>£104</b>	60108-518 <b>£116</b>	60108-519 <b>£120</b>	60108-432 <b>£110</b>
Cyano	60108-746 <b>£126</b>	60108-745 <b>£142</b>	60108-747 <b>£103</b>	60108-748 <b>£103</b>	60108-749 <b>£107</b>	60108-750 <b>£107</b>
Diol	60108-571 <b>£132</b>	60108-572 <b>£144</b>	60108-573 <b>£104</b>	60108-574 <b>£104</b>	60108-575 <b>£109</b>	60108-576 <b>£109</b>
Florisil	60108-402 <b>£122</b>	60108-403 <b>£132</b>	60108-404 <b>£87</b>	60108-405 <b>£81</b>	60108-500 <b>£71</b>	60108-431 <b>£74</b>

<sup>1</sup> 96 well plates and individual wells also available – please enquire    <sup>2</sup> Other adsorbent mass/volume columns available

Phase	Sorbent Mass/Volume Capacity					
	30mg/1ml	30mg/3ml	60mg/3ml	200mg/3ml	500mg/3ml	500mg/6ml
<b>Pack Size</b>	<b>100</b>	<b>50</b>	<b>50</b>	<b>50</b>	<b>50</b>	<b>30</b>
Retain PEP	60107-201 <b>£132</b>	60107-202 <b>£79</b>	60107-203 <b>£93</b>	60107-204 <b>£148</b>	60107-205 <b>£267</b>	60107-206 <b>£185</b>
Retain-CX	60107-301 <b>£132</b>	60107-302 <b>£79</b>	60107-303 <b>£93</b>	60107-304 <b>£148</b>	60107-305 <b>£267</b>	60107-306 <b>£185</b>
Retain-AX	60107-401 <b>£132</b>	60107-402 <b>£79</b>	60107-403 <b>£93</b>	60107-404 <b>£148</b>	60107-405 <b>£267</b>	60107-406 <b>£185</b>

Phase	Sorbent Mass/Volume Capacity					
	130mg/1ml	300mg/3ml	500mg/3ml	200mg/6ml	500mg/6ml	1000mg/6ml
<b>Pack Size</b>	<b>100</b>	<b>50</b>	<b>50</b>	<b>50</b>	<b>30</b>	<b>30</b>
Verify-CX	60108-719 <b>£146</b>	60108-720 <b>£86</b>	60108-721 <b>£90</b>	60108-722 <b>£105</b>	60108-723 <b>£102</b>	60108-724 <b>£93</b>
Verify-AX	60108-727 <b>£162</b>	60108-728 <b>£93</b>	60108-729 <b>£102</b>	60108-730 <b>£105</b>	60108-731 <b>£102</b>	60108-732 <b>£95</b>

A comprehensive range of SPE accessories is also available – please enquire.

## QuEChERS Dispersive SPE Extraction Products

Description	Format	Quantity	Catalogue No.	Price
6g Anhydrous MgSO <sub>4</sub> , 1.5g anhydrous sodium acetate	50ml polypropylene centrifuge tubes	250	60105-210	<b>£311</b>
4g Anhydrous MgSO <sub>4</sub> , 1g NaCl	50ml polypropylene centrifuge tubes	250	60105-211	<b>£311</b>

## QuEChERS Dispersive SPE Clean-Up Products

Description	Format	Quantity	Catalogue No.	Price
150mg Anhydrous MgSO <sub>4</sub> , 50mg PSA and 50mg carbon	2ml micro-centrifuge tubes	100	60105-202	<b>£141</b>
150mg Anhydrous MgSO <sub>4</sub> , 50mg PSA	2ml micro-centrifuge tubes	100	60105-203	<b>£104</b>
150mg Anhydrous MgSO <sub>4</sub> , 50mg PSA and 50mg endcapped C18	2ml micro-centrifuge tubes	100	60105-204	<b>£116</b>
900mg Anhydrous MgSO <sub>4</sub> , 300mg PSA and 150mg carbon	15ml centrifuge tubes	50	60105-205	<b>£148</b>
900mg Anhydrous MgSO <sub>4</sub> , 300mg PSA and 150mg endcapped C18	15ml centrifuge tubes	50	60105-206	<b>£148</b>
400mg PSA on bottom, 200mg graphitized carbon on top, separated by a Teflon frit	6ml columns	30	60105-207	<b>£123</b>
500mg PSA on bottom, 250mg graphitized carbon on top, separated by a Teflon frit	6ml columns	30	60105-208	<b>£126</b>
500mg PSA on bottom, 500mg graphitized carbon on top, separated by a Teflon frit	6ml columns	30	60105-209	<b>£182</b>