

# The Core<sup>®</sup>



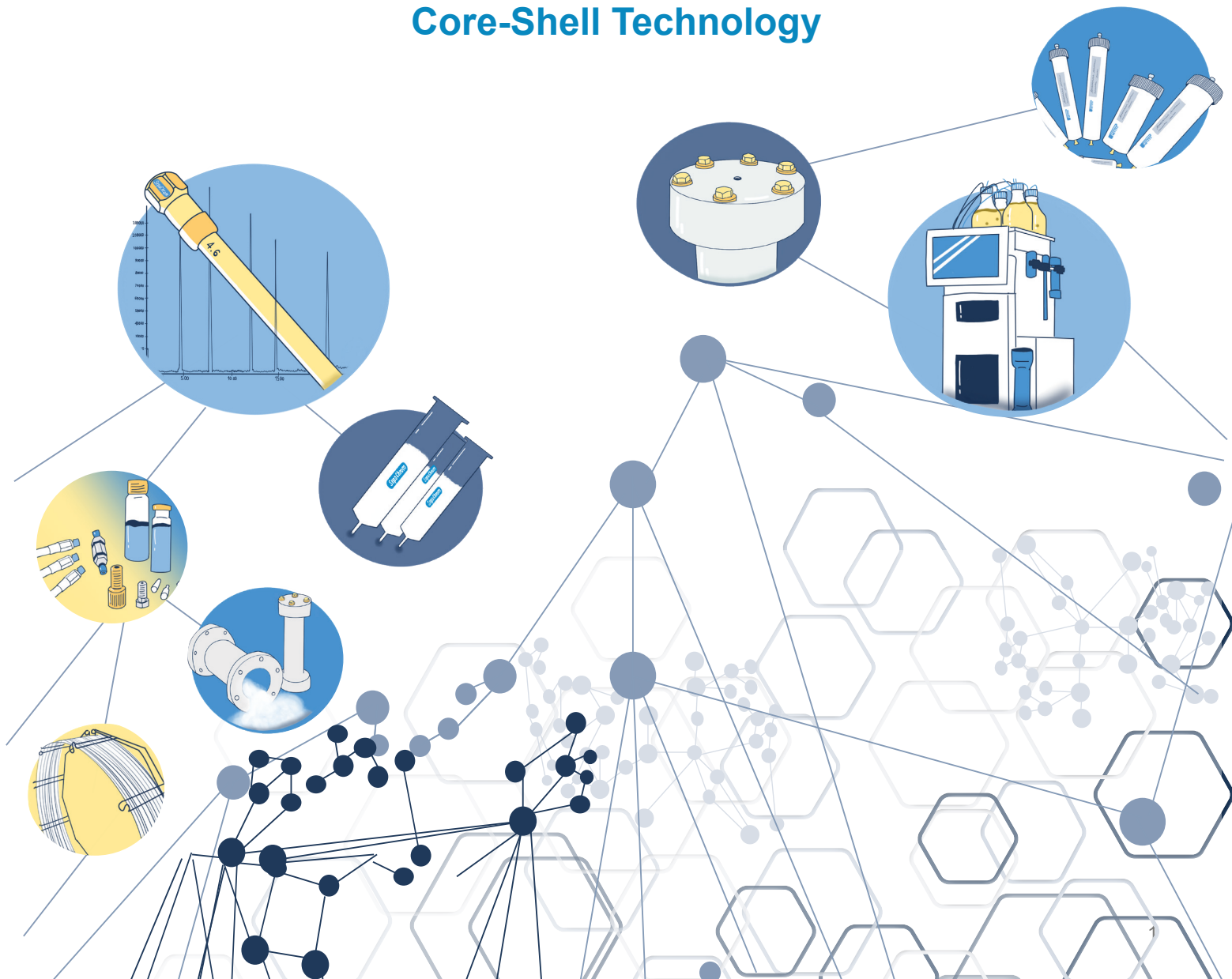
Superficially Porous

Solid Core

1.7  $\mu\text{m}$  ..... 2.7  $\mu\text{m}$   
3.8  $\mu\text{m}$  ..... 5.0  $\mu\text{m}$

- Excellent Efficiency at Lower Backpressure
- Ideal for High Resolution or High Speed Applications
- Usable with both UHPLC or HPLC Systems
- Great Option for Routine Analysis
- Available in **C18** and **C18-AQ** Chemistries
- Available in 2.7  $\mu\text{m}$  and 5.0  $\mu\text{m}$  particle size

## Core-Shell Technology



# Your Specialists in Chromatography

## Company Profile

**SepaChrom** is the brainchild of the founders to create a dedicated reality, unique and able to support the **Chromatography users** optimizing their challenges.

Our Core competence is the manufacturing and trading of **High-Quality** products for **Chromatography**.

**SepaChrom** product portfolio includes a wide range of in-house manufactured **HPLC** Columns in both **Analytical** and **Preparative** scale, **Flash** cartridges & Instruments, and **Process** scale purification.

Our offer of products for Chromatography includes consumables and accessories, for both **HPLC** and **GC** techniques.

Our brands **Robusta**®, **Adamas**®, **Adamas**®-xp, **Vydamas**®, **TheCore**®, **TCM**®, **Purezza**®, **Sepa-Bulk**® are only few of the product lines we propose to the **Chromatographers**.

## Our Mission

Decades of experience of our team, combined with a range of High Quality selected products and the most efficient technological solutions, allows **SepaChrom** to be a reference to :

- **Pharma,**
- **Biotech,**
- **Chemical,**
- **Food and Beverage,**
- **Cosmetic,**
- **Environmental,**
- **Clinical**
- **Petrolchemical**

industries, at **R&D** department as well **QC** laboratories and **Production**.

Our commitment is to provide the Highest Technical Support that Chromatographers expect from

## Your Specialist in Chromatography



## Customers in Mind

The success of **SepaChrom** depends by the complete **satisfaction** of our customers, and consequently by their success.

**SepaChrom** expertise result in a High-Quality support **pre & after** sales to the Chromatographic Users.

A world-wide Distributor Network will assure the users the best in class technical and commercial support to properly approach their Chromatography challenges.

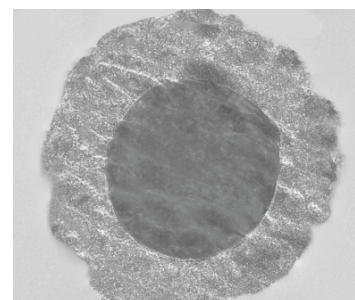
This include a **fast delivery** of your products from our warehouse to everywhere.



## What is Core-Shell Technology

The Core-Shell Technology is also known as Superficially Porous Technology.

The Silica base material consists in a Solid Inner Core coated by an external Porous Silica layer. The external Porous Silica layer is functionalized with almost all the common bonding phases.

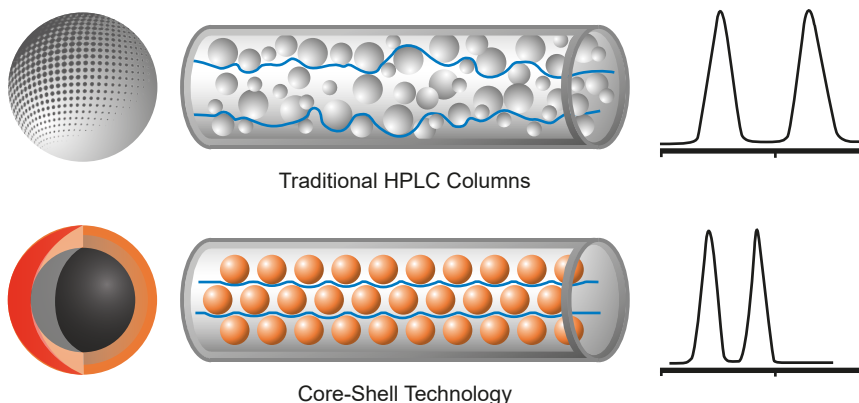


## What Does It Mean for Chromatography?

There are many advantages using Core-Shell Technology in the chromatography applications.

### 1. Improved peak shape and resolution.

Using Core-Shell technology its observed an improved peak shape and resolution due to the faster movement of analytes through the column as consequence of narrow particle size distribution and a more homogeneous interstitial velocity across the column diameter.



### 2. Lower backpressure

At higher velocities the Fully Porous sub-2 $\mu$ m particles generate a very high backpressure (>6000psig) that force chromatographers to use very expensive instruments (UHPLC).

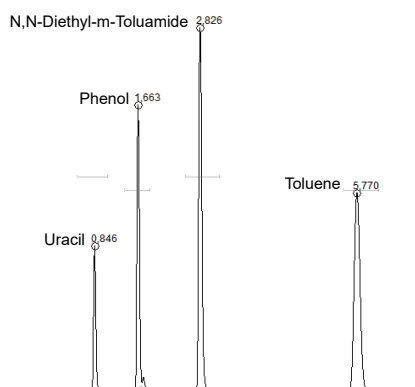
These types of instruments are also more challenging to use. Using Fully Porous sub-2 $\mu$ m packing you need to pay extreme attention to dead volume and connections of your column and system.

Last but not least the Fully Porous sub-2 $\mu$ m particles shows increased frictional heating factor, which limits the performance of the column, especially at higher linear velocities. Core-Shell particles have better heat dissipation properties and can be used at higher linear velocities.

#### UHPLC Column 1.8 $\mu$

Stock Number : **AD0845**  
 Packing Material : Adamas® C18-X-Bond 1.8 $\mu$   
 Length - ID : 100mm x 2.1mmID  
 Mobile Phase : Acetonitrile/Water 58/42  
 Flow Rate : 0.2 mL/min

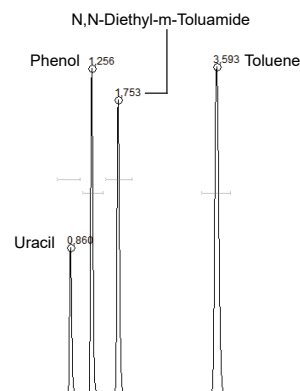
**Pressure (psi) : 6439**



#### Core-Shell Technology 2.7 $\mu$

Stock Number : **TC0004**  
 Packing Material : TheCore® C18 2.7 $\mu$   
 Length - ID : 100mm x 2.1mm  
 Mobile Phase : Acetonitrile/Water 58/42  
 Flow Rate : 0.2 mL/min

**Pressure (psi) : 1736**



# What Does It Mean for Chromatography?

## 3. Higher Efficiency

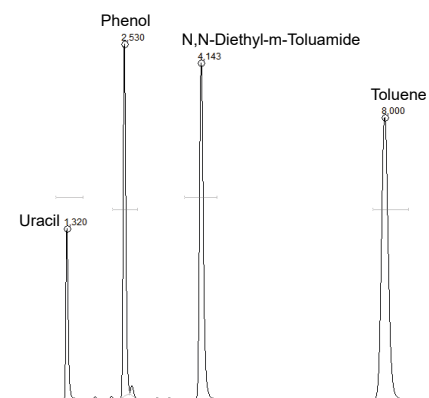
One of the most important band broadening mechanisms is called Eddy Diffusion (Van Deemter A term) which impact the efficiency of the column. The molecules are introduced on the head of the column in one shot, but because the different path through the packing bed of a traditional HPLC column is due by the particle size distribution, they increase the Eddy Diffusion mechanisms.

Instead, the narrower particle size distribution of the Core-Shell Technology, and the reduced number of possible paths through the column, results in a reduction of the Eddy Diffusion mechanisms and consequently in an increased efficiency.

### HPLC Traditional Column 3 $\mu$

Stock Number : **AD00845**  
Packing Material : Adamas® C18-X-Bond 3 $\mu$   
Length - ID : 150mm x 4.6mmID  
Mobile Phase : Acetonitrile/Water 58/42  
Flow Rate : 1.0 mL/min

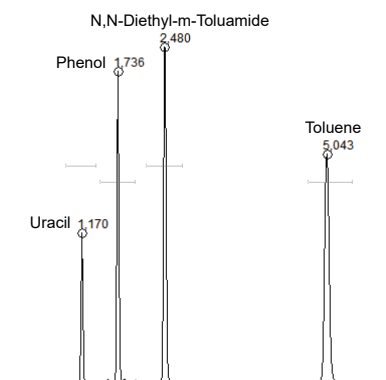
**Efficiency (p/m) : 115052 (Toluene)**



### Core-Shell Technology 2.7 $\mu$

Stock Number : **TC0018**  
Packing Material : TheCore® C18 2.7 $\mu$   
Length - ID : 150mm x 4.6mm  
Mobile Phase : Acetonitrile/Water 58/42  
Flow Rate : 1.0 mL/min

**Efficiency (p/m) : 191711 (Toluene)**



## 4. Increase productivity.

The Core-Shell Technology will increase the productivity in your laboratory.

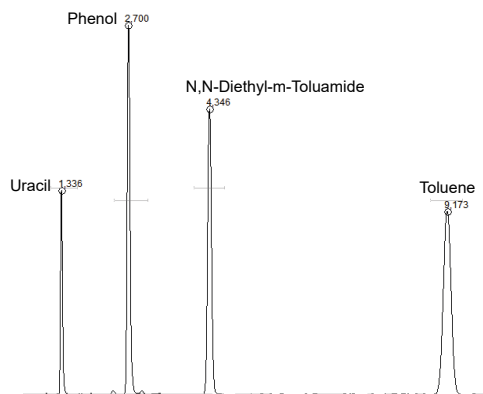
Lower Backpressure and Higher Efficiency in conjunction with High Mobile Phase flow rates can reduce drastically the analysis time without compromise the quality of your separation.

In the below QC Tests you see the reduction of the analysis time which results in 90% less with Core-Shell Technology.

### HPLC Traditional Column 3 $\mu$

Stock Number : **AD0045**  
Packing Material : Adamas® C18-Classic 3 $\mu$   
Length - ID : 150mm x 4.6mmID  
Mobile Phase : Acetonitrile/Water 58/42  
Flow Rate : 1.0 mL/min

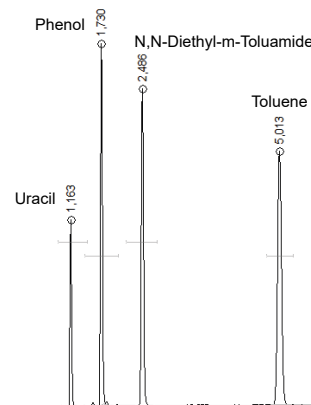
**Retention Time : 9.17 min (Toluene)**



### Core-Shell Technology 2.7 $\mu$

Stock Number : **TC0018**  
Packing Material : TheCore® C18 2.7 $\mu$   
Length - ID : 150mm x 4.6mmID  
Mobile Phase : Acetonitrile/Water 58/42  
Flow Rate : 1.0 mL/min

**Retention Time : 5.01 min (Toluene)**



## Standard mixture of phytocannabinoids

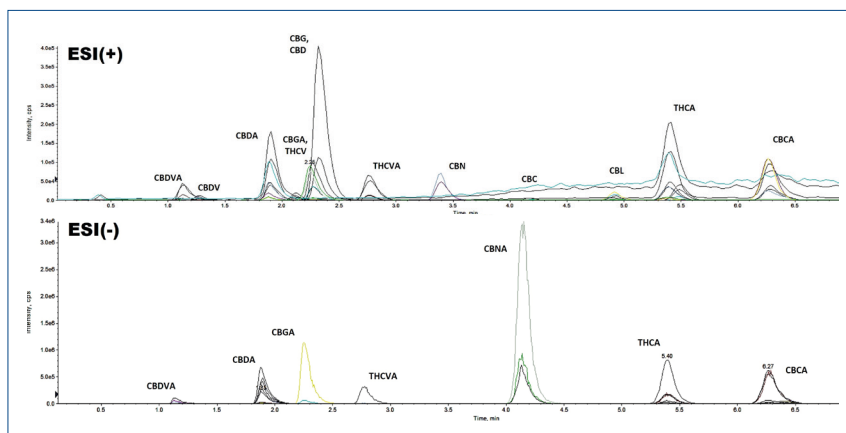
Part.No **TC0022** - TheCore® C18-AQ 100mm x 2.1mm - 2.7µm

Analysis Conditions:

Eluents : A - 0.1% Formic Acid / 5mM Ammonium Formate  
B - Acetonitrile/0.1% Formic Acid

Gradient	T(min)	A%	B%
	0.5	40	60
	4.5	38	62
	11.0	36	64
	11.2	5	95
	12.2	5	95
	12.7	40	60
	17.0	40	60

Flow Rate : 0.9 mL/min  
Injection : 5.0µL  
Concentration : 250µg/L  
Detector : MS  
Temperature : 40°C



Courtesy by Prof. Massimo Del Bubba and Dr. Lapo Renai. Department of Chemistry "Ugo Schiff", University of Florence, Italy.

## Analysis of a mixture of antibiotics, antibacterials, and other pharmaceutical compounds

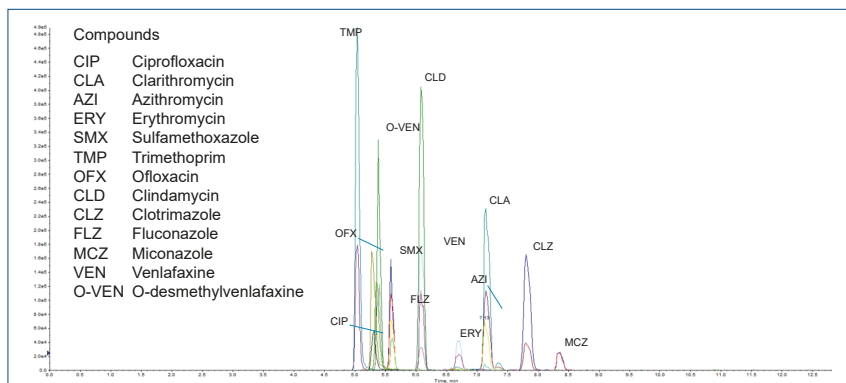
Part.No **TC0022** - TheCore® C18-AQ 100mm x 2.1mm - 2.7µm

Analysis Conditions:

Eluents : A - 9.7 mM Ammonium Formate + 0.057% (v/v) Formic Acid  
B - Acetonitrile/Methanol in a 1.75 (v/v) ratio, acidified

Gradient	T(min)	A%	B%
	1.0	95	5
	4.5	28.5	71.5
	6.9	10	90
	8.4	10	90
	8.9	95	5

Flow Rate : 0.5 mL/min  
Injection : 5.0µL  
Concentration : 20µg/L  
Detector : MS



Courtesy by Prof. Massimo Del Bubba and Dr. Lapo Renai. Department of Chemistry "Ugo Schiff", University of Florence, Italy.

### Ordering Information

Phase	Particle Size	Length / ID	4.6mm	4.0mm	3.0mm	2.1mm
<b>TheCore®</b> C18	2.7µ	30mm	TC0013	TC0037	TC0007	TC0001
	2.7µ	50mm	TC0014	TC0038	TC0008	TC0002
	2.7µ	75mm	TC0015	TC0039	TC0009	TC0003
	2.7µ	100mm	TC0016	TC0040	TC0010	TC0004
	2.7µ	125mm	TC0017	TC0041	TC0011	TC0005
	2.7µ	150mm	TC0018	TC0042	TC0012	TC0006
	Full-Guard - 2.7µ*	5mm	CD2004	CD2003	CD2002	CD2001
	5µ	50mm	TC0052	TC0051	TC0050	TC0049
	5µ	75mm	TC0056	TC0055	TC0054	TC0053
	5µ	100mm	TC0060	TC0059	TC0058	TC0057
	5µ	125mm	TC0064	TC0063	TC0062	TC0061
	5µ	150mm	TC0068	TC0067	TC0066	TC0065
	5µ	250mm	TC0072	TC0071	TC0070	TC0069
Full-Guard - 5µ*	5mm	CD2012	CD2011	CD2010	CD2009	
<b>TheCore®</b> C18-AQ	2.7µ	30mm	TC0031	TC0043	TC0025	TC0019
	2.7µ	50mm	TC0032	TC0044	TC0026	TC0020
	2.7µ	75mm	TC0033	TC0045	TC0027	TC0021
	2.7µ	100mm	TC0034	TC0046	TC0028	TC0022
	2.7µ	125mm	TC0035	TC0047	TC0029	TC0023
	2.7µ	150mm	TC0036	TC0048	TC0030	TC0024
	Full-Guard - 2.7µ*	5mm	CD2008	CD2007	CD2006	CD2005
	5µ	50mm	TC0076	TC0075	TC0074	TC0073
	5µ	75mm	TC0080	TC0079	TC0078	TC0077
	5µ	100mm	TC0084	TC0083	TC0082	TC0081
	5µ	125mm	TC0088	TC0087	TC0086	TC0085
	5µ	150mm	TC0092	TC0091	TC0090	TC0089
	5µ	250mm	TC0096	TC0095	TC0094	TC0093
Full-Guard - 5µ*	5mm	CD2016	CD2015	CD2014	CD2013	

\* 3/pkg - Full-Guard Cartridges require Full-Guard Holder.  
Part.No **CD2000** - Direct Connection Full-Guard Holder

## Other products available from SepaChrom

### HPLC

HPLC Silica Based Columns for Routine Analysis  
 HPLC & UHPLC Silica Based Columns for Small Molecules Separation  
 HPLC Silica Based Columns for Large Molecules Separation  
 HPLC Silica Based Columns for Traditional Chinese Medicine  
 Polymer Base Columns for Carbohydrate & Organic Acids Analysis Chiral HPLC Columns  
 Ion Chromatography Columns for Anions and Cations Analysis

ROBUSTA

Adamas



UHPLC

The Core

### MEDIA

Irregular & Spherical Silica Gel for Flash, Preparative & Industrial Purification  
 Raw & Bonded Silica Gel for Any Application  
 Wide Range Porosity (30Å- 2500Å) and Particle Size (10µ-200µ)  
 Polymer Based Resin for Reversed Phase and Ion Exchange Chromatography

### PREP

10mm - 50mmID Packed Preparative Columns for Lab Scale Purification packed by SepaChrom  
 50mm - 2000mmID Process Scale Chromatography Columns & Systems, Flanged & DAC Technology  
 OEM Packed Preparative Columns  
 Scale-up Method Development & Custom Packing Service

ROBUSTA

Adamas

VYdamas

### FLASH

Instruments for Flash and Prep Chromatography up to 825mL/min & 400 bar pressure  
 Integrated ELSD & MS Simple Quad Detector for Flash Purification  
 TLC Plates and Accessories for Flash Chromatography  
 A Complete Range of Flash Columns for All Existing Flash Instruments

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Advion Interchim

### SPE

SEClute™, Extract-Clean™, Maxi-Clean™ SPE Cartridges for Pharma, Environmental, Food&Beverage Applications.  
 PuroPhase™ Polymer Base SPE Cartridges for Clinical & Forensic Applications.  
 Maxi-Clean™ Ion Chromatography SPE Cartridges  
 Vydac® - Bioselect SPE Cartridges for Biological Samples  
 Accessories for SPE & Syringe Filters

### OTHER INSTRUMENTS

SepaChrom Hydrogen, Nitrogen and Air Generators for GC  
 SepaChrom Nitrogen Generators for LC-MS  
 Automated Sample Evaporators for Lab Scale Purification  
 Interchim Advion CMS Compact Mass Spectrometer Detector

### CONSUMABLE

Autosampler Vials for HPLC, IC e GC  
 Head Space and Sampling Vials  
 SS & PEEK Tubing, Fittings, Ferrule & Valves  
 Syringes and Septa for GC  
 Traps for GC Gas Lines

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