

For a Clear Solution . . .

Solid Phase Extraction



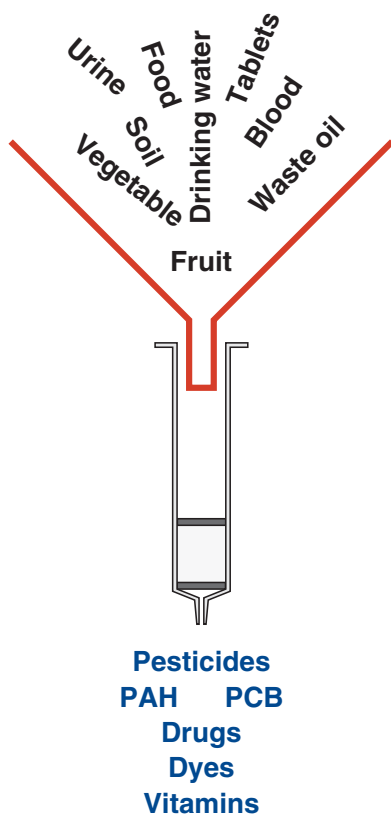
CHROMABOND®

Ready-to-use Cartridges for Modern Sample Preparation

MACHEREY-NAGEL

www.mn-net.com





What is SPE?

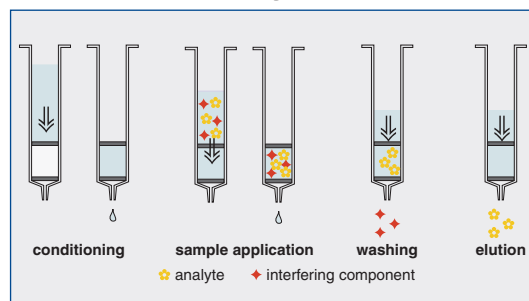
Solid Phase Extraction (SPE) is an excellent method for sample preparation in analytical chemistry.

CHROMABOND® and CHROMAFIX® SPE products from MN are particularly designed to

- prepare samples for analysis with HPLC, GC, TLC, UV and IR spectroscopy
- concentrate the substance to be analysed
- remove interfering substances
- changing the matrix of the analyte as needed for the subsequent analysis
- replace classical liquid-liquid extractions

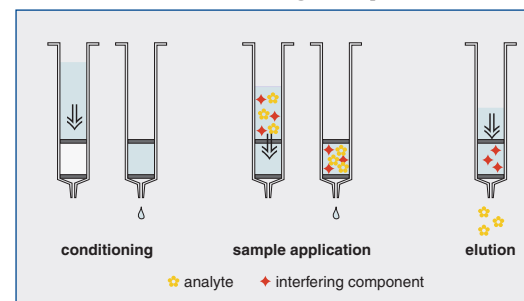
How does SPE work?

Retention of the analyte



- sample is pressed or drawn through the solid phase
- analyte molecules are enriched on the adsorbent
- interfering components and solvent molecules (matrix) are not retained
- remaining interfering components are washed from the adsorbent
- the analyte is removed from the adsorbent by elution with a suitable solvent

Retention of interfering components



- sample is pressed or drawn through the solid phase
- analyte molecules show no interaction with the adsorbent
- interfering components and solvent molecules (matrix) are retained
- analyte molecules are „washed“ from the adsorbent
- the solid phase is simply used to „filter“ the sample

Who can use SPE?

- any analytical laboratory can employ SPE and its benefits
- environmental agencies
- clinical laboratories
- food control laboratories and food producers

Which SPE products does MACHEREY-NAGEL offer?



CHROMABOND®
polypropylene columns
established material and design
acknowledged for all applications
(1 – 150 ml; 30 mg – 50 g)



CHROMABOND®
glass columns
for ultrapure SPE
resistant to all solvents
(1, 3, 6 ml; 30 – 2000 mg)



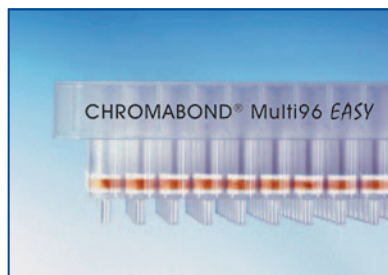
CHROMABOND® LV
(large volume)
design for large volume samples
established for clinical samples
and Zymate® robots
(15 ml; 100 – 500 mg)



CHROMAFIX®
cartridges
for small sample volumes
with luer fittings
(0.4 – 1.8 ml)



CHROMABOND®
manifolds and accessories
for simultaneous preparation of 12, 16 or 24 samples



CHROMABOND® Multi 96
for simultaneous and automated
preparation of 96 samples
(25 – 100 mg)



CHROMABOND®
tailor made solutions
aside standard dimensions and fillings, different
column sizes and adsorbent weights can be made
available in accordance to customers wishes



CHROMABOND®

What are the benefits of CHROMABOND® products?

- high recovery rates
- excellent reproducibility of results
- improved selectivity of the analysis
- reducing consumption of organic solvents
- speeding up analysis time
- specific selectivities for particular applications
- over 40 different phases



To maintain product quality and to realise long shelf-lives, all SPE products are sealed in laminated aluminium bags or blistered, which protect the sorbents from contact with environment and thus prevent contamination.

Selection of CHROMABOND® products

CHROMABOND® polypropylene columns					
polar modified polymer resin (PS/DVB)					Cat. No.
column size	1 ml		3 ml		6 ml
adsorbent	30 mg	100 mg	60 mg	200 mg	500 mg
pack of	30		30		30
EASY	730751	730752	730753	730754	730756
modified silica					Cat. No.
column size	1 ml	3 ml		6 ml	
adsorbent	100 mg	200 mg	500 mg	500 mg	1000 mg
pack of	100	50		30	
C18 ec	730011	730012	730013	730014	730015
C18 Hydra	730294	730296	730297	730299	730300
NH2	730031	730413	730033	730180	730626
SiOH	730071	730214	730073	730070	730075
SA (SCX)	730076	730275	730077	730425	730212
SB (SAX)	730078	730322	730079	730426	730323
Florisil®	730089	730457	730081	730238	730082
Drug	730681	730168	730684	730682	
Drug II	730685	730680	730686	730683	
Vacuum manifold complete (12 positions)					730150

Selection guide for SPE phases and solvents

Some highlights of a wide range of applications:



Biological samples and natural compounds

Application	Phase	Appl. No.
Flavonoids from plants	PA	300150
Prostaglandins from urine	C18ec/SiOH	300510
Nicotine from urine	C18ec	300070
Fatty acids from serum	C18ec	300270
etc.		



Environmental samples and pollutants

Application	Phase	Appl. No.
PCB from waste oil	SA-SiOH	301390
Pesticides from water	HR-P	301550
16 PAH from soil (EPA)	Easy	302820
PAH from drinking water (EPA 550)	C18ec	302170
etc.		



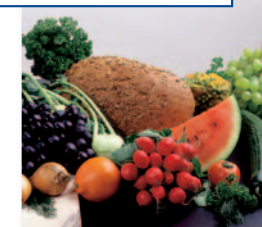
Pharmaceuticals and drugs

Application	Phase	Appl. No.
Drugs of abuse from serum	Drug	302240
Antibiotics	Easy	302770
Anesthetics from serum	C18	300710
Antidepressants from urine	C18ec	300850
etc.		



Food and beverages

Application	Phase	Appl. No.
Vitamins from food	XTR	303720
Pesticides from citrus fruits	OH	301500
Mycotoxins from cereals	SiOH	300410
Antibiotics in milk	C18ec	303730
etc.		



Complete details for these and over 300 other applications can be found in our:

SPE Application Guide

and in our on-line application data base:

www.mn-net.com

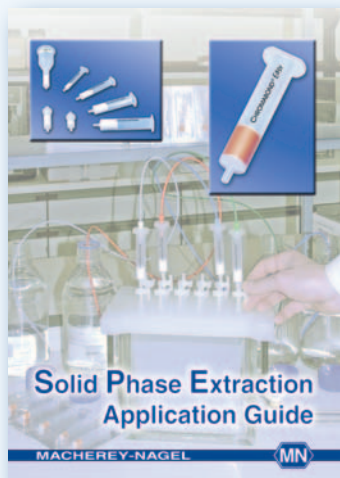
Phase selection by Manufacturer

MACHEREY-NAGEL* CHROMABOND®	Phenomenex STRATA	Waters Sep-Pak	Varian Bond Elut Supelclean	Supelco Discovery	UCT	Agilent Accubond	JT BAKER Bakerbond	IST Isolute
Reversed Phase								
C18ec	C18-E	tC-18	C18	18	C18		Octadecyl	C18(EC)
C18	C18-U					C18	PolarPlus	C18
C18 PAH							Octadecyl Lightload	
C8	C8	C8	C8	8	C8	C8	Octyl	C8(EC)
C ₆ H ₅	Phenyl (PH)		PH	PH	Phenyl	Phenyl	Phenyl	PH(EC)
HR-P	SDB-L		ENV	PS/DVB			H ₂ O-phobic DVB	101
PS-RP			LMS					
Easy	strata-X	Oasis HLB Porapak RDX	NEXUS PPL Focus		StyreScreen® DVB		H ₂ O-philic DVB	ENV+
Normal Phase								
SiOH	Si-1 (Silica)		Silica	Silica	Silica	Silica	Silica-gel	Silica
Florisil®	FL-PR (Florisil®)	Florisil®	Florisil®		Florisil®	Envi-Florisil®	Florisil®	FL
NH ₂	NH ₂	NH ₂	NH ₂	NH ₂	Amino propyl	Amino	Amino	NH ₂
CN	CN	CN	CN-U	CN	CN	Cyano	Cyano	CN
Ion Exchanger								
SB	SAX		SAX	SAX	Quarternary Amine	SAX	Quarternary Amine	SAX
SA	SCX		SCX	SCX	Benzene Sulfonic Acid	SCX	Aromatic Sulfonic Acid	SCX
PS-H ⁺	strata-X-C	Oasis MCX			StyreScreen® DBX			
PS-OH ⁻		Oasis MAX						
PCA	WCX		CBA	WCX	Carboxylic Acid		Carboxylic Acid	CBA
Drug	Screen-C		Certify I		Clean Screen DAU	Evidex	Narc-2	HCX
Drug II	Screen-A		Certify II		Clean Screen THC		Narc-1	HAX

*Recommended Alternative - This category indicates a phase which may yield somewhat different selectivity but may also lead to improved resolution.



How to get more information?



SPE Application Guide

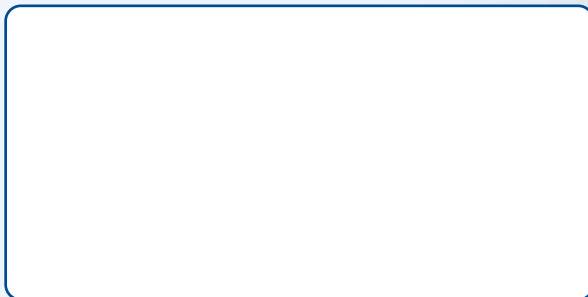


SPE Catalogue



Chromatography Catalogue

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Online Application Database

www.mn-net.com

MACHEREY-NAGEL



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