



Accuracy Starts Here



Agilent Bond Elut Silica-Based SPE Selection Guide



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Tips & Tools

Learn the core concepts surrounding Solid Phase Extraction and best practices for Sample Prep.
View the video at www.agilent.com/chem/spevideo

Learn about the new generation of polymeric SPE products, Agilent Bond Elut Plexa.
Request the brochure using publication number 5990-8589EN.





SOLID PHASE EXTRACTION (SPE)

Agilent Bond Elut: Accuracy Starts Here

For over 30 years, Bond Elut has been the most trusted name in solid phase extraction. Years of use by demanding chemists at top companies worldwide have thoroughly documented its many applications and proven its performance. To this day, you will find more literature references for Bond Elut than any other SPE product in the industry.

Bond Elut is manufactured using state-of-the-art automation to guarantee quality and consistency. Optical scanners installed throughout our automated assembly process inspect each Bond Elut tube at multiple points. And during manufacture, 25 different tests are conducted to ensure reproducibility. If an imperfection is spotted, the tube is removed from the assembly line. The result is consistently reliable Bond Elut cartridges, time and time again.

Over 40 different sorbent functionalities are available in a variety of cartridge formats including straight barrel, large reservoir capacity (LRC) and Bond Elut Junior (Jr).

THE BOND ELUT DIFFERENCE

- **Heritage of Reliability:** With years of use in some of the most demanding analytical laboratories in the world, Bond Elut products have a proven track record resulting in a strong publication pedigree
- **Options for Your Needs:** Offering extraction solutions for the widest range of analytes and matrices, with over 40 bonded silica phases for high specificity methods and polymeric phases for rapid method development, Bond Elut has the largest choice of formats and sorbents in the market
- **Innovative Products Designed for Lab Efficiency:** Whether it be fast flow polymeric particles or our patented 96-well plate design, all Bond Elut products are created for ease-of-use and flexibility to meet both manual and automated requirements
- **Technical Support at Every Step:** For your specific applications, or to help solve occasional technical issues, a global team of analytical scientists is on hand to assist
- **World Class Manufacturing and Quality:** Unrivaled manufacturing control, plus exacting ISO 9001: 2000 compliant inspections guarantee the consistent quality of Bond Elut

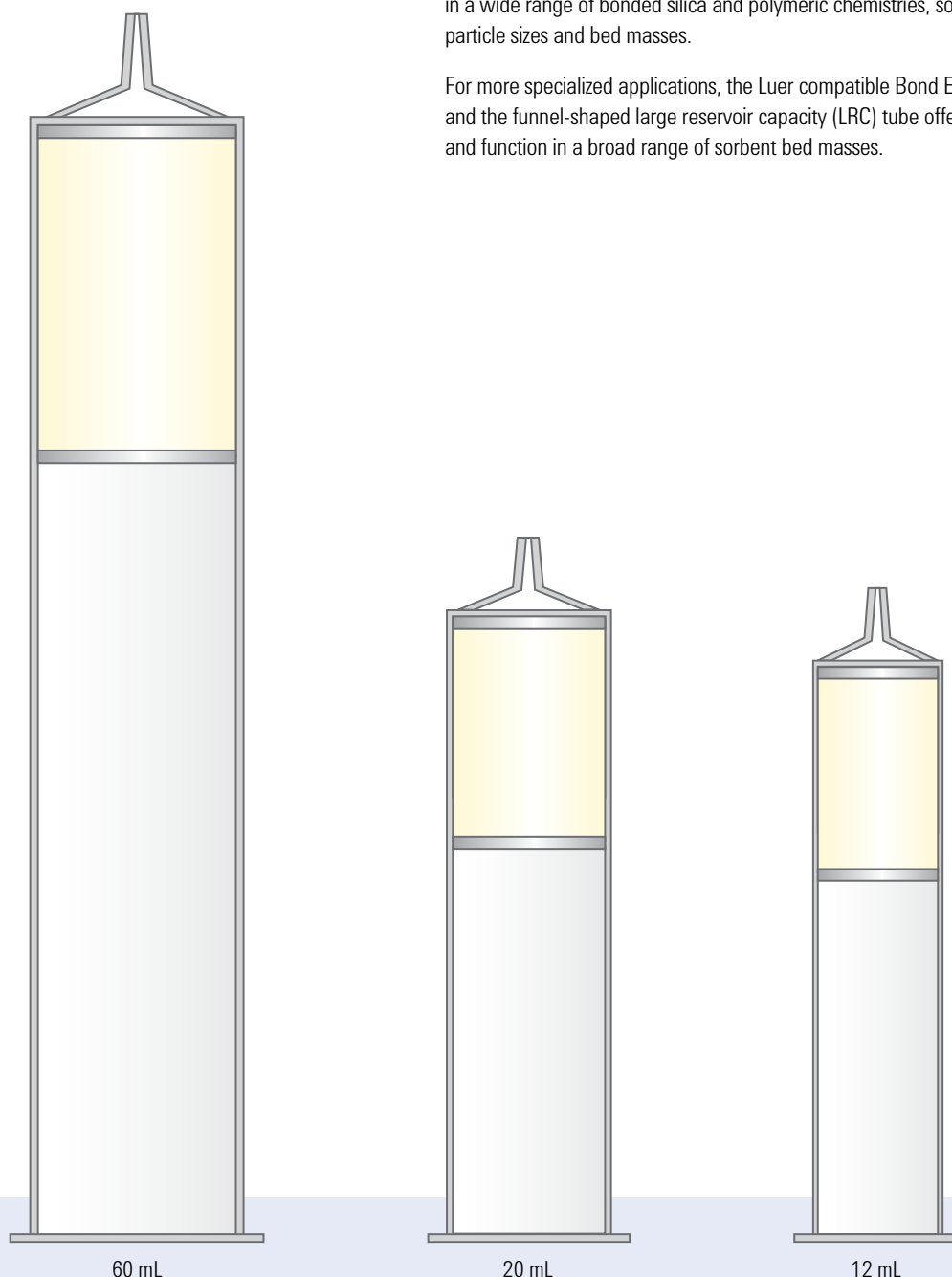


SAMPLE PREPARATION FORMATS

Agilent Offers the Broadest Range of Tube Formats and 96-well Plate Designs

We have a full set of straight barrel SPE tubes ranging from 1-150 mL in a wide range of bonded silica and polymeric chemistries, sorbent particle sizes and bed masses.

For more specialized applications, the Luer compatible Bond Elut Jr and the funnel-shaped large reservoir capacity (LRC) tube offer flexibility and function in a broad range of sorbent bed masses.





Bond Elut 96-well Plates

Bond Elut 96-well plate formats are best in class for flow performance and well-to-well reproducibility. These specially designed plates are available with well depths of 1 mL and 2 mL and in a large range of different sorbent chemistries.

VersaPlate

VersaPlate is a highly innovative, flexible design that lets you customize plates. Insert different phases for sorbent screening or insert only enough tubes to match the number of samples to be extracted for minimal waste. VersaPlate can be purchased in a pre-packed format or as loose tubes.

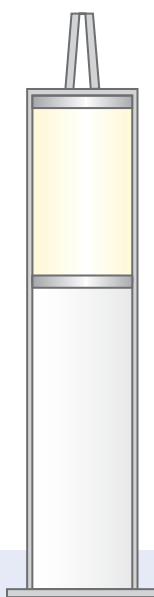


Packed Formats for Automation

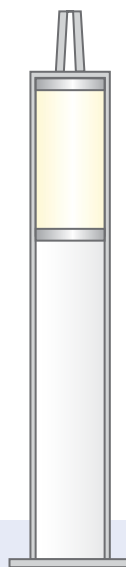
Bond Elut sorbents are also available in packed bed formats for automation platforms, such as the Spark Holland Symbiosis, Gilson ASPEC and Gerstel MPS systems. Agilent's unique OMIX pipette format is also used with a wide range of liquid handling devices, ranging from hand-held pipettors to high-throughput automated systems.



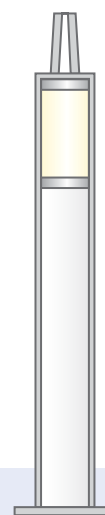
10 mL LRC



6 mL



3 mL



1 mL



Bond Elut Jr

CROSS REFERENCE OF COMPARABLE PHASES BY MANUFACTURER

Different chemistries and manufacturing processes create sorbents that exhibit differences in selectivity, so there is no universal equivalent for every application. However, the performance of products can be similar in many applications. This table provides suggestions for using Agilent Bond Elut products in comparison to products from other manufacturers.

Polymers			
If you are using...			Try this...
Phenomenex Strata	Waters Oasis	Supelco Supelclean/Discovery	Agilent Bond Elut
Strata-X	HLB		Plexa
SDB-L		ENVI-ChromP	ENV or LMS
Strata-X-C	MCX		Plexa PCX
Strata-X-A	MAX		Plexa PAX
Silica-Based and Other Sorbents			
If you are using...			Try this...
Phenomenex Strata	Waters Sep-Pak	Supelco Supelclean/Discovery	Agilent Bond Elut
C18-E	tC18	ENVI-18, DSC-C18, LC-18	C18
C18-U	C18		C18 OH
C8	C8	DSC-8, Envi-8, LC-8	C8
	tC2		C2
Phenyl (PH)		DSC-Ph, LC-Ph	PH
Screen-C			Certify*
Si-1	Silica	DSC-Si, LC-SI	SI
FL-PR	Florisil	LC and ENVI Florisil	FL
NH2	Amino Propyl	DSC-NH2, LC-NH	NH2
		DSC-Diol, LC-Diol	20H
CN	Cyano Propyl	DSC-CN, LC-CN	CN-E
	Alumina A, B, N	LC-Alumina A, B, N	Alumina A, B, N
SAX	AccellPlus QMA	DSC-SAX, LC-SAX	SAX
SCX	AccellPlus CM	DSC-SCX, LC-SCX	SCX
		ENVI-Carb	Carbon
		ENVICarb-II/NH2	Carbon/NH2
		ENVICarb-II/PSA	Carbon/PSA

For Silica-Based SPE products, see the *Agilent Bond Elut Silica-Based SPE Selection Guide*, publication number 5990-8593EN

*For Forensic Use.

Sorbent Specifications

Sorbent Phase	Category	Bonded Functional Group/ Base Material	Endcapped	Format	Typical Carbon Loading (%)	Surface Area (m ² /g)	Particle Size (µm) and Shape	Mean Pore Size (Å)
AccuCAT	Mixed Mode	Sulfonic acid (SCX) and quaternary amine (SAX) silica based	No	Packed bed	7.0	500	40 and 120, irregular	60
Aminopropyl (NH ₂)	Polar/Anion Exchanger	Aminopropyl/silica based	No	Packed bed	6.7	500	40 and 120, irregular	60
C1	Non-polar	Methyl/silica based	Yes	Packed bed	4.1	500	40, irregular	60
C2	Non-polar	Ethyl/silica based	Yes	Packed bed	5.6	500	40 and 120, irregular	60
C8	Non-polar	Octyl/silica based	Yes	Packed bed	12.2	500	40 and 120, irregular	60
C18	Non-polar	Trifunctional octadecyl/silica based	Yes	Packed bed	17.4	500	40 and 120, irregular	60
C18 EWP	Non-polar	Trifunctional octadecyl/silica based	Yes	Packed bed	6.0	80	40, irregular	500
C18 OH	Non-polar	Monofunctional octadecyl/silica based	No	Packed bed	14.9	300	40 and 120, irregular	150
CBA	Cation Exchanger	Carboxylic acid/silica based	Yes	Packed bed	7.4	500	40 and 120, irregular	60
Certify*	Mixed Mode	Octyl and benzenesulfonic acid (SCX)/silica based	No	Packed bed	9.0	500	40 and 120, irregular	60
Certify II*	Mixed Mode	Octyl and quaternary amine (SAX)/silica based	No	Packed bed	8.6	500	40 and 120, irregular	60
CH	Non-polar	Cyclohexyl/silica based	Yes	Packed bed	9.6	500	40 and 120, irregular	60

(Continued)

*For Forensic Use.

Sorbent Specifications

Sorbent Phase	Category	Bonded Functional Group/ Base Material	Endcapped	Format	Typical Carbon Loading (%)	Surface Area (m ² /g)	Particle Size (μ m) and Shape	Mean Pore Size (\AA)
Cyano (CN-E)	Non-polar	Cyanopropyl/silica based	Yes	Packed bed	8.1	500	40 and 120, irregular	60
DEA	Anion Exchanger	Diethylaminopropyl/silica based	No	Packed bed	8.5	500	40 and 120, irregular	60
Diol (2OH)	Polar	Diol/silica based	No	Packed bed	68	500	40, irregular	60
PH	Non-polar	Phenyl/silica based	Yes	Packed bed	10.7	500	40 and 120, irregular	60
PRS	Cation Exchanger	Propylsulfonic acid/silica based	No	Packed bed	1.7	500	40, irregular	60
PSA	Anion Exchanger	Ethylenediamine-N-propyl/ silica based	No	Packed bed	7.5	500	40 and 120, irregular	60
SAX	Anion Exchanger	Trimethylaminopropyl/silica based	No	Packed bed	7.5	500	40 and 120, irregular	60
SCX	Cation Exchanger	Benzenesulfonic acid/silica based	No	Packed bed	10.9	500	40 and 120, irregular	60
SI	Polar	Silica	No	Packed bed		600	40 and 120, irregular	60

Particle Size Specifications

You will note that our most common silica-based Bond Elut packings are described as 40 μ m materials, yet if you look at the actual lot analyses, you will see that the actual mean is around 55 μ m. We have been making silica-based Bond Elut packings since 1979, using the same diameter silicas; in that time, the models used to estimate irregular particle "diameters" and the testing equipment have changed. We have retained the term "40 μ m" however, because there are so many official methods that specify a 40 μ m Bond Elut sorbent. As other suppliers attempted to copy the successful Bond Elut product specifications, the term has become an industry standard. You can be assured that the actual average particle in our regular silica Bond Elut is the same now as it was 30 years ago when we first pioneered SPE as a sample prep technology.

Sample Preparation Reference Guide

Product	Typical Matrices	Primary Extraction Mechanism	Compound Types
Bond Elut C18	Aqueous samples, biological fluids	Non-polar	Non-polar compounds, desalting
Bond Elut C18 EWP	Aqueous samples, biological fluids	Non-polar	Extra wide pore for larger, macro molecules up to 15 kDa
Bond Elut C18 OH	Aqueous samples, biological fluids, non-polar extracts	Non-polar, hydrogen bonding	Vitamin D, fat-soluble compounds, steroids/hormones
Bond Elut C8	Aqueous samples, biological fluids	Non-polar	Non-polar compounds
Bond Elut PH	Aqueous and biological fluids	Non-polar	Strongly non-polar compounds, aromatics
Bond Elut CH (cyclohexyl)	Aqueous samples, biological fluids	Non-polar	Non-polar compounds
Bond Elut C1	Urine, plasma, biological fluids	Non-polar, polar (as a normal phase extraction)	Strongly non-polar compounds
Bond Elut C2	Aqueous samples, biological fluids	Non-polar	Strongly non-polar compounds
Bond Elut SI	Non-polar organics, oils, lipids	Polar	Cleanup of polar impurities
Bond Elut CN-E	Aqueous samples, biological fluids	Non-polar, dipole	Mid-range polarity compounds
Bond Elut Diol (2OH)	Aqueous, biological fluids, non-polar organics	Polar and non-polar	Polar, weakly non-polar
Bond Elut NH2	Aqueous, biological fluids, buffered organics	Weak anion exchange	Polar and non-polar strong anions, polar structural isomers

(Continued)

Sample Preparation Reference Guide

Product	Typical Matrices	Primary Extraction Mechanism	Compound Types
Bond Elut SAX	Aqueous, biological fluids	Anion exchange	Weak acidic compounds
Bond Elut SCX	Aqueous, biological fluids, buffered organics	Cation exchange	Weak basic compounds
Bond Elut PRS	Aqueous, biological fluids, buffered organics	Cation exchange	Basic compounds (amine + pyridinium containing)
Bond Elut PSA	Aqueous, biological fluids, buffered organics	Strong anion exchange	Acidic compounds (fruit acid removal for QuEChERS)
Bond Elut CBA	Aqueous samples, biological fluids	Weak cation exchange	Strong and weak bases
Bond Elut DEA	Water, biological fluids, non-polar extracts	Weak anion exchange	Weak and strong acidic compounds
Bond Elut AccuCAT	Urine, plasma and biological fluids, beverages and food	Strong cation and anion exchange	Catecholamines, acrylamide in liquids and food
Bond Elut Certify	Urine, plasma, saliva, blood, biological fluids	Non-polar and strong cation exchange	Basic drugs, basic drugs of abuse
Bond Elut Certify II	Urine, plasma, saliva, blood, biological fluids	Non-polar and strong anion exchange	Acidic drugs, acidic drugs of abuse



Tips & Tools

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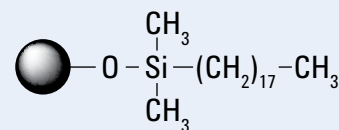
Silica-Based SPE

Reversed Phase (Non-Polar) Silica SPE

Reversed phase sorbents are non-polar and are used to retain (extract) non-polar analytes from polar matrices. For reversed phase sorbents, retention decreases as the eluting solvent becomes more non-polar.

Bond Elut C18

- The most hydrophobic, bonded silica sorbent
- Extremely retentive for non-polar compounds
- Effective for desalting aqueous mixtures

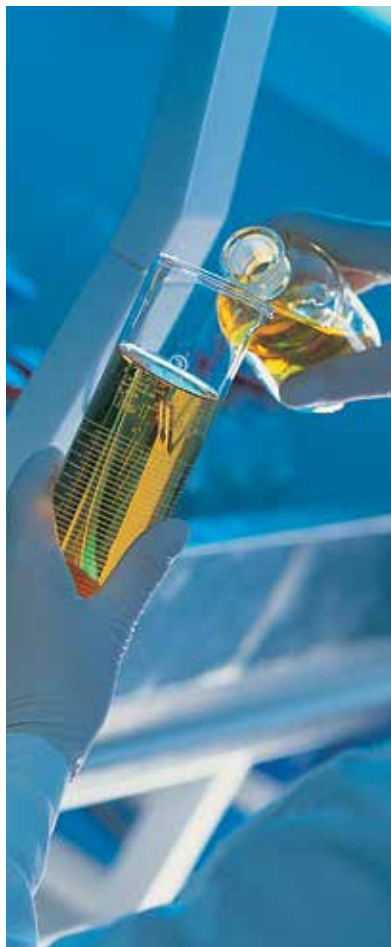


Bond Elut C18 is the most hydrophobic, bonded silica sorbent in the Bond Elut range. It is the most popular SPE sorbent because of its extremely retentive nature for non-polar compounds. C18 is generally regarded as having the broadest spectrum of retention among bonded silica sorbents, since it retains most organic analytes from aqueous matrices. When analyzing small to intermediate molecules, Bond Elut C18 can be used for desalting aqueous matrices prior to ion exchange, as salts pass through the sorbent unretained.

Typical Matrices
Aqueous samples, biological fluids
Primary Extraction Mechanism
Non-polar
Compound Types
Non-polar compounds, desalting

Bond Elut C18

Description	Unit	40 µm Particle Size	120 µm Particle Size
LRC Cartridges			
100 mg, 10 mL	50/pk	12113001	14113001
200 mg, 10 mL	50/pk	12113024	14113024
500 mg, 10 mL	50/pk	12113027	14113027
Straight Barrel Cartridges			
50 mg, 1 mL	100/pk	12102058	14102058
50 mg, 3 mL	50/pk	12105027	
100 mg, 1 mL	100/pk	12102001	14102001
100 mg, 3 mL	50/pk	12102099	
200 mg, 1 mL	100/pk	12102096	
200 mg, 3 mL	50/pk	12102025	14102025
500 mg, 3 mL	50/pk	12102028	14102028
500 mg, 6 mL	30/pk	12102052	14102052
1 g, 3 mL	50/pk	12102118	
1 g, 6 mL	30/pk	12256001	14256001
1 g, 60 mL	16/pk	12256060	
2 g, 12 mL	20/pk		14256015
5 g, 20 mL	20/pk		14256023
10 g, 60 mL	16/pk		14256031
Bond Elut Jr			
500 mg	100/pk	12162028B	
1 g	100/pk	12166001B	
Other Formats			
Prospekt cartridge, 800 Series	96/pk	12281001	
Prospekt cartridge, 800 Series, 1 mm	96/pk	12281024	
100 mg, 3 mL, Gerstel format	50/pk	161818G	
200 mg, 3 mL, Gerstel format	50/pk	161822G	
500 mg, 3 mL, Gerstel format	50/pk	161832G	



VersaPlate Formats

Description	Particle Size (µm)	25 mg	50 mg	100 mg
Preassembled 96-well plate	40		75401050	7540101C
VersaPlate tubes, 96/pk*	40	75501025	75501050	7550101C
	120		75502050	

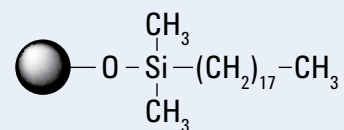
*Tubes need to be inserted into a VersaPlate base plate, P/N 75400000

Bond Elut 96-well Plates

Description	25 mg	50 mg	100 mg
1 mL round-well plates	A4960125	A4960150	A496011C
2 mL square-well plates	A3960125	A3960150	A396011C

Bond Elut C18 EWP

- No exclusion of large molecules
- Good for desalting proteins
- Successful separation of proteins, peptides or nucleotides



Bond Elut EWP is based on standard particle size silica but with 500Å pores to allow more efficient extraction of large molecules (>15,000 MW), which are typically excluded from standard porosity silica phases.

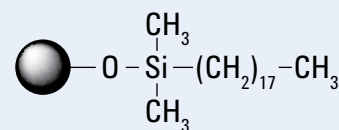
Typical Matrices
Aqueous samples, biological fluids
Primary Extraction Mechanism
Non-polar
Compound Types
Extra wide pore for larger, macro molecules up to 15 kDa

Bond Elut C18 EWP

Description	Unit	Part No.
LRC Cartridges		
50 mg, 10 mL	50/pk	12113068
500 mg, 10 mL	50/pk	12113071
Straight Barrel Cartridges		
50 mg, 1 mL	100/pk	12102136
100 mg, 1 mL	100/pk	12102137
500 mg, 3 mL	50/pk	12102139

Bond Elut C18 OH

- Silanol activity permits metabolite fractionation
- Tight QC tolerances deliver batch-to-batch reproducibility
- 150Å pore size expands utility to higher molecular weight compounds



Bond Elut C18 OH is a non-encapped version of the octadecyl bonded phases that enables the silanols on the silica surface to be more active. This low-load C18 has well-controlled silanol activity that permits the fractionation of metabolites and enhances retention of basic compounds compared to an encapped C18.

Typical Matrices

Aqueous samples, biological fluids, non-polar extracts

Primary Extraction Mechanism

Non-polar, hydrogen bonding

Compound Types

Vitamin D, fat-soluble compounds, steroids/hormones

Bond Elut C18 OH

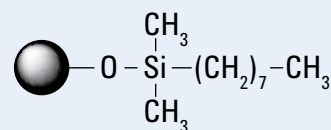
Description	Unit	Part No.
Straight Barrel Cartridges		
100 mg, 1 mL	100/pk	12102020
500 mg, 3 mL	50/pk	12102046
1 g, 6 mL	30/pk	12256040

Bond Elut 96-well Plates

Description	25 mg	50 mg	100 mg
1 mL round-well plates			A496291C
2 mL square-well plates	A3962925	A3962950	A396291C

Bond Elut C8

- Excellent for strongly-retained analytes
- Polar interactions not significant
- Less retentive than C18



Bond Elut C8 is very similar in property to C18, but is not as retentive for non-polar compounds, due to its shorter hydrocarbon chain, and therefore reduced carbon loading. C8 is an excellent replacement for C18 when analytes are too strongly retained for effective elution. The potential for polar interactions is somewhat higher than for C18 because there is less coverage of the silica surface. These polar interactions are not, however, a significant property of C8.

Typical Matrices
Aqueous samples, biological fluids
Primary Extraction Mechanism
Non-polar
Compound Types
Non-polar compounds

Bond Elut C8

Description	Unit	Part No.
Bond Elut Jr		
500 mg	100/pk	12162029B
LRC Cartridges		
100 mg, 10 mL	50/pk	12113002
200 mg, 10 mL	50/pk	12113025
500 mg, 10 mL	50/pk	12113028
Straight Barrel Cartridges		
50 mg, 1 mL	100/pk	12102059
50 mg, 3 mL	50/pk	12105028
100 mg, 1 mL	100/pk	12102002
100 mg, 3 mL	50/pk	12102100
200 mg, 3 mL	50/pk	12102026
500 mg, 3 mL	50/pk	12102029
500 mg, 6 mL	30/pk	12102053
1 g, 6 mL	30/pk	12256002
5 g, 20 mL	20/pk	12256024
10 g, 60 mL	16/pk	12256032
Other Formats		
Prospekt cartridge, 800 Series	96/pk	12281002
Prospekt cartridge, 800 Series, 1 mm	96/pk	12281025
100 mg, 3 mL, Gerstel format	50/pk	161618G
200 mg, 3 mL, Gerstel format	50/pk	161622G
500 mg, 3 mL, Gerstel format	50/pk	161632G



VersaPlate Formats

Description	Particle Size (μm)	50 mg	100 mg
Preassembled 96-well plate	40		7540301C
VersaPlate tubes, 96/pk*	40	75503050	7550301C

*Tubes need to be inserted into a VersaPlate base plate, P/N 75400000

Bond Elut 96-well Plates

Description	25 mg	50 mg	100 mg
1 mL round-well plates	A4960325	A4960350	A496031C
2 mL square-well plates	A3960325	A3960350	A396031C



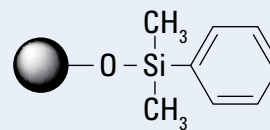
Bond Elut 96 1 mL round-well plate



Bond Elut 96 2 mL square-well plate

Bond Elut PH

- Added selectivity compared to other non-polar sorbents
- Enhanced retention of planar, conjugated organic molecules
- Similar polarity to C8



Bond Elut PH is a non-polar bonded silica material which exhibits a different selectivity to alkyl or aliphatic functionalized phases such as C8 or cyclohexyl. The electron density present in the aromatic ring affords an enhancement in the retention of conjugated or aromatic ring-containing analytes due to desirable pi-pi interactions.

Typical Matrices
Aqueous and biological fluids
Primary Extraction Mechanism
Non-polar
Compound Types
Strongly non-polar compounds, aromatics

Bond Elut PH

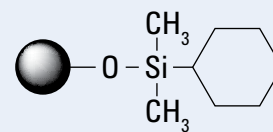
Description	Unit	40 µm Particle Size	120 µm Particle Size
LRC Cartridges			
100 mg, 10 mL	50/pk	12113005	14113005
500 mg, 10 mL	50/pk	12113031	14113031
Straight Barrel Cartridges			
50 mg, 1 mL	100/pk	12102062	14102062
100 mg, 1 mL	100/pk	12102005	14102005
500 mg, 3 mL	50/pk	12102032	14102032
1 g, 6 mL	30/pk	12256004	14256004

Bond Elut 96-well Plates

Description	25 mg	50 mg	100 mg
1 mL round-well plates			A496151C
2 mL square-well plates	A3961525	A3961550	A396151C

Bond Elut CH (cyclohexyl)

- Non-polar CH with polarity similar to C2
- Retains polar analytes from aqueous matrices
- Good choice when common non-polar sorbents do not provide the required selectivity



Bond Elut CH is a mid-polarity sorbent that exhibits unique selectivities for certain analytes. When employed as a non-polar sorbent, CH has the approximate polarity of a C2 sorbent. Bond Elut CH is often a good choice when non-polar sorbents such as C18, C8, or C2 do not provide the desired selectivity.

Typical Matrices
Aqueous samples, biological fluids
Primary Extraction Mechanism
Non-polar
Compound Types
Non-polar compounds

Bond Elut CH (cyclohexyl)

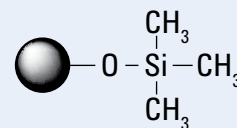
Description	Unit	Part No.
LRC Cartridges		
500 mg, 10 mL	50/pk	12113032
Straight Barrel Cartridges		
50 mg, 1 mL	100/pk	12102063
100 mg, 1 mL	100/pk	12102006
500 mg, 3 mL	50/pk	12102033
1 g, 6 mL	30/pk	12256005
2 g, 12 mL	20/pk	12256039

Bond Elut 96-well Plates

Description	25 mg	50 mg	100 mg
1 mL round-well plates	A4962225	A4962250	A496221C
2 mL square-well plates	A3961525	A3961550	A396151C

Bond Elut C1

- Least retentive of all alkyl group bonded phases
- Easy retention and release of polar compounds
- Easy retention and release of multi-functional compounds



Due to the methyl group and subsequent low carbon load, Bond Elut C1 is the least retentive of all alkyl group bonded phases for non-polar compounds. However, due to the extensive endcapping of this sorbent to mask polar silanol activity, retention and elution of polar and multi-functional analytes can still be achieved.

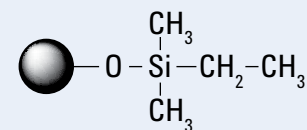
Typical Matrices
Urine, plasma, biological fluids
Primary Extraction Mechanism
Non-polar, polar (as a normal phase extraction)
Compound Types
Strongly non-polar compounds

Bond Elut C1

Description	Unit	Part No.
LRC Cartridges		
100 mg, 10 mL	50/pk	12113004
300 mg, 10 mL	50/pk	12113053
500 mg, 10 mL	50/pk	12113030
Straight Barrel Cartridges		
50 mg, 1 mL	100/pk	12102061
100 mg, 1 mL	100/pk	12102004
100 mg, 3 mL	50/pk	12102090
500 mg, 3 mL	50/pk	12102031

Bond Elut C2

- Low carbon load sorbent
- Can be used alongside CN and C8 phases
- Popular for drug extraction from plasma and for flat baselines



Bond Elut C2 is a fairly non-polar sorbent because of the short chain length of the functional group. C2 is often used during the process of method development if analytes are retained too strongly on a C8 or C18 phase. The polarity of C2 is slightly lower than a cyano phase for polar interactions.

Typical Matrices
Aqueous samples, biological fluids
Primary Extraction Mechanism
Non-polar
Compound Types
Strongly non-polar compounds

Bond Elut C2

Description	Unit	Part No.
Straight Barrel Cartridges		
50 mg, 1 mL	100/pk	12102060
50 mg, 3 mL	50/pk	12105029
100 mg, 1 mL	100/pk	12102003
100 mg, 3 mL	50/pk	12102117
200 mg, 3 mL	50/pk	12102027
500 mg, 3 mL	50/pk	12102030
500 mg, 6 mL	30/pk	12102115
1 g, 6 mL	30/pk	12256003

Bond Elut 96-well Plates

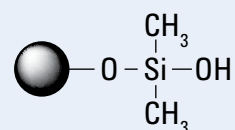
Description	50 mg	100 mg
1 mL round-well plates	A4961150	A496111C

Normal Phase (Polar) Silica SPE

Normal phase sorbents are polar and used to retain (extract) polar analytes. For normal phase sorbents, retention decreases as the eluting solvent becomes more polar.

Bond Elut SI

- Highly polar phase retains polar molecules from non-polar matrices
- High purity silica
- Separate compounds with very similar structures



Native silica is generally regarded as the most polar SPE sorbent available. Bond Elut SI is particularly effective at separating compounds with a very similar structure. Applying the analytes in a non-polar solvent, then increasing the solvent polarity by increasing the concentration of a polar modifier, such as THF or ethyl acetate, delivers effective separations.

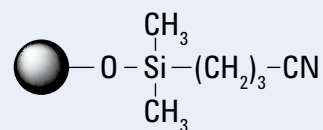
Typical Matrices
Non-polar organics, oils, lipids
Primary Extraction Mechanism
Polar
Compound Types
Cleanup of polar impurities

Bond Elut SI

Description	Unit	40 µm Particle Size	120 µm Particle Size
LRC Cartridges			
100 mg, 10 mL	50/pk	12113010	14113010
500 mg, 10 mL	50/pk	12113036	14113036
Straight Barrel Cartridges			
50 mg, 1 mL	100/pk	12102068	14102068
100 mg, 1 mL	100/pk	12102010	14102010
500 mg, 3 mL	50/pk	12102037	14102037
1 g, 6 mL	30/pk	12256008	14256008
1.5 g, 3 mL	50/pk	12102119	
2 g, 6 mL	30/pk		14256018
5 g, 20 mL	20/pk		14256026
10 g, 60 mL	16/pk		14256034
Bond Elut Jr			
500 mg	100/pk	12162037B	
1 g	100/pk	12166008B	
Other Formats			
500 mg, 3 mL, Gerstel format	50/pk	167232G	

Bond Elut CN-E

- Ideal for extracting aqueous analytes
- Retention in aqueous and organic matrices
- Useful for many applications



A medium polarity sorbent with many uses, Bond Elut CN-E is ideal for applications in which extremely non-polar compounds would be irreversibly retained on high carbon load sorbents such as C8 and C18. This endcapped version of the cyano sorbent is best utilized when extracting analytes from an aqueous matrix.

Typical Matrices

Aqueous samples, biological fluids

Primary Extraction Mechanism

Non-polar, dipole

Compound Types

Mid-range polarity compounds

References

Pucci, V, Bugamelli, F, Mandrioli, R, Bartoletti, C, Rossi, N & Raggi, MA (2003) Liquid chromatographic analysis of the cis(Z)- and trans(E)-isomers of clopenthixol in human plasma using a novel solid phase extraction procedure. J. Chromatogr. B., 792, 313-321.

Bond Elut CN-E

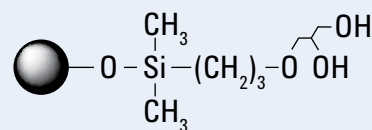
Description	Unit	Part No.
LRC Cartridges		
100 mg, 10 mL	50/pk	12113007
500 mg, 10 mL	50/pk	12113033
Straight Barrel Cartridges		
50 mg, 1 mL	100/pk	12102064
100 mg, 1 mL	100/pk	12102007
500 mg, 3 mL	50/pk	12102034
5 g, 20 mL	20/pk	12256025

Bond Elut 96-well Plates

Description	25 mg	50 mg	100 mg
1 mL round-well plates	A4960425	A4960450	A496041C

Bond Elut Diol (20H)

- Provides polar and non-polar modes
- Strong hydrogen bonding with analytes
- Resembles un-bonded silica in its capabilities



Bond Elut Diol resembles un-bonded silica in its tendency for strong hydrogen bonding with analytes. 20H can also be employed in the non-polar mode because the hydrocarbon spacer on its functional group provides enough non-polar character for retention of hydrophobic analytes. Bond Elut Diol is a listed SPE device for the DIN 14333-1 method on benzimidazole fungicides.

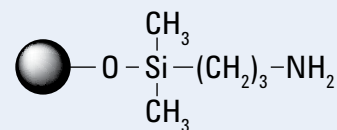
Typical Matrices
Aqueous, biological fluids, non-polar organics
Primary Extraction Mechanism
Polar and non-polar
Compound Types
Polar, weakly non-polar

Bond Elut Diol (20H)

Description	Unit	Part No.
LRC Cartridges		
100 mg, 10 mL	50/pk	12113009
500 mg, 10 mL	50/pk	12113035
Straight Barrel Cartridges		
50 mg, 1 mL	100/pk	12102067
100 mg, 1 mL	100/pk	12102009
500 mg, 3 mL	50/pk	12102036
1 g, 6 mL	30/pk	12256007

Bond Elut NH2

- Normal phase or anion exchange sorbent
- Weaker anion exchange than SAX
- Amenable to separating structural isomers



Bond Elut NH2 is a weaker anion exchanger than sorbents such as SAX (a quaternary amine sorbent that is always charged) and is therefore a better choice for retention of very strong anions, such as sulfonic acids, which may retain irreversibly on a SAX sorbent. Similar to Diol and SI sorbents, Bond Elut NH2 is excellent for the separation of structural isomers.

Typical Matrices

Aqueous, biological fluids, buffered organics

Primary Extraction Mechanism

Weak anion exchange

Compound Types

Polar and non-polar strong anions, polar structural isomers

References

Schenck, F., Lehotay, S., & Vega, V (2002) Comparison of solid phase extraction sorbents for cleanup of pesticide residue analysis in fresh fruit and vegetables. J. Sep. Sci., 25, 883-890.

Bond Elut NH2

Description	Unit	40 µm Particle Size	120 µm Particle Size
LRC Cartridges			
100 mg, 10 mL	50/pk	12113014	14113014
200 mg, 10 mL	50/pk	12113067	
500 mg, 10 mL	50/pk	12113040	14113040
Straight Barrel Cartridges			
50 mg, 1 mL	100/pk	12102076	14102076
100 mg, 1 mL	100/pk	12102014	
200 mg, 3 mL	50/pk	12102089	
200 mg, 6 mL	30/pk	12102106	
300 mg, 3 mL	50/pk	12102108	
500 mg, 3 mL	50/pk	12102041	14102041
500 mg, 6 mL	30/pk	12256045	
1 g, 3 mL	50/pk	12102107	
1 g, 6 mL	30/pk	12256012	14256012
2 g, 12 mL	20/pk		14256020
5 g, 20 mL	20/pk		14256028
Bond Elut Jr			
500 mg	50/pk	12162041B	
1 g, 3 mL	50/pk	12166012B	
Other Formats			
200 mg, 3 mL, Gerstel format	50/pk	165022G	
500 mg, 3 mL, Gerstel format	50/pk	165032G	



VersaPlate Formats

Description	Particle Size (μm)	50 mg	100 mg
Preassembled 96-well plate	40	75405050	7540501C

Bond Elut 96 Round-well Plates

Description	25 mg	50 mg	100 mg
1 mL round-well plates	A4960525	A4960550	A496051C
2 mL square-well plates	A3960525	A3960550	A396051C



Tips & Tools

Learn the core concepts surrounding Solid Phase Extraction and best practices for Sample Prep. View the video at www.agilent.com/chem/spevideo

The isolation of lipids from serum and tissue

Extraction Method

Matrix:

Chloroform extract of serum or adipose tissue

Sorbent Conditioning:

Hexane

Apply Sample:Through Bond Elut NH₂ cartridge**Elution 1:****(Neutral lipids)**

(All except fatty acids and phospholipids) – 2:1 chloroform:2 propanol

(Fatty acids)

2% acetic acid in diethyl ether

(Phospholipids)

Methanol

The neutral lipid fraction is then dried down, reconstituted in hexane, and passed through a second NH₂ tube conditioned with hexane.**Elution 2:****(Cholesterol esters)**

Hexane

Another Bond Elut NH₂ sorbent column is attached below the existing one to trap cholesterol that breaks through the first during triglyceride elution.**Elution 3:****(Triglycerides)**

Hexane containing 1% diethyl ether and 10% methylene chloride

The Bond Elut NH₂ tubes are separated, cholesterol is eluted from both, and finally the di- and monoglycerides are eluted from the upper NH₂ tube.**Elution 4:****(Cholesterol)**

5% ethyl acetate in hexane

(Diglycerides)

15% ethyl acetate in hexane

(Monoglycerides)

2:1 chloroform:methanol

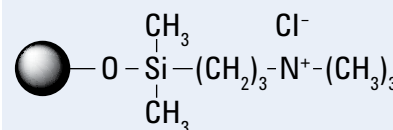
Simpson, N & Van Horne, C (eds) (1993) The Handbook of Sorbent Extraction Technology. Varian, Inc., Walnut Creek CA, USA.

Ion Exchange Silica SPE

Ion exchange phases are more dependent on pH, ionic strength, and counter-ion strength than on solvent strength. These phases depend on ionic interactions as the primary retention mechanism.

Bond Elut SAX

- Retains compounds that elute from weak anion exchange sorbents
- Selectivity can be user-modified for increased flexibility
- Minimal non-polar interactions



Bond Elut SAX is a strong anion exchange sorbent ideally suited for the extraction of compounds such as carboxylic acids, which may not retain effectively on weak anion exchange sorbents.



Typical Matrices
Aqueous, biological fluids
Primary Extraction Mechanism
Anion exchange
Compound Types
Weak acidic compounds

Bond Elut SAX

Description	Unit	40 μ m Particle Size	120 μ m Particle Size
LRC Cartridges			
100 mg, 10 mL	50/pk	12113017	14113017
500 mg, 10 mL	50/pk	12113043	14113043
Straight Barrel Cartridges			
50 mg, 1 mL	100/pk	12102079	14102079
100 mg, 1 mL	100/pk	12102017	14102017
100 mg, 3 mL	50/pk	12102125	
500 mg, 3 mL	50/pk	12102044	14102044
500 mg, 6 mL	30/pk	12102144	
1 g, 3 mL	50/pk	12102087	
1 g, 6 mL	30/pk	12256013	14256013
2 g, 6 mL	30/pk	12256051	
2 g, 12 mL	20/pk	12256021	14256021
5 g, 20 mL	20/pk	12256029	14256029
10 g, 60 mL	16/pk	12256037	14256037
Bond Elut Jr			
500 mg	100/pk	12162044B	
1 g	100/pk	12166013B	
Other Formats			
Prospekt cartridge, 800 Series	96/pk	12281022	

VersaPlate Formats

Description	Particle Size (μ m)	50 mg
Preassembled 96-well plate	40	75408050
VersaPlate tubes, 96/pk*	40	75508050

*Tubes need to be inserted into a VersaPlate base plate, P/N 75400000

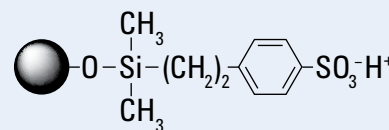
Bond Elut 96-well Plates

Description	25 mg	50 mg	100 mg
Bond Elut 96 Round-well Plates			A496301C
Bond Elut 96 Square-well Plates	A3960825	A3960850	A396081C



Bond Elut SCX

- Useful for compounds with both cationic and non-polar characteristics
- Superior cleanup from a single sorbent
- Very low pKa ligand elicits strong analyte interaction



Bond Elut SCX is a strong cation exchanger with a very low pKa. Although the pKa is similar to Bond Elut PRS, the presence of the benzene ring in the functional group increases the potential for non-polar interactions. This non-polar characteristic becomes particularly important when conducting ion exchange from aqueous systems, where selectivity towards compounds exhibiting cationic and non-polar character is seen.

Typical Matrices

Aqueous, biological fluids, buffered organics

Primary Extraction Mechanism

Cation exchange

Compound Types

Weak basic compounds

References

Codony, R, Compañó, R, Granados, M, Garcia-Regueiro, JA & Dolors Prat, M (2002) Residue analysis of macrolides in poultry muscle by liquid chromatography-electrospray mass spectrometry. *J. Chromatogr. A*, 959, 131-141.

Horie, M, Saito, K, Ishii, R, Yoshida, T, Haramaki, Y & Nakazawa, H (1998) Simultaneous determination of five macrolide antibiotics in meat by high performance liquid chromatography. *J. Chromatogr. A*, 812, 295-302.

Stubbings, G, Tarbin, J, Cooper, A, Shaman, M, Bigwood, T & Robb, P (2005) A multi-residue cation-exchange clean up procedure for basic drugs in produce of animal origin. *Analyt. Chim. Acta*, 547, 262-268.

Bond Elut SCX

Description	Unit	40 µm Particle Size	120 µm Particle Size
LRC Cartridges			
100 mg, 10 mL	50/pk	12113013	14113013
500 mg, 10 mL	50/pk	12113039	14113039
Straight Barrel Cartridges			
50 mg, 1 mL	100/pk	12102075	14102075
100 mg, 1 mL	100/pk	12102013	14102013
100 mg, 3 mL	50/pk	12102098	
500 mg, 3 mL	50/pk	12102040	14102040
1 g, 6 mL	30/pk	12256011	14256011
1.5 g, 3 mL	50/pk	12102104	
2 g, 12 mL	20/pk	12256053	14256019
3 g, 6 mL	30/pk	12256054	
5 g, 20 mL	20/pk		14256027
10 g, 60 mL	16/pk		14256035
Bond Elut Jr			
500 mg	100/pk	12162040B	
1 g	100/pk	12166011B	
Other Formats			
200 mg, 3 mL, Gerstel format	50/pk	167022G	



VersaPlate Formats

Description	Particle Size (µm)	50 mg	100 mg
Preassembled 96-well plate	40		7540701C
VersaPlate tubes, 96/pk*	40	75507050	7550701C

*Tubes need to be inserted into a VersaPlate base plate, P/N 75400000

Bond Elut 96-well Plates

Description	25 mg	50 mg	100 mg
Bond Elut 96 Round-well Plates	A4960725	A4960750	A496071C
Bond Elut 96 Square-well Plates	A3960725	A3960750	A396071C

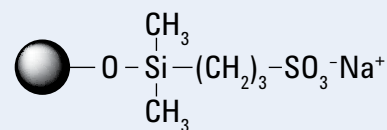
Tips & Tools



Learn the core concepts surrounding Solid Phase Extraction and best practices for Sample Prep. View the video at www.agilent.com/chem/spevideo

Bond Elut PRS

- Strong cation exchange sorbent, also capable of polar and hydrogen bonding interactions
- No appreciable non-polar interactions
- Unique selectivity properties



Bond Elut PRS is a strong cation exchange sorbent that is also relatively high in polarity. With no appreciable degree of hydrophobicity in non-polar solvents, PRS is capable of polar and hydrogen bonding interactions. Due to the very low pKa of PRS, it is recommended for weaker cationic species such as pyridinium compounds.

Typical Matrices

Aqueous, biological fluids, buffered organics

Primary Extraction Mechanism

Cation exchange

Compound Types

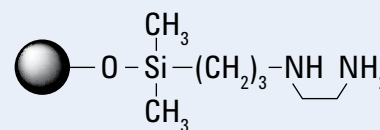
Basic compounds
(amine + pyridinium containing)

Bond Elut PRS

Description	Unit	Part No.
LRC Cartridges		
100 mg, 10 mL	50/pk	12113012
500 mg, 10 mL	50/pk	12113038
Straight Barrel Cartridges		
50 mg, 1 mL	100/pk	12102074
100 mg, 1 mL	100/pk	12102012
200 mg, 3 mL	50/pk	12102094
500 mg, 3 mL	50/pk	12102039
1 g, 6 mL	30/pk	12256010

Bond Elut PSA

- Alternative choice to Bond Elut NH2 for polar compounds
- Higher ionic capacity than NH2



Bond Elut PSA is an alkylated amine sorbent that contains two different amino functionalities – one secondary and one primary. This gives a slightly higher pKa and ionic capacity compared to Bond Elut NH2. PSA has a significantly higher carbon load than most amino functional sorbents, thus is a better choice for polar compounds, which retain too strongly on Bond Elut NH2.

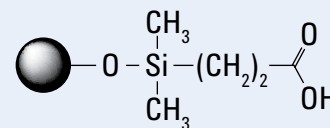
Typical Matrices
Aqueous, biological fluids, buffered organics
Primary Extraction Mechanism
Strong anion exchange
Compound Types
Acidic compounds (fruit acid removal for QuEChERS)

Bond Elut PSA

Description	Unit	Part No.
LRC Cartridges		
100 mg, 10 mL	50/pk	12113015
500 mg, 10 mL	50/pk	12113041
Straight Barrel Cartridges		
50 mg, 1 mL	100/pk	12102077
100 mg, 1 mL	100/pk	12102015
500 mg, 3 mL	50/pk	12102042
1 g, 6 mL	30/pk	12256140
2 g, 12 mL	20/pk	12256055
Bond Elut Jr		
500 mg	100/pk	12162042B
1 g	100/pk	12166050B

Bond Elut CBA

- Cation exchange with no need for extreme basic conditions
- Wider selectivity range provides more eluent options
- Polar or non-polar depending on matrix or solvent



CBA is a mid-polarity sorbent and weak cation exchanger (pKa 4.8). It can be used with a wider range of counter-ions than lower pKa sorbents like SCX, and will demonstrate easier elution of quaternary amine functionalized analytes.

Typical Matrices

Aqueous samples, biological fluids

Primary Extraction Mechanism

Weak cation exchange

Compound Types

Strong and weak bases

References

Murayama, N. & Sudo, K (1997) High performance liquid chromatographic method for determination of DX-9065a, a novel anticoagulant, in human urine and feces using cation-exchange solid-phase extraction. *J. Chromatogr. Biomed. Appl.*, 692, 389-396.

Bond Elut CBA

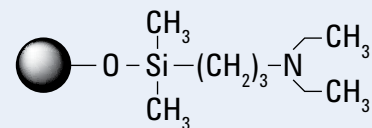
Description	Unit	Part No.
LRC Cartridges		
100 mg, 10 mL	50/pk	12113011
500 mg, 10 mL	50/pk	12113037
Straight Barrel Cartridges		
50 mg, 1 mL	100/pk	12102073
100 mg, 1 mL	100/pk	12102011
200 mg, 3 mL	50/pk	12102097
200 mg, 3 mL	50/pk	12102124
500 mg, 3 mL	50/pk	12102038
1 g, 6 mL	30/pk	12256009
2 g, 12 mL	20/pk	12256058

Bond Elut 96-well Plates

Description	25 mg	50 mg	100 mg
Bond Elut 96 Round-well Plates	A4960625	A4960650	A496061C
Bond Elut 96 Square-well Plates	A3960625	A3960650	A396061C

Bond Elut DEA

- Weak anion exchanger
- More polar than C8 but less polar than C2 or CN
- Alkyl side chains confer moderately non-polar characteristics



Bond Elut DEA bears some resemblance to Bond Elut NH2 in its properties but with a slightly lower capacity as an anion exchange sorbent. DEA has a moderately non-polar character due to the alkyl side chains on the amino functionality. These groups still afford a medium level of polarity, higher than C8 but less polar than C2 or CN-E.

Typical Matrices

Water, biological fluids, non-polar extracts

Primary Extraction Mechanism

Weak anion exchange

Compound Types

Weak and strong acidic compounds

References

Kline, W., Matuszewski, B & Bayne, W (1990) Determination of 4-amino-1-hydroxybutane-1,1-bisphosphonic acid in urine by automated pre-column derivatization with 2,3-naphthalene dicarboxyaldehyde and high performance liquid chromatography with fluorescence detection. J. Chromatogr. Biomed. Appl., 534, 139-149.

Bond Elut DEA

Description	Unit	40 μ m Particle Size	120 μ m Particle Size
LRC Cartridges			
100 mg, 10 mL	50/pk	12113016	14113016
500 mg, 10 mL	50/pk	12113042	14113042
Straight Barrel Cartridges			
50 mg, 1 mL	100/pk	12102078	14102078
100 mg, 1 mL	100/pk	12102016	14102016
500 mg, 3 mL	50/pk	12102043	14102043

VersaPlate Formats

Description	Particle Size (μ m)	50 mg	100 mg
VersaPlate tubes, 96/pk*	40	75507050	7550701C

*Tubes need to be inserted into a VersaPlate base plate, P/N 75400000

Mixed Mode Silica SPE

Bond Elut AccuCAT

- SCX and SAX functionalities offer broad analyte extraction potential
- Ultra clean, mixed sorbent bed delivers reproducible extractions
- Compatible with many biological fluids for easy method transfer

Bond Elut AccuCAT cartridges are mixed bed SPE cartridges consisting of a strong cation exchange (SCX) and a strong anion exchange (SAX) sorbent packed into one bed. AccuCAT is effective for the extraction of acidic, basic and neutral analytes from urine and other biological samples. AccuCAT is particularly effective for catecholamine extraction from bio-fluids.

Typical Matrices
Urine, plasma and biological fluids, beverages and food
Primary Extraction Mechanism
Strong cation and anion exchange
Compound Types
Catecholamines, acrylamide in liquids and food

References

Andrzejewski, D, Roach, JAG, Gay, ML and Musser, SM (2004) Analysis of coffee for the presence of acrylamide by LC-MS/MS. *J. Agric. Food Chem.*, 52, 1996-2002.

Lenders, JW, Eisenhofer, G, Armando, I, Keiser, HR, Goldstein, DS and Kopin, IJ (1993) Determination of metanephrines in plasma by liquid chromatography with electrochemical detection. *Clin. Chem.*, 39, 97-103.

Bond Elut AccuCAT

Description	Unit	Part No.
LRC Cartridges		
200 mg, 10 mL	60/pk	12282005
600 mg, 10 mL	60/pk	12282001
Straight Barrel Cartridges		
200 mg, 3 mL	60/pk	12282003
200 mg, 6 mL	30/pk	12282004
400 mg, 6 mL	30/pk	12282006
600 mg, 3 mL	60/pk	12282002

Bond Elut Certify

- Special mixed-mode sorbent bed
- Broad application range for aqueous extraction
- Bimodal, non-polar and strong cation exchange

The Bond Elut Certify extraction cartridge is a mixed mode sorbent containing non-polar C8 strong cation exchanger functionalities. Certify is most commonly used to extract basic (cationic) drugs from urine and blood, but it is also very effective for extraction of a wide range of compounds from a diverse range of aqueous matrices.

Typical Matrices

Urine, plasma, saliva, blood, biological fluids

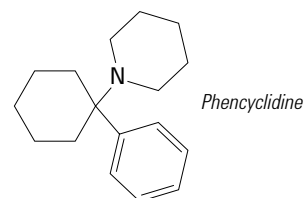
Primary Extraction Mechanism

Non-polar and strong cation exchange

Compound Types

Basic drugs, basic drugs of abuse

Extraction of phencyclidine (PCP) from human urine using Bond Elut Certify



Sorbent Conditioning:

100% MeOH then 0.1 M phosphate buffer, pH 6.0

Sample Treatment:

To 5 mL urine, add 2 mL 0.1 M phosphate buffer, pH 6.0, and matrix spike standard. Vortex, check that pH lies between 5.0 and 7.0. Pass through sorbent at <4 mL/min flow rate.

Interference Wash:

1. 1 mL 1.0 M AcOH then dry sorbent under vacuum for 5 min
2. 6 mL MeOH, dry sorbent for 2 min

Analyte Elution:

2 mL 2% NH₄OH in EtOAc

Bond Elut 96-well Plates

Description	25 mg	50 mg	100 mg
Bond Elut 96 Round-well Plates	A4960925	A4960950	A496091C
Bond Elut 96 Square-well Plates	A3960925	A3960950	A396091C

Bond Elut Certify

Description	Unit	40 µm Particle Size	120 µm Particle Size
LRC Cartridges			
130 mg, 10 mL	50/pk	12113050	14113050
200 mg, 10 mL	50/pk	12113054	14113054
300 mg, 10 mL	50/pk	12113052	14113052
Straight Barrel Cartridges			
50 mg, 3 mL	50/pk	12105030	
130 mg, 3 mL	50/pk	12102051	14102051
130 mg, 6 mL	30/pk	12256146	
200 mg, 3 mL	50/pk	12102145	
200 mg, 6 mL	30/pk	12256145	
300 mg, 3 mL	50/pk	12102081	
300 mg, 6 mL	30/pk	12102082	
500 mg, 6 mL	30/pk	12102093	14102093
1 g, 6 mL	30/pk	12102085	14102085
Other Formats			
Prospekt cartridge, 800 Series	96/pk	12281101	



VersaPlate Formats

Description	Particle Size (µm)	25 mg	50 mg	100 mg
Preassembled 96-well plate	40		75409050	7540901C
VersaPlate tubes, 96/pk	40	75509025	75509050	7550901C

For Forensic Use.

Bond Elut Certify II

- Ideal for non-polar and anionic compounds
- Optimized for acidic drug analysis
- Bimodal, non-polar and strong anion exchange

Bond Elut Certify II was developed specifically for the rapid and effective extraction of acidic drugs and metabolites from urine and other biological matrices. Certify II is a mixed-mode cartridge with non-polar C8 and strong anion exchange (SAX) functionalities. It has been optimized for acidic drugs such as 11-nor- Δ^9 -tetrahydrocannabinol-carboxylic acid, salicylic acid, ibuprofen, acetaminophen and other compounds that possess both non-polar and anionic characteristics.

Typical Matrices
Urine, plasma, saliva, blood, biological fluids
Primary Extraction Mechanism
Non-polar and strong anion exchange
Compound Types
Acidic drugs, acidic drugs of abuse

Bond Elut Certify II

Description	Unit	40 μ m Particle Size	120 μ m Particle Size
LRC Cartridges			
100 mg, 10 mL	50/pk	12113063	
200 mg, 10 mL	50/pk	12113051	14113051
Straight Barrel Cartridges			
50 mg, 3 mL	50/pk	12105031	
200 mg, 3 mL	50/pk	12102080	14102080
500 mg, 6 mL	30/pk	12102084	14102084
1 g, 6 mL	30/pk	12102088	14102088
Other Formats			
Prospekt cartridge, 800 Series 96/pk		12281102	

Extraction of THC-COOH from human urine using Bond Elut Certify II

Sorbent Conditioning:

100% methanol then 0.1 M acetate buffer, pH 7.0

Sample Treatment:

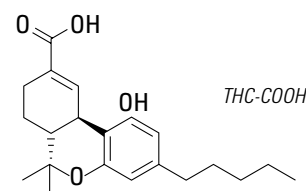
To 6 mL urine, add 300 μ L 10 M potassium hydroxide and matrix spike standard. Vortex, hydrolyze at 60°C for 15 min, cool. Add 165 μ L glacial acetic acid and 2 mL 95% 0.1 M acetate buffer/5% MeOH, pH 7.0. Adjust sample pH to between 4.5 and 6.5 with glacial acetic acid. Pass through sorbent at < 4 mL/min flow rate.

Interference Wash:

1. 10 mL 50:50 H₂O/MeOH, then dry sorbent under vacuum for 10 min
2. 2 mL EtOAc, dry sorbent for 0.5 min

Analyte Elution:

2 mL 1% AcOH in 25% EtOAc/75% hexane



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© Agilent Technologies, Inc. 2011-2017
Printed in the USA July 12, 2011
Republished July 12, 2017
5990-8591EN

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