

Varian Bond Elut – Polar SPE Columns

Bond Elut Alumina-A

- Lewis acid/base, polar and ion exchange

This sorbent has a slightly cationic nature, through pretreatment with acidic solutions. The result is a surface that favors neutral and anionic species (e.g. neutral acid or acid anion), while discouraging retention of cationic ones. Weak ion-exchange is also possible with anionic compounds.

Al-A Glass Columns

Cat. No.	Sorbent Mass	Vol. (mL)	Qty Unit	Price
1217-2047	500mg	6	30	
1217-6053	1g	6	30	

Al-A Jr.

1216-2047B	500mg	na	100	
1216-6043B	1g	na	100	

Al-A LRC Columns

1211-3020	100mg	10	50	
1211-3046	500mg	10	50	

Al-A Straight Barrel Columns

1210-2069	50mg	1	100	
1210-2021	100mg	1	100	
1210-2047	500mg	3	50	
1225-6043	1g	6	30	
1225-6062	3g	6	30	

Al-A with Stainless Steel Frits

1212-4021	100mg	1	100	
1212-4044	500mg	3	50	

Bond Elut Alumina-B

- Lewis acid/base, polar and ion-exchange

This sorbent has an anionic nature through the pretreatment of the alumina with basic solutions. The result is a surface that favors cation exchange, though the surface also exhibits some Lewis base properties and therefore can also retain electron-donors like neutral amines. However, this capacity is much lower than for the neutral and acidic alumina's. Strong hydrogen bonding is possible on AL-B, making it particularly effective for polar cations.

Al-B Glass Columns

Cat. No.	Sorbent Mass	Vol. (mL)	Qty Unit	Price
1217-2048	500mg	6	30	
1217-6052	1g	6	30	

Al-B Jr.

1216-2048B	500mg	na	100	
1216-6044B	1g	na	100	

Al-B LRC Columns

1211-3021	100mg	10	50	
1211-3047	500mg	10	50	

Al-B Straight Barrel Columns

1210-2070	50mg	1	100	
1210-2022	100mg	1	100	
1210-2048	500mg	3	50	
1225-6044	1g	6	30	

Al-B with Stainless Steel Frits

1212-4022	100mg	1	100	
1212-4045	500mg	3	50	

Bond Elut Cellulose

The Varian Bond Elut Cellulose column utilizes a pure microgranular cellulose powder which is packed between two 20µm polyethylene frits in an ultra clean 3 cc polypropylene extraction column. The Cellulose phase is very stable over a wide pH range and contains an extremely low metal content (Fe and Cu content less than 5 ppm). The combination of surface area and polymeric structure results in a sorbent with excellent capacity.

The cellulose media contains numerous hydroxyl groups. Because of its polar nature, it is able to accept high loading of many polar substances from aqueous and organic phases. The free hydroxyl groups' binding properties are complemented by the presence of very small quantities of residual aldehydes, ketones and carboxyl groups. These weak groups add reducing and ion-exchange properties.

This microgranular cellulose support has been utilized for large scale bioprocessing as well as a prefilter for suspended matter (i.e. cell debris and suspended fats), pre-fractionation step prior to reverse phase HPLC, separation of biomolecules and as an affinity chromatography matrix.

Cellulose Glass Columns

Cat. No.	Sorbent Mass	Vol. (mL)	Qty Unit	Price
1210-2095	300mg	3	500	

Non-Polar and Polar Sorbent Mass (Capacity) and Elution Characteristics of Bond Elut

500mg	1000mg	50mg/1mL	1000mg/1mL	200mg/3mL	500mg/2.8mL	1g/6mL	2g/12mL	5g/20mL	10g/60mL
Retention Capacity* up to Minimum Elution Volume* (2 bed volumes)									
For Silica Based Columns									
=25mg	=50mg	=2.5mg	=5.0mg	=10mg	=25mg	=50mg	=100mg	=250mg	=500mg
1.2mL	2.4mL	125µL	250µL	500µL	1.2mL	2.4mL	4.8mL	12mL	24mL
For Polymer Based Columns									
=125mg	=250mg	=12.5mg	=25.0mg	=50mg	=125mg	=250mg	=500mg	=1.25g	=2.5g
1.2mL	2.4mL	125µL	250µL	500µL	1.2mL	2.4mL	4.8mL	12mL	24mL
*Approximate Values: Capacity = 5% of sorbent mass (silica based); 25% of sorbent mass (polymer based) Bed Volume = 120µL/100mg of sorbent									

The figure above shows examples of capacity and elution characteristics of Bond Elut Columns. Typical retention capacity (amount of a compound which can be retained on the column) of polar and non-polar silica-based sorbents is less than 1% of the sorbent mass though it may occasionally exceed 5%, depending on the nature of the sorbent, analyte and matrix. For polymer-based sorbents, capacity may be as high as 25% of

the sorbent mass. These percentages are crude estimates only. Always take into account that additional compounds present in the sample matrix are also retained by the sorbent. Thus, for the compound you wish to extract, the effective capacity may be much less. It is always recommended that you test the cartridge capacity for each specific application.

Minimum elution volume for a cartridge is defined as two bed volumes of elution solvent. Bed volume is typically 120µL per 100mg of sorbent. In some cases, less than two bed volumes can be used. However, such extractions are often very sensitive to flow rates and other variables not recommended because irreproducible results may be generated.