

# EVOLUTE<sup>®</sup> EXPRESS SPE Products

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Load-Wash-Elute SPE Products

# EVOLUTE® EXPRESS

## Load-Wash-Elute SPE

### EVOLUTE® EXPRESS

#### Load-Wash-Elute SPE Columns and Plates

EVOLUTE® EXPRESS represents a leap forward in high throughput solid phase extraction. The EVOLUTE EXPRESS range of SPE columns and 96-well plates combine powerful EVOLUTE sorbent chemistry with innovative features that enhance productivity. With improved flow-through characteristics and by eliminating the need for conditioning and equilibration, sample preparation time can be cut by more than 1/3 using the simplified **Load-Wash-Elute** procedure.

#### Step 1 Load




#### Step 2 Wash



#### Step 3 Elute

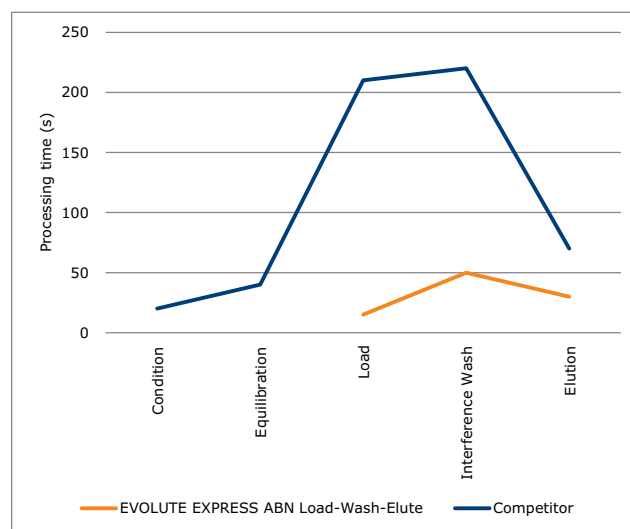


 Interferences  
 Analyte of interest

Standard SPE procedure	EVOLUTE® EXPRESS Load-Wash-Elute procedure
Condition	Not required
Equilibrate	Not required
Load	Load
Wash	Wash
Elute	Elute

#### Fast and Efficient Flow Rates

EVOLUTE® EXPRESS products dramatically improve flow characteristics and enhance sample preparation productivity. Flow rates are fast and consistent even when loading aqueous biological fluid sample directly onto a dry column.



**Figure 1.** 10 mg/1 mL EVOLUTE® EXPRESS vs. competitor 10 mg/1 mL equivalent. N=12 for each product. Columns processed using the Biotage® PRESSURE+ instrument. Columns processed at 1 psi unless otherwise stated. Sample was pooled human urine diluted 1:3 with water.

Due to the difficulty in measuring times for each individual column, figures for the time to complete flow for the slowest flowing column are shown. For example for 10 mg EVOLUTE EXPRESS ABN load-wash-elute method, all samples loaded in less than 15 s, whereas for the competitor product, sample loading on all columns was complete after 210 s, and increased pressure (up to 5 psi) was required to load the total volume.

EVOLUTE® polymer-based SPE sorbents extract neutral, acidic and basic analytes from biological fluids and other aqueous matrices, the EVOLUTE retention and elution characteristics are completely predictable and extractions on these robust sorbents are not affected by drying of the sorbent bed during sample processing.

#### EVOLUTE® EXPRESS ABN

» For simultaneous extraction of acidic, basic and/or neutral analytes

#### EVOLUTE® EXPRESS CX

» For extraction of basic analytes

#### EVOLUTE® EXPRESS WCX

» For extraction of strongly basic analytes

#### EVOLUTE® EXPRESS AX

» For extraction of acidic analytes

#### EVOLUTE® EXPRESS WAX

» For extraction of strongly acidic analytes

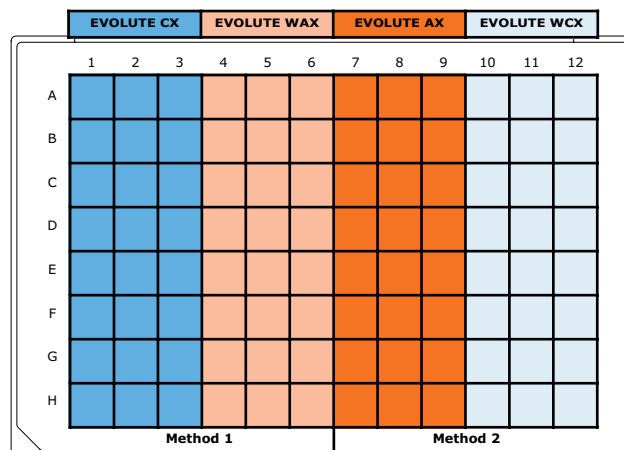


### Flexible Format for Cost Efficiency

EVOLUTE® EXPRESS columns are supplied as standard in the tabless (or flangeless) format. Up to 96 of the 1 mL format columns can populate a base plate for processing using the Biotage® Extrahera™, PRESSURE+ or vacuum manifold, as a cost effective, modular alternative to a 96-well plate.

## EVOLUTE® EXPRESS Sorbent Selection Plate

The EVOLUTE® EXPRESS Sorbent Selection plate contains the four mixed-mode EVOLUTE sorbents CX, WCX, AX and WAX on one plate.



### EVOLUTE EXPRESS Sorbent Selection Plate

Part Number	Description	Qty.
650-0010-PX01	EVOLUTE EXPRESS 10 mg Sorbent Selection Plate	1
650-0030-PX01	EVOLUTE EXPRESS 30 mg Sorbent Selection Plate	1

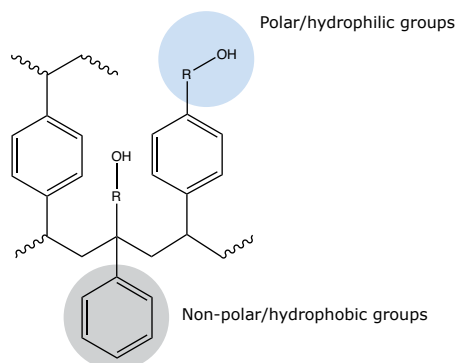
## EVOLUTE® EXPRESS User Guide

For more information download the EVOLUTE® EXPRESS User Guide from [www.biotage.com](http://www.biotage.com) **www.biotage.com**. Literature part number UI330.



Biotage are constantly developing new applications on EVOLUTE® EXPRESS products. Visit [www.biotage.com](http://www.biotage.com) for the latest information.

### EVOLUTE® ABN



Chemical structure of EVOLUTE® ABN

#### Chemical Description:

Water wettable polystyrene-divinylbenzene incorporating non-ionizable hydroxyl groups.

Average particle size	30 µm, 50 µm
Pore diameter	40 Å
Sorbent Type	Wettable non-polar sorbent with no secondary interactions

**Application:** EVOLUTE® ABN can be used to extract a diverse range of acidic, neutral and basic analytes from biological fluids and other aqueous matrices. Performance is not adversely affected by drying the sorbent.

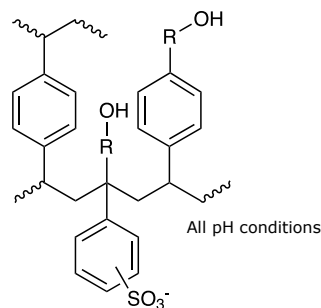
#### EVOLUTE EXPRESS ABN Tableless SPE Columns

Part Number	Description	Qty.
600-0001-AXG	EVOLUTE EXPRESS ABN 10 mg/1 mL	100
600-0003-AXG	EVOLUTE EXPRESS ABN 30 mg/1 mL	100
610-0006-BXG	EVOLUTE EXPRESS ABN 60 mg/3 mL	50
610-0015-CXG	EVOLUTE EXPRESS ABN 150 mg/6 mL	30
610-0050-CXG	EVOLUTE EXPRESS ABN 500 mg/6 mL	30

#### EVOLUTE EXPRESS ABN 96-well SPE Plates

Part Number	Description	Qty.
600-0010-PX01	EVOLUTE EXPRESS ABN 10 mg Plate	1
600-0030-PX01	EVOLUTE EXPRESS ABN 30 mg Plate	1

### EVOLUTE® CX



Chemical structure of EVOLUTE® CX

#### Chemical Description:

Sulfonic acid modified polystyrene-divinylbenzene incorporating non-ionizable hydroxyl groups.

Average particle size	30 µm, 50 µm
Pore diameter	40 Å
Sorbent Type	Mixed-mode non-polar/strong cation exchange
Exchange capacity	0.5 mmol/g

**Application:** EVOLUTE® CX can be used to extract basic analytes from biological fluids and other aqueous matrices. Performance is not adversely affected by drying the sorbent.

#### EVOLUTE EXPRESS CX Tableless SPE Columns

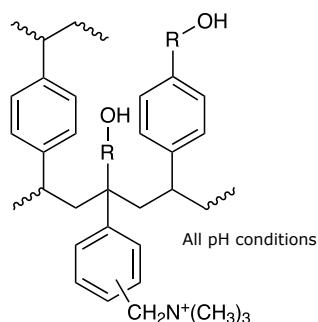
Part Number	Description	Qty.
601-0001-AXG	EVOLUTE EXPRESS CX 10 mg/1 mL	100
601-0003-AXG	EVOLUTE EXPRESS CX 30 mg/1 mL	100
611-0006-BXG	EVOLUTE EXPRESS CX 60 mg/3 mL	50
611-0015-CXG	EVOLUTE EXPRESS CX 150 mg/6 mL	30
611-0050-CXG	EVOLUTE EXPRESS CX 500 mg/6 mL	30

#### EVOLUTE EXPRESS CX 96-well SPE Plates

Part Number	Description	Qty.
601-0010-PX01	EVOLUTE EXPRESS CX 10 mg Plate	1
601-0030-PX01	EVOLUTE EXPRESS CX 30 mg Plate	1

EVOLUTE EXPRESS products can be used with the Load-Wash-Elute procedure. See [www.biotage.com](http://www.biotage.com) for more information.

### EVOLUTE® AX



Chemical structure of EVOLUTE® AX

#### Chemical Description:

Quaternary amine modified polystyrene-divinylbenzene incorporating non-ionizable hydroxyl groups.

Average particle size	30 $\mu\text{m}$ , 50 $\mu\text{m}$
Pore diameter	40 $\text{\AA}$
Sorbent Type	Mixed-mode non-polar/strong anion exchange
Exchange capacity	0.7 mmol/g

**Application:** EVOLUTE® AX can be used to extract acidic analytes from biological fluids and other aqueous matrices. Performance is not adversely affected by drying the sorbent.

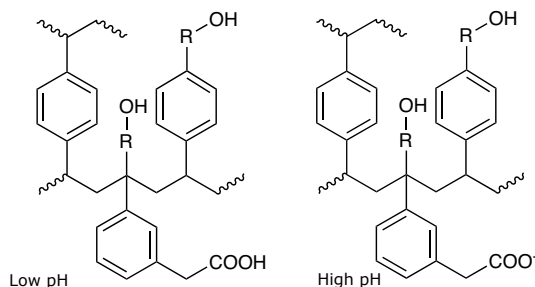
#### EVOLUTE EXPRESS AX Tableless SPE Columns

Part Number	Description	Qty.
603-0001-AXG	EVOLUTE EXPRESS AX 10 mg/1 mL	100
603-0003-AXG	EVOLUTE EXPRESS AX 30 mg/1 mL	100
613-0006-BXG	EVOLUTE EXPRESS AX 60 mg/3 mL	50
613-0015-CXG	EVOLUTE EXPRESS AX 150 mg/6 mL	30
613-0050-CXG	EVOLUTE EXPRESS AX 500 mg/6 mL	30

#### EVOLUTE EXPRESS AX 96-well SPE Plates

Part Number	Description	Qty.
603-0010-PX01	EVOLUTE EXPRESS AX 10 mg Plate	1
603-0030-PX01	EVOLUTE EXPRESS AX 30 mg Plate	1

### EVOLUTE® WCX



Chemical structure of EVOLUTE® WCX

#### Chemical Description:

Carboxylic acid modified polystyrene-divinylbenzene incorporating non-ionizable hydroxyl groups.

Average particle size	30 $\mu\text{m}$ , 50 $\mu\text{m}$
Pore diameter	40 $\text{\AA}$
Sorbent Type	Mixed-mode non-polar/weak cation exchange ( $\text{pK}_a \sim 5$ )
Exchange capacity	0.4 mmol/g

**Application:** EVOLUTE® WCX can be used to extract strongly basic analytes (e.g. quaternary amines) from biological fluids and other aqueous matrices. Performance is not adversely affected by drying the sorbent.

#### EVOLUTE EXPRESS WCX Tableless SPE Columns

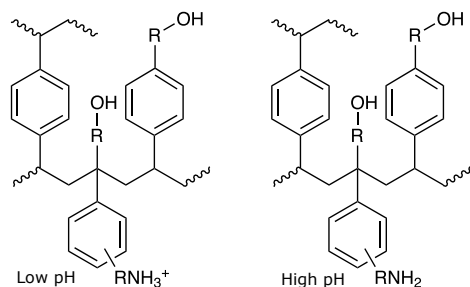
Part Number	Description	Qty.
602-0001-AXG	EVOLUTE EXPRESS WCX 10 mg/1 mL	100
602-0003-AXG	EVOLUTE EXPRESS WCX 30 mg/1 mL	100
612-0006-BXG	EVOLUTE EXPRESS WCX 60 mg/3 mL	50
612-0015-CXG	EVOLUTE EXPRESS WCX 150 mg/6 mL	30
612-0050-CXG	EVOLUTE EXPRESS WCX 500 mg/6 mL	30

#### EVOLUTE EXPRESS WCX 96-well SPE Plates

Part Number	Description	Qty.
602-0010-PX01	EVOLUTE EXPRESS WCX 10 mg Plate	1
602-0030-PX01	EVOLUTE EXPRESS WCX 30 mg Plate	1

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### EVOLUTE® WAX



Chemical structure of EVOLUTE® WAX

#### Chemical Description:

Primary-secondary amine modified polystyrene-divinylbenzene incorporating non-ionizable hydroxyl groups.

Average particle size	30 $\mu\text{m}$ , 50 $\mu\text{m}$
Pore diameter	40 $\text{\AA}$
Sorbent Type	Mixed-mode non-polar/weak anion exchange ( $\text{pK}_a \sim 5$ )
Exchange capacity	0.3 mmol/g, 0.7 mmol/g

**Application:** EVOLUTE® WAX can be used to extract strongly acidic analytes (e.g. sulfonic acids) from biological fluids and other aqueous matrices. Performance is not adversely affected by drying the sorbent.

#### EVOLUTE EXPRESS WAX Tableless SPE Columns

Part Number	Description	Qty.
604-0001-AXG	EVOLUTE EXPRESS WAX 10 mg/1 mL	100
604-0003-AXG	EVOLUTE EXPRESS WAX 30 mg/1 mL	100
614-0006-BXG	EVOLUTE EXPRESS WAX 60 mg/3 mL	50
614-0015-CXG	EVOLUTE EXPRESS WAX 150 mg/6 mL	30
614-0050-CXG	EVOLUTE EXPRESS WAX 500 mg/6 mL	30

#### EVOLUTE EXPRESS WAX 96-well SPE Plates

Part Number	Description	Qty.
604-0010-PX01	EVOLUTE EXPRESS WAX 10 mg Plate	1
604-0030-PX01	EVOLUTE EXPRESS WAX 30 mg Plate	1

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