

# HALO<sup>®</sup> ELEVATE C18

## TAKING SEPARATIONS TO A HIGHER LEVEL

Built upon proven Fused-Core<sup>®</sup> particle technology for speed and efficiency, the HALO<sup>®</sup> Elevate C18 incorporates surface modified organo-silane technology for alkaline resistance resulting in excellent stability in high pH environments.

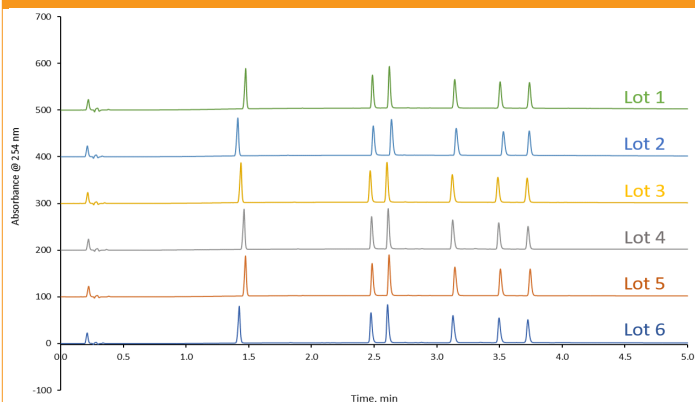
With a wide operational use range of pH 2-12, HALO<sup>®</sup> Elevate allows for robust method development and improved separations for basic compounds that may present problems at lower pH for poor peak shapes, inadequate retention or limited load tolerance. Ideal for use with high pH mobile phases.

### FEATURES OF HALO<sup>®</sup> ELEVATE C18

- Excellent stability for high pH, high temperature environments
- Flexible to work the full range of operating conditions for separation selectivity of acids, bases, neutrals and zwitterions
- Proven HALO<sup>®</sup> Fused-Core<sup>®</sup> technology for separation speed and chromatographic efficiency
- C18, USP L1 2.7  $\mu\text{m}$  120 Å particle

### EXCELLENT LOT-TO-LOT REPRODUCIBILITY

Lot-to-lot reproducibility is crucial when developing methods. Six different lots of HALO<sup>®</sup> Elevate C18 were tested using a mix containing a neutral compound and 5 basic compounds. The average %RSDs across all of the compounds was < 0.6%.



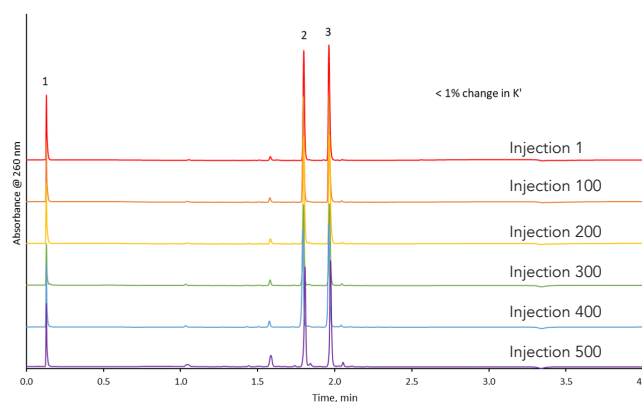
#### TEST CONDITIONS

Column: HALO 120 Å ELV C18, 2.7  $\mu\text{m}$ , 2.1 x 50 mm  
Part Number: 92272-402  
Mobile Phase A: 0.1%  $\text{NH}_4\text{OH}$ , pH:10.7  
Mobile Phase B: Acetonitrile  
Gradient: 5- 95 %B in 4 min.  
Flow Rate: 0.4 mL/min  
Temperature: 40 °C  
Detection: UV/PDA, 254 nm  
Injection Volume: 0.5  $\mu\text{L}$   
LC System: Shimadzu Nexera X2

PEAK IDENTITIES: 1. Butyl Paraben(neutral) 2. Doxylamine(base) 3. Chlorpheniramine(base)  
4. Dextropropriofenol(base) 5. Amitriptyline(base) 6. Trimipramine(base)

### PERFORMANCE YOU CAN RELY ON!

A common tricyclic antidepressant (amitriptyline) separation is achieved using a HALO<sup>®</sup> Elevate C18 column. Less than a 1% change in retention is achieved over 20,000 column volumes.



#### TEST CONDITIONS

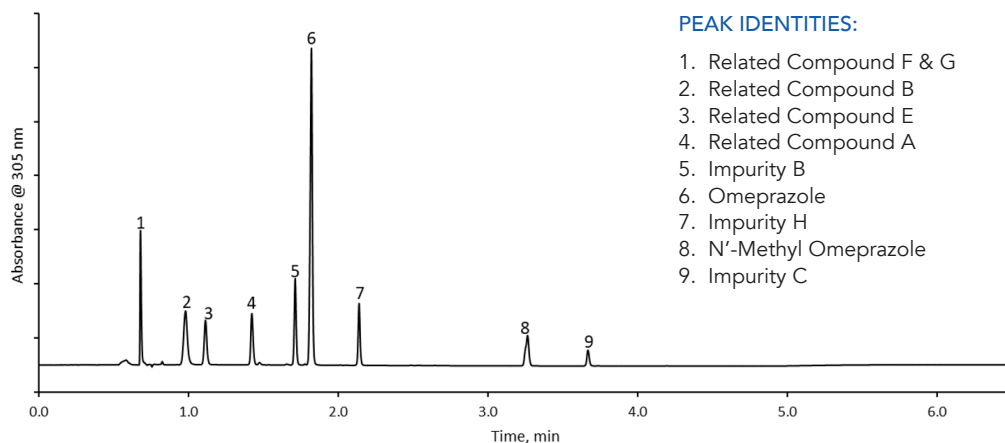
Column: HALO 120 Å ELV C18, 2.7  $\mu\text{m}$ , 2.1 x 50 mm  
Part Number: 92272-402  
Mobile Phase A: 95/5 10mM Ammonium Bicarbonate, pH:10/ Acetonitrile  
Mobile Phase B: Acetonitrile  
Flow Rate: 0.8 mL/min  
Back Pressure: 220 bar  
Temperature: 60 °C  
Gradient: Time %B  
0.0 0  
2.5 95  
3.0 95  
3.1 0  
5.0 0  
Detection: UV/PDA, 260 nm  
Injection Volume: 1.0  $\mu\text{L}$   
LC System: Shimadzu Nexera X2

PEAK IDENTITIES: 1. Uracil 2. Acenaphthene 3. Amitriptyline

# APPLICATIONS

## THE SPEED OF FUSED-CORE®

In this separation of Omeprazole (pKa 9.3), related compounds and impurities, the HALO® Elevate C18 is able to reduce the run time by >84% of the original USP method saving significant time and solvent while maintaining baseline resolution of all nine compounds.



### TEST CONDITIONS

Column: HALO 120 Å Elevate C18, 2.7 µm, 2.1 x 150 mm  
Part Number: 92272-702  
Mobile Phase A: Water + 0.1% Ammonium Hydroxide (pH -10.6)  
Mobile Phase B: Acetonitrile

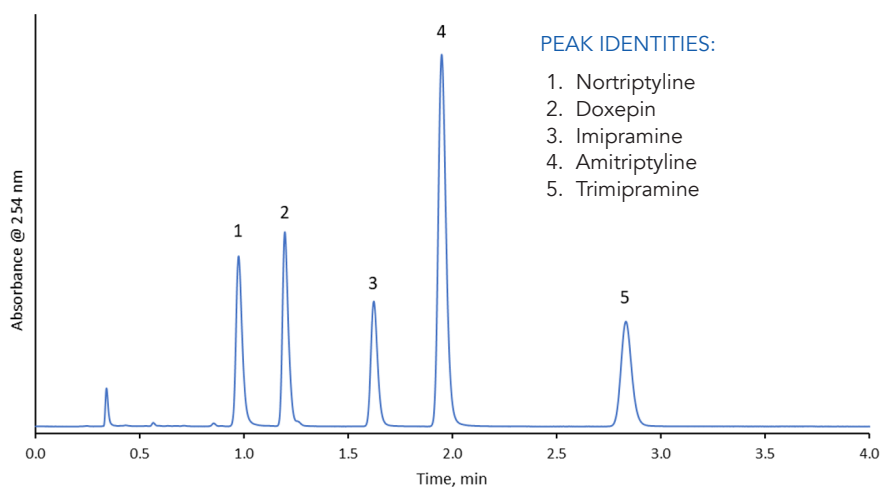
Gradient:	Time	%B
	0.0	13
	3.3	53
	3.8	53
	3.9	13
	9.0	13

Flow Rate: 0.4 mL/min  
Back Pressure: 311 bar

Temperature: 60 °C  
Injection: 1 µL  
Sample Solvent: USP Diluent  
Wavelength: PDA, 305 nm  
Flow Cell: 1 µL  
Data Rate: 40 Hz  
Response Time: 0.05 sec  
LC System: Shimadzu Nexera X2

## A SEPARATION OF ANTIDEPRESSANTS IN UNDER 3 MINUTES

Tricyclic antidepressants (TCAs) are a class of drugs primarily used to manage depression. A separation of antidepressants is achieved under high pH conditions using a HALO® Elevate C18 column. Excellent peak shape and selectivity is achieved in under 3 minutes.



### TEST CONDITIONS:

Column: HALO 120 Å ELV C18, 2.7 µm, 2.1 x 100 mm  
Part Number: 92272-602  
Mobile Phase A: 10mM Ammonium Bicarbonate, pH:10  
Mobile Phase B: Acetonitrile  
Isocratic: 60 %B  
Flow Rate: 0.5 mL/min.  
Back Pressure: 260 bar  
Temperature: 35 °C  
Detection: UV/PDA, 254 nm  
Injection Volume: 0.2 µL  
LC System: Shimadzu Nexera X2

# PRODUCT CHARACTERISTICS

Ligand: diisobutyloctadecylsilane  
Particle Size: 2.7  $\mu\text{m}$   
Pore Size: 120  $\text{\AA}$

USP Designation: L1  
Carbon Load: 5.6%  
Surface Area: 75  $\text{m}^2/\text{g}$   
Endcapped: YES

Low pH Limit: 2  
High pH limit: 12  
Temp limit @ low pH: 60  $^{\circ}\text{C}$   
Temp limit @ high pH: 60  $^{\circ}\text{C}$

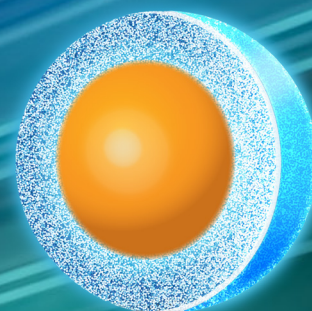
## PART NUMBERS

### 2.7 $\mu\text{m}$ ANALYTICAL COLUMNS

Dimensions: ID x Length (in mm)	Part Number
1.5 x 50	9227X-402
1.5 x 100	9227X-602
1.5 x 150	9227X-702
2.1 x 30	92272-302
2.1 x 50	92272-402
2.1 x 100	92272-602
2.1 x 150	92272-702
2.1 x 250	92272-902
3.0 x 30	92273-302
3.0 x 50	92273-402
3.0 x 100	92273-602
3.0 x 150	92273-702
4.6 x 50	92274-402
4.6 x 100	92274-602
4.6 x 150	92274-702
4.6 x 250	92274-902

### 2.7 $\mu\text{m}$ GUARD COLUMNS

Guard columns, 3-pack	
Dimensions: ID x Length (in mm)	Part Number
2.1 x 5	92272-102
3.0 x 5	92273-102
4.6 x 5	92274-102
Guard Column Holder	94900-001



**INNOVATION YOU CAN TRUST – PERFORMANCE YOU CAN RELY ON**

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