

Performance of the Agela Venusil® 5 µm XBP C18(L) Column

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Overview

The analysis of an ABN3 sample was used to assess the performance of the Agela Venusil 5 µm XBP C18(L) column compared to the Avantor® ACE® 5 µm C18 column and Avantor ACE Excel® 5 µm C18 column. ABN3 was analyzed because it allows for probing of the surface of the matrix for overall retention and peak shape. This is because the basic analyte is sensitive to the active silanol groups on the matrix surface. Due to the higher column efficiency of the Venusil 5 µm XBP C18(L) column, there was greater resolution and separation of the analytes. There was also greater intensity compared to the ACE and ACE Excel 5 µm C18 columns. In this application note, we show that the Venusil 5 µm XBP C18(L) column outperforms the ACE 5 µm C18 column as well as the ACE Excel 5 µm C18 column under these conditions.

LC Conditions

Column: Venusil 5 µm XBP C18(L) (VX950505-L)
ACE 5 µm C18
ACE Excel 5 µm C18

Dimensions: 50 x 4.6 mm

Mobile Phase: A: 0.5 % Formic acid in water
B: Acetonitrile

Gradient:	Time (min)	%B
	0.25	10
	0.5	20
	3.5	40
	4	90
	3.5	90
	4	10
	6	10

Flow Rate: 1 mL/min

Injection Volume: 10 µL

Temperature: 20 °C

LC System: Agilent® 1260 Infinity

Detection: MS/MS

Detector: SCIEX® API 4000 QTRAP®

MS Conditions

Ion Source: Positive or Negative

Source Temperature: 600 °C

GS1: 30

GS2: 30

CUR: 10

IS: +4500, or -4500

Table 1. MRM Transitions

Peak No.	Analyte	Q1 (m/z)	Q3 (m/z)
1	3-Methyl, 4-Nitrobenzoic acid	181.15	137.5
2	Nortriptyline	266	92.5
3	2-Hydroxy, 5-Methylbenzaldehyde	135.7	108.3

Table 2. Column Specifications

Specifications	Venusil 5 µm XBP C18(L)	ACE 5 µm C18	ACE Excel 5 µm C18
Pore Size (Å)	150	100	100
Carbon Load (%)	15	15.5	15.5
Surface Area (m²/g)	200	300	300
Endcapping	Yes	Yes	Yes
pH Range	1.5 – 9.0	2.0 – 8.0	2.0 – 8.0



Figure 1. Separation of ABN3 on the Venusil® 5 µm C18(L) Column

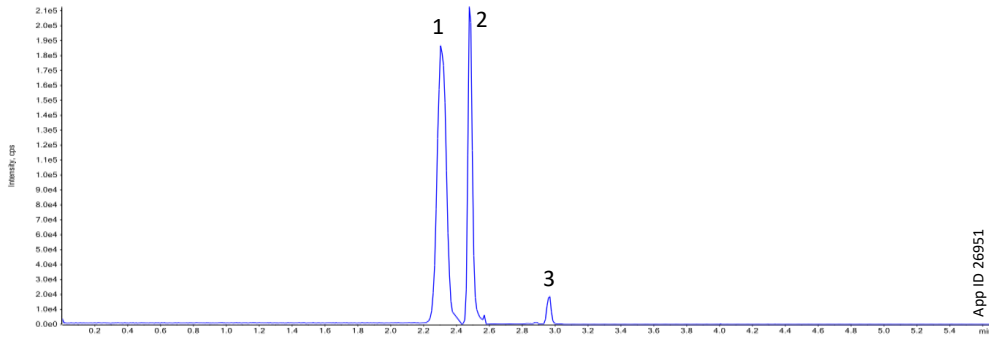


Figure 2. Separation of ABN3 on the ACE® 5 µm C18 Column

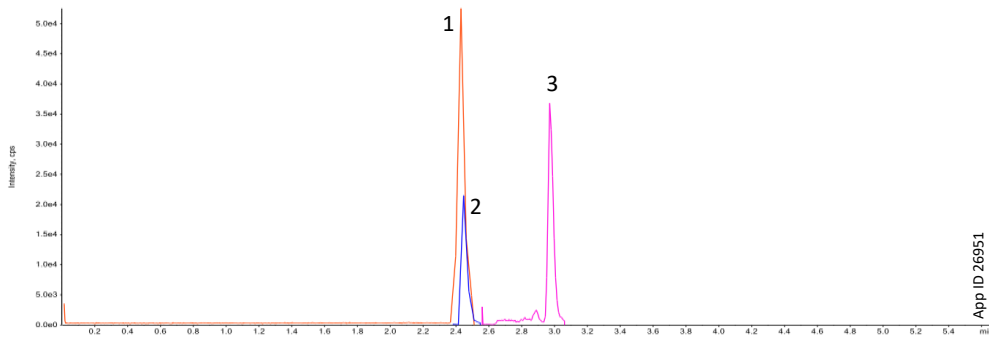
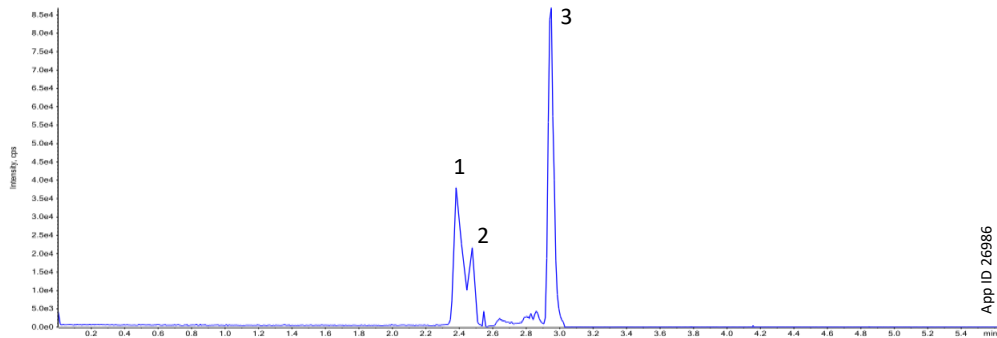


Figure 3. Separation of ABN3 on the ACE® Excel® 5 µm C18 Column



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