LC-MS Analysis of Antibiotics on 2µm HALO® PCS C18

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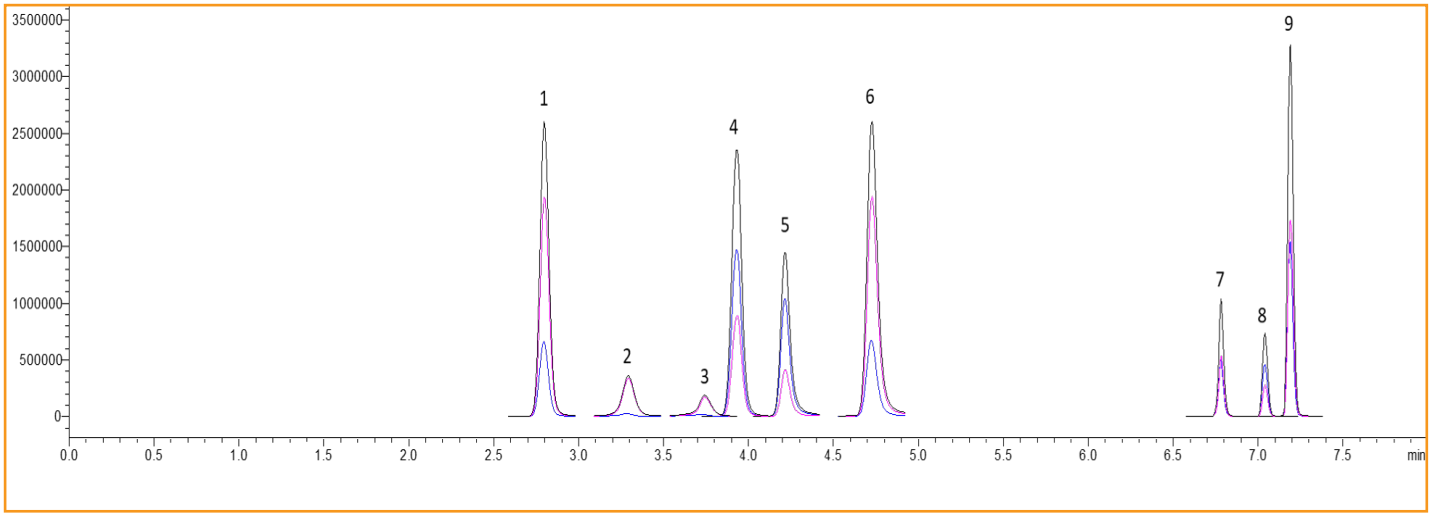

TEST CONDITIONS:

Column: HALO 90 Å PCS C18, 2 µm, 2.1 x 50 mm
Part Number: 91882-417
Mobile Phase A: Water/0.1% formic acid
Mobile Phase B: Methanol/0.1% formic acid
Gradient:

Time	%B
0.00	6
5.50	19
6.00	64
8.00	95
8.01	6
12.00	6

Flow Rate: 0.4 mL/min.
Pressure: 300 bar
Temperature: 27 °C
Injection Volume: 0.5 µL
Sample: 0.2 - 17 µg/mL
Sample Solvent: 98/2 water/methanol
LC System: Shimadzu Nexera X2

PEAK IDENTITIES:

	Compound	Time
1.	Sulfamerazine	2.799
2.	Tetracycline	3.293
3.	Oxytetracycline	3.743
4.	Sulfamethazine	3.932
5.	Ciprofloxacin	4.216
6.	Enrofloxacin	4.727
7.	Erythromycin	6.782
8.	Penicillin G	7.041
9.	Oxacillin	7.191

MS CONDITIONS:

System: Shimadzu 8060
Detection Mode: DUIS ESI + 1 kV
Nebulizer Gas Flow: 3 L/min Interface
Temperature: 150 °C
DL Temperature: 300 °C
Heat Block Temperature: 200 °C
Drying Gas Flow: 5 L/min.

Peak #	Compound	Retention Time (min)	Precursor m/z	Product m/z	Collision Energy
1	Sulfamerazine	2.80	265.18	92.10	20
				156.22	30
2	Tetracycline	3.29	445.20	410.26	35
				427.80	30
3	Oxytetracycline	3.74	461.10	426.43	35
				443.67	30
4	Sulfamethazine	3.93	279.00	92.21	30
				124.31	25
5	Ciprofloxacin	4.22	332.00	288.21	25
				314.32	25
6	Enrofloxacin	4.73	360.10	316.38	25
				342.39	25
7	Erythromycin	6.78	734.68	158.18	20
				576.49	15
8	Penicillin G	7.04	335.17	160.16	30
				176.03	25
9	Oxacillin	7.19	402.40	160.25	15
				243.24	15

Antibiotics are used for the treatment of bacterial infections in both human and veterinary medicine. A mixture of 9 antibiotics from 5 different classes is separated using a 2 µm HALO 90 Å PCS C18 column. The PCS C18 phase was selected since it gives improved peak shape for basic compounds over traditional phases when run using low ionic strength mobile phase conditions, such as formic acid. One explanation for the improved peak shape at higher loading is that on the PCS phase, the limited density of the fixed surface positive charge, and its anionic partner, reduces the surface overload effect on the analytes. DryLab® was used to optimize the separation using methanol, which showed selectivity advantages over acetonitrile for the early eluting compounds.