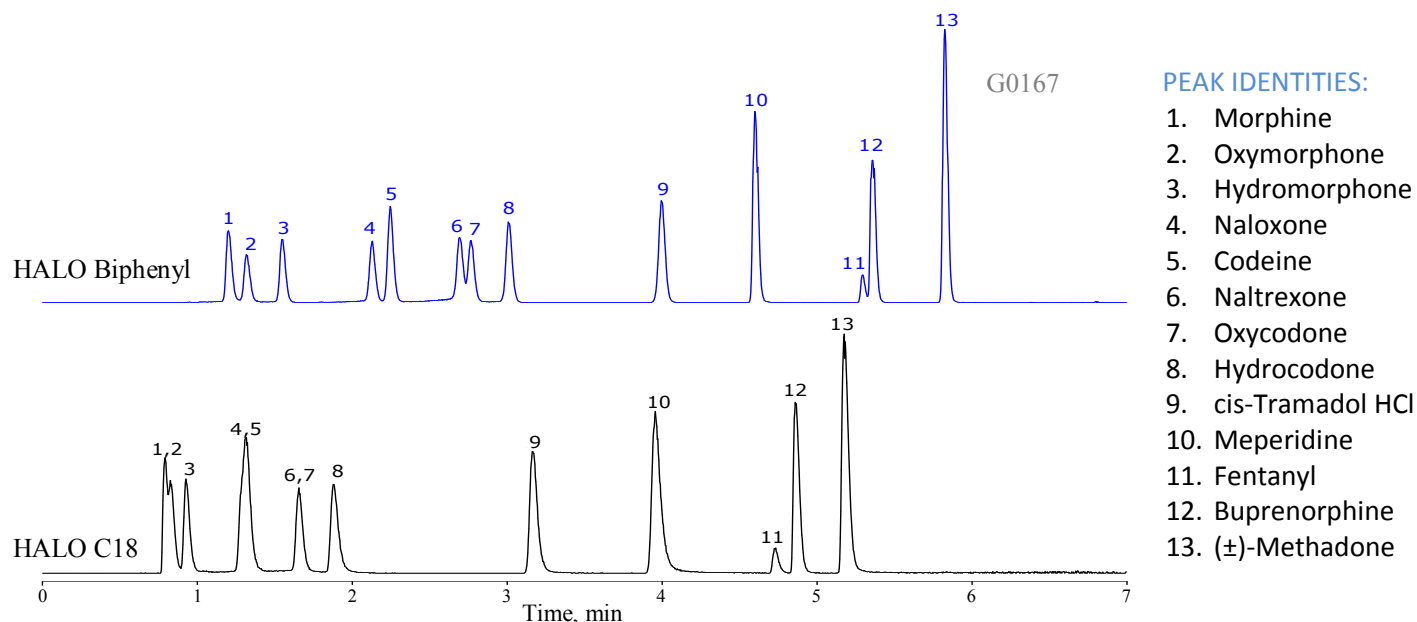


Application Note: 173-OP

## Pain Management Panel Comparison on HALO Biphenyl and C18



### TEST CONDITIONS:

Columns: HALO 90Å Biphenyl, 2.7 µm, 2.1 x 100mm

Part Number: 92812-611

HALO 90Å C18, 2.7 µm, 2.1 x 100mm

Part Number: 92812-602

Mobile Phase A: water/0.1% formic acid

Mobile Phase B: ACN/0.1% formic acid

Gradient: 0–3 min. 10–20% B

3–3.5 min. 20–100% B

3.5–6 min. hold at 100% B

Flow Rate: 0.3 mL/min

Temperature: 30°C

Instrument: Agilent 1290

Dwell Volume: 0.19 mL

Injection Volume: 2 µL

Sample Solvent: water: methanol, 99:1

MS System: Agilent 6210 TOF

ESI: +4 kV

Gas Temperature: 360 °C

Gas Flow: 12 L/min

Nebulizer: 50 psi

Scan Rate: 5 spectra/s

Fragmentor: 175 V

Skimmer: 65 V

Octopole RF: 250 V

The HALO Biphenyl phase provides greater retention and improved resolution for the polar analytes in this mixture of pain management drugs. Compound pairs 1/2 and 4/5 are baseline separated using the HALO Biphenyl column, but co-elute on the HALO C18 column. Analytes 6 and 7 are partially resolved on the HALO Biphenyl column, but they co-elute using the HALO C18 column. These bonded-phase selectivity differences are very useful for method development, and provide a basis for LC-MS analyses of large pain medicine panels.