

APPLICATION NOTE

STYROS® 2R Simulated-Monolith™ Polymeric Reversed Phase Narrow Bore: Comparison with the narrow bore column of the leading manufacturer.

The use of narrow bore columns is now the norm in most laboratories.

It is highly recommended that columns are assessed at the point of acquisition and monitored periodically for any eventual changes.

We have used the Agilent 1290 Infinity to run gradient separation with narrow bore columns of 2.1 mm ID.

The followings are chromatograms of STYROS® NB Simulate-Monolith™ polymeric compared with another column of 3µm particle size and 100 Å pore size, with the same dimensions.

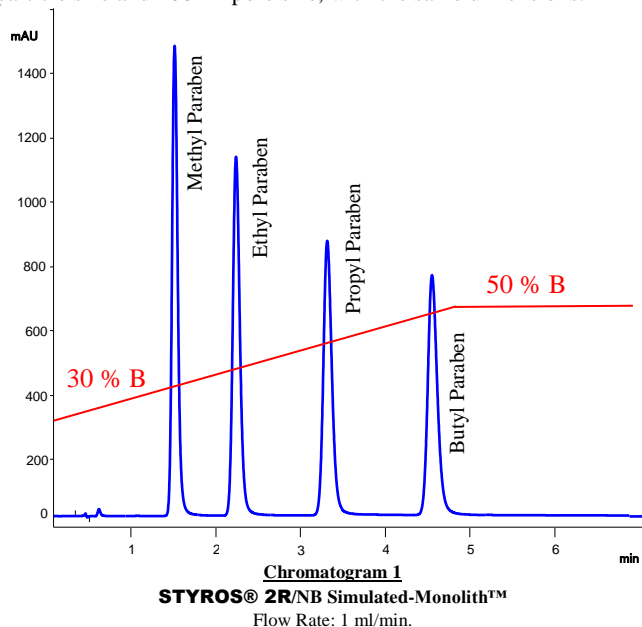


Table 1. Operating parameters.

HPLC System.	Agilent 1290 Infinity with thermostatted column compartment.
Columns	STYROS® 2R/NB 2.1X 150 mm
Mobile phase.	A: 0.075% TFA in H ₂ O B: 0.075% TFA in ACN: H ₂ O 95:5
Flow rate	1 ml/min, 1,700 cm/hr.
Gradient	30 to 50 % B in 5 minutes
Temperature	30°C
Detection	254 nm
Injection volume	3 µl
Pressure Drop	~ 390bar
Sample:	4 parabens (1 mg/ml each in ACN: H ₂ O) monitored at 254 nm.

The back pressure of 390 bar of STYROS® 2R/NB is to be compared with the 880 bar of the 3µm, 100 Å particle size column.

As Simulated-Monolith™ the separations can be run at high linear velocities to allow faster separation as well as regeneration. The column can take up to 5,000 psi of pressure.

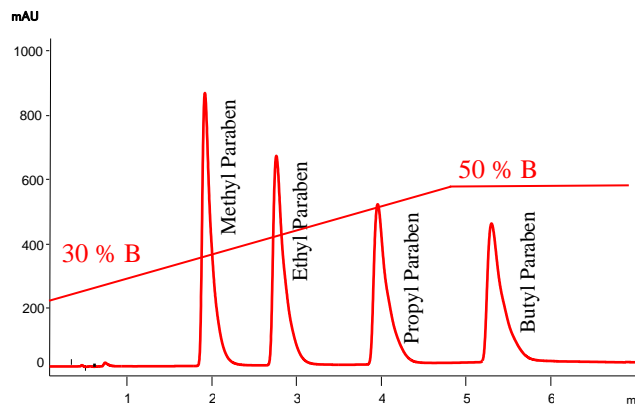


Table 2. Operating parameters.

HPLC System.	Agilent 1290 Infinity with thermostatted column compartment.
Columns	2.1X 150 mm column with 3 µm, 100 Å particle size
Mobile phase.	A: 0.075% TFA in H ₂ O B: 0.075% TFA in ACN: H ₂ O 95:5
Flow rate	1 ml/min, 1,700 cm/hr.
Gradient	30 to 50 % B in 5 minutes
Temperature	30°C
Detection	254 nm
Injection volume	3 µl
Pressure Drop	~ 880 bar
Sample:	4 parabens (1 mg/ml each in ACN: H ₂ O) monitored at 254 nm

Comparison of the performances of the two columns:
Note that as Simulated-Monolith™ the pore size is no longer a factor in separation.

