

APPLICATION NOTE

Simulated-Monolith™ Polymerics, Compared with Non-Porous Polymerics. Gradient Run in MeOH.

The certified sample 48270-U is run in MeOH at room temperature with silica columns.

Polymeric however display a drastically different back pressure and retentivity having greater capacities.

We have for this application note used our Simulated-Monolith™ polymeric to evaluate their performances in MeOH.

Parabens' retentivity being substantially higher with polymerics, we resorted to gradient separation rather than isocratic.

The resulting peaks are sharper with tailing that is indicative of the slow diffusion of analytes from the pores.

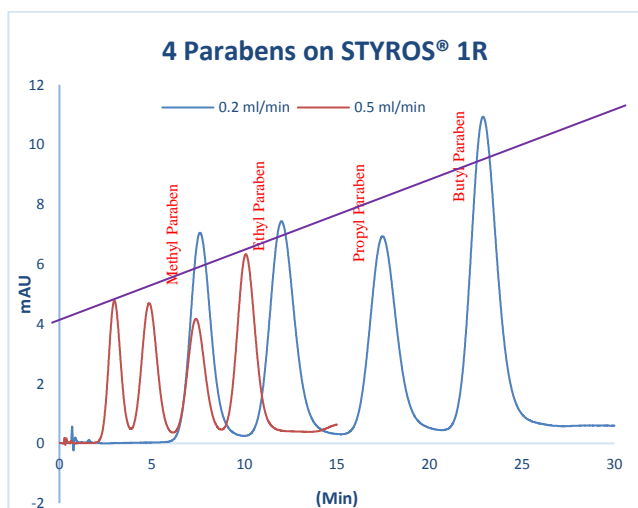


Table 1. Operating parameters.

HPLC System.	Agilent 1260 with thermostatted column compartment and quaternary pump.
Columns	STYROS® 1R 2.1 X 50 mm (0.173 ml volume)
Mobile phase.	A: DI H2O B: MeOH
Flow rates	0.2 ml/min (347 cm/hr of linear velocity on an empty column) 0.5 ml/min (867 cm/hr of linear velocity on an empty column)
Gradient	55to 90 % B in 30 min or 55 to 90 % B in 15 min
Temperature	30°C
Detection	254 nm
Injection volume	6 µl
Pressure Drop	30 bars at 0.2 ml/min, 77 bar at 0.5 ml/min.
Sample:	Certified diagnostic test 48270-U Supelco

The back pressure is 77 bar at 0.5 ml/min. That includes the system. It equates to > 900 cm/hr of linear velocity in a packed column.

The pressure increases drastically in the case of PLRP-S to 320 bar at 0.5 ml/min.

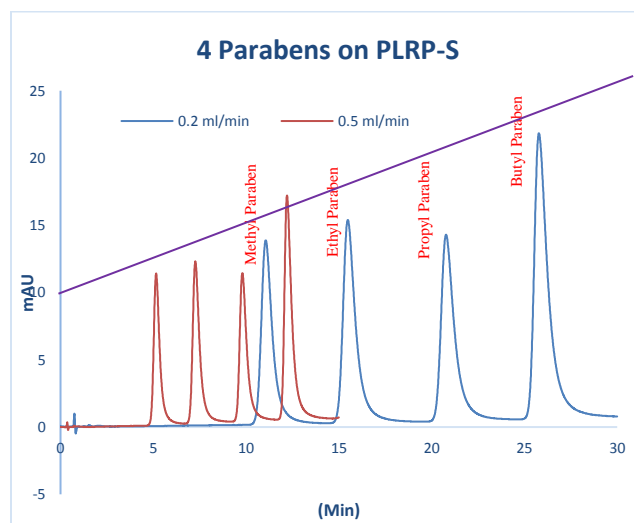


Table 2. Operating parameters.

HPLC System.	Agilent 1260 with thermostatted column compartment and quaternary pump.
Columns	PLRP-S 100A 3µM 2.1 X 50 mm (0.173 ml volume)
Mobile phase.	A: DI H2O B: MeOH
Flow rates	0.2 ml/min (347 cm/hr of linear velocity on an empty column) 0.5 ml/min (867 cm/hr of linear velocity on an empty column)
Gradient	55 to 90 % B in 30 min or 55 to 90 % B in 10 min
Temperature	30°C
Detection	254 nm
Injection volume	6 µl
Pressure Drop	140 bars at 0.2 ml/min, 320 bar at 0.5 ml/min.
Sample:	Certified diagnostic test 48270-U Supelco

Unlike monolith, Simulated-Monolith™ is not prone to the “wall effects” and leaching that monolithic media suffer from.

