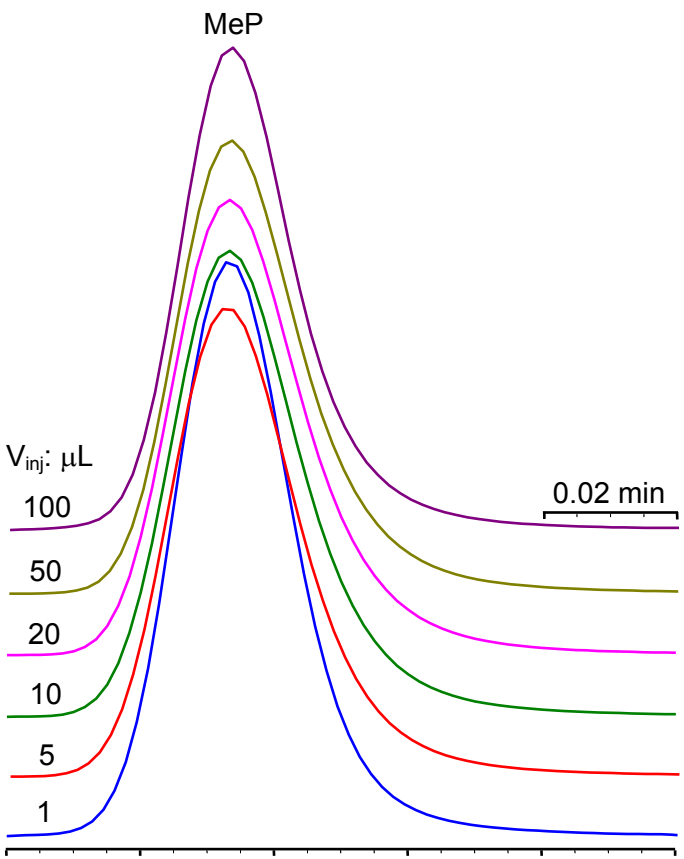
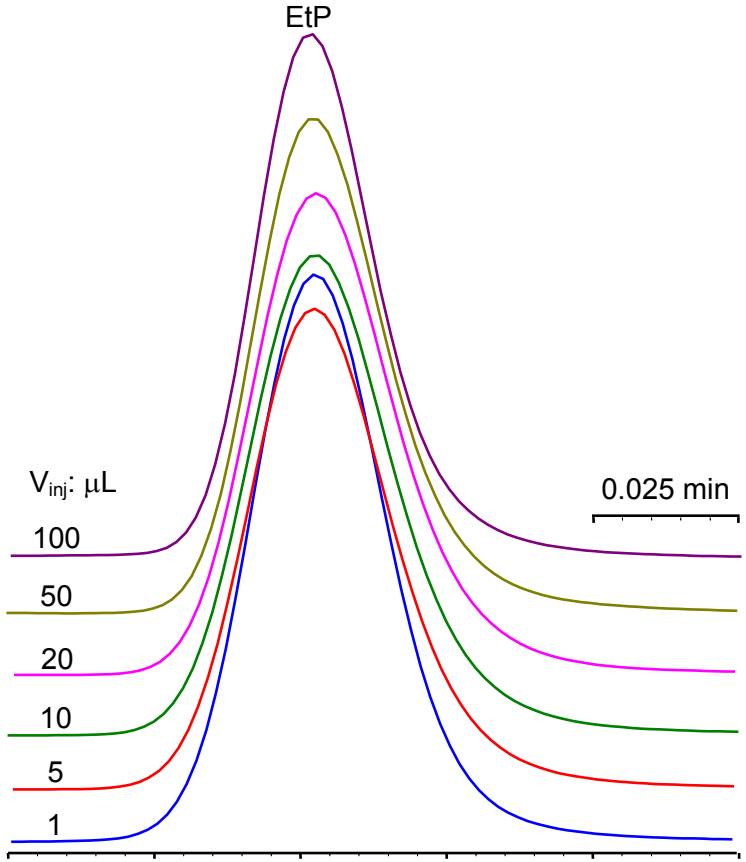
Electronic Supplementary Material (ESI) for Analytical Methods.

Electronic Supplementary Information, Part 1(a)

Peak shapes of target compounds on injection of progressive volumes (1, 5, 10, 20, 50, 100 µL) in heptane.



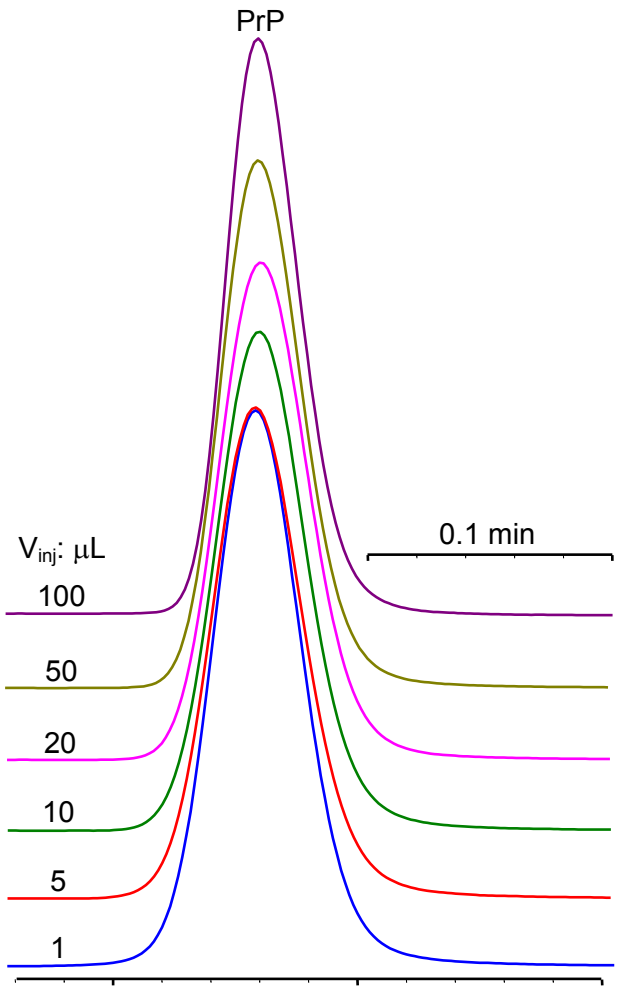
para-hydroxymethylbenzoate



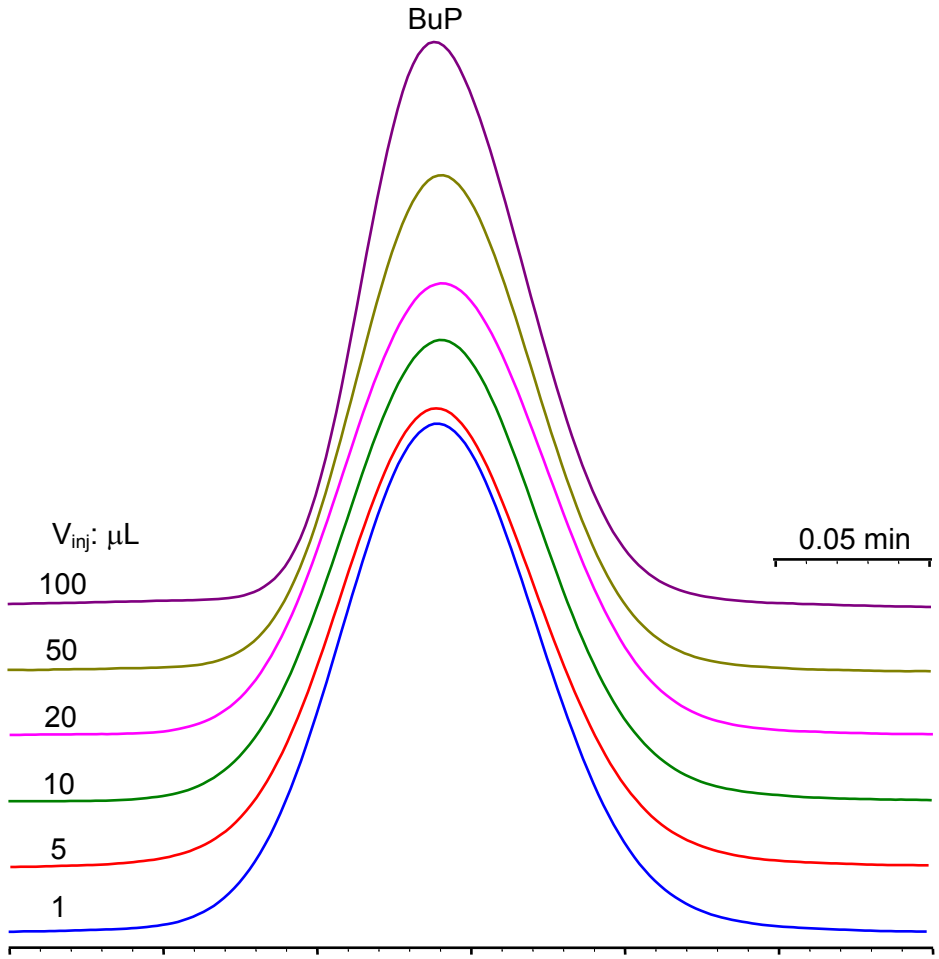
para-hydroxyethylbenzoate

Electronic Supplementary Information, Part 1(b)

Peak shapes of target compounds on injection of progressive volumes (1, 5, 10, 20, 50, 100 µL) in heptane.



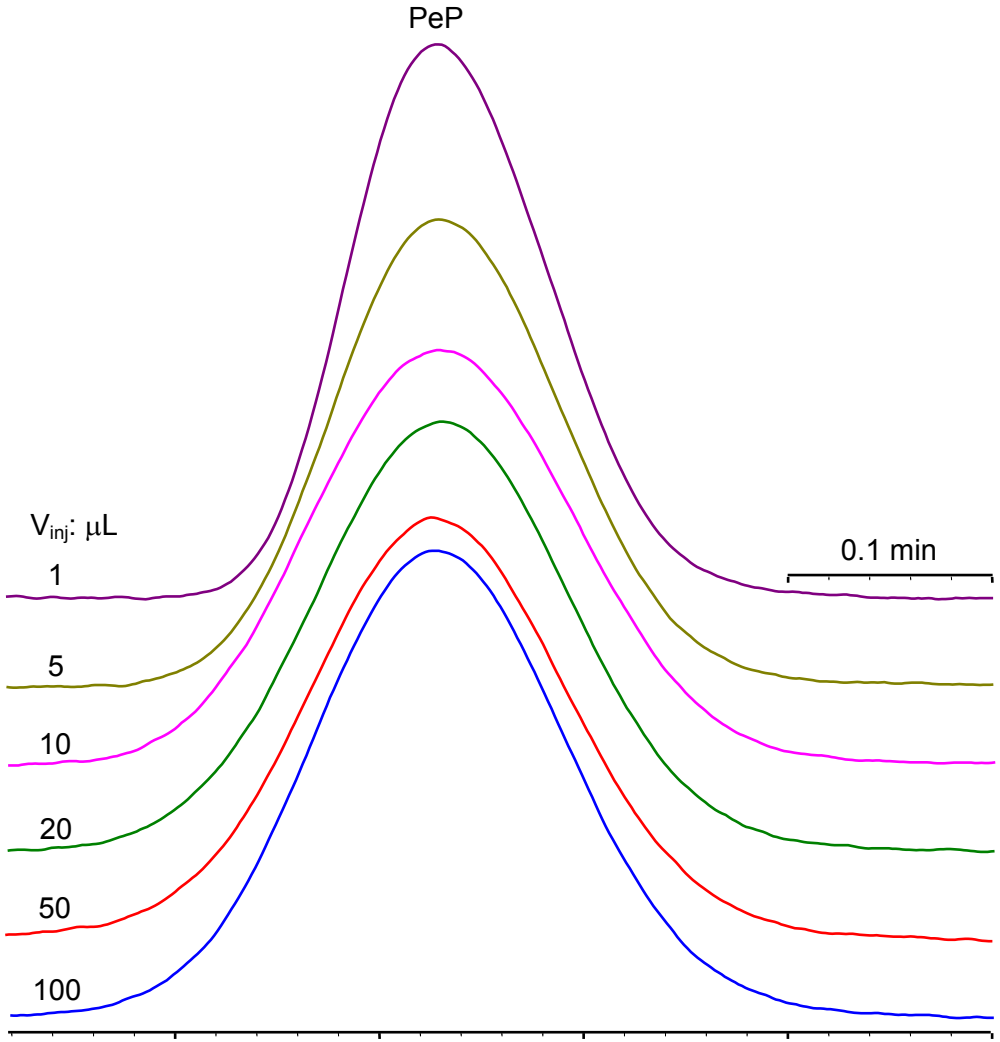
para-hydroxypropylbenzoate



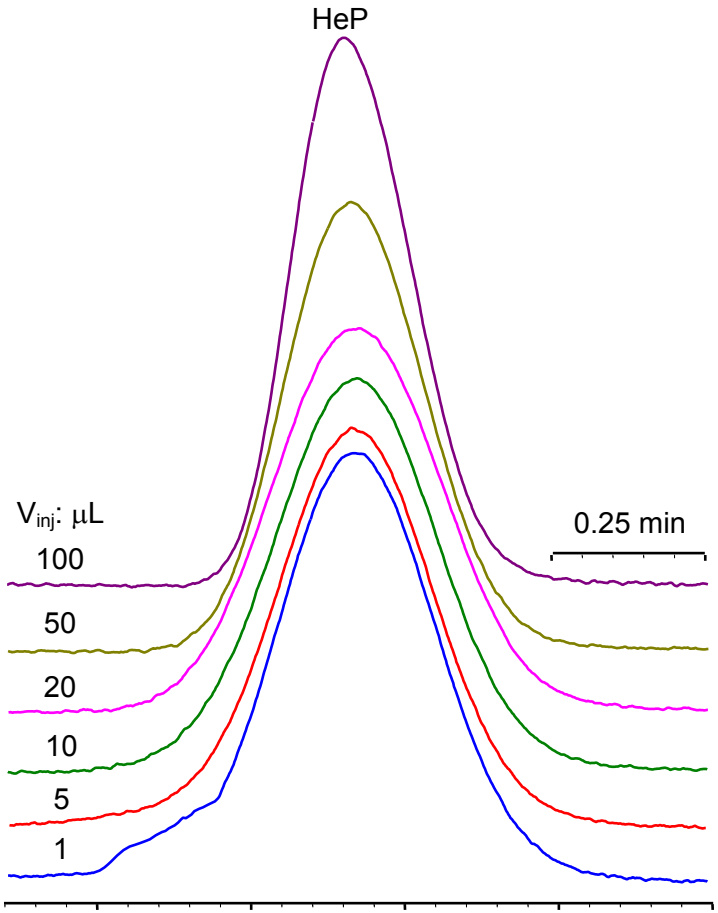
para-hydroxybutylbenzoate

Electronic Supplementary Information, Part 1(c)

Peak shapes of target compounds on injection of progressive volumes (1, 5, 10, 20, 50, 100 µL) in heptane.



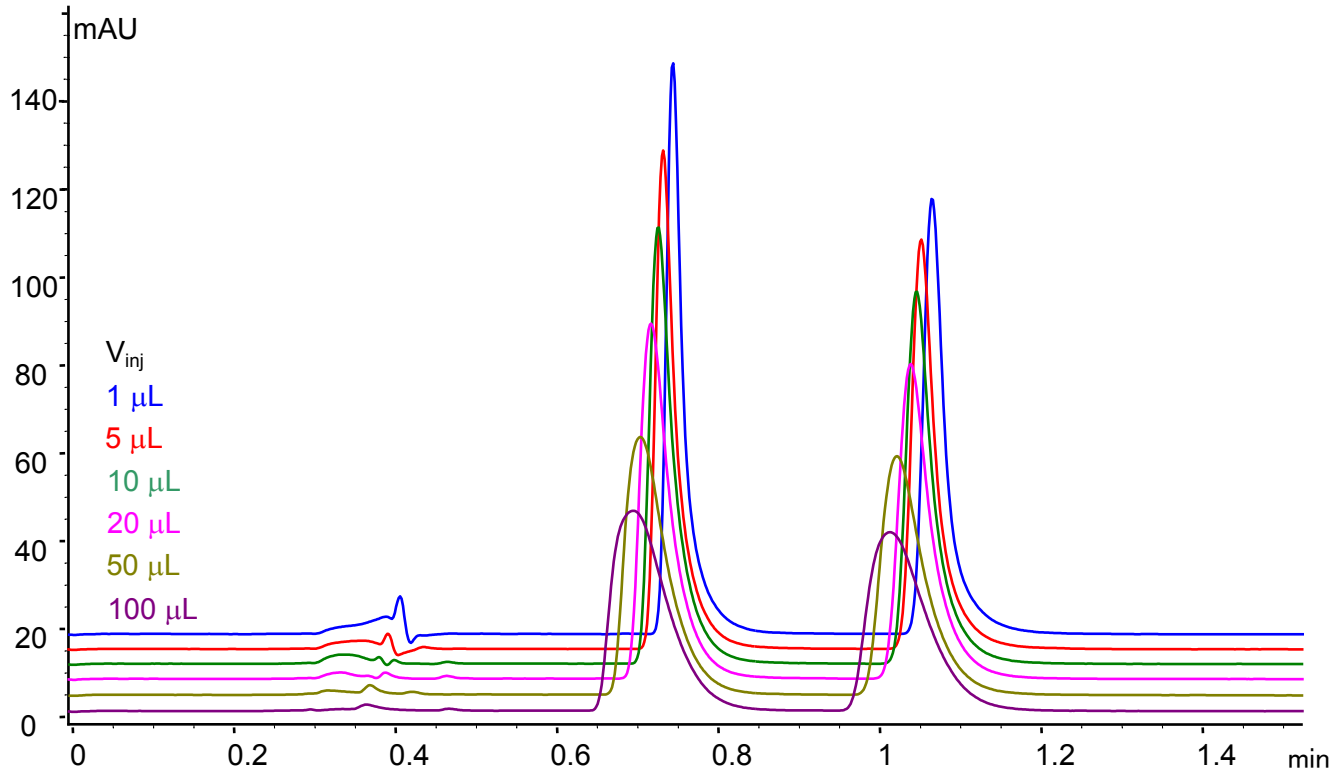
para-hydroxypenthylbenzoate



para-hydroxyhexylbenzoate

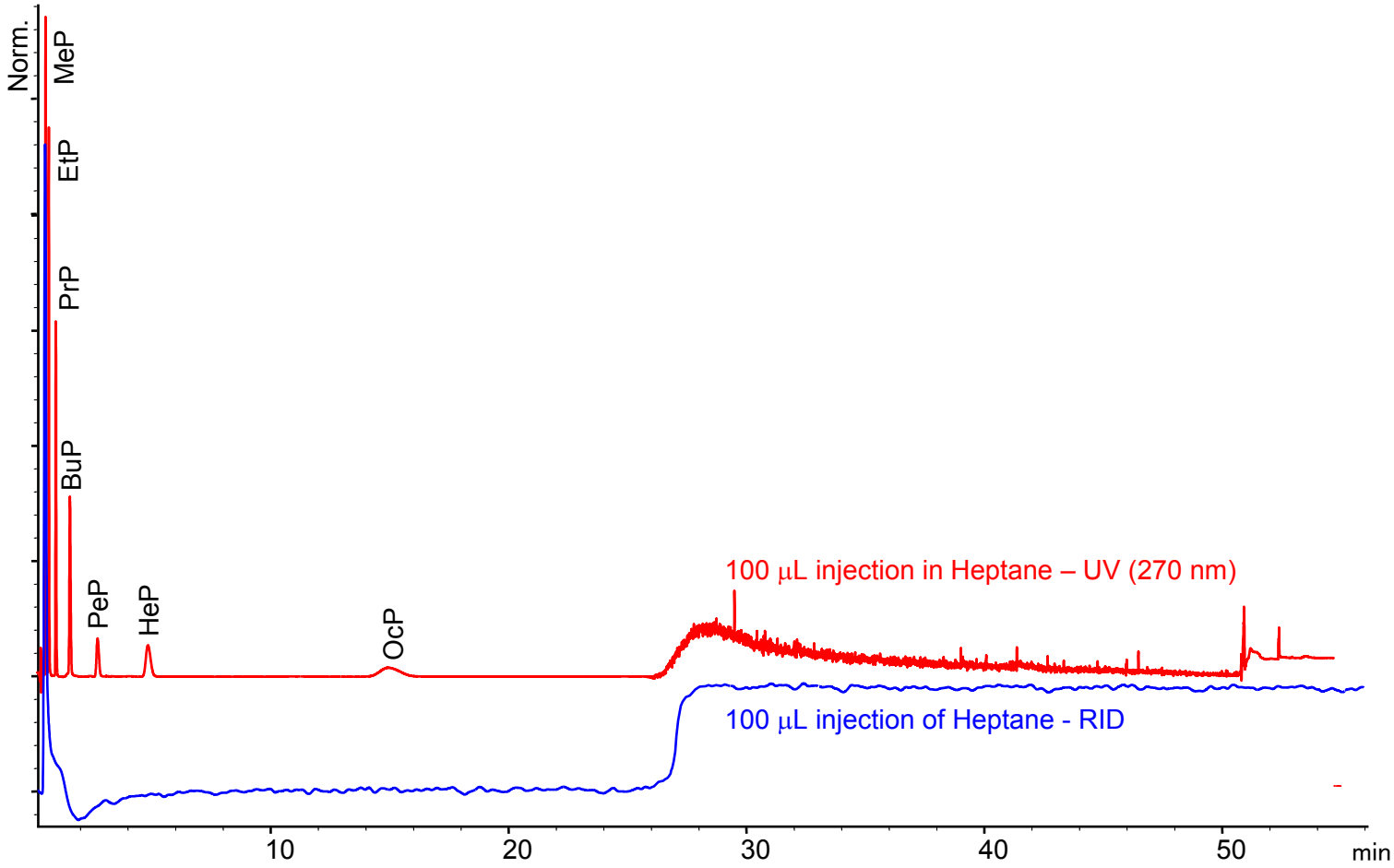
Electronic Supplementary Information, Part 2

First two eluting compounds on injection of increased volumes (1, 5, 10, 20, 50, 100 µL) in the mobile phase.



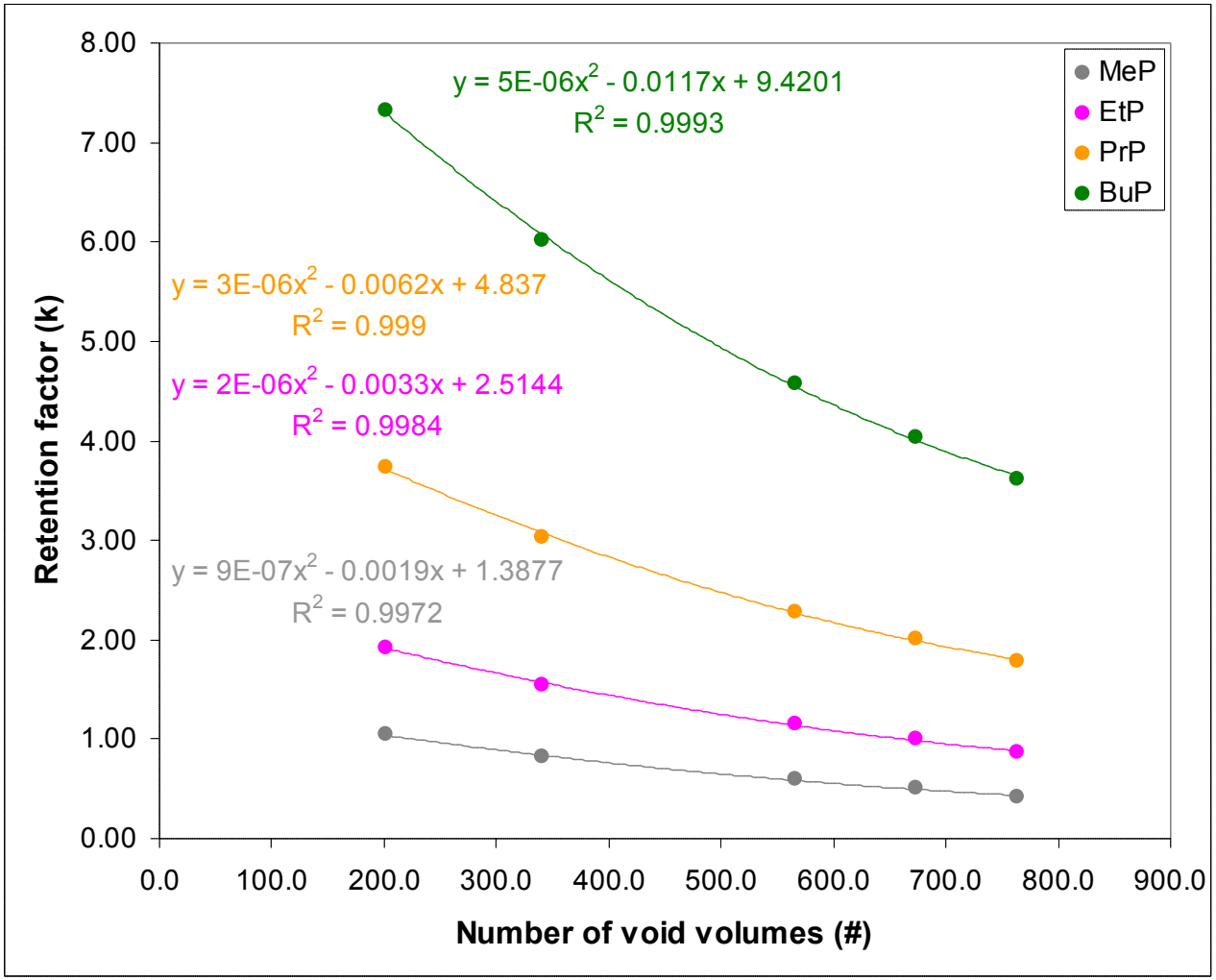
Electronic Supplementary Information, Part 3

Overlaid chromatograms resulting after injection of 100 μL of the mixture of the compounds in heptane (UV detection, 270 nm trace) and 100 μL heptane (Refractive Index Detector trace)..

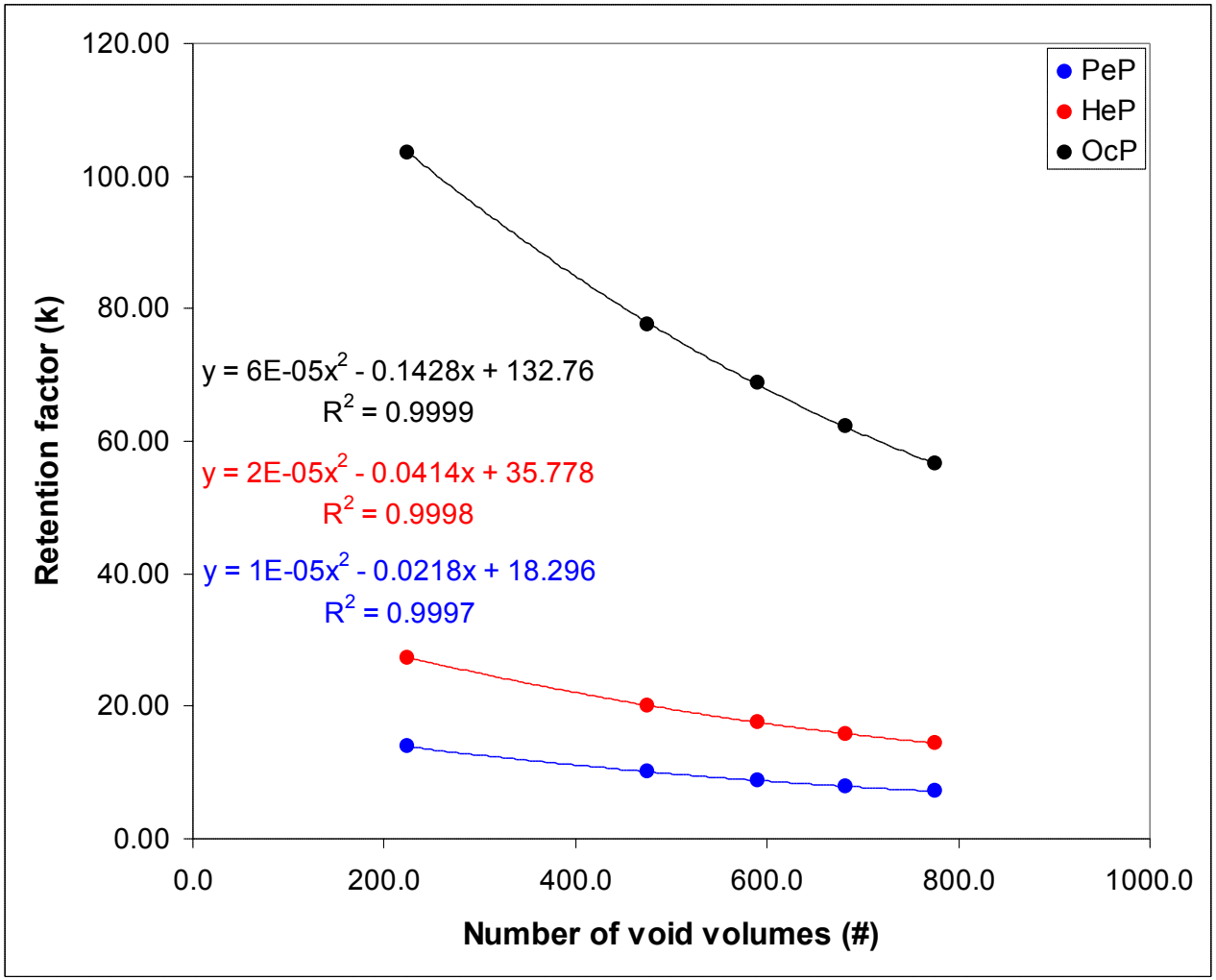


Electronic Supplementary Information, Part 4(a)

Retention behavior of the target analytes when using a mobile phase saturated with the diluent (example refers to the saturation with heptane of the mobile phase).

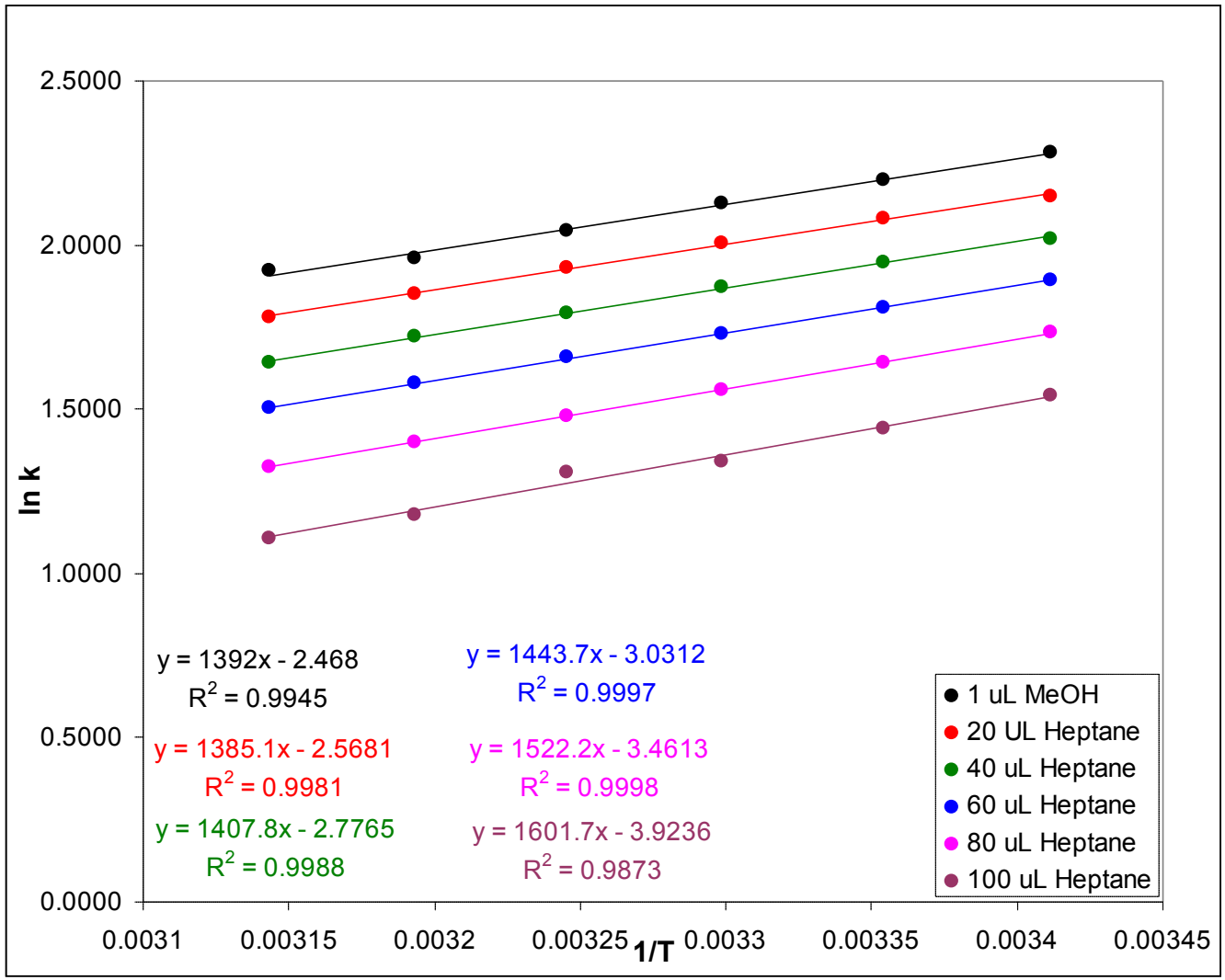


Electronic Supplementary Information, Part 4(b)



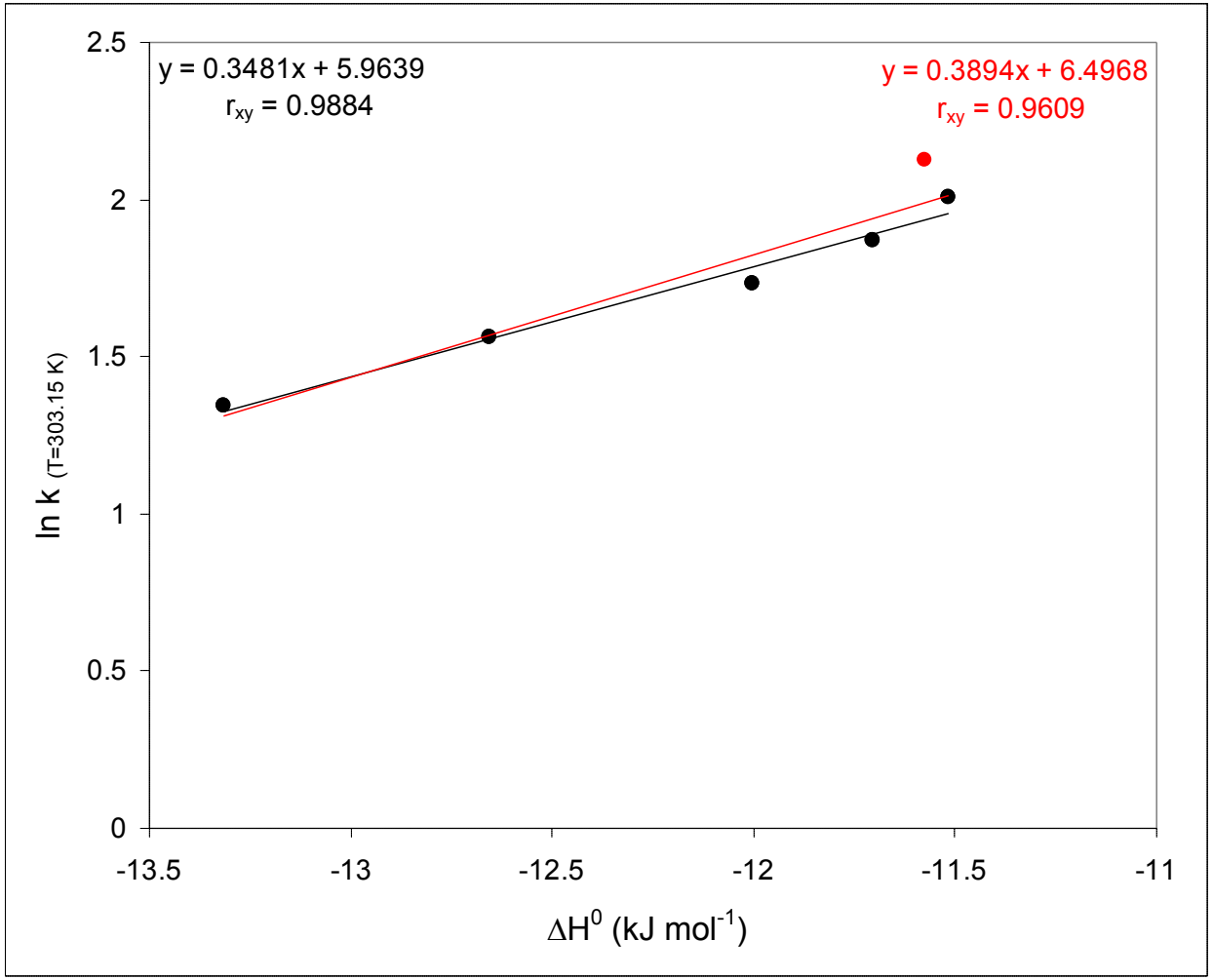
Electronic Supplementary Information, Part 5

Van't Hoff plots obtained for *para*-hydroxybutyl benzoate (BuP) when injecting 1 μL of a solution in methanol or increased volumes of solutions in heptane.



Electronic Supplementary Information, Part 6

Compensation plot illustrating the progressive increase of injection volumes in heptane from 20 to 100 μL (closed circles). The red circle corresponds to injection of 1 μL of the analyte's (BuP) solution in methanol. The capacity factors on the ordinate were evaluated at 303.15 K (near the harmonic mean of the experimental temperature values used during the van't Hoff study: 305.41 K).



Electronic Supplementary Information, Part 7

Functional correlations between computed log K_{ow} values of the target compounds and the logarithms of the absolute values of the slopes describing the linear relationships $k_{app}=f(\alpha)$.

Analyte	log K_{ow}	log (I K/2 – ιk I)					Average	s	RSD%
		Hexane	Heptane	*Iso*-Octane	Decane	Dodecane			
MeP	1.997	0.37785	0.36071	0.32521	0.30651	0.32976	0.3400	0.028752	8.46
EtP	2.488	0.71130	0.70286	0.68092	0.69631	0.70773	0.6998	0.011969	1.71
PrP	2.979	1.03790	1.02999	1.01561	1.04544	1.04025	1.0338	0.011611	1.12
BuP	3.470	1.34974	1.34094	1.33015	1.36182	1.34465	1.3455	0.011636	0.86
PeP	3.961	1.66129	1.65149	1.64248	1.67431	1.66371	1.6587	0.012149	0.73
HeP	4.452	1.98142	1.96975	1.96401	1.99883	1.98901	1.9806	0.014115	0.71
OcP	5.434	2.59436	2.61396	2.61205	2.64831	2.64869	2.6235	0.024091	0.92
Slope		0.6437	0.6512	0.6600	0.6728	0.6661	0.6588	0.011568	1.76
Intercept		-0.8913	-0.9240	-0.9694	-0.9916	-0.9690	-0.9490	0.040591	4.28
Correlation coefficient		0.9999	0.9999	0.9998	0.9995	0.9997			