

**Table 1.**

BTEX Compounds	Retention time (min)	Linear regression 0-4 ng range <sup>a</sup>	R <sup>2</sup>	Linear regression 4-50 ng range <sup>a</sup>	R <sup>2</sup>	LOD <sup>b</sup> (pg)	LOD <sup>c</sup> (µg m <sup>-3</sup> )	LOD <sup>c</sup> (ppb)	VC <sup>d</sup> (%)
<b>ATD-GC-FID</b>									
Benzene	9,85	y = 4 662x	0,990	y = 5 312x	1,000	138,7	0,277	0,085	0,8
Toluene	11,71	y = 4 445x	0,989	y = 5 344x	1,000	80,7	0,161	0,042	0,6
Ethylbenzene	13,55	y = 3 031x	0,969	y = 4 947x	0,999	190,4	0,381	0,086	1,8
m+p-Xylene	13,71	y = 5 874x	0,979	y = 9 544x	0,999	140,6	0,281	0,064	2,3
o-Xylene	14,15	y = 2 847x	0,979	y = 4 809x	0,999	117,9	0,236	0,053	1,9
<b>ATD-GC-MS (Full Scan mode)</b>									
Benzene	9,99	y = 208 205x	0,996	y = 252 453x	1,000	35,0	0,070	0,022	1,1
Toluene	12,87	y = 181 577x	0,984	y = 257 019x	0,998	40,5	0,081	0,021	0,8
Ethylbenzene	15,18	y = 141 495x	0,979	y = 282 181x	0,997	19,3	0,039	0,009	2,8
m+p-Xylene	15,38	y = 216 946x	0,975	y = 463 425x	0,997	93,6	0,187	0,042	2,4
o-Xylene	15,84	y = 102 278x	0,975	y = 233 625x	0,996	36,7	0,073	0,017	2,9
<b>ATD-GC-MS (SIM mode)</b>									
Benzene	10,05	y = 636 522x	0,995	y = 653 367x	0,999	11,7	0,023	0,007	1,5
Toluene	12,9	y = 648 318x	0,987	y = 706 610x	0,999	3,4	0,007	0,002	1,9
Ethylbenzene	15,2	y = 622 035x	0,984	y = 794 936x	0,999	16,4	0,033	0,007	1,6
m+p-Xylene	15,4	y = 1 004 970x	0,978	y = 1 275 331x	0,999	5,8	0,012	0,003	1,3
o-Xylene	15,86	y = 498 577x	0,981	y = 646 135x	0,998	4,6	0,009	0,002	1,2
<b>PID</b>									
Benzene	4,1	y = 769 579x	0,998	y = 779 945x	0,998	0,06	0,188	0,058	0,8
Toluene	5,5	y = 406 055x	0,997	y = 488 798x	0,993	0,16	0,544	0,142	1,2
Ethylbenzene	7,2	y = 265 729x	0,999	y = 282 480x	0,996	0,19	0,618	0,140	1,0
p-Xylene	7,4	y = 169 264x	0,998	y = 200 407x	0,991	0,14	0,477	0,108	3,8
m-Xylene	7,6	y = 203 765x	0,999	y = 227 111x	0,992	0,25	0,848	0,192	1,7
o-Xylene	9,3	y = 284 075x	0,998	y = 295 305x	0,996	0,31	1,033	0,234	1,4

<sup>a</sup>Area=f(Amount in ng)

<sup>b</sup>Calculated from the experimental analysis using a sampling volume of 500 mL for ATD-based method and 300 µL for GC-PID

<sup>c</sup>Measured from a sampling volume of 500 mL for ATD-based method and 300 µL for GC-PID

<sup>d</sup>Variation coefficient calculated on the basis of RSD on 3 different injections. Results presented have been obtained with concentration of 5 ppb

**Table 2.**

BTEX Compounds	Retention time (min)	Linear regression 0-4 ng range <sup>a</sup>	R <sup>2</sup>	Linear regression 4-50 ng range <sup>a</sup>	R <sup>2</sup>	LOD <sup>b</sup> (pg)	LOD <sup>c</sup> (µg m <sup>-3</sup> )	LOD <sup>c</sup> (ppb)	VC <sup>d</sup> (%)
<b>ATD-GC-FID</b>									
Benzene	9,80	y = 2 986x	0,988	y = 4 078x	0,999	162,9	0,33	0,10	4,5
Toluene	11,66	y = 3 718x	0,981	y = 5 102x	0,999	163,5	0,33	0,09	4,2
Ethylbenzene	13,50	y = 4 552x	0,999	y = 5 303x	0,998	128,1	0,26	0,06	4,9
m+p-Xylene	13,66	y = 9 026x	0,999	y = 10 336x	0,999	105,9	0,21	0,05	3,9
o-Xylene	14,10	y = 4 795x	0,997	y = 5 205x	0,999	109,8	0,22	0,05	5,2
<b>ATD-GC-MS (Full Scan mode)</b>									
Benzene	9,97	y = 217 884x	0,997	y = 224 106x	0,998	176,9	0,35	0,11	9,0
Toluene	12,81	y = 218 482x	0,983	y = 248 927	0,999	206,6	0,41	0,11	8,0
Ethylbenzene	15,11	y = 275 944x	0,997	y = 298 466x	0,999	31,7	0,06	0,01	7,4
m+p-Xylene	15,30	y = 485 322x	0,997	y = 481 878x	0,999	45,9	0,09	0,02	8,0
o-Xylene	15,78	y = 236 969x	0,996	y = 245 685x	0,999	37,6	0,08	0,02	6,6
<b>ATD-GC-MS (SIM mode)</b>									
Benzene	9,97	y = 360 155x	0,989	y = 404 507x	0,998	12,1	0,024	0,007	6,3
Toluene	12,83	y = 411 181x	0,987	y = 456 511x	0,999	4,5	0,009	0,002	5,0
Ethylbenzene	15,13	y = 466 427x	0,990	y = 547 897x	0,999	1,7	0,003	0,001	4,7
m+p-Xylene	15,30	y = 785 510x	0,990	y = 894 735x	0,999	3,3	0,007	0,002	4,3
o-Xylene	15,80	y = 407 260x	0,984	y = 457 928x	0,999	2,1	0,004	0,001	4,8

<sup>a</sup>Area=f(Amount in ng)

<sup>b</sup>Experimental determination obtained from spiking volume and BTEX deposited quantity

<sup>c</sup>Calculated for a sampling volume of 500 mL for ATD-based method

<sup>d</sup>Variation coefficient calculated on the basis of RSD on 3 different injections. Results presented have been obtained with concentration of 4ng

**Figure 1.**

**Step 1 : Spiking of the cartridge**

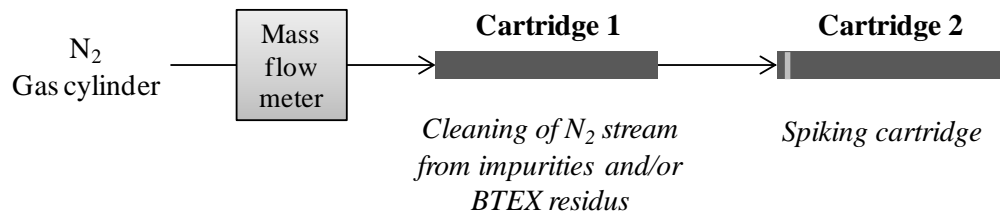
*20  $\mu$ L BTEX standard  
in Methanol*



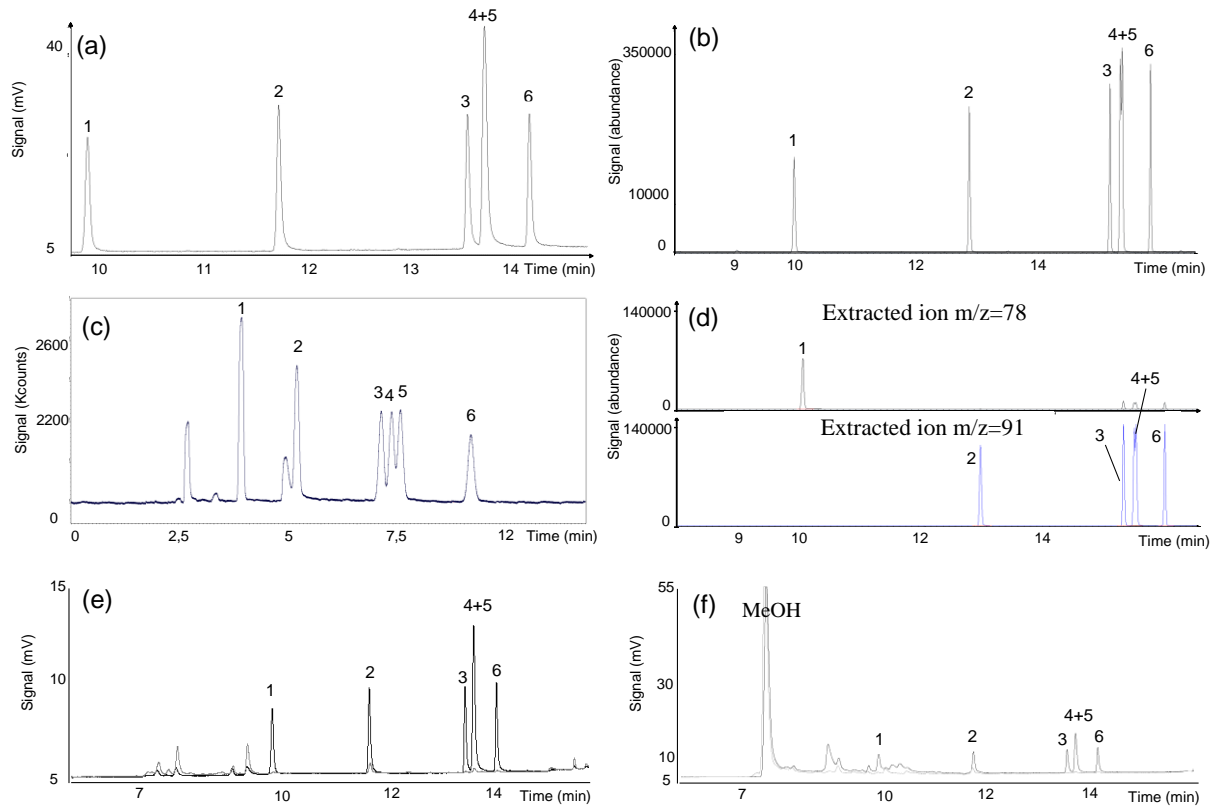
**Cartridge 2**



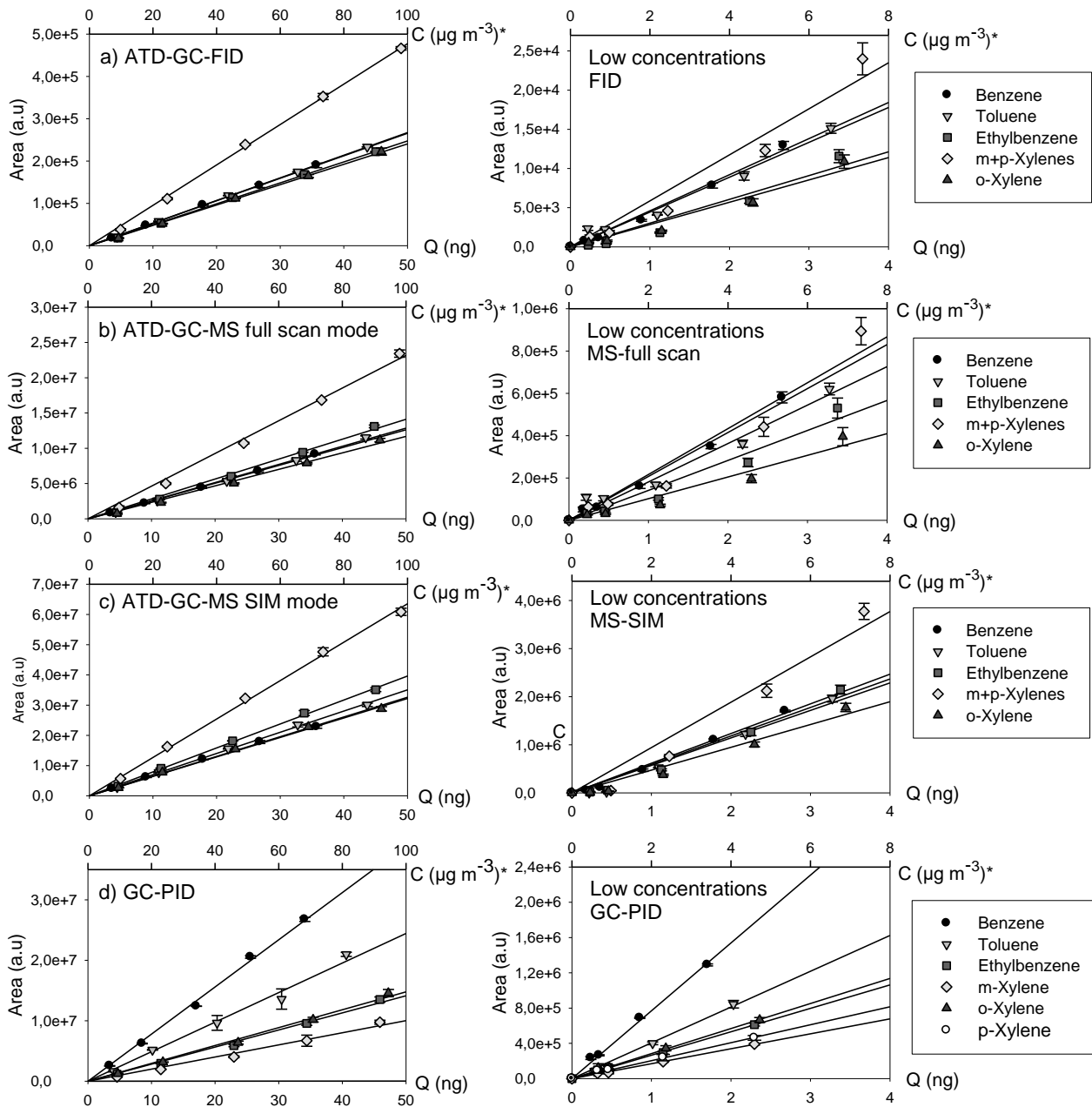
**Step 2 : Methanol evaporation**



**Figure 2.**

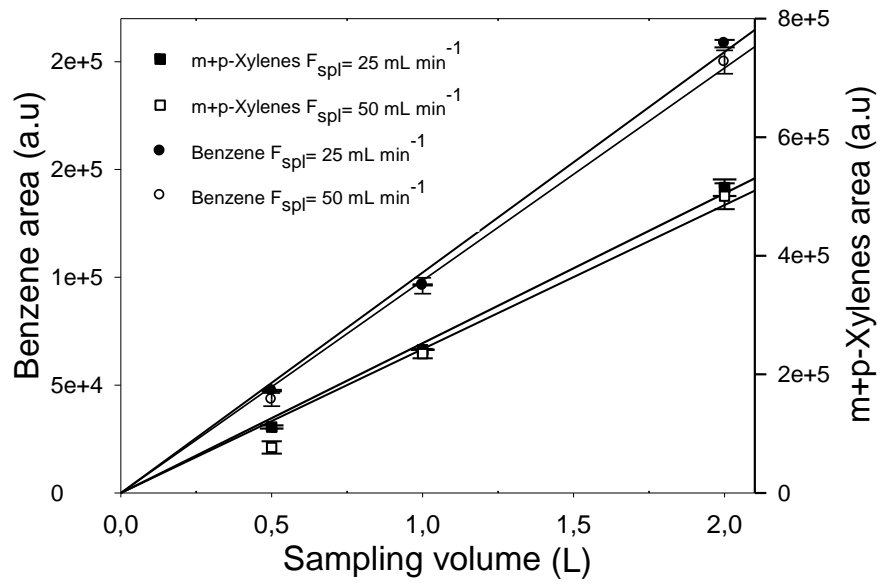


**Figure 3.**

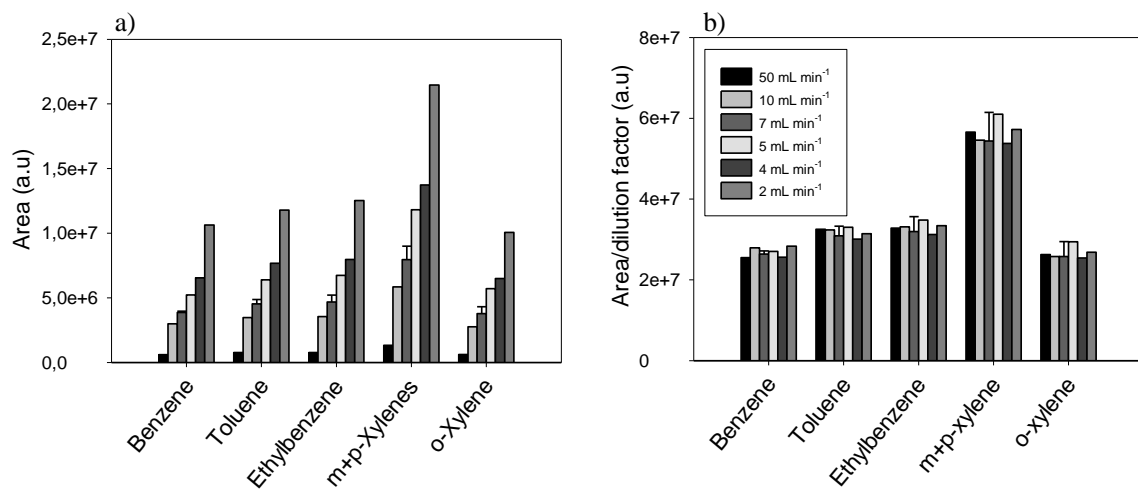


\*Concentrations in  $\mu\text{g m}^{-3}$  for a sampled volume of 500 mL

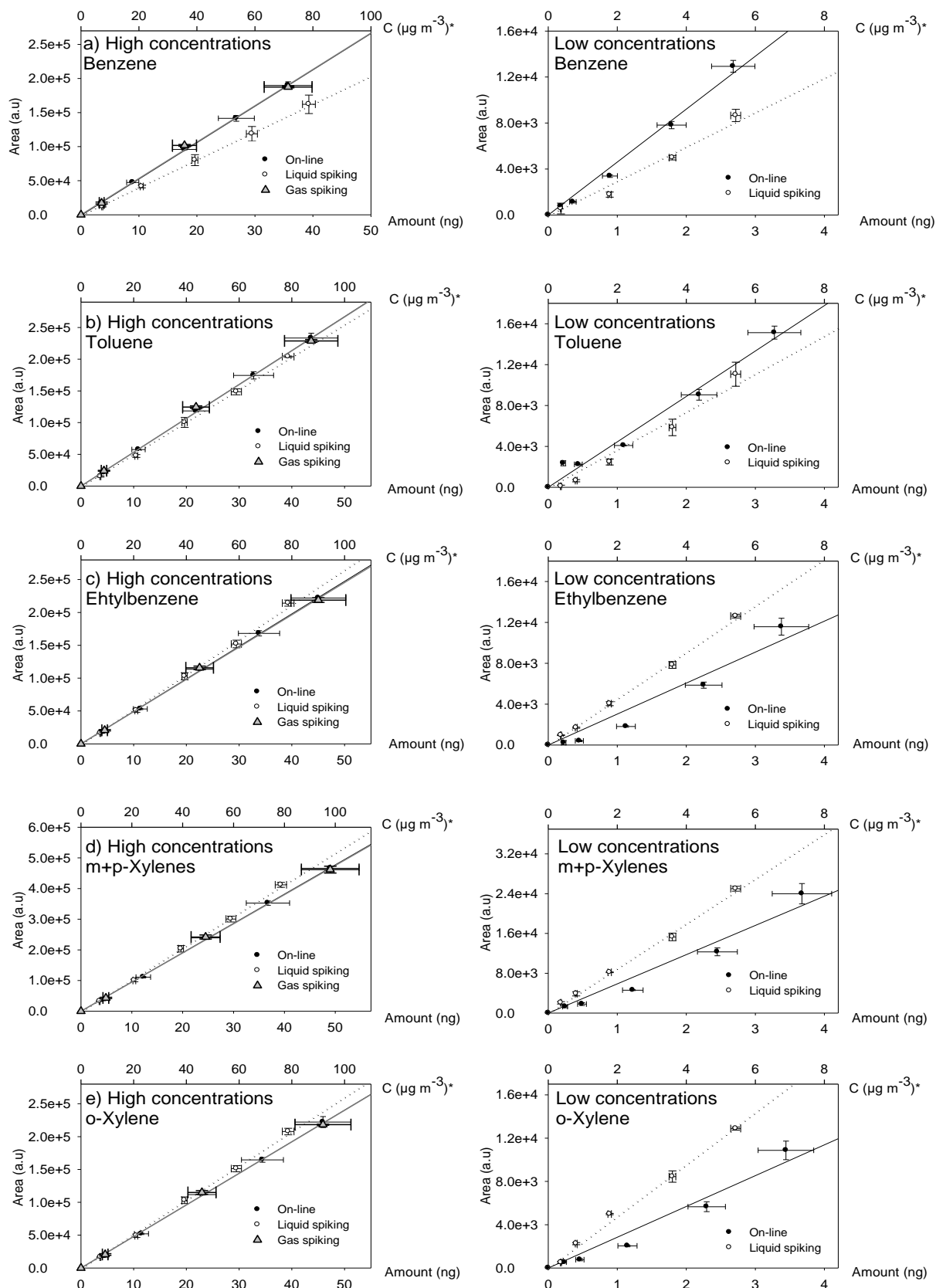
Figure 4.



**Figure 5.**



**Figure 6.**



\*Concentrations in  $\mu\text{g m}^{-3}$  for a sampled volume of 500 mL