Table S1

The QC variability over a seven month period (n=130).

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Analyte | QC | Spiked amount  (ng mL-1) | Mean  (ng mL-1) | ± SDa (ng mL-1) | CVb |
| 1,2 DCVMA | QCH | 1102 | 1121 | 72.5 | 6.47% | |
|  | QCL | 126 | 132 | 14.3 | 10.8% | |
| 2,2 DCVMA | QCH | 583 | 675 | 49 | 7.27% | |
|  | QCL | 64.8 | 72.1 | 5.98 | 8.30% | |
| 2MHA | QCH | 340 | 326 | 25.5 | 7.83% | |
|  | QCL | 45.2 | 47 | 3.04 | 6.46% | |
| 3MHA+4MHA | QCH | 1010 | 1065 | 77.4 | 7.27% | |
|  | QCL | 80.7 | 107 | 5.09 | 4.74% | |
| AAMA | QCH | 195 | 181 | 15.4 | 8.46% | |
|  | QCL | 42.8 | 36.8 | 3.67 | 9.96% | |
| AMCC | QCH | 483 | 507 | 35 | 6.90% | |
|  | QCL | 51.1 | 57.2 | 4.11 | 7.18% | |
| ATCA | QCH | 1275 | 1325 | 54.2 | 4.09% | |
|  | QCL | 205 | 180 | 9.77 | 5.43% | |
| BMA | QCH | 77.0 | 78.1 | 7.82 | 10.0% | |
|  | QCL | 11.0 | 13.5 | 1.34 | 9.94% | |
| BPMA | QCH | 102 | 98.7 | 10.4 | 10.5% | |
|  | QCL | 14.6 | 11.6 | 0.61 | 5.28% | |
| CEMA | QCH | 1026 | 907 | 51.3 | 5.66% | |
|  | QCL | 106 | 87.2 | 3.24 | 3.71% | |
| CYMA | QCH | 63.2 | 64.3 | 3.57 | 5.56% | |
|  | QCL | 9.50 | 9.69 | 0.54 | 5.57% | |
| DHBMA | QCH | 670 | 666 | 37.1 | 5.58% | |
|  | QCL | 60.0 | 51 | 4.21 | 8.25% | |
| DPMA | QCH | 39.0 | 39.3 | 1.44 | 3.67% | |
|  | QCL | 4.50 | 4.42 | 0.11 | 2.48% | |
| GAMA | QCH | 945 | 918 | 42.3 | 4.61% | |
|  | QCL | 118 | 120 | 5.61 | 4.69% | |
| HEMA | QCH | 146 | 140 | 8.03 | 5.75% | |
|  | QCL | 24.3 | 23.2 | 1.59 | 6.85% | |
| 2HPMA | QCH | 931 | 941 | 61.8 | 6.56% | |
|  | QCL | 5.34 | 67.0 | 5.72 | 8.5% | |
| 3HPMA | QCH | 1590 | 1,491 | 111 | 7.41% | |
|  | QCL | 94.8 | 117 | 8.26 | 7.08% | |
| HPMMA | QCH | 576 | 504 | 22.3 | 4.42% | |
|  | QCL | 135 | 96.5 | 4.13 | 4.28% | |
| MA | QCH | 2002 | 2179 | 94 | 4.31% | |
|  | QCL | 200 | 278 | 17.2 | 6.17% | |
| MHBMA1 | QCH | 73.0 | 72.8 | 4.62 | 6.35% | |
|  | QCL | 9.12 | 8.68 | 0.64 | 7.42% | |
| MHBMA2 | QCH | 76.8 | 75.9 | 2.8 | 3.69% | |
|  | QCL | 9.60 | 8.38 | 0.35 | 4.19% | |
| MHBMA3 | QCH | 177 | 183 | 6.57 | 3.60% | |
|  | QCL | 22.9 | 24.0 | 1.28 | 5.34% | |
| MU | QCH | 2610 | 2677 | 107 | 3.98% | |
|  | QCL | 348 | 428 | 17.2 | 4.02% | |
| PHEMA | QCH | 80.0 | 78.8 | 6.12 | 7.77% | |
|  | QCL | 20.0 | 19.9 | 1.85 | 9.31% | |
| PGA | QCH | 1477 | 1359 | 95.4 | 7.02% | |
|  | QCL | 114 | 105 | 7.31 | 7.00% | |
| PMA | QCH | 55.2 | 55.6 | 5.36 | 9.63% | |
|  | QCL | 11.0 | 11.3 | 0.92 | 8.19% | |
| TCVMA | QCH | 272 | 255 | 11.8 | 4.62% | |
|  | QCL | 60.4 | 61.5 | 3.08 | 5.01% | |
| TTCA | QCH | 523 | 478 | 24.2 | 5.05% | |
|  | QCL | 67.6 | 57.9 | 3.22 | 5.56% | |

a SD: Standard Deviation. b Coefficient of variation.

Table S2

Method accuracy and precision (proficiency testing).

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Analyte |  | Theoretical (ng mL-1) | Calculated mean (ng mL-1) | ± SDa  (ng mL-1) | % Accuracy |
| PT |
| AAMA | PT1 | 0.27 | 0.30 | 0.00 | 111 |
|  | PT2 | 1.36 | 1.29 | 0.01 | 94.9 |
|  | PT3 | 8.68 | 8.73 | 0.13 | 101 |
|  | PT4 | 21.7 | 20.8 | 0.28 | 95.9 |
| AMCC | PT1 | 0.55 | 0.65 | 0.01 | 118 |
|  | PT2 | 2.77 | 2.80 | 0.23 | 101 |
|  | PT3 | 13.9 | 13.9 | 0.71 | 100 |
|  | PT4 | 55.4 | 59.7 | 2.62 | 108 |
| ATCA | PT1 | 1.84 | 2.13 | 0.03 | 116 |
|  | PT2 | 7.81 | 9.12 | 0.16 | 117 |
|  | PT3 | 39.0 | 39.4 | 1.48 | 101 |
|  | PT4 | 112 | 119 | 0.71 | 106 |
| BMA | PT1 | 0.08 | 0.07 | 0.00 | 87.5 |
|  | PT2 | 0.28 | 0.23 | 0.02 | 82.1 |
|  | PT3 | 2.75 | 2.59 | 0.24 | 94.2 |
|  | PT4 | 7.70 | 6.82 | 0.25 | 88.6 |
| BPMA | PT1 | 0.12 | 0.13 | 0.01 | 108 |
|  | PT2 | 0.61 | 0.63 | 0.02 | 103 |
|  | PT3 | 3.07 | 3.19 | 0.01 | 104 |
|  | PT4 | 12.3 | 10.8 | 0.21 | 87.5 |
| CEMA | PT1 | 1.00 | 1.12 | 0.07 | 112 |
|  | PT2 | 5.00 | 4.65 | 0.29 | 93.0 |
|  | PT3 | 40.0 | 38.9 | 3.32 | 97.1 |
|  | PT4 | 120 | 119 | 2.12 | 98.8 |
| CYMA | PT1 | 0.08 | 0.08 | 0.00 | 100 |
|  | PT2 | 0.47 | 0.53 | 0.04 | 113 |
|  | PT3 | 2.37 | 2.40 | 0.28 | 101 |
|  | PT4 | 6.32 | 6.07 | 0.05 | 96.0 |
| 1,2DCVMA | PT1 | 1.89 | 1.83 | 0.11 | 96.8 |
|  | PT2 | 6.30 | 7.48 | 1.25 | 119 |
|  | PT3 | 31.5 | 32.9 | 1.70 | 105 |
|  | PT4 | 126 | 149 | 12.0 | 118 |
| 2,2DCVMA | PT1 | 0.81 | 0.81 | 0.05 | 100 |
|  | PT2 | 3.24 | 3.85 | 0.10 | 119 |
|  | PT3 | 16.2 | 19.0 | 0.71 | 117 |
|  | PT4 | 64.8 | 75.2 | 4.10 | 116 |
| DHBMA | PT1 | 0.80 | 0.84 | 0.17 | 105 |
|  | PT2 | 2.50 | 2.45 | 0.03 | 98.0 |
|  | PT3 | 25.0 | 24.5 | 0.14 | 98.0 |
|  | PT4 | 80.0 | 73.9 | 2.76 | 92.4 |
| DPMA | PT1 | 0.07 | 0.08 | 0.01 | 114 |
|  | PT2 | 0.33 | 0.35 | 0.01 | 106 |
|  | PT3 | 2.40 | 2.25 | 0.13 | 93.8 |
|  | PT4 | 4.53 | 4.58 | 0.13 | 101 |
| GAMA | PT1 | 0.94 | 1.10 | 0.15 | 117 |
|  | PT2 | 4.72 | 4.74 | 0.08 | 100 |
|  | PT3 | 47.2 | 46.7 | 0.28 | 98.9 |
|  | PT4 | 94.5 | 97.3 | 2.40 | 103 |
| HEMA | PT1 | 0.08 | 0.09 | 0.00 | 113 |
|  | PT2 | 0.38 | 0.42 | 0.05 | 111 |
|  | PT3 | 3.80 | 4.24 | 0.07 | 112 |
|  | PT4 | 6.08 | 7.11 | 0.05 | 117 |
| 2HPMA | PT1 | 0.92 | 0.93 | 0.20 | 101 |
|  | PT2 | 6.61 | 6.74 | 0.69 | 102 |
|  | PT3 | 26.4 | 28.9 | 0.85 | 109 |
|  | PT4 | 79.3 | 86.5 | 1.98 | 109 |
| 3HPMA | PT1 | 2.59 | 3.10 | 0.23 | 120 |
|  | PT2 | 6.48 | 7.12 | 0.18 | 110 |
|  | PT3 | 77.8 | 72.9 | 1.27 | 93.8 |
|  | PT4 | 259 | 245 | 4.95 | 94.3 |
| HPMMA | PT1 | 0.61 | 0.63 | 0.01 | 103 |
|  | PT2 | 1.52 | 1.48 | 0.06 | 97.4 |
|  | PT3 | 12.2 | 12.5 | 0.42 | 103 |
|  | PT4 | 38.0 | 36.5 | 0.42 | 96.1 |
| MA | PT1 | 2.40 | 2.08 | 0.08 | 86.7 |
|  | PT2 | 7.01 | 7.85 | 0.76 | 112 |
|  | PT3 | 40.0 | 46.7 | 0.57 | 117 |
|  | PT4 | 200 | 234 | 3.54 | 117 |
| 2MHA | PT1 | 0.65 | 0.58 | 0.01 | 89.2 |
|  | PT2 | 2.51 | 2.42 | 0.14 | 96.4 |
|  | PT3 | 10.0 | 9.67 | 0.61 | 96.3 |
|  | PT4 | 50.2 | 53.1 | 0.99 | 106 |
| 3MHA+4MHA | PT1 | 0.81 | 0.85 | 0.07 | 105 |
|  | PT2 | 4.04 | 4.25 | 0.15 | 105 |
|  | PT3 | 20.2 | 21.1 | 1.06 | 104 |
|  | PT4 | 101 | 115 | 0.71 | 114 |
| MHBMA1 | PT1 | 0.08 | 0.08 | 0.01 | 100 |
|  | PT2 | 0.41 | 0.38 | 0.00 | 92.7 |
|  | PT3 | 2.74 | 2.60 | 0.02 | 94.9 |
|  | PT4 | 7.30 | 7.20 | 0.02 | 98.6 |
| MHBMA2 | PT1 | 0.08 | 0.07 | 0.00 | 87.5 |
|  | PT2 | 0.41 | 0.42 | 0.00 | 102 |
|  | PT3 | 2.88 | 3.02 | 0.04 | 105 |
|  | PT4 | 7.68 | 8.02 | 0.22 | 104 |
| MHBMA3 | PT1 | 0.11 | 0.10 | 0.00 | 90.9 |
|  | PT2 | 0.94 | 0.90 | 0.02 | 95.7 |
|  | PT3 | 6.60 | 5.53 | 0.05 | 83.8 |
|  | PT4 | 17.6 | 14.9 | 0.07 | 84.4 |
| MU | PT1 | 3.92 | 3.95 | 0.32 | 101 |
|  | PT2 | 9.79 | 10.0 | 0.28 | 102 |
|  | PT3 | 65.3 | 70.0 | 2.83 | 107 |
|  | PT4 | 348 | 359 | 2.83 | 103 |
| PGA | PT1 | 1.21 | 1.44 | 0.06 | 119 |
|  | PT2 | 7.05 | 7.25 | 0.34 | 103 |
|  | PT3 | 40.3 | 40.7 | 1.13 | 101 |
|  | PT4 | 201 | 212 | 0.00 | 105 |
| PHEMA | PT1 | 0.07 | 0.06 | 0.02 | 85.7 |
|  | PT2 | 0.35 | 0.34 | 0.01 | 97.1 |
|  | PT3 | 1.50 | 1.40 | 0.01 | 93.3 |
|  | PT4 | 8.00 | 6.72 | 0.10 | 84.0 |
| PMA | PT1 | 0.07 | 0.08 | 0.00 | 114 |
|  | PT2 | 0.28 | 0.31 | 0.01 | 111 |
|  | PT3 | 2.76 | 2.52 | 0.03 | 91.3 |
|  | PT4 | 5.52 | 5.62 | 0.30 | 102 |
| TCVMA | PT1 | 0.30 | 0.31 | 0.04 | 103 |
|  | PT2 | 1.51 | 1.60 | 0.05 | 106 |
|  | PT3 | 7.55 | 7.90 | 0.74 | 105 |
|  | PT4 | 22.7 | 24.0 | 0.14 | 106 |
| TTCA | PT1 | 0.67 | 0.64 | 0.11 | 95.5 |
|  | PT2 | 2.01 | 1.75 | 0.02 | 87.1 |
|  | PT3 | 20.1 | 19.9 | 0.71 | 99.0 |
|  | PT4 | 53.6 | 47.45 | 0.64 | 88.5 |

a SD: Standard Deviation.