



# Appendix B

## Fine Particulate Speciation Summary- 2003

New Jersey Department of Environmental Protection

**Table 1**  
**Fine Particulate Speciation Data – 2003**  
**Camden Lab, New Jersey**

Concentrations in Micrograms Per Cubic Meter ( $\mu\text{g}/\text{m}^3$ )

<b>Pollutant</b>	<b>Annual Average Concentration</b>	<b>Daily Average Maximum Concentration</b>	<b>Daily Average 2nd Highest Concentration</b>
Aluminum	0.0131	0.1135	0.1032
Ammonium	2.4083	10.0741	7.2564
Antimony	0.0050	0.0357	0.0318
Arsenic	0.0013	0.0053	0.0050
Barium	0.0156	0.0829	0.0672
Bromine	0.0034	0.0165	0.0150
Cadmium	0.0018	0.0164	0.0145
Calcium	0.0296	0.0794	0.0678
Cerium	0.0064	0.0655	0.0561
Cesium	0.0046	0.0296	0.0277
Chlorine	0.0146	0.1859	0.0959
Chromium	0.0017	0.0084	0.0075
Cobalt	0.0003	0.0019	0.0018
Copper	0.0043	0.0198	0.0152
Elemental carbon	0.6544	2.5224	1.7056
Europium	0.0017	0.0185	0.0183
Gallium	0.0001	0.0019	0.0013
Gold	0.0017	0.0079	0.0069
Hafnium	0.0027	0.0289	0.0246
Indium	0.0025	0.0226	0.0186
Iridium	0.0012	0.0100	0.0079
Iron	0.0606	0.2353	0.1257
Lanthanum	0.0059	0.0640	0.0460
Lead	0.0039	0.0167	0.0133
Magnesium	0.0060	0.1203	0.0973
Manganese	0.0019	0.0071	0.0071
Mercury	0.0010	0.0055	0.0054
Molybdenum	0.0012	0.0077	0.0075
Nickel	0.0036	0.0172	0.0117
Niobium	0.0005	0.0040	0.0037
Nitrate	2.3551	9.5853	9.4050

**Table 1 (Continued)**  
**Fine Particulate Speciation Data – 2003**  
**Camden Lab, New Jersey**

Concentrations in Micrograms Per Cubic Meter ( $\mu\text{g}/\text{m}^3$ )

<b>Pollutant</b>	<b>Annual Average Concentration</b>	<b>Daily Average Maximum Concentration</b>	<b>Daily Average 2nd Highest Concentration</b>
Organic carbon	4.3223	12.4551	10.6937
Phosphorus	0.0009	0.0156	0.0103
Potassium	0.0557	0.7383	0.2126
Rubidium	0.0004	0.0051	0.0030
Samarium	0.0008	0.0129	0.0072
Scandium	0.0003	0.0056	0.0024
Selenium	0.0018	0.0071	0.0053
Silicon	0.0724	0.2944	0.2219
Silver	0.0023	0.0130	0.0121
Sodium	0.1509	0.7295	0.6127
Strontium	0.0012	0.0122	0.0051
Sulfate	5.4420	25.1719	21.5139
Sulfur	1.6878	7.3544	6.6574
Tantalum	0.0018	0.0109	0.0107
Terbium	0.0004	0.0073	0.0047
Tin	0.0052	0.0363	0.0310
Titanium	0.0042	0.0215	0.0113
Total mass	16.4466	61.5781	41.4476
Vanadium	0.0052	0.0407	0.0206
Wolfram	0.0025	0.0111	0.0105
Yttrium	0.0005	0.0035	0.0032
Zinc	0.0101	0.0507	0.0315
Zirconium	0.0010	0.0081	0.0072

**Table 2**  
**Fine Particulate Speciation Data – 2003**  
**Chester, New Jersey**

Concentrations in Micrograms Per Cubic Meter ( $\mu\text{g}/\text{m}^3$ )

<b>Pollutant</b>	<b>Annual Average Concentration</b>	<b>Daily Average Maximum Concentration</b>	<b>Daily Average 2nd Highest Concentration</b>
Aluminum	0.0089	0.0784	0.0529
Ammonium	1.4819	7.7266	5.8562
Antimony	0.0065	0.0428	0.0412
Arsenic	0.0008	0.0058	0.0040
Barium	0.0111	0.0657	0.0622
Bromine	0.0019	0.0071	0.0069
Cadmium	0.0026	0.0256	0.0241
Calcium	0.0176	0.0710	0.0573
Cerium	0.0095	0.1337	0.0884
Cesium	0.0042	0.0418	0.0337
Chlorine	0.0055	0.0398	0.0386
Chromium	0.0021	0.0343	0.0091
Cobalt	0.0002	0.0018	0.0018
Copper	0.0021	0.0108	0.0098
Elemental carbon	0.3596	0.8574	0.8074
Europium	0.0008	0.0111	0.0059
Gallium	0.0003	0.0023	0.0020
Gold	0.0018	0.0103	0.0083
Hafnium	0.0022	0.0256	0.0242
Indium	0.0028	0.0238	0.0229
Iridium	0.0014	0.0140	0.0086
Iron	0.0349	0.1062	0.0903
Lanthanum	0.0049	0.0542	0.0387
Lead	0.0026	0.0133	0.0115
Magnesium	0.0032	0.0946	0.0368
Manganese	0.0013	0.0054	0.0049
Mercury	0.0011	0.0072	0.0057
Molybdenum	0.0011	0.0157	0.0071
Nickel	0.0018	0.0082	0.0074
Niobium	0.0004	0.0047	0.0045
Nitrate	1.1882	4.9301	4.6549
Organic carbon	3.1432	8.2441	7.9788
Phosphorus	0.0006	0.0084	0.0081
Potassium	0.0360	0.4099	0.1227
Rubidium	0.0003	0.0027	0.0025
Samarium	0.0007	0.0108	0.0045
Scandium	0.0002	0.0034	0.0026
Selenium	0.0009	0.0052	0.0040

**Table 2 (Continued)**  
**Fine Particulate Speciation Data – 2003**  
**Chester, New Jersey**

Concentrations in Micrograms Per Cubic Meter ( $\mu\text{g}/\text{m}^3$ )

<b>Pollutant</b>	<b>Annual Average Concentration</b>	<b>Daily Average Maximum Concentration</b>	<b>Daily Average 2nd Highest Concentration</b>
Silicon	0.0485	0.2249	0.2122
Silver	0.0028	0.0206	0.0136
Sodium	0.1041	0.6489	0.6211
Strontium	0.0009	0.0051	0.0043
Sulfate	4.1817	23.8837	21.1887
Sulfur	1.2516	7.7064	6.7161
Tantalum	0.0030	0.0201	0.0170
Terbium	0.0004	0.0039	0.0039
Tin	0.0042	0.0365	0.0363
Titanium	0.0030	0.0130	0.0119
Total mass	11.0591	53.3430	43.7023
Vanadium	0.0016	0.0106	0.0083
Wolfram	0.0029	0.0210	0.0159
Yttrium	0.0005	0.0031	0.0028
Zinc	0.0052	0.0300	0.0253
Zirconium	0.0007	0.0127	0.0044

**Table 3**  
**Fine Particulate Speciation Data – 2003**  
**Elizabeth Lab, New Jersey**

Concentrations in Micrograms Per Cubic Meter ( $\mu\text{g}/\text{m}^3$ )

<b>Pollutant</b>	<b>Annual Average Concentration</b>	<b>Daily Average Maximum Concentration</b>	<b>Daily Average 2nd Highest Concentration</b>
Aluminum	0.0167	0.1390	0.1285
Ammonium	2.1994	10.2445	8.0518
Antimony	0.0068	0.0720	0.0465
Arsenic	0.0010	0.0048	0.0045
Barium	0.0141	0.0710	0.0587
Bromine	0.0036	0.0111	0.0100
Cadmium	0.0031	0.0319	0.0310
Calcium	0.0402	0.1376	0.0967
Cerium	0.0062	0.0539	0.0506
Cesium	0.0039	0.0322	0.0312
Chlorine	0.0606	1.0567	0.5884
Chromium	0.0030	0.0283	0.0194
Cobalt	0.0003	0.0032	0.0020
Copper	0.0055	0.0153	0.0140
Elemental carbon	1.7779	5.1038	4.6039
Europium	0.0025	0.0235	0.0207
Gallium	0.0002	0.0024	0.0022
Gold	0.0015	0.0110	0.0092
Hafnium	0.0035	0.0339	0.0294
Indium	0.0032	0.0300	0.0238
Iridium	0.0014	0.0090	0.0089
Iron	0.1310	0.4956	0.3358
Lanthanum	0.0073	0.0771	0.0632
Lead	0.0044	0.0184	0.0140
Magnesium	0.0062	0.0565	0.0557
Manganese	0.0025	0.0269	0.0082
Mercury	0.0009	0.0057	0.0055
Molybdenum	0.0015	0.0110	0.0080
Nickel	0.0053	0.0358	0.0306
Niobium	0.0004	0.0040	0.0028
Nitrate	2.2856	11.9818	11.3399
Organic carbon	5.5986	12.6215	12.4528
Phosphorus	0.0032	0.0961	0.0426
Potassium	0.0481	0.5799	0.1155
Rubidium	0.0003	0.0037	0.0034
Samarium	0.0009	0.0107	0.0098
Scandium	0.0002	0.0035	0.0034
Selenium	0.0013	0.0056	0.0046

**Table 3 (Continued)**  
**Fine Particulate Speciation Data – 2003**  
**Elizabeth Lab, New Jersey**

Concentrations in Micrograms Per Cubic Meter ( $\mu\text{g}/\text{m}^3$ )

<b>Pollutant</b>	<b>Annual Average Concentration</b>	<b>Daily Average Maximum Concentration</b>	<b>Daily Average 2nd Highest Concentration</b>
Silicon	0.0813	0.3841	0.3124
Silver	0.0023	0.0120	0.0098
Sodium	0.1797	0.8561	0.7245
Strontium	0.0013	0.0098	0.0075
Sulfate	4.7406	22.4577	20.8302
Sulfur	1.4732	7.2163	5.9842
Tantalum	0.0023	0.0239	0.0199
Terbium	0.0008	0.0175	0.0066
Tin	0.0057	0.0487	0.0326
Titanium	0.0059	0.0191	0.0181
Total mass	17.3692	56.2158	51.0889
Vanadium	0.0070	0.0377	0.0296
Wolfram	0.0022	0.0181	0.0158
Yttrium	0.0004	0.0034	0.0024
Zinc	0.0317	1.6019	0.0582
Zirconium	0.0011	0.0104	0.0067

**Table 4**  
**Fine Particulate Speciation Data – 2003**  
**New Brunswick, New Jersey**

Concentrations in Micrograms Per Cubic Meter ( $\mu\text{g}/\text{m}^3$ )

<b>Pollutant</b>	<b>Annual Average Concentration</b>	<b>Daily Average Maximum Concentration</b>	<b>Daily Average 2nd Highest Concentration</b>
Aluminum	0.0115	0.1067	0.0844
Ammonium	1.8203	9.1265	7.8466
Antimony	0.0063	0.0515	0.0507
Arsenic	0.0013	0.0076	0.0074
Barium	0.0120	0.0713	0.0653
Bromine	0.0028	0.0094	0.0089
Cadmium	0.0019	0.0214	0.0157
Calcium	0.0262	0.1053	0.0821
Cerium	0.0061	0.0712	0.0575
Cesium	0.0037	0.0329	0.0322
Chlorine	0.0213	0.7891	0.3443
Chromium	0.0030	0.0296	0.0207
Cobalt	0.0003	0.0027	0.0015
Copper	0.0040	0.0150	0.0123
Elemental carbon	0.6409	1.9724	1.8699
Europium	0.0016	0.0220	0.0186
Gallium	0.0002	0.0024	0.0018
Gold	0.0014	0.0088	0.0074
Hafnium	0.0021	0.0383	0.0203
Indium	0.0024	0.0228	0.0169
Iridium	0.0013	0.0071	0.0070
Iron	0.0728	0.2797	0.2157
Lanthanum	0.0066	0.0594	0.0587
Lead	0.0043	0.0263	0.0159
Magnesium	0.0050	0.0624	0.0535
Manganese	0.0023	0.0210	0.0182
Mercury	0.0010	0.0077	0.0058
Molybdenum	0.0012	0.0122	0.0101
Nickel	0.0030	0.0185	0.0144
Niobium	0.0005	0.0054	0.0048
Nitrate	1.6845	9.2520	8.3412
Organic carbon	3.8135	9.5666	8.3752
Phosphorus	0.0011	0.0305	0.0088
Potassium	0.0451	0.6205	0.1391
Rubidium	0.0003	0.0034	0.0021
Samarium	0.0010	0.0153	0.0105
Scandium	0.0002	0.0025	0.0019
Selenium	0.0013	0.0059	0.0059

**Table 4 (Continued)**  
**Fine Particulate Speciation Data – 2003**  
**New Brunswick, New Jersey**

Concentrations in Micrograms Per Cubic Meter ( $\mu\text{g}/\text{m}^3$ )

<b>Pollutant</b>	<b>Annual Average Concentration</b>	<b>Daily Average Maximum Concentration</b>	<b>Daily Average 2nd Highest Concentration</b>
Silicon	0.0683	0.2781	0.2564
Silver	0.0024	0.0248	0.0115
Sodium	0.1928	2.7805	1.1087
Strontium	0.0009	0.0068	0.0038
Sulfate	4.7360	30.5835	21.6116
Sulfur	1.4063	8.7940	6.1515
Tantalum	0.0024	0.0211	0.0185
Terbium	0.0007	0.0162	0.0053
Tin	0.0043	0.0338	0.0325
Titanium	0.0039	0.0177	0.0122
Total mass	13.9240	59.9897	51.1604
Vanadium	0.0024	0.0145	0.0091
Wolfram	0.0018	0.0119	0.0110
Yttrium	0.0003	0.0033	0.0025
Zinc	0.0131	0.0917	0.0774
Zirconium	0.0008	0.0098	0.0048