

Table 11: Summary of Airborne Sample Results of Health Related Elements by Generic Category of Abrasive
Note: Unless Otherwise Noted, All Minimum, Maximum, and Geometric Mean Values are in micrograms per cubic meter

Generic Abrasive	Number of Samples	Arsenic	Beryllium	Cadmium	Chromium	Lead	Manganese	Nickel	Respirable Quartz (mg/m ³)	Silver	Titanium	Vanadium
CG	4	2.06 - 2.085 2.070 0	0.031 - 0.126 0.075 3	0.05 - 0.05 0.050 0	5.15 - 22.69 12.524 3	3.91 - 26.82 12.153 4	13.39 - 101.1 56.930 4	5.15 - 5.21 5.174 0	0.12 - 0.122 0.122 0	0.83 - 0.835 0.829 0	2.06 - 9.73 6.425 3	0.825 - 0.835 0.829 0
CS	28	0.52 - 29.13 2.902 9	0.193 - 24.97 2.040 28	0.05 - 2.71 0.134 10	5.145 - 332.9 38.727 26	0.825 - 35.37 3.885 18	26.84 - 873.9 148.723 28	5.15 - 353.7 28.303 23	0.11 - 0.124 0.122 0	0.83 - 2.615 0.907 1	173.4 - 11652 1545.090 28	9.46 - 665.8 69.966 28
CSDS	8	2.06 - 4.76 2.304 1	0.353 - 7.475 2.227 8	0.07 - 0.21 0.083 1	5.19 - 136.6 39.525 7	0.825 - 88.92 4.044 6	26.79 - 456.8 132.656 8	5.15 - 83.06 25.221 6	0.12 - 0.126 0.123 0	0.83 - 20.62 1.379 2	332.2 - 5589 1580.726 8	11.21 - 190.4 54.116 8
N	8	2.03 - 170.8 9.728 4	0.031 - 1.729 0.142 5	0.04 - 10.21 0.246 4	138.9 - 7036 811.832 8	0.815 - 49.99 4.397 6	117.9 - 2483 459.200 8	89.4 - 6040 987.252 8	0.12 - 0.124 0.122 0	0.82 - 0.835 0.826 0	18.49 - 2708 267.299 8	3.66 - 152.1 29.100 8
O	4	0.515 - 2.095 1.037 0	0.003 - 0.121 0.028 2	0.04 - 0.05 0.045 0	65.9 - 246.6 116.812 4	0.82 - 2.095 1.631 1	247.1 - 1377 499.883 4	865 - 4520 1628.467 4	0.12 - 0.123 0.123 0	0.82 - 0.835 0.829 0	2.06 - 17.88 7.409 3	0.825 - 3.9 1.577 2
S	8	2.075 - 2.095 2.087 0	0.031 - 0.292 0.059 3	0.075 - 0.23 0.086 1	5.19 - 33.4 8.621 3	0.83 - 33.33 7.654 7	19.52 - 521.9 120.960 8	5.19 - 5.235 5.215 0	0.12 - 0.486 0.145 1	0.83 - 0.84 0.835 0	228.4 - 3769 1564.573 8	2.28 - 22.96 7.287 8
SH	4	2.075 - 2.09 2.084 0	0.031 - 0.435 0.060 1	0.075 - 0.25 0.101 1	5.18 - 5.225 5.206 0	2.075 - 2.09 2.084 0	15.87 - 248.8 60.964 4	5.18 - 5.225 5.206 0	0.12 - 0.128 0.124 0	0.83 - 0.835 0.832 0	7.73 - 41.46 15.077 4	0.83 - 6.84 1.411 1
SS	28	0.82 - 6.92 2.039 2	0.03 - 0.356 0.087 17	0.04 - 1.99 0.084 7	5.02 - 27.16 7.123 8	0.805 - 10.35 2.744 17	4.614 - 355.6 45.717 28	5.02 - 16.32 5.990 4	0.12 - 43.17 8.828 27	0.81 - 0.84 0.828 0	4.58 - 564.9 48.837 28	0.805 - 35.34 3.161 18
SSDS	12	1.985 - 2.09 2.050 0	0.03 - 0.31 0.056 4	0.06 - 1.49 0.099 2	4.965 - 15.27 5.964 2	0.18 - 4.95 1.263 4	7.478 - 350.8 54.351 12	4.97 - 5.225 5.126 0	0.12 - 30.58 2.633 9	0.8 - 1.78 0.875 1	2.02 - 598.4 30.591 11	0.795 - 2043 3.286 7
CP	32	5.98 - 24485 89.068 32	0.036 - 6.412 0.783 27	0.04 - 71.41 1.041 27	10.95 - 2244 82.231 32	0.825 - 1E+05 91.953 29	35.06 - 12650 652.694 32	5.16 - 306.1 19.227 21	0.12 - 0.735 0.145 3	0.83 - 77.54 3.463 20	146.4 - 9747 1240.066 32	3.09 - 518.5 45.347 32
CPDS	8	2.05 - 107.4 14.942 7	0.243 - 2.891 0.639 8	0.04 - 0.36 0.079 2	24.32 - 227.1 66.750 8	0.82 - 15.07 5.112 5	932.3 - 11357 2717.631 8	5.06 - 115.6 30.219 6	0.12 - 0.125 0.122 0	0.81 - 9.42 2.101 5	790.4 - 8879 2077.501 8	40.54 - 454.3 108.112 8
G	52	0.515 - 2.12 1.970 1	0.021 - 2.289 0.098 30	0.04 - 2.69 0.129 25	1.4 - 206 18.249 37	0.35 - 13.32 1.844 24	58 - 17670 829.383 52	5.08 - 55.99 7.399 14	0.12 - 6.826 0.228 17	0.81 - 3.11 0.852 1	10.25 - 1252 186.754 52	0.82 - 120.7 10.782 50
SG	16	0.96 - 187.7 10.714 12	0.031 - 0.515 0.051 3	0.04 - 1.77 0.085 2	9.61 - 8551 231.112 14	0.39 - 45.88 2.632 8	14.6 - 41710 1815.402 16	9.61 - 4380 196.008 14	0.12 - 0.269 0.144 0	0.82 - 15.24 1.645 1	2.075 - 167.1 13.873 13	1.535 - 479.7 31.177 15

Legend

Range Min. - Max. Values
<--- Geometric Mean
<--- Samples > Limit of Detection

Table 12
Comparison of Geometric Mean Concentrations of Health-Related Agents
for Paired Untreated and Dust Suppressant Treated Abrasives
Note: Unless noted, all concentrations in micrograms per gram

Paired Abrasives	Arsenic	Beryllium	Cadmium	Chromium	Lead	Manganese	Nickel	Respirable Quartz (mg/m ³)	Silver	Titanium	Vanadium
CS-06	1.65	1.93	0.09	48.6	2.14	175	30.9	0.12	1.03	1,385	56.2
CSDS-01	2.08	2.27	0.10	35.7	3.18	149	28.0	0.12	1.85	1,555	56.5
CS-01	8.27	2.29	0.10	36.1	4.76	104	23.9	0.12	0.83	1,312	47.8
CSDS-02	2.56	2.19	0.07	43.8	5.14	118	22.7	0.12	1.03	1,606	51.8
SS-01	2.07	0.05	0.16	5.18	2.80	36.4	6.39	15.5	0.83	40.5	1.37
SSDS-01	2.07	0.04	0.20	6.21	1.29	45.0	5.18	15.8	1.00	32.9	2.0
SS-04	2.08	0.20	0.08	10.1	2.59	177	6.92	2.49	0.83	256	11.4
SSDS-02	2.06	0.13	0.08	6.77	2.57	128	5.16	1.66	0.83	170	17.1
SS-03	2.06	0.04	0.08	5.15	2.06	31.6	5.15	4.19	0.82	12.1	1.09
SSDS-03	2.02	0.03	0.06	5.04	0.61	27.9	5.04	0.62	0.81	5.1	1.04
CP-2A/B	21.8	0.74	0.08	56.0	2.25	2,346	22.5	0.12	2.40	1,826	95.9
CPDS-1A/B	14.9	0.64	0.08	66.8	5.11	2,718	30.2	0.12	2.10	2,077	108.1

Table 13: Summary of Bulk Sample Results of Health Related Elements by Generic Category of Abrasive

Note: Unless noted, all concentrations in micrograms per gram

<i>Generic Abrasive</i>	<i>Number of Samples</i>	<i>Arsenic</i>	<i>Beryllium</i>	<i>Cadmium</i>	<i>Chromium</i>	<i>Lead</i>	<i>Manganese</i>	<i>Nickel</i>	<i>Quartz (%)</i>	<i>Silver</i>	<i>Titanium</i>	<i>Vanadium</i>
CG	1	0.25	0.02	0.01	1	6.3	0.66	1	0.4	0.15	0.25	0.15
		0.25	0.02	0.01	1	6.3	0.66	1	0.4	0.15	0.25	0.15
		0	0	0	0	1	1	0	0	0	0	0
CS	7	0.05 - 2.1	0.28 - 6.3	0.01 - 0.35	1 - 55	0.53 - 6.8	6 - 240	1 - 44	0.4	0.15 - 0.62	58 - 2000	3.6 - 100
		0.47	0.87	0.04	5.88	2.2	17.5	7.36	0.4	0.2	127.06	9.6
		4	7	1	5	7	7	6	0	2	7	7
CSDS	2	0.25 - 0.8	0.78 - 3.9	0.02	4.6 - 47	0.79 - 0.96	12 - 68	2.9 - 22	0.4 - 2.9	0.15 - 0.41	140 - 1600	7.4 - 57
		0.45	1.74	0.02	14.7	0.87	28.57	7.99	1.08	0.25	473.29	20.54
		1	2	0	2	2	2	2	1	1	2	2
N	2	0.25 - 15	0.047 - 0.28	0.02 - 0.35	120 - 400	0.62 - 7.5	97 - 150	640 - 660	0.4 - 2	0.15	13 - 150	4.2 - 13
		1.94	0.11	0.08	219.09	2.16	120.62	649.92	0.89	0.15	44.16	7.39
		1	2	0	2	2	2	2	0	0	2	2
O	1	0.33	0.01	0.35	49	0.49	510	1700	0.4	0.15	2.5	0.55
		0.33	0.01	0.35	49	0.49	510	1700	0.4	0.15	2.5	0.55
		1	0	0	1	1	1	1	0	0	1	1
S	2	0.25	0.01 - 0.013	0.02	2.1 - 3.2	6 - 8.4	8.9 - 13	1	0.9 - 1	0.15	140 - 190	1.9 - 3.6
		0.25	0.01	0.02	2.59	7.1	10.76	1	0.95	0.15	163.1	2.62
		0	1	0	2	2	2	0	2	0	2	2
SH	1	0.25	0.16	0.02	1	0.3	42	1	2	0.44	7.4	2
		0.25	0.16	0.02	1	0.3	42	1	2	0.44	7.4	2
		0	1	0	0	1	1	0	0	1	1	1
SS	7	0.2 - 1.5	0.01 - 0.074	0.02 - 0.35	1 - 3.7	0.2 - 0.89	0.13 - 88	1 - 3	39 - 81	0.15	2.7 - 82	0.15 - 6
		0.36	0.02	0.05	1.61	0.46	2.69	1.17	61.85	0.15	12.06	0.86
		2	4	0	3	7	7	1	7	0	7	5
SSDS	3	0.25	0.005 - 0.075	0.02	1 - 2.8	0.41 - 1.3	0.38 - 80	1 - 2.5	42 - 88	0.15 - 0.47	4.5 - 73	0.15 - 4.5
		0.25	0.02	0.02	1.41	0.61	3.93	1.36	66.34	0.22	13.45	0.61
		0	1	0	1	3	3	1	3	1	3	2
CP	8	6.625 - 405	0.448 - 1.45	0.245 - 8.3	7.1 - 158	2 - 850	20.5 - 2400	1.8 - 28.5	0.4	0.15 - 5.25	155 - 1350	5.95 - 94
		46.35	0.85	0.71	31.7	42.03	292.31	9.56	0.4	1.21	525.12	28.44
		6	8	3	8	8	8	7	0	6	8	8
CPDS	2	6.25	0.64	0.35	50.5	1.95	1950	29	0.4	0.52	795	70.5
		6.25	0.64	0.35	50.5	1.95	1950	29	0.4	0.52	795	70.5
		2	2	0	2	2	2	2	0	2	2	2
G	13	0.035 - 1.225	0.0075 - 0.116	0.01 - 0.35	1.55 - 34	0.175 - 3.1	99.5 - 385	1 - 16	0.4 - 4.45	0.18	8.8 - 98	1.1 - 7.35
		0.47	0.05	0.04	6.39	0.81	235.99	3.65	0.71	0.18	43.87	4.41
		5	9	1	10	12	13	6	4	0	13	13
SG	4	19.55 - 22	0.0075 - 0.018	0.18 - 0.185	41 - 1800	0.0925 - 10.1	920 - 9050	135 - 985	0.4	1.5 - 2.25	9.5 - 29.5	25 - 110
		20.74	0.01	0.18	271.66	0.97	2885.48	364.66	0.4	1.84	16.74	52.44
		4	1	0	4	2	4	4	0	0	4	4

Legend

Range
Min - Max
Values
<---- Geometric Mean
<---- Samples >
Limit of Detection