

Comparison of Airborne Concentrations to Bulk Concentrations - Respirable Quartz

NIOSH REL 0.05 milligrams/cubic meter
OSHA PEL As Calculated

Abrasive Type	@ Make-up Air Area	@ Operator Area	@ Exhaust Area	Operator 's Breathing Zone	Virgin Bulk Percentage
	Fixed Station #1 mg/m ³	Fixed Station #2 mg/m ³	Fixed Station #3 mg/m ³	(OBZ) mg/m ³	
CG-01	ND	ND	ND	ND	ND
CS-01	ND	ND	ND	ND	ND
CS-02	ND	ND	ND	ND	ND
CS-03	ND	ND	ND	ND	ND
CS-04	ND	ND	ND	ND	ND
CS-05	ND	ND	ND	ND	ND
CS-06	ND	ND	ND	ND	ND
CS-07	ND	ND	ND	ND	ND
CSDS-01	ND	ND	ND	ND	2.90
CSDS-02	ND	ND	ND	ND	ND
N-01	ND	ND	ND	ND	ND
N-02	ND	ND	ND	ND	ND
O-1	ND	ND	ND	ND	ND
S-01	ND	ND	ND	ND	1.00
S-02	ND	0.49	ND	ND	0.90
SH-01	ND	ND	ND	ND	ND
SS-01	6.34	19.96	33.75	13.49	81.00
SS-02	9.80	26.01	43.17	20.34	73.00
SS-03	2.43	11.07	3.89	2.93	75.00
SS-04	ND	12.98	3.19	7.54	55.00
SS-05	4.13	16.03	30.58	22.03	70.00
SS-06	5.16	10.10	17.02	12.03	39.00
SS-07	3.46	7.09	16.03	10.74	52.00
SSDS-01	5.61	21.09	30.58	17.05	79.00
SSDS-02	ND	4.18	4.38	3.42	42.00
SSDS-03	ND	2.10	ND	0.96	88.00
CP-1A	ND	ND	ND	ND	ND
CP-2A	ND	ND	ND	ND	ND
CP-3A	ND	ND	ND	ND	ND
CP-4A	ND	0.50	ND	0.74	ND
CPDS-1A	ND	ND	ND	ND	ND
G-1A	ND	ND	ND	ND	ND
G-2A	ND	0.49	0.49	0.50	4.40
G-3A	ND	0.98	0.98	6.83	ND
G-4A	ND	0.74	0.49	1.25	ND
G-5A	ND	ND	ND	ND	ND
G-6A	ND	ND	0.24	0.24	ND
G-7A	ND	ND	ND	ND	ND
SG-1A	ND	ND	ND	ND	ND
SG-2A	ND	ND	ND	ND	ND

Comparison of Airborne Concentrations to Bulk Concentrations - Respirable Cristobalite

NIOSH REL 0.05 milligrams/cubic meter
OSHA PEL As Calculated

Abrasive Type	@ Make-up Air Area	@ Operator Area	@ Exhaust Area	Operator 's Breathing Zone	Virgin Bulk Percentage
	Fixed Station #1 mg/m ³	Fixed Station #2 mg/m ³	Fixed Station #3 mg/m ³	(OBZ) mg/m ³	
CG-01	ND	ND	ND	ND	**
CS-01	ND	ND	ND	ND	ND
CS-02	ND	ND	ND	ND	ND
CS-03	ND	ND	ND	ND	ND
CS-04	ND	ND	ND	ND	ND
CS-05	ND	ND	ND	ND	ND
CS-06	ND	ND	ND	ND	ND
CS-07	ND	ND	ND	ND	**
CSDS-01	ND	ND	ND	ND	**
CSDS-02	ND	ND	ND	ND	ND
N-01	ND	ND	ND	ND	ND
N-02	ND	ND	ND	ND	ND
O-1	ND	ND	ND	ND	ND
S-01	ND	ND	ND	ND	ND
S-02	ND	ND	ND	ND	ND
SH-01	ND	ND	ND	ND	**
SS-01	ND	ND	ND	ND	ND
SS-02	ND	ND	ND	ND	ND
SS-03	ND	ND	ND	ND	ND
SS-04	ND	ND	ND	ND	ND
SS-05	ND	ND	ND	ND	ND
SS-06	ND	ND	ND	ND	ND
SS-07	ND	ND	ND	ND	**
SDDS-01	ND	ND	ND	ND	ND
SDDS-02	ND	ND	ND	ND	ND
SDDS-03	ND	ND	ND	ND	ND
CP-1A	ND	ND	ND	ND	ND
CP-2A	ND	ND	ND	ND	ND
CP-3A	ND	ND	ND	ND	ND
CP-4A	ND	ND	ND	ND	ND
CPDS-1A	ND	ND	ND	ND	ND
G-1A	ND	ND	ND	ND	ND
G-2A	ND	ND	ND	ND	ND
G-3A	ND	ND	ND	ND	ND
G-4A	ND	ND	ND	ND	ND
G-5A	ND	ND	ND	ND	ND
G-6A	ND	ND	ND	ND	ND
G-7A	ND	ND	ND	ND	ND
SG-1A	ND	ND	ND	ND	ND
SG-2A	ND	ND	ND	ND	ND

Comparison of Airborne Concentrations to Bulk Concentrations - Arsenic

NIOSH REL 2.0 micrograms/cubic meter Ceiling Limit
OSHA PEL 10.0 micrograms/cubic meter

Abrasive Type	@ Make-up Air Area Fixed Station #1	@ Operator Area Fixed Station #2	@ Exhaust Area Fixed Station #3	Operator's Breathing Zone (OBZ)	Virgin Bulk (ug/g)
	ug/m ³	ug/m ³	ug/m ³	ug/m ³	
CG-01	ND	ND	ND	ND	ND
CS-01	ND	10.00	24.76	9.18	1.40
CS-02	ND	ND	10.41	ND	1.60
CS-03	ND	ND	ND	ND	0.68
CS-04	ND	ND	ND	ND	ND
CS-05	ND	ND	ND	ND	ND
CS-06	ND	2.09	3.31	2.08	ND
CS-07	ND	ND	29.13	4.38	2.10
CSDS-01	ND	ND	ND	ND	ND
CSDS-02	ND	ND	4.76	ND	0.80
N-01	ND	ND	ND	ND	ND
N-02	19.81	37.41	170.80	35.28	15.00
O-1	ND	ND	ND	ND	0.33
S-01	ND	ND	ND	ND	ND
S-02	ND	ND	ND	ND	ND
SH-01	ND	ND	ND	ND	ND
SS-01	ND	ND	ND	ND	ND
SS-02	ND	ND	ND	ND	ND
SS-03	ND	ND	ND	ND	ND
SS-04	ND	ND	ND	ND	ND
SS-05	ND	ND	ND	ND	0.71
SS-06	ND	2.07	6.92	ND	1.50
SS-07	ND	ND	ND	ND	ND
SDDS-01	ND	ND	ND	ND	ND
SDDS-02	ND	ND	ND	ND	ND
SDDS-03	ND	ND	ND	ND	ND
CP-1A	5.98	18.64	29.05	17.18	13.00
CP-2A	6.60	16.73	99.54	45.70	18.00
CP-3A	51.63	196.12	1116.86	889.90	160.00
CP-4A	90.65	440.16	24484.80	3693.07	410.00
CPDS-1A	9.53	11.55	107.37	ND	5.70
G-1A	ND	ND	ND	ND	ND
G-2A	ND	ND	ND	ND	0.55
G-3A	ND	ND	ND	ND	0.50
G-4A	ND	ND	ND	ND	ND
G-5A	ND	ND	ND	ND	ND
G-6A	ND	ND	ND	ND	ND
G-7A	ND	ND	2.09	ND	ND
SG-1A	ND	ND	9.96	35.07	27.00
SG-2A	17.49	12.11	17.83	41.41	31.00

Comparison of Airborne Concentrations to Bulk Concentrations - Beryllium

NIOSH REL 0.50 micrograms/cubic meter

OSHA PEL 2.0 micrograms/cubic meter

Abrasive Type	@ Make-up Air Area	@ Operator Area	@ Exhaust Area	Operator 's Breathing Zone	Virgin Bulk (ug/g)
	Fixed Station #1 ug/m ³	Fixed Station #2 ug/m ³	Fixed Station #3 ug/m ³	(OBZ) ug/m ³	
CG-01	ND	0.10	0.13	0.08	ND
CS-01	0.62	2.29	10.11	1.92	5.70
CS-02	0.75	2.93	14.37	3.54	3.70
CS-03	0.35	2.07	4.77	1.82	3.20
CS-04	0.19	0.96	2.69	1.05	0.33
CS-05	0.31	1.42	3.35	1.87	0.28
CS-06	1.13	2.93	3.73	1.12	0.58
CS-07	1.94	6.26	24.97	3.96	6.30
CSDS-01	0.35	2.29	7.48	4.37	0.78
CSDS-02	0.66	2.48	3.93	3.56	3.90
N-01	ND	ND	0.11	ND	0.05
N-02	0.17	0.35	1.73	0.50	0.28
O-1	ND	ND	0.08	0.12	ND
S-01	ND	ND	0.29	ND	0.01
S-02	ND	0.12	0.14	ND	ND
SH-01	ND	ND	0.44	ND	0.16
SS-01	ND	0.07	ND	0.10	ND
SS-02	ND	ND	ND	ND	ND
SS-03	ND	ND	ND	ND	ND
SS-04	0.08	0.29	0.36	0.21	0.03
SS-05	ND	0.13	0.27	0.18	0.06
SS-06	0.14	0.15	0.29	0.14	0.05
SS-07	0.12	0.14	0.29	0.09	0.07
SSDS-01	0.12	ND	ND	ND	ND
SSDS-02	ND	0.14	0.31	0.14	0.08
SSDS-03	ND	ND	ND	ND	ND
CP-1A	0.39	0.18	0.23	0.13	0.04
CP-2A	0.17	0.82	3.94	1.64	0.77
CP-3A	0.50	1.19	6.41	5.59	1.40
CP-4A	0.70	1.05	6.12	0.90	1.00
CPDS-1A	0.30	0.56	2.89	0.31	0.47
G-1A	ND	ND	0.07	ND	ND
G-2A	ND	0.14	0.25	0.12	0.06
G-3A	ND	0.07	0.09	ND	0.04
G-4A	0.20	0.52	1.27	0.52	0.05
G-5A	0.07	0.13	ND	0.10	0.07
G-6A	0.10	0.23	2.29	1.80	0.07
G-7A	ND	ND	ND	0.23	ND
SG-1A	ND	ND	ND	ND	ND
SG-2A	0.52	0.20	ND	0.35	ND

Comparison of Airborne Concentrations to Bulk Concentrations - Cadmium

NIOSH REL - Limit of Quantification (Lowest Feasible Concentration)
 OSHA PEL 5.0 micrograms/cubic meter

Abrasive Type	@ Make-up Air Area Fixed Station #1	@ Operator Area Fixed Station #2	@ Exhaust Area Fixed Station #3	Operator's Breathing Zone (OBZ)	Virgin Bulk (ug/g)
	ug/m ³	ug/m ³	ug/m ³	ug/m ³	
CG-01	ND	ND	ND	ND	ND
CS-01	ND	ND	ND	0.25	ND
CS-02	ND	ND	ND	0.20	ND
CS-03	ND	ND	0.25	0.37	0.06
CS-04	ND	ND	ND	ND	ND
CS-05	ND	0.16	ND	1.35	ND
CS-06	0.56	ND	ND	ND	ND
CS-07	ND	0.25	1.21	2.71	ND
CSDS-01	ND	ND	ND	0.21	ND
CSDS-02	ND	ND	ND	ND	ND
N-01	ND	ND	ND	ND	ND
N-02	10.21	0.52	1.56	0.64	ND
O-1	ND	ND	ND	ND	ND
S-01	ND	ND	ND	0.23	ND
S-02	ND	ND	ND	ND	ND
SH-01	ND	ND	ND	0.25	ND
SS-01	ND	ND	ND	1.99	ND
SS-02	ND	ND	ND	ND	ND
SS-03	ND	ND	ND	ND	ND
SS-04	0.10	ND	0.14	ND	ND
SS-05	ND	ND	ND	0.12	ND
SS-06	ND	ND	0.13	0.13	ND
SS-07	ND	ND	0.17	ND	ND
SSDS-01	ND	0.23	ND	1.49	ND
SSDS-02	ND	ND	ND	ND	ND
SSDS-03	ND	ND	ND	ND	ND
CP-1A	0.27	0.79	2.49	0.78	0.48
CP-2A	ND	ND	0.10	0.15	ND
CP-3A	0.35	0.98	3.93	2.69	ND
CP-4A	2.06	16.14	71.41	13.13	8.30
CPDS-1A	ND	ND	ND	ND	ND
G-1A	ND	ND	ND	0.70	ND
G-2A	ND	ND	0.29	0.73	ND
G-3A	ND	0.14	0.48	1.65	ND
G-4A	ND	ND	0.45	0.19	ND
G-5A	ND	ND	ND	0.98	ND
G-6A	ND	0.25	0.44	2.69	ND
G-7A	ND	0.11	ND	0.59	ND
SG-1A	ND	ND	ND	0.56	ND
SG-2A	ND	ND	ND	ND	ND

Comparison of Airborne Concentrations to Bulk Concentrations - Lead

NIOSH REL 100.0 micrograms/cubic meter

OSHA PEL 50.0 micrograms/cubic meter

Abrasive Type	@ Make-up Air Area	@ Operator Area	@ Exhaust Area	Operator's Breathing Zone (OBZ)	Virgin Bulk (ug/g)
	Fixed Station #1 ug/m ³	Fixed Station #2 ug/m ³	Fixed Station #3 ug/m ³	ug/m ³	
CG-01	3.91	15.00	26.82	13.87	6.30
CS-01	2.27	5.42	10.52	3.96	2.20
CS-02	ND	7.53	33.33	11.46	6.20
CS-03	ND	ND	11.41	4.97	3.00
CS-04	ND	ND	ND	ND	0.95
CS-05	ND	1.94	5.02	ND	0.53
CS-06	ND	2.51	4.35	2.29	0.63
CS-07	3.71	7.92	35.37	10.22	6.80
CSDS-01	ND	3.12	12.67	3.12	0.79
CSDS-02	ND	88.92	4.14	2.30	0.96
N-01	ND	ND	2.28	1.82	0.62
N-02	5.11	13.72	49.99	14.11	7.50
O-1	ND	2.00	ND	ND	0.49
S-01	ND	4.80	25.05	9.39	8.40
S-02	2.92	15.08	33.33	8.56	6.00
SH-01	ND	ND	ND	ND	0.30
SS-01	ND	3.76	4.76	4.14	0.89
SS-02	8.31	ND	10.35	ND	0.39
SS-03	ND	ND	ND	ND	0.33
SS-04	ND	3.35	5.23	3.09	0.47
SS-05	ND	2.31	4.36	5.94	0.62
SS-06	ND	1.89	3.98	1.71	0.64
SS-07	ND	4.16	7.73	3.09	0.20
SSDS-01	ND	ND	2.06	1.95	0.41
SSDS-02	ND	ND	4.95	ND	1.30
SSDS-03	ND	0.18	ND	ND	0.42
CP-1A	7.84	20.71	56.03	23.04	12.00
CP-2A	ND	ND	9.75	3.74	1.90
CP-3A	140.44	459.00	2275.08	1593.54	330.00
CP-4A	391.43	2515.20	120383.60	2462.04	810.00
CPDS-1A	9.32	ND	15.07	ND	1.30
G-1A	ND	ND	ND	ND	0.83
G-2A	ND	ND	8.71	ND	ND
G-3A	ND	ND	2.10	ND	0.36
G-4A	ND	3.31	7.19	3.11	1.00
G-5A	ND	ND	4.37	1.82	0.84
G-6A	2.04	7.73	13.32	7.04	2.40
G-7A	ND	ND	2.50	2.30	0.13
SG-1A	ND	ND	ND	ND	ND
SG-2A	5.15	4.38	8.91	28.99	9.20

Comparison of Airborne Concentrations to Bulk Concentrations - Aluminum

NIOSH REL 10000.0 micrograms/cubic meter
OSHA PEL 15000.0 micrograms/cubic meter

Abrasive Type	@ Make-up Air Area	@ Operator Area	@ Exhaust Area	Operator 's Breathing Zone (OBZ)	Virgin Bulk (ug/g)
	Fixed Station #1 ug/m ³	Fixed Station #2 ug/m ³	Fixed Station #3 ug/m ³	ug/m ³	
CG-01	ND	127.08	121.72	134.55	ND
CS-01	8650.88	27083.33	125851.04	27128.55	57000.00
CS-02	11439.27	33444.82	143720.06	52094.19	25000.00
CS-03	9692.72	41416.44	153463.29	41416.44	47000.00
CS-04	5348.69	19254.92	51770.55	26759.98	2600.00
CS-05	4128.82	17316.92	43951.44	22689.90	1700.00
CS-06	18557.13	48167.54	55889.05	35387.18	2200.00
CS-07	19357.50	50041.70	228880.57	45871.56	5300.00
CSDS-01	70598.01	37492.19	116279.07	56168.09	4500.00
CSDS-02	8860.50	33085.19	132477.75	46044.37	48000.00
N-01	589.31	2919.10	11589.40	5942.62	790.00
N-02	8578.43	16836.42	77067.28	14318.32	6900.00
O-1	267.71	375.86	1130.06	544.16	190.00
S-01	228.41	605.55	6263.05	1043.19	460.00
S-02	291.79	2010.05	2500.00	814.37	320.00
SH-01	83.54	162.98	393.86	147.67	72.00
SS-01	412.88	2505.22	2481.90	2484.47	200.00
SS-02	727.20	3545.36	3311.26	3496.50	170.00
SS-03	122.79	378.15	1185.12	463.62	49.00
SS-04	1024.89	5441.61	7740.59	4939.29	1200.00
SS-05	261.15	1174.50	2702.14	2049.60	190.00
SS-06	1992.27	4973.06	33.56	2717.96	870.00
SS-07	1045.94	2493.25	7102.57	1175.50	7400.00
SSDS-01	349.94	1839.46	2887.19	2483.44	370.00
SSDS-02	770.99	2916.67	7016.10	4253.60	1300.00
SSDS-03	42.44	186.69	238.85	227.93	92.00
CP-1A	515.57	2485.50	3320.19	1571.01	310.00
CP-2A	8458.84	25094.10	157610.95	60240.96	29000.00
CP-3A	7434.94	20029.21	113753.88	97268.21	23000.00
CP-4A	3296.25	15510.38	81616.00	16413.62	3700.00
CPDS-1A	11552.49	19385.44	144538.51	53311.46	19000.00
G-1A	1703.72	6893.67	22835.79	17174.40	960.00
G-2A	1053.74	7003.40	10364.84	4371.36	690.00
G-3A	3103.02	9561.42	35676.81	3750.78	1100.00
G-4A	12997.56	13024.60	98623.38	26993.36	1100.00
G-5A	1193.91	5396.43	19771.07	29270.33	1300.00
G-6A	8523.91	41806.02	87390.76	14495.75	1100.00
G-7A	3713.64	8502.70	22945.35	5654.45	1600.00
SG-1A	95.96	130.71	180.57	146.48	20.00
SG-2A	370.45	396.66	393.86	1511.39	450.00

Comparison of Airborne Concentrations to Bulk Concentrations - Barium

NIOSH REL 500.0 micrograms/cubic meter

OSHA PEL 500.0 micrograms/cubic meter

Abrasive Type	@ Make-up Air Area	@ Operator Area	@ Exhaust Area	Operator 's Breathing Zone	Virgin Bulk (ug/g)
	Fixed Station #1 ug/m ³	Fixed Station #2 ug/m ³	Fixed Station #3 ug/m ³	(OBZ) ug/m ³	
CG-01	ND	1.21	1.77	1.28	ND
CS-01	47.37	143.75	618.94	141.90	270.00
CS-02	58.24	169.31	666.53	250.05	100.00
CS-03	288.72	1263.20	4562.42	1263.20	1500.00
CS-04	61.72	209.29	579.83	288.18	27.00
CS-05	19.82	83.46	209.29	105.23	11.00
CS-06	77.15	194.76	227.70	145.71	9.50
CS-07	350.08	917.43	3953.39	771.48	67.00
CSDS-01	29.07	152.05	456.81	228.83	19.00
CSDS-02	47.39	177.83	620.99	230.22	220.00
N-01	2.64	11.88	41.39	22.54	4.30
N-02	81.70	155.89	687.36	134.88	66.00
O-1	1.36	3.97	5.34	3.56	1.40
S-01	1.10	3.13	14.61	5.01	3.50
S-02	2.00	10.68	22.92	6.89	4.00
SH-01	1.42	3.34	16.38	2.91	0.99
SS-01	1.24	5.01	6.41	6.83	0.65
SS-02	8.93	22.94	39.32	24.68	0.80
SS-03	ND	1.47	2.04	1.79	ND
SS-04	8.78	35.58	46.03	32.93	7.80
SS-05	ND	2.10	4.16	3.89	ND
SS-06	20.33	49.73	8.81	37.63	2.20
SS-07	20.51	58.18	83.56	33.00	3.20
SDDS-01	ND	4.18	5.77	4.97	0.94
SDDS-02	6.46	22.92	43.33	44.56	6.60
SDDS-03	ND	ND	ND	ND	ND
CP-1A	5.16	22.78	33.20	17.80	4.70
CP-2A	105.22	271.85	1576.11	623.18	270.00
CP-3A	598.93	1460.46	8686.66	7657.28	1700.00
CP-4A	535.64	1823.52	9997.96	2031.19	500.00
CPDS-1A	125.66	226.85	1445.39	533.11	190.00
G-1A	1.70	6.48	9.76	4.70	15.00
G-2A	1.24	5.94	6.22	6.87	1.40
G-3A	ND	1.85	2.94	1.35	0.70
G-4A	3.25	5.38	20.55	8.10	1.90
G-5A	ND	1.58	3.12	2.09	0.73
G-6A	7.69	45.99	43.70	39.35	6.40
G-7A	1.09	4.77	7.51	3.77	0.22
SG-1A	1.55	1.58	3.32	15.06	4.40
SG-2A	2.26	2.51	3.52	11.59	3.30

Comparison of Airborne Concentrations to Bulk Concentrations - Calcium

NIOSH REL 10000.0 micrograms/cubic meter

OSHA PEL 15000.0 micrograms/cubic meter

Abrasive Type	@ Make-up Air Area	@ Operator Area	@ Exhaust Area	Operator 's Breathing Zone	Virgin Bulk (ug/g)
	Fixed Station #1 ug/m ³	Fixed Station #2 ug/m ³	Fixed Station #3 ug/m ³	(OBZ) ug/m ³	
CG-01	288.30	3125.00	4951.52	1655.97	55.00
CS-01	18331.62	54166.67	247575.82	54257.10	130000.00
CS-02	6239.60	22993.31	106227.87	35424.05	30000.00
CS-03	10930.09	47628.91	174201.58	47628.91	58000.00
CS-04	4525.82	15906.24	43487.26	20584.60	2500.00
CS-05	1218.00	4381.39	10673.92	5919.11	540.00
CS-06	5629.69	13821.99	16973.71	10199.83	760.00
CS-07	7413.51	22935.78	99875.16	17723.10	3100.00
CSDS-01	2014.12	10831.08	33222.59	15810.28	1500.00
CSDS-02	19163.40	74441.69	289795.07	104646.30	110000.00
N-01	447.06	1980.82	6622.52	3688.52	610.00
N-02	4697.71	9561.42	43740.89	9130.53	4000.00
O-1	152.39	375.86	493.12	523.23	130.00
S-01	155.73	204.64	459.29	292.09	79.00
S-02	95.87	293.13	375.00	250.57	53.00
SH-01	133.67	208.94	16.38	178.87	46.00
SS-01	64.00	123.17	126.16	269.15	11.00
SS-02	249.32	458.81	475.99	658.17	23.00
SS-03	ND	189.08	200.25	221.73	140.00
SS-04	1547.79	9836.75	11715.48	9055.36	2800.00
SS-05	ND	69.21	168.36	133.22	ND
SS-06	569.22	1367.59	482.38	899.02	290.00
SS-07	471.70	1745.27	4804.68	1299.24	600.00
SDDS-01	86.46	175.59	202.10	180.05	23.00
SDDS-02	1687.85	6458.33	17333.88	5468.91	3600.00
SDDS-03	68.71	119.17	151.27	147.12	13.00
CP-1A	1257.99	6628.00	8092.97	3560.96	730.00
CP-2A	33010.11	102467.59	642886.77	249272.95	120000.00
CP-3A	22717.89	73023.16	310237.85	310430.46	91000.00
CP-4A	8652.66	39823.94	204039.99	41034.06	12000.00
CPDS-1A	46615.32	80428.95	598802.40	225548.49	90000.00
G-1A	394.76	1671.19	6850.74	2453.49	900.00
G-2A	191.78	933.79	1471.81	770.19	180.00
G-3A	351.68	976.93	3357.82	500.10	250.00
G-4A	2843.22	3101.10	20546.54	5813.95	510.00
G-5A	741.05	2013.28	6659.73	4390.55	1800.00
G-6A	3326.40	16722.41	31210.99	6212.47	600.00
G-7A	70146.48	163832.43	438047.56	125654.45	37000.00
SG-1A	116.37	394.19	684.93	392.00	76.00
SG-2A	61.74	121.09	116.09	124.22	ND

Comparison of Airborne Concentrations to Bulk Concentrations - Cobalt

NIOSH REL 50.0 micrograms/cubic meter

OSHA PEL 100.0 micrograms/cubic meter

Abrasive Type	@ Make-up Air Area	@ Operator Area	@ Exhaust Area	Operator's Breathing Zone	Virgin Bulk (ug/g)
	Fixed Station #1 ug/m ³	Fixed Station #2 ug/m ³	Fixed Station #3 ug/m ³	(OBZ) ug/m ³	
CG-01	ND	9.58	6.19	4.35	1.10
CS-01	ND	ND	24.76	ND	9.10
CS-02	ND	10.87	49.99	16.05	8.20
CS-03	ND	12.42	49.77	12.84	15.00
CS-04	ND	ND	9.11	ND	0.55
CS-05	ND	4.59	12.77	ND	0.83
CS-06	ND	8.59	15.94	6.66	ND
CS-07	6.18	25.02	131.09	20.02	2.80
CSDS-01	ND	5.42	22.84	11.65	0.97
CSDS-02	ND	6.62	19.66	5.44	7.00
N-01	6.30	19.81	95.20	49.18	11.00
N-02	245.10	519.64	2291.19	435.78	250.00
O-1	37.07	75.17	193.14	33.49	74.00
S-01	ND	ND	ND	ND	ND
S-02	ND	ND	ND	ND	ND
SH-01	ND	ND	ND	ND	ND
SS-01	ND	ND	ND	ND	ND
SS-02	ND	ND	ND	ND	ND
SS-03	ND	ND	ND	ND	ND
SS-04	ND	ND	ND	ND	0.73
SS-05	ND	ND	5.40	4.92	0.95
SS-06	ND	ND	ND	ND	ND
SS-07	ND	ND	7.10	ND	ND
SSDS-01	ND	ND	ND	ND	ND
SSDS-02	ND	ND	ND	ND	0.97
SSDS-03	ND	ND	ND	ND	ND
CP-1A	9.07	29.00	99.61	33.51	8.50
CP-2A	8.05	27.19	155.54	60.24	30.00
CP-3A	7.23	18.99	70.32	68.29	17.00
CP-4A	20.60	100.61	550.91	125.15	35.00
CPDS-1A	13.38	22.69	144.54	49.21	26.00
G-1A	ND	ND	6.64	ND	ND
G-2A	ND	23.34	ND	ND	ND
G-3A	ND	ND	ND	ND	ND
G-4A	ND	4.96	28.77	7.27	1.80
G-5A	ND	ND	7.70	11.71	ND
G-6A	4.37	20.90	37.45	12.01	1.40
G-7A	ND	ND	ND	ND	ND
SG-1A	6.33	ND	17.85	125.85	31.00
SG-2A	32.93	35.49	47.68	196.69	56.00

Comparison of Airborne Concentrations to Bulk Concentrations - Chromium

NIOSH REL 500.0 micrograms/cubic meter

OSHA PEL 500.0 micrograms/cubic meter

Abrasive Type	@ Make-up Air Area	@ Operator Area	@ Exhaust Area	Operator 's Breathing Zone	Virgin Bulk (ug/g)
	Fixed Station #1 ug/m ³	Fixed Station #2 ug/m ³	Fixed Station #3 ug/m ³	(OBZ) ug/m ³	
CG-01	ND	16.67	22.69	12.63	ND
CS-01	11.74	35.42	129.98	31.30	55.00
CS-02	19.34	54.35	229.12	85.43	38.00
CS-03	10.72	43.49	136.87	37.27	37.00
CS-04	ND	17.16	39.35	20.58	ND
CS-05	ND	20.86	46.04	27.29	ND
CS-06	22.94	52.36	111.78	41.63	2.40
CS-07	32.95	81.32	332.92	72.98	7.70
CSDS-01	ND	43.74	118.36	60.33	4.60
CSDS-02	11.95	41.36	136.62	54.42	47.00
N-01	345.46	1772.31	7036.42	3688.52	400.00
N-02	138.89	270.21	1270.57	249.01	120.00
O-1	65.90	96.05	246.56	119.30	49.00
S-01	ND	ND	33.40	ND	3.20
S-02	ND	14.45	16.46	ND	2.10
SH-01	ND	ND	ND	ND	ND
SS-01	ND	ND	ND	ND	ND
SS-02	ND	ND	ND	ND	ND
SS-03	ND	ND	ND	ND	ND
SS-04	ND	12.56	14.64	10.91	2.70
SS-05	ND	12.79	24.94	18.04	3.70
SS-06	ND	13.05	ND	ND	2.80
SS-07	ND	ND	27.16	ND	ND
SSDS-01	ND	ND	10.72	ND	ND
SSDS-02	ND	ND	15.27	ND	2.80
SSDS-03	ND	ND	ND	ND	ND
CP-1A	12.99	70.42	130.73	48.18	7.60
CP-2A	20.01	52.28	290.34	105.94	46.00
CP-3A	10.95	22.95	101.34	93.13	17.00
CP-4A	105.07	419.20	2244.44	471.89	96.00
CPDS-1A	24.32	37.12	227.13	96.37	28.00
G-1A	ND	20.47	62.28	47.03	4.00
G-2A	ND	ND	11.61	ND	ND
G-3A	ND	27.02	25.18	ND	3.70
G-4A	18.07	16.95	98.62	1.40	ND
G-5A	ND	14.94	41.62	60.63	3.50
G-6A	24.95	108.70	205.99	43.49	3.00
G-7A	ND	13.27	31.29	12.77	ND
SG-1A	12.25	18.26	72.64	226.94	48.00
SG-2A	1008.44	939.46	1264.51	5175.98	1700.00

Comparison of Airborne Concentrations to Bulk Concentrations - Copper

NIOSH REL 1000.0 micrograms/cubic meter

OSHA PEL 1000.0 micrograms/cubic meter

Abrasive Type	@ Make-up Air Area	@ Operator Area	@ Exhaust Area	Operator's Breathing Zone	Virgin Bulk (ug/g)
	Fixed Station #1 ug/m ³	Fixed Station #2 ug/m ³	Fixed Station #3 ug/m ³	(OBZ) ug/m ³	
CG-01	2.47	13.13	11.14	33.12	ND
CS-01	3.09	10.63	39.20	9.39	11.00
CS-02	6.45	22.99	91.65	35.42	13.00
CS-03	6.39	26.92	95.40	26.92	31.00
CS-04	11.52	20.93	51.77	26.76	9.40
CS-05	3.72	9.39	83.72	14.47	1.10
CS-06	10.63	16.34	68.31	13.95	0.98
CS-07	17.92	50.04	228.88	62.55	7.00
CSDS-01	2.28	12.71	182.72	17.27	1.30
CSDS-02	3.71	9.72	26.91	12.56	8.30
N-01	2.24	9.17	39.32	19.47	5.10
N-02	110.29	270.21	1041.45	269.77	170.00
O-1	3.29	11.07	13.56	18.00	3.90
S-01	ND	2.51	9.81	1.98	0.52
S-02	ND	2.72	3.54	2.09	0.36
SH-01	ND	2.72	9.33	6.03	0.60
SS-01	ND	1.94	ND	2.48	ND
SS-02	ND	2.71	2.28	3.91	ND
SS-03	ND	1.95	ND	3.02	ND
SS-04	1.69	9.84	17.78	10.50	3.60
SS-05	1.65	5.87	13.72	6.97	1.90
SS-06	2.24	5.18	50.34	3.76	0.91
SS-07	5.54	29.09	43.87	37.12	0.45
SSDS-01	ND	3.76	8.66	5.79	0.33
SSDS-02	ND	12.92	15.89	4.86	2.90
SSDS-03	ND	ND	3.78	2.07	ND
CP-1A	969.27	2692.63	8507.99	3142.02	1400.00
CP-2A	433.26	1338.35	7465.78	3115.91	1500.00
CP-3A	1011.98	4172.75	16132.37	12210.26	3200.00
CP-4A	2678.20	19911.97	71414.00	12925.73	8300.00
CPDS-1A	587.76	928.03	7433.41	2665.57	1000.00
G-1A	ND	ND	2.28	2.25	0.54
G-2A	ND	4.46	4.98	3.75	0.49
G-3A	ND	1.81	3.78	7.92	0.88
G-4A	8.53	17.99	55.48	24.92	3.90
G-5A	ND	ND	3.12	1.74	ND
G-6A	4.57	22.99	41.61	24.85	5.00
G-7A	1.77	17.21	39.63	10.26	0.53
SG-1A	26.54	17.63	85.10	536.41	170.00
SG-2A	679.15	626.30	974.30	3933.75	1200.00

Comparison of Airborne Concentrations to Bulk Concentrations - Iron

NIOSH REL 5000.0 micrograms/cubic meter

OSHA PEL 10000.0 micrograms/cubic meter

Abrasive Type	@ Make-up Air Area	@ Operator Area	@ Exhaust Area	Operator 's Breathing Zone	Virgin Bulk (ug/g)
	Fixed Station #1 ug/m ³	Fixed Station #2 ug/m ³	Fixed Station #3 ug/m ³	(OBZ) ug/m ³	
CG-01	1235.58	7916.67	8046.21	7658.87	23.00
CS-01	9474.77	33333.33	117598.51	29215.36	36000.00
CS-02	9983.36	31354.52	112476.57	45842.88	17000.00
CS-03	10723.86	43487.26	138946.50	45558.09	39000.00
CS-04	3291.50	13813.31	28991.51	15026.76	1500.00
CS-05	6606.11	29209.26	66973.63	36172.31	3300.00
CS-06	29190.99	73298.43	122127.92	56203.16	3500.00
CS-07	20593.08	56296.91	228880.57	54211.84	6500.00
CSDS-01	12043.19	64569.88	172342.19	87372.58	7200.00
CSDS-02	7212.03	33085.19	89008.49	37672.67	25000.00
N-01	7112.38	37531.28	134519.87	69672.13	9000.00
N-02	93954.25	178757.02	833159.76	161859.31	84000.00
O-1	17092.26	37586.13	90404.77	20929.26	37000.00
S-01	1266.61	5011.48	14405.01	6050.49	230.00
S-02	1438.10	7747.07	10416.67	6681.98	96.00
SH-01	7518.80	20685.33	95356.55	13935.11	23000.00
SS-01	1073.49	4384.13	5791.11	6004.14	59.00
SS-02	1288.18	5630.87	5173.84	6375.98	190.00
SS-03	770.03	4201.68	4699.63	4233.02	58.00
SS-04	2070.70	13604.02	18200.84	13377.24	2900.00
SS-05	2410.61	8389.26	19538.56	12297.60	2800.00
SS-06	2032.93	7252.38	1887.58	5854.07	1800.00
SS-07	1476.62	5609.81	17338.63	4330.79	1100.00
SSDS-01	905.72	5016.72	8867.81	7864.24	190.00
SSDS-02	1937.90	9166.67	20635.58	9925.06	2800.00
SSDS-03	687.15	2383.32	4976.11	3729.80	110.00
CP-1A	30934.21	118061.31	332019.09	117302.05	35000.00
CP-2A	30946.98	89920.54	476980.51	182800.17	85000.00
CP-3A	49566.29	143959.94	579110.65	558774.83	160000.00
CP-4A	65925.01	335359.46	1754743.93	348789.50	94000.00
CPDS-1A	40535.06	65992.99	433615.53	157883.95	56000.00
G-1A	4155.41	16920.83	51899.52	38846.86	2200.00
G-2A	3161.22	21222.41	31094.53	14987.51	2500.00
G-3A	9102.19	29099.98	96537.25	13336.11	3500.00
G-4A	34524.78	35145.75	226011.92	68521.59	3400.00
G-5A	3499.38	14943.96	49947.97	66903.62	3000.00
G-6A	19126.82	94063.55	181023.72	41416.44	3600.00
G-7A	57767.69	130651.18	312891.11	98429.32	27000.00
SG-1A	142915.48	112033.20	518887.51	3507324.12	890000.00
SG-2A	432187.69	417536.53	601160.86	2484472.05	800000.00

Comparison of Airborne Concentrations to Bulk Concentrations - Lithium

NIOSH REL 25.0 micrograms/cubic meter

OSHA PEL 25.0 micrograms/cubic meter

Abrasive Type	@ Make-up Air Area	@ Operator Area	@ Exhaust Area	Operator 's Breathing Zone	Virgin Bulk (ug/g)
	Fixed Station #1 ug/m ³	Fixed Station #2 ug/m ³	Fixed Station #3 ug/m ³	(OBZ) ug/m ³	
CG-01	ND	ND	ND	ND	ND
CS-01	6.80	22.92	99.03	20.87	44.00
CS-02	11.65	31.36	131.22	47.93	26.00
CS-03	5.98	24.85	91.25	24.85	33.00
CS-04	5.14	18.42	49.70	24.70	2.80
CS-05	3.92	14.19	37.67	18.42	1.60
CS-06	16.06	39.79	43.47	29.14	1.70
CS-07	16.27	41.70	187.27	41.70	6.10
CSDS-01	6.02	31.24	97.59	47.85	4.30
CSDS-02	7.01	26.88	103.50	37.67	36.00
N-01	ND	1.31	4.35	2.05	0.27
N-02	3.88	7.69	33.33	6.23	3.10
O-1	0.64	1.50	3.90	ND	1.30
S-01	ND	ND	20.46	2.50	0.13
S-02	ND	5.24	3.96	1.36	0.17
SH-01	ND	ND	ND	ND	ND
SS-01	ND	ND	ND	0.66	ND
SS-02	ND	ND	0.64	1.01	ND
SS-03	ND	ND	1.02	ND	ND
SS-04	1.17	5.86	9.00	5.56	1.80
SS-05	ND	ND	0.73	0.64	ND
SS-06	1.36	3.73	ND	1.05	1.50
SS-07	ND	1.16	3.97	ND	1.00
SSDS-01	ND	0.67	1.11	1.20	0.20
SSDS-02	ND	2.71	9.91	2.84	2.60
SSDS-03	ND	ND	ND	ND	ND
CP-1A	0.80	2.90	6.02	2.72	0.84
CP-2A	7.43	19.03	114.06	43.62	19.00
CP-3A	5.16	12.94	64.12	49.67	11.00
CP-4A	1.81	11.95	55.09	11.70	3.40
CPDS-1A	9.12	15.47	99.11	43.06	13.00
G-1A	ND	0.63	2.08	1.10	0.36
G-2A	ND	2.55	2.90	1.81	0.39
G-3A	1.37	2.91	8.60	1.46	0.27
G-4A	5.28	7.24	41.09	12.67	1.80
G-5A	ND	1.04	2.29	2.51	0.33
G-6A	1.27	4.81	7.49	3.11	0.82
G-7A	ND	ND	ND	ND	ND
SG-1A	ND	ND	ND	ND	ND
SG-2A	ND	ND	8.50	ND	ND

Comparison of Airborne Concentrations to Bulk Concentrations - Magnesium

NIOSH REL 10000.0 micrograms/cubic meter (nuisance)

OSHA PEL 15000.0 micrograms/cubic meter

Abrasive Type	@ Make-up Air Area	@ Operator Area	@ Exhaust Area	Operator 's Breathing Zone	Virgin Bulk (ug/g)
	Fixed Station #1 ug/m ³	Fixed Station #2 ug/m ³	Fixed Station #3 ug/m ³	(OBZ) ug/m ³	
CG-01	82.37	958.33	1506.09	476.09	17.00
CS-01	1194.64	3541.67	16917.68	3547.58	7900.00
CS-02	561.56	1776.76	7498.44	2708.90	1500.00
CS-03	1608.58	6833.71	24885.94	6833.71	8500.00
CS-04	576.01	2092.93	5591.22	2881.84	290.00
CS-05	247.73	918.01	2302.22	1216.71	110.00
CS-06	854.88	2094.24	2483.96	1727.73	100.00
CS-07	1400.33	3961.63	17686.23	3336.11	420.00
CSDS-01	311.46	1728.81	5191.03	2496.36	210.00
CSDS-02	1256.95	4962.78	19250.67	6697.36	7000.00
N-01	11176.59	56296.91	269039.74	125000.00	18000.00
N-02	5310.46	11016.42	49989.59	9338.04	4600.00
O-1	86490.94	183754.44	493116.91	85809.96	180000.00
S-01	19.52	25.06	250.52	54.25	6.00
S-02	13.76	85.85	70.83	22.97	2.70
SH-01	29.24	35.52	101.58	33.28	20.00
SS-01	ND	19.00	26.89	35.20	ND
SS-02	54.02	89.68	88.99	109.01	2.30
SS-03	20.81	58.82	67.43	80.63	2.00
SS-04	941.23	6069.49	7531.38	5556.70	1900.00
SS-05	24.11	62.92	122.64	149.62	4.60
SS-06	304.94	725.24	41.95	480.87	470.00
SS-07	133.31	498.65	1253.39	350.59	240.00
SSDS-01	14.82	58.53	88.68	68.29	9.90
SSDS-02	958.53	3750.00	10936.86	3038.28	2400.00
SSDS-03	ND	21.85	59.71	60.09	4.90
CP-1A	350.59	1304.89	3942.73	1340.59	400.00
CP-2A	5157.83	14847.34	93322.27	37390.94	16000.00
CP-3A	2684.84	6467.77	37228.54	35182.12	7500.00
CP-4A	1936.55	8593.59	42848.40	8617.15	2300.00
CPDS-1A	7093.64	11961.23	84658.27	32807.05	13000.00
G-1A	706.42	2924.59	9757.11	7360.46	560.00
G-2A	162.28	1039.90	1534.00	645.30	130.00
G-3A	434.42	1787.57	5036.73	541.78	200.00
G-4A	1462.23	1777.96	11506.06	3322.26	390.00
G-5A	452.86	1951.02	7075.96	10035.54	590.00
G-6A	2910.60	14423.08	27049.52	5177.06	600.00
G-7A	150.61	373.29	750.94	481.68	64.00
SG-1A	51.04	56.02	139.06	247.58	110.00
SG-2A	55.57	66.81	47.68	207.04	37.00

Comparison of Airborne Concentrations to Bulk Concentrations - Manganese

NIOSH REL 1000.0 micrograms/cubic meter
 OSHA PEL 5000.0 micrograms/cubic meter Ceiling Limit

Abrasive Type	@ Make-up Air Area	@ Operator Area	@ Exhaust Area	Operator's Breathing Zone	Virgin Bulk (ug/g)
	Fixed Station #1 ug/m ³	Fixed Station #2 ug/m ³	Fixed Station #3 ug/m ³	(OBZ) ug/m ³	
CG-01	13.39	93.75	101.09	82.80	0.66
CS-01	28.84	122.92	309.47	108.51	94.00
CS-02	27.04	106.61	270.78	131.28	36.00
CS-03	61.87	269.21	829.53	289.92	240.00
CS-04	37.03	169.53	352.04	181.15	14.00
CS-05	26.84	112.66	230.22	134.82	6.00
CS-06	64.64	186.39	538.19	143.63	6.30
CS-07	78.25	250.21	873.91	229.36	31.00
CSDS-01	31.15	172.88	456.81	201.79	12.00
CSDS-02	26.79	167.49	289.80	148.60	68.00
N-01	117.86	625.52	2483.44	1209.02	150.00
N-02	122.55	270.21	1083.11	249.01	97.00
O-1	247.12	584.67	1376.62	313.94	510.00
S-01	19.52	79.35	521.92	160.65	13.00
S-02	52.11	230.32	270.83	108.58	8.90
SH-01	15.87	73.13	248.76	47.84	42.00
SS-01	10.94	48.02	59.98	55.90	0.13
SS-02	11.43	52.14	47.60	59.65	0.61
SS-03	8.12	46.22	53.13	50.39	0.31
SS-04	37.65	272.08	355.65	267.55	88.00
SS-05	11.05	35.65	135.11	59.44	2.10
SS-06	20.33	78.74	4.61	62.72	16.00
SS-07	14.97	60.25	181.74	43.31	14.00
SSDS-01	10.09	54.35	92.80	80.71	2.00
SSDS-02	33.34	147.92	350.81	153.94	80.00
SSDS-03	7.48	31.78	61.70	41.44	0.38
CP-1A	35.06	126.35	290.52	131.97	17.00
CP-2A	701.47	2091.18	12650.35	4777.73	2200.00
CP-3A	202.40	792.82	2895.55	2690.40	590.00
CP-4A	142.15	628.80	3264.64	738.61	190.00
CPDS-1A	932.31	1629.20	11356.60	4305.93	1600.00
G-1A	68.56	271.57	871.91	674.71	31.00
G-2A	115.91	870.12	1285.24	457.95	55.00
G-3A	517.17	1309.50	5036.73	541.78	130.00
G-4A	2437.04	2274.14	17670.02	4775.75	100.00
G-5A	92.63	394.36	1394.38	2048.92	89.00
G-6A	561.33	2717.39	6034.12	1097.54	61.00
G-7A	226.95	539.20	1418.44	418.85	100.00
SG-1A	285.83	601.66	1992.53	3919.95	1200.00
SG-2A	4733.48	4801.67	7669.98	26915.11	8900.00

Comparison of Airborne Concentrations to Bulk Concentrations - Molybdenum

NIOSH REL 10000.0 micrograms/cubic meter (nuisance)

OSHA PEL 15000.0 micrograms/cubic meter

Abrasive Type	@ Make-up Air Area	@ Operator Area	@ Exhaust Area	Operator 's Breathing Zone	Virgin Bulk (ug/g)
	Fixed Station #1 ug/m ³	Fixed Station #2 ug/m ³	Fixed Station #3 ug/m ³	(OBZ) ug/m ³	
CG-01	ND	ND	ND	ND	ND
CS-01	ND	ND	12.38	ND	1.40
CS-02	ND	ND	ND	12.92	1.60
CS-03	ND	ND	6.43	ND	3.40
CS-04	ND	ND	ND	ND	ND
CS-05	ND	ND	ND	ND	ND
CS-06	9.38	10.05	14.70	10.82	1.40
CS-07	20.39	11.88	58.26	22.94	1.00
CSDS-01	ND	ND	11.84	ND	ND
CSDS-02	ND	ND	8.49	ND	ND
N-01	ND	ND	ND	6.97	ND
N-02	24.51	22.86	70.82	14.11	9.60
O-1	ND	13.99	11.10	ND	ND
S-01	6.64	ND	ND	ND	ND
S-02	ND	ND	6.88	ND	ND
SH-01	ND	ND	ND	ND	ND
SS-01	ND	ND	ND	ND	ND
SS-02	ND	ND	ND	ND	ND
SS-03	ND	ND	ND	ND	ND
SS-04	ND	ND	ND	ND	ND
SS-05	ND	ND	ND	8.61	1.80
SS-06	ND	12.02	12.58	ND	ND
SS-07	ND	ND	11.07	7.22	1.30
SSDS-01	ND	ND	ND	ND	ND
SSDS-02	ND	ND	ND	ND	ND
SSDS-03	6.67	ND	ND	6.84	ND
CP-1A	74.24	310.69	767.79	272.31	95.00
CP-2A	13.41	ND	26.96	17.03	2.60
CP-3A	8.67	31.30	91.00	66.23	5.20
CP-4A	350.23	1530.08	8569.68	1579.81	380.00
CPDS-1A	9.93	ND	ND	11.07	2.50
G-1A	ND	ND	ND	ND	ND
G-2A	ND	ND	ND	ND	ND
G-3A	7.03	ND	ND	ND	ND
G-4A	ND	13.02	8.01	7.27	1.40
G-5A	ND	ND	ND	ND	ND
G-6A	ND	ND	15.19	ND	ND
G-7A	ND	19.08	14.60	ND	ND
SG-1A	ND	7.47	11.62	ND	20.00
SG-2A	246.96	229.65	331.67	1262.94	460.00

Comparison of Airborne Concentrations to Bulk Concentrations - Nickel

NIOSH REL 15.0 micrograms/cubic meter
OSHA PEL 1000.0 micrograms/cubic meter

Abrasive Type	@ Make-up Air Area	@ Operator Area	@ Exhaust Area	Operator 's Breathing Zone	Virgin Bulk (ug/g)
	Fixed Station #1 ug/m ³	Fixed Station #2 ug/m ³	Fixed Station #3 ug/m ³	(OBZ) ug/m ³	
CG-01	ND	ND	ND	ND	ND
CS-01	ND	33.33	82.53	22.95	28.00
CS-02	10.82	33.44	160.38	56.26	25.00
CS-03	ND	33.13	134.80	33.13	44.00
CS-04	ND	19.67	22.78	12.56	5.00
CS-05	ND	22.95	33.49	25.98	2.80
CS-06	ND	161.26	53.82	20.19	ND
CS-07	17.50	60.47	353.72	54.21	20.00
CSDS-01	ND	45.82	83.06	31.20	2.90
CSDS-02	ND	24.81	66.24	31.39	22.00
N-01	89.41	396.16	2897.35	1311.48	660.00
N-02	612.75	1455.00	6040.41	1245.07	640.00
O-1	864.91	1754.02	4520.24	1025.53	1700.00
S-01	ND	ND	ND	ND	ND
S-02	ND	ND	ND	ND	ND
SH-01	ND	ND	ND	ND	ND
SS-01	ND	12.11	ND	ND	ND
SS-02	ND	14.81	ND	ND	ND
SS-03	ND	ND	ND	ND	ND
SS-04	ND	ND	16.32	ND	ND
SS-05	ND	ND	ND	ND	ND
SS-06	ND	ND	ND	ND	3.00
SS-07	ND	ND	15.25	ND	ND
SSDS-01	ND	ND	ND	ND	ND
SSDS-02	ND	ND	ND	ND	2.50
SSDS-03	ND	ND	ND	ND	ND
CP-1A	15.26	ND	13.07	ND	ND
CP-2A	ND	29.28	126.50	49.85	24.00
CP-3A	ND	ND	28.96	35.18	6.40
CP-4A	16.28	60.78	306.06	67.71	17.00
CPDS-1A	ND	37.12	115.63	96.37	20.00
G-1A	ND	ND	ND	ND	ND
G-2A	ND	ND	ND	ND	ND
G-3A	ND	ND	ND	ND	ND
G-4A	ND	12.82	34.93	11.84	5.70
G-5A	ND	ND	ND	ND	ND
G-6A	ND	20.90	22.89	18.64	4.60
G-7A	ND	55.99	ND	ND	ND
SG-1A	28.58	19.29	70.57	474.52	140.00
SG-2A	493.93	521.92	704.81	2691.51	980.00

Comparison of Airborne Concentrations to Bulk Concentrations - Phosphorus

NIOSH REL 100.0 micrograms/cubic meter

OSHA PEL 100.0 micrograms/cubic meter

Abrasive Type	@ Make-up Air Area	@ Operator Area	@ Exhaust Area	Operator's Breathing Zone	Virgin Bulk (ug/g)
	Fixed Station #1 ug/m ³	Fixed Station #2 ug/m ³	Fixed Station #3 ug/m ³	(OBZ) ug/m ³	
CG-01	ND	ND	ND	ND	ND
CS-01	125.64	375.00	1506.09	375.63	1600.00
CS-02	99.83	313.55	1270.57	479.27	230.00
CS-03	226.85	931.87	3318.13	911.16	1100.00
CS-04	ND	90.00	227.79	127.62	20.00
CS-05	66.06	108.49	251.15	164.42	ND
CS-06	164.72	335.08	372.59	270.61	7.10
CS-07	617.79	1563.80	7906.78	1271.89	97.00
CSDS-01	64.37	270.78	705.98	353.65	34.00
CSDS-02	136.00	496.28	1738.77	627.88	1600.00
N-01	ND	ND	ND	ND	5.80
N-02	69.44	147.58	624.87	68.48	51.00
O-1	59.72	50.11	ND	ND	7.80
S-01	70.60	133.64	313.15	116.84	36.00
S-02	68.78	272.19	625.00	229.69	37.00
SH-01	ND	ND	87.06	ND	30.00
SS-01	ND	60.54	97.21	49.69	14.00
SS-02	ND	58.39	86.92	61.70	21.00
SS-03	ND	ND	ND	ND	6.90
SS-04	ND	7.80	251.05	174.93	85.00
SS-05	ND	ND	64.44	69.69	23.00
SS-06	56.92	120.18	ND	102.45	53.00
SS-07	73.83	47.79	208.90	ND	ND
SSDS-01	ND	64.80	150.55	120.03	31.00
SSDS-02	ND	116.67	268.26	70.89	86.00
SSDS-03	ND	ND	ND	ND	ND
CP-1A	51.56	74.57	178.46	62.84	10.00
CP-2A	392.00	1003.76	6221.48	2492.73	1100.00
CP-3A	132.18	438.14	2068.25	2069.54	520.00
CP-4A	164.81	691.68	3264.64	677.06	220.00
CPDS-1A	466.15	866.16	5988.02	2255.48	730.00
G-1A	ND	43.87	195.14	ND	34.00
G-2A	ND	195.25	310.95	183.18	100.00
G-3A	43.44	68.59	293.81	127.11	99.00
G-4A	50.77	227.41	1253.34	311.46	140.00
G-5A	ND	56.04	154.01	98.26	25.00
G-6A	114.35	438.96	790.68	455.58	160.00
G-7A	ND	ND	79.27	ND	5.70
SG-1A	ND	ND	145.29	412.63	220.00
SG-2A	82.32	83.51	159.62	952.38	200.00

Comparison of Airborne Concentrations to Bulk Concentrations - Selenium

NIOSH REL 200.0 micrograms/cubic meter

OSHA PEL 200.0 micrograms/cubic meter

Abrasive Type	@ Make-up Air Area Fixed Station #1 ug/m ³	@ Operator Area Fixed Station #2 ug/m ³	@ Exhaust Area Fixed Station #3 ug/m ³	Operator 's Breathing Zone (OBZ) ug/m ³	Virgin Bulk (ug/g)
	CG-01	ND	ND	ND	ND
CS-01	ND	ND	ND	ND	ND
CS-02	ND	ND	ND	ND	ND
CS-03	ND	ND	ND	ND	ND
CS-04	ND	ND	ND	ND	ND
CS-05	ND	ND	ND	ND	ND
CS-06	ND	ND	ND	ND	ND
CS-07	ND	ND	ND	ND	ND
CSDS-01	ND	ND	ND	ND	ND
CSDS-02	ND	ND	ND	ND	ND
N-01	ND	ND	ND	ND	ND
N-02	ND	ND	ND	ND	ND
O-1	ND	ND	ND	ND	ND
S-01	ND	ND	ND	ND	ND
S-02	ND	ND	ND	ND	ND
SH-01	ND	ND	ND	ND	ND
SS-01	ND	ND	ND	ND	ND
SS-02	ND	ND	ND	ND	ND
SS-03	ND	ND	ND	ND	ND
SS-04	ND	ND	ND	ND	ND
SS-05	ND	ND	ND	ND	ND
SS-06	ND	ND	ND	ND	ND
SS-07	ND	ND	ND	ND	ND
SSDS-01	ND	ND	ND	ND	ND
SSDS-02	ND	ND	ND	ND	ND
SSDS-03	ND	ND	ND	ND	ND
CP-1A	ND	ND	ND	ND	ND
CP-2A	ND	ND	ND	ND	ND
CP-3A	ND	ND	ND	ND	ND
CP-4A	ND	ND	ND	ND	9.10
CPDS-1A	ND	ND	ND	ND	ND
G-1A	ND	ND	ND	ND	ND
G-2A	ND	ND	ND	ND	ND
G-3A	ND	ND	ND	ND	ND
G-4A	ND	ND	ND	ND	ND
G-5A	ND	ND	ND	ND	ND
G-6A	ND	ND	ND	ND	ND
G-7A	ND	ND	ND	ND	ND
SG-1A	ND	ND	ND	ND	ND
SG-2A	ND	ND	ND	ND	ND

Comparison of Airborne Concentrations to Bulk Concentrations - Platinum

NIOSH REL 1000.0 micrograms/cubic meter
 OSHA PEL 1000.0 micrograms/cubic meter (Proposed)

Abrasive Type	@ Make-up Air Area	@ Operator Area	@ Exhaust Area	Operator's Breathing Zone	Virgin Bulk (ug/g)
	Fixed Station #1 ug/m ³	Fixed Station #2 ug/m ³	Fixed Station #3 ug/m ³	(OBZ) ug/m ³	
CG-01	ND	ND	ND	ND	ND
CS-01	ND	ND	ND	ND	ND
CS-02	ND	ND	ND	ND	ND
CS-03	ND	ND	ND	ND	ND
CS-04	ND	ND	ND	ND	ND
CS-05	ND	ND	ND	ND	ND
CS-06	ND	ND	ND	ND	ND
CS-07	ND	ND	ND	ND	ND
CSDS-01	ND	ND	ND	ND	ND
CSDS-02	ND	ND	ND	ND	ND
N-01	ND	ND	ND	ND	ND
N-02	ND	ND	ND	ND	ND
O-1	82.37	ND	ND	69.07	12.00
S-01	ND	ND	ND	ND	ND
S-02	ND	ND	ND	ND	ND
SH-01	ND	ND	ND	ND	ND
SS-01	ND	ND	ND	ND	ND
SS-02	ND	ND	ND	ND	ND
SS-03	ND	ND	ND	ND	ND
SS-04	ND	ND	ND	ND	ND
SS-05	ND	ND	ND	ND	ND
SS-06	ND	ND	ND	ND	ND
SS-07	69.73	ND	ND	ND	ND
SSDS-01	ND	ND	ND	ND	ND
SSDS-02	ND	ND	ND	ND	ND
SSDS-03	ND	ND	ND	ND	ND
CP-1A	ND	ND	ND	ND	ND
CP-2A	ND	ND	ND	ND	ND
CP-3A	ND	ND	ND	ND	ND
CP-4A	ND	ND	306.06	ND	ND
CPDS-1A	ND	ND	ND	ND	ND
G-1A	ND	ND	ND	ND	ND
G-2A	ND	ND	ND	ND	ND
G-3A	ND	ND	ND	ND	ND
G-4A	ND	ND	ND	ND	ND
G-5A	ND	ND	ND	ND	ND
G-6A	ND	ND	ND	ND	ND
G-7A	ND	ND	ND	ND	ND
SG-1A	ND	ND	ND	618.94	ND
SG-2A	ND	119.00	ND	621.12	180.00

Comparison of Airborne Concentrations to Bulk Concentrations - Silver

NIOSH REL 10.0 micrograms/cubic meter

OSHA PEL 10.0 micrograms/cubic meter

Abrasive Type	@ Make-up Air Area Fixed Station #1	@ Operator Area Fixed Station #2	@ Exhaust Area Fixed Station #3	Operator 's Breathing Zone (OBZ)	Virgin Bulk (ug/g)
	ug/m ³	ug/m ³	ug/m ³	ug/m ³	
CG-01	ND	ND	ND	ND	ND
CS-01	ND	ND	ND	ND	0.39
CS-02	ND	ND	ND	ND	ND
CS-03	ND	ND	ND	ND	0.62
CS-04	ND	ND	ND	ND	ND
CS-05	ND	ND	ND	ND	ND
CS-06	1.94	ND	ND	ND	ND
CS-07	ND	ND	ND	ND	ND
CSDS-01	ND	20.62	ND	ND	ND
CSDS-02	ND	ND	1.95	ND	0.41
N-01	ND	ND	ND	ND	ND
N-02	ND	ND	ND	ND	ND
O-1	ND	ND	ND	ND	ND
S-01	ND	ND	ND	ND	ND
S-02	ND	ND	ND	ND	ND
SH-01	ND	ND	ND	ND	0.44
SS-01	ND	ND	ND	ND	ND
SS-02	ND	ND	ND	ND	ND
SS-03	ND	ND	ND	ND	ND
SS-04	ND	ND	ND	ND	ND
SS-05	ND	ND	ND	ND	ND
SS-06	ND	ND	ND	ND	ND
SS-07	ND	ND	ND	ND	ND
SDDS-01	ND	ND	ND	1.78	0.47
SDDS-02	ND	ND	ND	ND	ND
SDDS-03	ND	ND	ND	ND	ND
CP-1A	ND	ND	ND	ND	ND
CP-2A	ND	2.93	13.69	4.78	0.98
CP-3A	3.51	7.72	17.79	14.49	2.30
CP-4A	ND	6.71	77.54	8.62	4.60
CPDS-1A	ND	2.68	4.75	ND	0.69
G-1A	ND	ND	ND	ND	ND
G-2A	ND	ND	ND	ND	ND
G-3A	ND	ND	ND	ND	ND
G-4A	ND	ND	ND	ND	ND
G-5A	ND	ND	ND	ND	ND
G-6A	ND	ND	ND	ND	ND
G-7A	ND	3.11	ND	ND	ND
SG-1A	ND	ND	ND	ND	ND
SG-2A	ND	ND	ND	ND	ND

Comparison of Airborne Concentrations to Bulk Concentrations - Sodium

NIOSH REL 10000.0 micrograms/cubic meter (nuisance)

OSHA PEL 15,000.0 micrograms/cubic meter (nuisance)

Abrasive Type	@ Make-up Air Area	@ Operator Area	@ Exhaust Area	Operator's Breathing Zone	Virgin Bulk (ug/g)
	Fixed Station #1 ug/m ³	Fixed Station #2 ug/m ³	Fixed Station #3 ug/m ³	(OBZ) ug/m ³	
CG-01	1400.33	12083.33	18361.87	6830.88	370.00
CS-01	803.30	2291.67	8665.15	2295.49	3900.00
CS-02	748.75	1630.43	5832.12	2292.14	890.00
CS-03	845.54	2899.15	9539.61	2692.07	3500.00
CS-04	329.15	502.30	993.99	617.54	67.00
CS-05	268.37	563.32	1213.90	822.10	42.00
CS-06	896.58	1780.10	1966.47	1436.30	76.00
CS-07	1214.99	3127.61	12068.25	2710.59	250.00
CSDS-01	519.10	1478.86	4152.82	2080.30	180.00
CSDS-02	947.87	2688.17	9728.83	3767.27	3600.00
N-01	243.85	333.61	745.03	573.77	46.00
N-02	2246.73	4988.57	18954.38	3735.21	1600.00
O-1	226.52	250.57	226.01	272.08	ND
S-01	311.46	313.22	480.17	312.96	75.00
S-02	291.79	293.13	354.17	271.46	29.00
SH-01	229.74	250.73	269.49	249.58	ND
SS-01	247.73	271.40	248.19	289.86	ND
SS-02	228.55	291.97	248.34	267.38	ND
SS-03	208.12	252.10	245.20	221.73	ND
SS-04	334.66	544.16	606.69	535.09	22.00
SS-05	200.88	692.11	249.43	266.45	8.10
SS-06	711.53	1388.31	73.41	919.92	170.00
SS-07	389.66	914.19	1002.72	783.67	24.00
SSDS-01	308.77	250.84	268.10	289.74	ND
SSDS-02	354.24	520.83	598.43	708.93	38.00
SSDS-03	222.31	198.61	238.85	207.21	ND
CP-1A	453.70	1636.29	2490.14	1068.29	240.00
CP-2A	495.15	773.73	3525.51	1454.09	550.00
CP-3A	1672.86	3546.84	20682.52	17177.15	3300.00
CP-4A	844.66	1592.96	5305.04	1128.44	410.00
CPDS-1A	526.96	639.31	3097.25	1886.41	380.00
G-1A	249.32	334.24	415.20	368.02	87.00
G-2A	252.90	254.67	228.03	228.98	11.00
G-3A	227.55	228.64	293.81	204.21	ND
G-4A	264.01	289.44	452.02	352.99	10.00
G-5A	226.43	249.07	270.55	229.98	19.00
G-6A	311.85	606.19	332.92	331.33	ND
G-7A	226.94	248.86	208.59	607.33	ND
SG-1A	285.83	248.96	373.60	1093.46	12.00
SG-2A	189.34	229.65	269.49	ND	ND

Comparison of Airborne Concentrations to Bulk Concentrations - Tellurium

NIOSH REL 100.0 micrograms/cubic meter

OSHA PEL 100.0 micrograms/cubic meter

Abrasive Type	@ Make-up Air Area Fixed Station #1 ug/m ³	@ Operator Area Fixed Station #2 ug/m ³	@ Exhaust Area Fixed Station #3 ug/m ³	Operator's Breathing Zone (OBZ) ug/m ³	Virgin Bulk (ug/g)
	CG-01	ND	ND	ND	ND
CS-01	ND	ND	ND	ND	ND
CS-02	ND	ND	ND	ND	ND
CS-03	ND	ND	ND	ND	ND
CS-04	ND	ND	ND	ND	ND
CS-05	ND	ND	ND	ND	ND
CS-06	ND	ND	ND	ND	ND
CS-07	ND	ND	16.85	ND	ND
CSDS-01	ND	19.16	ND	ND	ND
CSDS-02	ND	ND	ND	ND	ND
N-01	ND	ND	ND	ND	4.50
N-02	ND	ND	ND	ND	ND
O-1	ND	ND	ND	27.21	ND
S-01	ND	ND	33.40	ND	ND
S-02	ND	ND	ND	ND	ND
SH-01	ND	ND	ND	ND	ND
SS-01	ND	ND	ND	ND	ND
SS-02	ND	ND	ND	ND	ND
SS-03	ND	ND	ND	ND	ND
SS-04	ND	ND	ND	ND	ND
SS-05	ND	ND	ND	ND	ND
SS-06	ND	ND	ND	ND	ND
SS-07	43.07	ND	ND	ND	ND
SSDS-01	ND	ND	16.50	ND	ND
SSDS-02	ND	ND	ND	ND	ND
SSDS-03	ND	ND	ND	ND	ND
CP-1A	ND	ND	ND	ND	3.80
CP-2A	ND	ND	ND	35.31	ND
CP-3A	ND	17.53	ND	ND	ND
CP-4A	ND	ND	204.04	19.90	ND
CPDS-1A	24.32	30.93	51.62	ND	ND
G-1A	ND	ND	ND	ND	ND
G-2A	ND	ND	ND	ND	3.50
G-3A	ND	ND	ND	ND	ND
G-4A	20.31	ND	ND	ND	ND
G-5A	ND	19.72	ND	ND	ND
G-6A	ND	ND	ND	ND	ND
G-7A	ND	ND	ND	ND	ND
SG-1A	ND	ND	ND	ND	ND
SG-2A	ND	ND	ND	68.32	ND

Comparison of Airborne Concentrations to Bulk Concentrations - Thallium

NIOSH REL 100.0 micrograms/cubic meter

OSHA PEL 100.0 micrograms/cubic meter

Abrasives Type	@ Make-up Air Area Fixed Station #1 ug/m ³	@ Operator Area Fixed Station #2 ug/m ³	@ Exhaust Area Fixed Station #3 ug/m ³	Operator's Breathing Zone (OBZ) ug/m ³	Virgin Bulk (ug/g)
	CG-01	ND	ND	ND	ND
CS-01	ND	ND	ND	ND	ND
CS-02	ND	ND	ND	ND	ND
CS-03	ND	ND	ND	ND	ND
CS-04	ND	ND	ND	ND	ND
CS-05	ND	ND	ND	ND	ND
CS-06	ND	ND	ND	ND	ND
CS-07	ND	ND	ND	ND	ND
CSDS-01	ND	ND	ND	ND	ND
CSDS-02	ND	ND	ND	ND	ND
N-01	ND	ND	ND	ND	ND
N-02	ND	ND	ND	ND	ND
O-1	61.78	ND	ND	62.79	ND
S-01	ND	ND	ND	ND	ND
S-02	ND	ND	ND	ND	ND
SH-01	ND	ND	ND	ND	ND
SS-01	ND	ND	ND	ND	ND
SS-02	ND	ND	ND	ND	ND
SS-03	ND	ND	ND	ND	ND
SS-04	ND	ND	ND	ND	ND
SS-05	ND	ND	ND	ND	ND
SS-06	ND	ND	ND	ND	ND
SS-07	61.53	ND	ND	ND	ND
SSDS-01	ND	ND	ND	ND	ND
SSDS-02	ND	ND	ND	ND	ND
SSDS-03	ND	ND	ND	ND	ND
CP-1A	ND	ND	ND	ND	ND
CP-2A	ND	62.74	124.43	ND	ND
CP-3A	ND	ND	ND	ND	ND
CP-4A	ND	ND	ND	ND	ND
CPDS-1A	ND	61.87	ND	ND	ND
G-1A	ND	ND	ND	ND	ND
G-2A	ND	ND	ND	ND	ND
G-3A	ND	ND	ND	ND	ND
G-4A	ND	ND	ND	ND	ND
G-5A	ND	ND	ND	ND	ND
G-6A	ND	ND	ND	ND	ND
G-7A	ND	ND	ND	ND	ND
SG-1A	ND	ND	ND	ND	ND
SG-2A	ND	ND	ND	ND	ND

Comparison of Airborne Concentrations to Bulk Concentrations - Titanium

NIOSH REL - Limit of Quantification (Lowest Feasible Concentration)

OSHA PEL 15000.0 micrograms/cubic meter

Abrasive Type	@ Make-up Air Area	@ Operator Area	@ Exhaust Area	Operator 's Breathing Zone	Virgin Bulk (ug/g)
	Fixed Station #1 ug/m ³	Fixed Station #2 ug/m ³	Fixed Station #3 ug/m ³	(OBZ) ug/m ³	
CG-01	ND	8.96	9.49	9.73	ND
CS-01	391.35	1208.33	5364.14	1168.61	1800.00
CS-02	540.77	1421.40	6456.99	2292.14	940.00
CS-03	721.80	2899.15	10576.52	2899.15	2000.00
CS-04	370.29	1318.54	3313.32	1729.11	130.00
CS-05	173.41	688.50	1423.19	756.33	71.00
CS-06	813.18	2010.47	1718.07	1311.41	58.00
CS-07	1112.03	2293.58	11652.10	2293.58	150.00
CSDS-01	332.23	1687.15	4568.11	2288.33	140.00
CSDS-02	412.12	1468.16	5588.90	1967.35	1600.00
N-01	18.49	81.32	289.74	176.23	13.00
N-02	347.22	644.36	2707.77	560.28	150.00
O-1	ND	8.14	17.88	10.05	2.50
S-01	228.41	1023.18	3131.52	3338.20	190.00
S-02	958.73	3768.84	3541.67	1148.47	140.00
SH-01	7.73	13.37	41.46	12.06	7.40
SS-01	10.73	87.68	37.23	76.60	4.70
SS-02	22.85	95.93	76.57	84.33	4.50
SS-03	4.58	11.34	26.56	15.72	2.70
SS-04	54.38	397.66	564.85	349.87	82.00
SS-05	8.24	31.46	64.44	49.19	11.00
SS-06	56.92	142.98	5.03	77.36	38.00
SS-07	28.71	72.72	271.57	37.12	19.00
SSDS-01	8.85	39.72	61.87	53.81	7.40
SSDS-02	39.59	179.17	598.43	196.48	73.00
SSDS-03	ND	5.96	6.57	8.70	4.50
CP-1A	146.42	745.65	1535.59	607.46	120.00
CP-2A	577.68	1589.29	9746.99	3946.82	1200.00
CP-3A	392.40	1022.32	5170.63	4759.93	840.00
CP-4A	309.02	1383.36	7345.44	1497.74	280.00
CPDS-1A	790.43	1299.24	8878.79	3280.71	390.00
G-1A	66.49	192.19	311.40	306.69	15.00
G-2A	19.39	110.36	93.28	77.02	11.00
G-3A	16.96	64.44	100.73	27.09	8.80
G-4A	406.17	392.81	965.69	1100.50	28.00
G-5A	53.52	228.31	332.99	564.50	33.00
G-6A	228.69	1045.15	790.68	434.87	40.00
G-7A	226.94	497.72	1251.56	335.08	46.00
SG-1A	9.80	10.17	47.74	167.11	28.00
SG-2A	7.20	7.52	8.71	28.99	8.00

Comparison of Airborne Concentrations to Bulk Concentrations - Vanadium

NIOSH REL 50.0 micrograms/cubic meter Ceiling Limit
 OSHA PEL 500.0 micrograms/cubic meter Ceiling Limit

Abrasive Type	@ Make-up Air Area	@ Operator Area	@ Exhaust Area	Operator 's Breathing Zone	Virgin Bulk (ug/g)
	Fixed Station #1 ug/m ³	Fixed Station #2 ug/m ³	Fixed Station #3 ug/m ³	(OBZ) ug/m ³	
CG-01	ND	ND	ND	ND	ND
CS-01	14.42	41.67	189.81	45.91	67.00
CS-02	29.12	83.61	354.09	131.28	57.00
CS-03	22.69	99.40	352.55	95.26	100.00
CS-04	9.46	39.77	109.75	53.52	5.70
CS-05	13.01	50.07	119.30	65.77	4.40
CS-06	29.19	69.11	91.08	54.12	3.60
CS-07	61.78	154.30	665.83	141.78	14.00
CSDS-01	11.21	60.40	176.50	85.29	7.40
CSDS-02	12.16	49.63	190.44	62.79	57.00
N-01	3.66	20.43	76.57	38.93	4.20
N-02	16.75	31.18	152.05	29.05	13.00
O-1	ND	2.30	3.90	ND	0.55
S-01	2.28	6.26	22.96	10.64	3.60
S-02	2.50	11.52	14.58	5.43	1.90
SH-01	ND	ND	6.84	ND	2.00
SS-01	ND	ND	2.07	2.48	ND
SS-02	ND	3.75	4.14	4.52	0.32
SS-03	ND	ND	ND	ND	ND
SS-04	3.56	15.49	23.01	13.38	4.20
SS-05	5.02	15.94	35.34	22.55	6.00
SS-06	2.03	6.22	ND	2.93	2.10
SS-07	ND	1.95	7.52	ND	0.93
SSDS-01	ND	2.09	3.71	2.48	0.34
SSDS-02	ND	6.67	2042.92	7.49	4.50
SSDS-03	ND	ND	2.19	ND	ND
CP-1A	3.09	13.46	31.13	11.73	1.90
CP-2A	30.95	83.65	518.46	201.50	88.00
CP-3A	17.76	45.90	248.19	206.95	53.00
CP-4A	11.33	58.69	244.85	55.40	15.00
CPDS-1A	40.54	65.99	454.26	168.14	51.00
G-1A	1.83	11.07	39.44	26.58	2.70
G-2A	ND	4.24	6.43	4.58	1.60
G-3A	3.10	3.33	9.44	3.13	1.10
G-4A	8.12	9.30	53.42	15.57	0.81
G-5A	1.77	9.76	31.22	43.91	2.70
G-6A	15.59	73.16	120.68	35.20	4.10
G-7A	9.28	20.12	52.15	12.57	3.00
SG-1A	4.70	5.60	29.06	142.36	34.00
SG-2A	57.63	50.10	78.77	331.26	110.00

Comparison of Airborne Concentrations to Bulk Concentrations - Yttrium

NIOSH REL 1000.0 micrograms/cubic meter

OSHA PEL 1000.0 micrograms/cubic meter

Abrasive Type	@ Make-up Air Area	@ Operator Area	@ Exhaust Area	Operator 's Breathing Zone	Virgin Bulk (ug/g)
	Fixed Station #1 ug/m ³	Fixed Station #2 ug/m ³	Fixed Station #3 ug/m ³	(OBZ) ug/m ³	
CG-01	ND	ND	ND	ND	0.07
CS-01	3.71	11.46	47.45	11.06	18.00
CS-02	6.03	17.56	72.90	27.09	13.00
CS-03	5.77	22.78	78.81	22.78	27.00
CS-04	3.29	9.84	26.92	13.59	1.30
CS-05	2.00	8.35	20.51	10.19	0.78
CS-06	7.92	19.90	22.77	14.57	1.00
CS-07	12.56	31.28	137.33	29.19	3.90
CSDS-01	2.91	16.66	49.83	22.88	1.80
CSDS-02	3.50	13.44	43.47	17.37	15.00
N-01	ND	ND	1.72	1.23	0.20
N-02	2.04	3.74	16.25	3.11	1.60
O-1	ND	ND	0.53	ND	ND
S-01	2.49	9.19	39.67	12.73	3.90
S-02	6.46	27.22	62.50	19.00	2.20
SH-01	ND	0.48	3.52	0.42	0.94
SS-01	ND	0.63	ND	ND	ND
SS-02	0.42	1.98	3.31	1.50	0.14
SS-03	ND	ND	1.86	0.50	0.13
SS-04	1.49	9.21	13.18	9.06	3.20
SS-05	ND	0.86	3.12	1.62	0.47
SS-06	1.06	2.90	ND	2.51	0.95
SS-07	0.78	2.49	6.48	0.97	0.67
SDDS-01	ND	ND	0.52	0.44	0.09
SDDS-02	0.71	4.58	13.62	4.86	3.00
SDDS-03	ND	ND	0.82	0.54	0.19
CP-1A	ND	2.05	3.11	1.55	0.40
CP-2A	3.92	10.46	60.14	24.93	10.00
CP-3A	4.75	11.06	53.78	49.67	12.00
CP-4A	3.50	14.04	71.41	14.16	3.60
CPDS-1A	5.07	8.04	51.62	22.56	6.80
G-1A	3.95	14.41	51.90	38.85	1.90
G-2A	5.06	31.83	51.82	18.73	2.70
G-3A	19.03	54.04	209.86	22.92	6.40
G-4A	42.65	49.62	328.75	99.67	5.40
G-5A	4.12	18.89	66.60	96.17	4.40
G-6A	18.30	87.79	172.70	33.13	3.80
G-7A	3.30	7.26	17.73	5.03	1.30
SG-1A	ND	ND	ND	0.78	ND
SG-2A	ND	ND	12.85	0.83	ND

Comparison of Airborne Concentrations to Bulk Concentrations - Zinc

NIOSH REL 5000.0 micrograms/cubic meter

OSHA PEL 15000.0 micrograms/cubic meter

Abrasive Type	@ Make-up Air Area	@ Operator Area	@ Exhaust Area	Operator 's Breathing Zone	Virgin Bulk (ug/g)
	Fixed Station #1 ug/m ³	Fixed Station #2 ug/m ³	Fixed Station #3 ug/m ³	(OBZ) ug/m ³	
CG-01	37.07	41.67	51.58	64.17	4.30
CS-01	ND	43.75	59.83	27.13	9.00
CS-02	35.36	62.71	152.05	77.10	12.00
CS-03	43.31	99.40	331.81	120.11	88.00
CS-04	24.69	35.58	37.27	30.88	ND
CS-05	28.90	35.47	52.32	59.19	ND
CS-06	27.11	35.60	37.26	35.39	ND
CS-07	78.25	77.15	181.02	66.72	3.90
CSDS-01	ND	13.33	120.43	22.88	ND
CSDS-02	ND	24.81	33.12	14.02	3.00
N-01	65.03	56.30	140.73	127.05	11.00
N-02	83.74	168.36	624.87	159.78	58.00
O-1	51.48	41.76	76.02	54.42	20.00
S-01	11.00	ND	68.89	16.27	ND
S-02	ND	20.31	19.58	ND	ND
SH-01	25.06	31.34	51.82	29.12	ND
SS-01	ND	ND	ND	ND	ND
SS-02	22.85	31.28	37.25	28.79	ND
SS-03	22.89	25.21	26.56	26.20	ND
SS-04	20.29	71.16	43.93	37.04	5.50
SS-05	22.10	29.36	41.57	71.74	6.10
SS-06	24.40	26.94	123.74	31.36	3.10
SS-07	43.07	58.18	83.56	68.06	3.80
SSDS-01	ND	12.33	ND	ND	ND
SSDS-02	25.01	35.42	45.40	32.41	2.90
SSDS-03	17.99	19.86	19.90	22.79	ND
CP-1A	109.30	331.40	1037.56	356.10	100.00
CP-2A	61.89	112.92	518.46	207.73	93.00
CP-3A	2065.26	6676.40	28955.53	24834.44	6900.00
CP-4A	3914.30	18654.37	112222.00	24620.43	8100.00
CPDS-1A	74.99	96.93	516.21	205.04	76.00
G-1A	27.01	41.78	70.58	65.43	ND
G-2A	25.29	31.83	35.24	35.39	ND
G-3A	26.89	62.36	31.48	27.09	ND
G-4A	64.99	64.09	47.26	35.30	2.70
G-5A	26.76	35.28	54.11	64.81	ND
G-6A	41.58	85.70	110.28	60.05	ND
G-7A	20.63	35.26	68.84	41.88	ND
SG-1A	61.25	24.90	26.98	ND	ND
SG-2A	45.28	50.10	60.12	180.12	29.00

Comparison of Airborne Concentrations to Bulk Concentrations - Zirconium

NIOSH REL 5000.0 micrograms/cubic meter

OSHA PEL 5000.0 micrograms/cubic meter

Abrasive Type	@ Make-up Air Area	@ Operator Area	@ Exhaust Area	Operator 's Breathing Zone (OBZ)	Virgin Bulk (ug/g)
	Fixed Station #1 ug/m ³	Fixed Station #2 ug/m ³	Fixed Station #3 ug/m ³	ug/m ³	
CG-01	ND	2.00	ND	ND	ND
CS-01	13.80	41.67	179.49	39.65	63.00
CS-02	17.05	50.17	208.29	75.02	32.00
CS-03	26.81	105.61	373.29	103.54	77.00
CS-04	11.73	37.67	82.83	47.34	2.90
CS-05	5.78	20.24	33.49	20.72	2.10
CS-06	27.11	67.02	37.26	37.47	1.20
CS-07	43.25	81.32	291.30	77.15	5.40
CSDS-01	10.17	43.74	93.44	56.17	3.30
CSDS-02	14.22	51.70	169.74	69.07	54.00
N-01	ND	2.50	8.07	5.53	0.56
N-02	18.59	33.26	118.73	31.13	11.00
O-1	ND	ND	ND	ND	ND
S-01	2.49	8.98	35.49	10.64	6.80
S-02	6.88	33.50	54.17	18.58	7.60
SH-01	ND	ND	3.73	ND	0.32
SS-01	ND	2.09	ND	ND	ND
SS-02	ND	5.84	4.55	4.94	0.39
SS-03	ND	ND	4.09	2.22	ND
SS-04	2.07	12.35	20.08	13.17	2.70
SS-05	ND	2.52	5.40	3.48	1.10
SS-06	ND	2.49	ND	ND	0.50
SS-07	ND	ND	ND	ND	ND
SSDS-01	ND	ND	1.84	ND	ND
SSDS-02	2.29	6.04	16.71	11.75	3.70
SSDS-03	ND	ND	ND	ND	0.42
CP-1A	2.47	11.39	15.77	6.70	1.50
CP-2A	14.03	33.46	203.24	85.17	33.00
CP-3A	24.78	62.59	289.56	269.04	55.00
CP-4A	16.07	73.36	408.08	80.02	14.00
CPDS-1A	17.84	26.81	173.45	65.61	1.80
G-1A	ND	4.18	10.59	7.77	0.44
G-2A	ND	2.97	3.73	2.50	ND
G-3A	ND	2.29	7.14	ND	ND
G-4A	9.14	10.54	28.77	20.76	1.40
G-5A	ND	4.15	10.20	9.41	1.30
G-6A	3.33	14.84	19.35	8.49	1.90
G-7A	10.93	22.81	54.23	15.08	2.80
SG-1A	ND	ND	ND	ND	ND
SG-2A	ND	ND	ND	ND	ND