

Table 3-20 (page 1 of 3). Respirable quartz: Geometric mean exposures and percent exceeding designated occupational exposure limits by OSHA region and state, OSHA samples, 1979-1999

OSHA Region	All years		1979 - 1988 OSHA PEL: see note				1989 - 1992 OSHA PEL=0.1 mg/m ³				1993 - 1999 OSHA PEL: see note			
	No. of Samples	GM (mg/m ³)	No. of Samples	GM (mg/m ³)	% > PEL	% > REL	No. of Samples	GM (mg/m ³)	% > PEL	% > REL	No. of Samples	GM (mg/m ³)	% > PEL	% > REL
Region 1	1,376	0.032	980	0.034	25.8	40.2	144	0.018	9.7	22.2	252	0.034	26.6	40.9
Connecticut	446	0.023	344	0.027	19.2	33.7	55	0.014	3.6	16.4	47	0.015	8.5	21.3
Maine	22	0.034	19	0.033	36.8	42.1	0	-	-	-	3	0.038	33.3	33.3
Massachusetts	468	0.038	296	0.041	31.4	46.3	58	0.022	15.5	24.1	114	0.041	30.7	46.5
New Hampshire	227	0.029	143	0.033	23.8	39.9	30	0.020	10.0	30.0	54	0.027	24.1	37.0
Rhode Island	213	0.044	178	0.039	29.8	42.7	1	0.007	0.0	0.0	34	0.084	41.2	55.9
Vermont	0	-	0	-	-	-	0	-	-	-	0	-	-	-
Region 2	1,587	0.041	904	0.043	33.2	48.5	232	0.025	15.9	32.8	451	0.047	36.4	49.2
New Jersey	443	0.035	283	0.041	32.5	45.9	103	0.027	13.6	34.0	57	0.027	19.3	26.3
New York	1,131	0.044	619	0.044	33.3	49.4	125	0.025	18.4	32.8	387	0.052	39.5	53.5
Puerto Rico	9	0.021	2	0.914	100.0	100.0	3	0.007	0.0	0.0	4	0.007	0.0	0.0
U.S. Virgin Islands	4	0.007	0	-	-	-	1	0.007	0.0	0.0	3	0.007	0.0	0.0
Region 3	2,622	0.047	1,996	0.047	30.1	49.2	259	0.034	22.8	39.8	367	0.058	37.3	52.0
Delaware	20	0.020	17	0.014	5.9	11.8	0	-	-	-	3	0.117	66.7	66.7
District of Columbia	0	-	0	-	-	-	0	-	-	-	0	-	-	-
Maryland	215	0.038	123	0.034	29.3	37.4	60	0.037	36.7	51.7	32	0.059	28.1	43.8
Pennsylvania	1,912	0.048	1,406	0.048	29.2	51.1	180	0.032	17.8	36.1	326	0.057	37.4	52.5
Virginia	247	0.041	246	0.040	27.6	41.5	0	-	-	-	1	0.412	100.0	100.0
West Virginia	228	0.061	204	0.062	42.2	55.9	19	0.049	26.3	36.8	5	0.051	60.0	60.0
Region 4	2,523	0.034	1,449	0.039	30.2	43.8	419	0.030	21.0	35.1	655	0.028	20.3	33.3
Alabama	479	0.033	323	0.037	32.2	45.8	98	0.037	23.5	44.9	58	0.015	12.1	20.7
Florida	88	0.037	58	0.034	29.3	37.9	22	0.027	22.7	27.3	8	0.148	62.5	62.5
Georgia	636	0.045	470	0.044	34.5	49.1	73	0.026	19.2	30.1	93	0.072	29.0	53.8
Kentucky	338	0.033	157	0.044	33.1	44.6	64	0.047	29.7	43.8	117	0.018	15.4	17.9
Mississippi	106	0.050	74	0.046	33.8	48.6	22	0.030	13.6	22.7	10	0.295	60.0	90.0
North Carolina	360	0.025	155	0.026	12.3	26.5	25	0.023	16.0	28.0	180	0.024	20.0	31.7
South Carolina	144	0.022	49	0.021	26.5	26.5	40	0.017	15.0	22.5	55	0.027	23.6	29.1
Tennessee	372	0.033	163	0.040	27.6	44.8	75	0.028	18.7	34.7	134	0.027	15.7	35.8

See footnotes at end of table.

Table 3-20 (page 2 of 3). Respirable quartz: Geometric mean exposures and percent exceeding designated occupational exposure limits by OSHA region and state, OSHA samples, 1979-1999

OSHA Region	All years		1979 - 1988 OSHA PEL: see note				1989 - 1992 OSHA PEL=0.1 mg/m ³				1993 - 1999 OSHA PEL: see note			
	No. of Samples	GM (mg/m ³)	No. of Samples	GM (mg/m ³)	% > PEL	% > REL	No. of Samples	GM (mg/m ³)	% > PEL	% > REL	No. of Samples	GM (mg/m ³)	% > PEL	% > REL
Region 5	5,121	0.041	2,819	0.048	35.3	52.7	1,013	0.027	15.8	35.7	1,289	0.039	30.6	42.9
Illinois	947	0.041	538	0.043	34.2	47.8	147	0.030	17.7	33.3	262	0.045	35.1	46.9
Indiana	410	0.032	262	0.037	31.3	45.0	84	0.018	8.3	23.8	64	0.039	37.5	43.8
Michigan	765	0.016	27	0.014	0.0	3.7	262	0.012	2.7	12.6	476	0.019	10.3	20.6
Minnesota	93	0.051	71	0.048	50.7	54.9	9	0.029	0.0	44.4	13	0.098	46.2	46.2
Ohio	1,638	0.047	1,191	0.047	32.3	50.1	229	0.034	20.5	39.7	218	0.069	42.2	57.3
Wisconsin	1,268	0.061	730	0.061	42.3	64.9	282	0.052	25.9	58.5	256	0.074	51.6	67.6
Region 6	1,215	0.040	885	0.036	29.8	41.4	171	0.037	28.7	43.3	159	0.087	44.0	53.5
Arkansas	118	0.031	93	0.023	23.7	31.2	14	0.084	64.3	64.3	11	0.098	63.6	63.6
Louisiana	91	0.064	68	0.056	41.2	64.7	11	0.032	27.3	36.4	12	0.240	41.7	58.3
New Mexico	18	0.073	11	0.041	54.5	54.5	1	0.007	0.0	0.0	6	0.306	100.0	100.0
Oklahoma	198	0.036	153	0.034	19.6	37.3	10	0.044	30.0	50.0	35	0.045	28.6	48.6
Texas	790	0.040	560	0.037	31.8	41.1	135	0.034	25.2	41.5	95	0.089	44.2	50.5
Region 7	1,050	0.033	720	0.035	25.3	38.9	181	0.023	14.4	33.1	149	0.040	33.6	42.3
Iowa	579	0.030	336	0.031	22.6	32.7	116	0.022	14.7	30.2	127	0.038	34.6	41.7
Kansas	105	0.038	75	0.033	25.3	36.0	19	0.051	31.6	68.4	11	0.049	27.3	63.6
Missouri	289	0.040	242	0.046	30.6	50.0	43	0.017	7.0	23.3	4	0.021	25.0	25.0
Nebraska	77	0.027	67	0.023	19.4	32.8	3	0.055	0.0	66.7	7	0.076	28.6	28.6
Region 8	737	0.039	493	0.032	23.7	35.5	122	0.032	25.4	39.3	122	0.107	54.9	70.5
Colorado	458	0.030	321	0.026	20.9	30.8	74	0.025	17.6	32.4	63	0.079	46.0	63.5
Montana	78	0.059	64	0.044	25.0	35.9	11	0.250	72.7	81.8	3	0.141	66.7	66.7
North Dakota	94	0.070	56	0.041	23.2	50.0	2	0.069	50.0	50.0	36	0.161	69.4	80.6
South Dakota	57	0.065	27	0.033	33.3	44.4	10	0.102	70.0	70.0	20	0.132	55.0	75.0
Utah	45	0.043	20	0.142	60.0	60.0	25	0.017	8.0	28.0	0	-	-	-
Wyoming	5	0.022	5	0.022	0.0	20.0	0	-	-	-	0	-	-	-

See footnotes at end of table.

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OSHA Region	All years		1979 - 1988 OSHA PEL: see note				1989 - 1992 OSHA PEL=0.1 mg/m ³				1993 - 1999 OSHA PEL: see note			
	No. of Samples	GM (mg/m ³)	No. of Samples	GM (mg/m ³)	% > PEL	% > REL	No. of Samples	GM (mg/m ³)	% > PEL	% > REL	No. of Samples	GM (mg/m ³)	% > PEL	% > REL
Region 9	374	0.045	235	0.057	43.4	55.3	77	0.028	29.9	32.5	62	0.031	27.4	32.3
American Samoa	0	-	0	-	-	-	0	-	-	-	0	-	-	-
Arizona	49	0.036	31	0.060	45.2	61.3	10	0.010	0.0	10.0	8	0.024	25.0	25.0
California	186	0.026	115	0.025	22.6	36.5	30	0.017	13.3	16.7	41	0.036	29.3	36.6
Guam	0	-	0	-	-	-	0	-	-	-	0	-	-	-
Hawaii	8	0.008	5	0.008	0.0	0.0	0	-	-	-	3	0.007	0.0	0.0
Nevada	131	0.117	84	0.191	73.8	82.1	37	0.056	51.4	51.4	10	0.030	30.0	30.0
Region 10	501	0.041	130	0.046	33.1	40.8	85	0.034	21.2	31.8	286	0.041	25.9	42.0
Alaska	7	0.100	2	0.152	50.0	50.0	5	0.085	60.0	80.0	0	-	-	-
Idaho	42	0.041	18	0.055	50.0	55.6	21	0.040	14.3	42.9	3	0.007	0.0	0.0
Oregon	175	0.029	107	0.046	30.8	39.3	4	0.010	0.0	0.0	64	0.015	12.5	18.8
Washington	277	0.050	3	0.007	0.0	0.0	55	0.032	21.8	25.5	219	0.057	30.1	49.3
TOTAL	17,106	0.039	10,611	0.042	31.1	46.5	2,703	0.028	18.7	35.3	3,792	0.041	31.0	43.8

- indicates incalculable field

PEL - permissible exposure limit

REL - recommended exposure limit

GM - geometric mean

mg/m³ - milligrams per cubic meter

NOTE: Before March 1, 1989 and after March 22, 1993, the OSHA PEL is [(10 mg/m³)/(% quartz + 2)] for respirable dust containing at least 1 percent quartz. From March 1, 1989 to March 22, 1993, the OSHA PEL was 0.1 mg/m³ for respirable quartz. The NIOSH REL is 0.05mg/m³. See appendices for source description, methods, and agents.

SOURCE: Occupational Safety and Health Administration (OSHA) Integrated Management Information System.