

**Respirable coal mine dust: Geometric mean exposures and percent exceeding designated occupational exposure limits by MSHA coal mine district and state, MSHA inspector and mine operator samples, 1979–2003 (page 3 of 3)**

MSHA Coal Mine District	All years			1979–1989			1990–1994			1995–2003		
	No. of Samples	GM (mg/m <sup>3</sup> )	% > PEL	No. of Samples	GM (mg/m <sup>3</sup> )	% > PEL	No. of Samples	GM (mg/m <sup>3</sup> )	% > PEL	No. of Samples	GM (mg/m <sup>3</sup> )	% > PEL
<b>District 10 (Western Kentucky)</b>	<b>86,886</b>	<b>0.693</b>	<b>12.1</b>	<b>50,904</b>	<b>0.603</b>	<b>12.1</b>	<b>14,234</b>	<b>0.847</b>	<b>14.8</b>	<b>21,748</b>	<b>0.839</b>	<b>12.0</b>
<b>District 11</b>	<b>97,389</b>	<b>0.658</b>	<b>15.7</b>	<b>52,546</b>	<b>0.714</b>	<b>15.7</b>	<b>18,069</b>	<b>0.719</b>	<b>10.4</b>	<b>26,774</b>	<b>0.528</b>	<b>6.1</b>
Alabama	97,340	0.659	15.7	52,546	0.714	15.7	18,069	0.719	10.4	26,725	0.531	6.1
Florida	0	-	-	0	-	-	0	-	-	0	-	-
Central and Southern Georgia	0	-	-	0	-	-	0	-	-	0	-	-
Mississippi	46	0.040	-	0	-	-	0	-	-	46	0.040	0
Puerto Rico	0	-	-	0	-	-	0	-	-	0	-	-
Virgin Islands	0	-	-	0	-	-	0	-	-	0	-	-
<b>TOTAL</b>	<b>2,565,365</b>	<b>0.510</b>	<b>11.6</b>	<b>1,490,992</b>	<b>0.526</b>	<b>11.6</b>	<b>416,954</b>	<b>0.541</b>	<b>9.3</b>	<b>657,419</b>	<b>0.458</b>	<b>6.5</b>

- indicates incalculable field. PEL - permissible exposure limit REL - recommended exposure limit GM - geometric mean mg/m<sup>3</sup> - milligrams per cubic meter  
MRE - Mining Research Establishment MSHA - Mine Safety and Health Administration  
NOTE: In coal mining, for respirable dust containing less than or equal to 5% quartz, the MSHA PEL is 2 mg/m<sup>3</sup> MRE; for respirable dust containing greater than 5% quartz, the MSHA PEL is [(10 mg/m<sup>3</sup> MRE) / (% quartz)]. The NIOSH REL of 1 mg/m<sup>3</sup> MRE for respirable coal mine dust was adopted in September of 1995. Geometric means are reported in MRE equivalent. All samples are compared to the MSHA PEL for respirable coal mine dust containing less than or equal to 5% quartz, regardless of actual quartz content. See appendices for source description and methods.  
SOURCE: MSHA coal mine inspector and mine operator dust data.

**Respirable coal mine dust: Geometric mean exposures and percent exceeding designated occupational exposure limits by MSHA coal mine district and state, MSHA inspector and mine operator samples, 1979–2003 (page 2 of 3)**

MSHA Coal Mine District	All years			1979–1989			1990–1994			1995–2003			
	No. of Samples	GM (mg/m <sup>3</sup> )	% > PEL	No. of Samples	GM (mg/m <sup>3</sup> )	% > PEL	No. of Samples	GM (mg/m <sup>3</sup> )	% > PEL	No. of Samples	GM (mg/m <sup>3</sup> )	% > PEL	% > REL
<b>District 9</b>	<b>135,558</b>	<b>0.658</b>	<b>19.7</b>	<b>78,638</b>	<b>0.696</b>	<b>19.7</b>	<b>21,908</b>	<b>0.756</b>	<b>14.9</b>	<b>35,012</b>	<b>0.532</b>	<b>7.4</b>	<b>30.3</b>
Alaska	267	0.303	6.6	181	0.408	6.6	48	0.237	2.1	38	0.099	-	2.9
Arizona	1,025	0.219	5.0	484	0.310	5.0	198	0.302	4.5	343	0.112	1.2	1.2
Arkansas	442	0.177	2.5	238	0.205	2.5	37	0.149	2.7	167	0.149	1.2	6.0
California	12	0.218	-	0	-	-	1	0.400	-	11	0.206	-	9.1
Colorado	42,900	0.833	24.1	25,704	0.846	24.1	6,577	0.913	16.3	10,619	0.758	8.3	37.7
Hawaii	0	-	-	0	-	-	0	-	-	0	-	-	-
Idaho	0	-	-	0	-	-	0	-	-	0	-	-	-
Kansas	555	0.207	2.6	381	0.236	2.6	49	0.190	0	125	0.142	0.8	0.8
Louisiana	178	0.193	-	14	0.163	-	39	0.228	0	125	0.186	-	4.3
Southern Missouri	742	0.230	1.8	452	0.254	1.8	56	0.160	0	234	0.209	1.3	7.6
Montana	2,015	0.269	7.2	1,095	0.367	7.2	211	0.248	2.8	709	0.170	2.4	4.9
Nebraska	0	-	-	0	-	-	0	-	-	0	-	-	-
Nevada	0	-	-	0	-	-	0	-	-	0	-	-	-
New Mexico	6,231	0.541	23.8	3,531	0.769	23.8	870	0.749	20.1	1,830	0.235	2.8	8.7
North Dakota	1,515	0.166	1.9	1,028	0.220	1.9	162	0.154	0.6	325	0.070	0.3	0.9
Oklahoma	5,329	0.331	6.7	2,949	0.342	6.7	973	0.322	6.6	1,407	0.313	3.0	11.3
Oregon	0	-	-	0	-	-	0	-	-	0	-	-	-
Texas	4,560	0.161	1.4	2,738	0.194	1.4	664	0.198	3.9	1,158	0.092	0.8	2.5
Utah	58,873	0.835	21.7	33,984	0.834	21.7	10,212	0.925	16.3	14,677	0.781	9.5	38.7
Washington	394	0.157	0	124	0.166	0	74	0.257	2.7	196	0.127	0.5	3.1
Wyoming	10,520	0.418	12.4	5,735	0.479	12.4	1,737	0.567	14.1	3,048	0.272	5.7	16.9

See footnotes at end of table.

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MSHA Coal Mine District	All years			1979–1989			1990–1994			1995–2003			
	No. of Samples	GM (mg/m <sup>3</sup> )	% > PEL	No. of Samples	GM (mg/m <sup>3</sup> )	% > PEL	No. of Samples	GM (mg/m <sup>3</sup> )	% > PEL	No. of Samples	GM (mg/m <sup>3</sup> )	% > PEL	% > REL
District 1 (Anthracite coal mining regions in Pennsylvania)	47,537	0.202	2.7	22,699	0.218	2.7	9,269	0.184	2.4	15,569	0.191	2.6	9.6
District 2 (Bituminous coal mining regions in Pennsylvania)	315,887	0.499	9.7	208,477	0.514	9.7	39,729	0.559	9.3	67,681	0.427	5.1	22.3
District 3	278,414	0.553	12.7	183,654	0.591	12.7	37,586	0.532	7.5	57,174	0.458	5.2	24.3
Maryland	11,559	0.589	13.1	5,655	0.677	13.1	1,496	0.617	6.8	4,408	0.485	5.0	30.0
Ohio	92,171	0.592	16.3	66,363	0.672	16.3	9,714	0.476	5.8	16,094	0.401	4.9	23.6
Northern West Virginia	174,684	0.531	10.5	111,636	0.543	10.5	26,376	0.550	8.1	36,672	0.482	5.3	23.9
District 4 (Southern West Virginia)	505,675	0.537	14.6	306,684	0.571	14.6	76,841	0.526	10.4	122,150	0.465	7.8	25.0
District 5 (Virginia)	319,938	0.459	9.3	189,744	0.464	9.3	54,490	0.505	8.1	75,704	0.415	4.8	18.8
District 6 (Eastern Kentucky)	317,849	0.408	7.0	154,077	0.392	7.0	57,013	0.464	8.1	106,759	0.403	5.4	19.5
District 7	296,787	0.440	7.2	143,673	0.443	7.2	61,850	0.474	6.6	91,264	0.415	5.2	20.1
Northern Georgia	29	0.328	0	29	0.328	0	0	-	-	0	-	-	-
Central Kentucky	247,707	0.449	7.4	111,869	0.452	7.4	53,154	0.483	6.7	82,684	0.425	5.3	20.4
North Carolina	9	0.147	-	6	0.159	-	3	0.126	0	0	-	-	-
South Carolina	0	-	-	0	-	-	0	-	-	0	-	-	-
Tennessee	49,037	0.399	6.4	31,769	0.413	6.4	8,693	0.425	5.6	8,575	0.328	4.9	16.8
District 8	163,445	0.758	14.6	99,896	0.681	14.6	25,965	0.898	14.1	37,584	0.894	14.7	49.5
Illinois	143,956	0.805	15.6	90,824	0.730	15.6	23,314	0.973	14.8	29,818	0.933	14.0	50.5
Indiana	17,794	0.506	5.2	7,566	0.342	5.2	2,496	0.455	8.3	7,732	0.768	17.4	45.8
Iowa	886	0.384	5.3	813	0.388	5.3	73	0.344	0	0	-	-	-
Michigan	0	-	-	0	-	-	0	-	-	0	-	-	-
Minnesota	0	-	-	0	-	-	0	-	-	0	-	-	-
Northern Missouri	809	0.248	1.7	693	0.259	1.7	82	0.240	2.4	34	0.107	0	0
Wisconsin	0	-	-	0	-	-	0	-	-	0	-	-	-

See footnotes at end of table.