

**Asbestos: Geometric mean exposures and percent exceeding designated occupational exposure limits by major industry division, MSHA and OSHA samples, 1979-2003**

OSHA PEL (f/cc)	Year	Construction (SIC 15-17)				Manufacturing (SIC 20-39)				Mining (SIC 10-12, 14)				Other (SIC 1-9, 13, 40-99)			
		GM (f/cc)	No. of Samples	PEL	% > REL	GM (f/cc)	No. of Samples	PEL	% > REL	GM (f/cc)	No. of Samples	PEL*	% > REL	GM (f/cc)	No. of Samples	PEL	% > REL
2.0	1979	0.024	97	3.1	36.1	0.030	335	3.0	37.3	0.245	204	10.8	70.6	0.003	94	0.0	7.4
	1980	0.020	172	3.5	30.2	0.035	313	7.7	41.2	0.122	301	5.6	60.8	0.006	124	0.0	13.7
	1981	0.017	112	1.8	22.3	0.007	153	0.7	14.4	0.130	276	5.4	60.9	0.003	68	0.0	2.9
	1982	0.042	168	7.7	32.1	0.032	181	1.1	35.4	0.432	64	0.0	90.6	0.007	51	0.0	9.8
	1983	0.032	383	4.2	37.9	0.020	372	4.6	27.2	0.243	73	0.0	78.1	0.002	469	0.0	1.5
	1984	0.023	622	5.1	32.6	0.013	434	2.3	26.7	0.348	23	0.0	91.3	0.003	819	0.0	2.7
	1985	0.025	464	5.2	30.2	0.009	430	2.3	20.7	0.360	43	0.0	86.0	0.002	718	0.1	2.2
	1986	0.007	276	3.3	12.7	0.005	272	2.2	9.2	0.036	37	0.0	48.6	0.002	482	0.6	1.0
0.2	1987	0.006	247	4.9	9.3	0.010	433	16.9	21.2	0.013	16	0.0	12.5	0.002	729	0.7	1.1
	1988	0.007	255	9.0	12.2	0.005	350	6.3	13.1	0.007	53	0.0	18.9	0.002	493	0.6	1.8
	1989	0.007	266	11.3	15.0	0.004	287	6.3	10.8	0.010	29	0.0	20.7	0.002	600	0.3	0.7
	1990	0.005	174	9.8	13.8	0.006	201	11.9	15.9	0.006	46	4.3	19.6	0.002	457	0.2	0.7
	1991	0.003	212	2.8	4.7	0.003	265	8.3	10.9	0.014	34	2.9	32.4	0.002	454	0.0	0.4
	1992	0.003	193	4.7	7.8	0.003	137	0.0	1.5	0.004	28	7.1	7.1	0.002	280	0.0	1.1
	1993	0.004	141	1.4	5.0	0.003	127	5.5	10.2	0.003	14	0.0	7.1	0.002	229	0.0	1.3
	1994	0.002	82	3.7	6.1	0.003	76	0.0	3.9	0.002	157	0.0	0.6	0.002	218	0.0	0.5
1995	0.001	45	2.2	2.2	0.002	111	0.9	0.9	0.002	77	0.0	0.0	0.001	144	0.7	0.7	
1996	0.001	75	0.0	0.0	0.001	149	1.3	1.3	0.004	28	0.0	10.7	0.001	167	0.6	0.6	
1997	0.001	52	0.0	0.0	0.001	49	0.0	0.0	0.002	7	0.0	0.0	0.002	133	0.0	0.0	
1998	0.002	35	0.0	0.0	0.002	33	0.0	0.0	0.002	3	0.0	0.0	0.002	93	0.0	0.0	
1999	0.002	36	11.1	11.1	0.003	18	5.6	5.6	0.002	2	0.0	0.0	0.001	74	0.0	0.0	
2000	0.002	52	3.8	3.8	0.001	50	0.0	0.0	0.002	226	0.0	0.4	0.001	108	0.0	0.0	
2001	0.004	33	6.1	6.1	0.004	28	7.1	7.1	0.005	51	0.0	3.9	0.001	58	0.0	0.0	
2002	0.002	36	2.8	2.8	0.001	24	0.0	0.0	0.029	31	0.0	29.0	0.002	45	0.0	0.0	
2003	0.007	60	20.0	20.0	0.002	9	0.0	0.0	0.094	28	0.0	75.0	0.004	38	10.5	10.5	

SIC - Standard Industrial Classification  
 MSHA - Mine Safety and Health Administration  
 \*MSHA PEL is 2 f/cc.

NOTE: The NIOSH REL is 0.1 f/cc. See appendices for source description, methods, and agents.  
 SOURCE: MSHA metal/nonmetal mine data. OSHA Integrated Management Information System.

OSHA - Occupational Safety and Health Administration  
 REL - recommended exposure limit  
 GM - geometric mean  
 f/cc - fibers per cubic centimeter