

Table 4-13 (page 1 of 3). Cotton dust: Geometric mean exposures and percent exceeding designated occupational exposure limits by OSHA region, state and process, OSHA samples, 1980-1999

OSHA Region	All years		1980 - 1989				1990 - 1994				1995 - 1999			
	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	7	0.044	0	-	-	-	3	0.139	0.0	0.0	4	0.019	0.0	0.0
Massachusetts	3	0.139	0	-	-	-	3	0.139	0.0	0.0	0	-	-	-
Cotton Waste Proc/Recycl & Garnetting	3	0.139	0	-	-	-	3	0.139	0.0	0.0	0	-	-	-
New Hampshire	4	0.019	0	-	-	-	0	-	-	-	4	0.019	0.0	0.0
Yarn Manufacturing & Cotton Washing	2	0.121	0	-	-	-	0	-	-	-	2	0.121	0.0	0.0
Undetermined Process	2	0.003	0	-	-	-	0	-	-	-	2	0.003	-	0.0
Region 2	10	1.093	10	1.093	50.0	90.0	0	-	-	-	0	-	-	-
New Jersey	9	2.119	9	2.119	55.6	100.0	0	-	-	-	0	-	-	-
Textile Mill Waste House	1	0.965	1	0.965	100.0	100.0	0	-	-	-	0	-	-	-
Cotton Waste Proc/Recycl & Garnetting	8	2.338	8	2.338	50.0	100.0	0	-	-	-	0	-	-	-
Puerto Rico	1	0.003	1	0.003	-	0.0	0	-	-	-	0	-	-	-
Undetermined Process	1	0.003	1	0.003	-	0.0	0	-	-	-	0	-	-	-
Region 3	4	0.029	4	0.029	0.0	25.0	0	-	-	-	0	-	-	-
Maryland	1	0.014	1	0.014	-	0.0	0	-	-	-	0	-	-	-
Undetermined Process	1	0.014	1	0.014	-	0.0	0	-	-	-	0	-	-	-
Pennsylvania	3	0.038	3	0.038	0.0	33.3	0	-	-	-	0	-	-	-
Textile Mill Waste House	1	0.260	1	0.260	0.0	100.0	0	-	-	-	0	-	-	-
Cotton Waste Proc/Recycl & Garnetting	1	0.072	1	0.072	0.0	0.0	0	-	-	-	0	-	-	-
Undetermined Process	1	0.003	1	0.003	-	0.0	0	-	-	-	0	-	-	-

See footnotes at end of table.

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OSHA Region	All years		1980 - 1989				1990 - 1994				1995 - 1999			
	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 4	909	0.136	470	0.154	30.2	37.2	367	0.123	22.1	29.7	72	0.096	13.9	29.2
Alabama	83	0.230	37	0.282	56.8	56.8	46	0.196	19.6	41.3	0	-	-	-
Yarn Manufacturing & Cotton Washing	62	0.196	33	0.223	54.5	54.5	29	0.168	31.0	31.0	0	-	-	-
Textile Mill Waste House	3	0.154	1	0.115	0.0	0.0	2	0.179	0.0	50.0	0	-	-	-
Textile Slashing & Weaving	1	0.449	0	-	-	-	1	0.449	0.0	100.0	0	-	-	-
Cotton Waste Proc/Recycl & Garnetting	17	0.431	3	4.898	100.0	100.0	14	0.256	0.0	57.1	0	-	-	-
Georgia	196	0.156	131	0.160	43.5	46.6	53	0.146	24.5	28.3	12	0.156	41.7	41.7
Yarn Manufacturing & Cotton Washing	177	0.168	120	0.175	47.5	47.5	46	0.147	28.3	28.3	11	0.184	45.5	45.5
Textile Mill Waste House	4	0.159	1	0.098	0.0	0.0	3	0.187	0.0	0.0	0	-	-	-
Textile Slashing & Weaving	11	0.086	6	0.089	0.0	33.3	4	0.111	0.0	50.0	1	0.026	0.0	0.0
Cotton Waste Proc/Recycl & Garnetting	2	0.376	2	0.376	0.0	100.0	0	-	-	-	0	-	-	-
Undetermined Process	2	0.003	2	0.003	-	0.0	0	-	-	-	0	-	-	-
Mississippi	1	0.050	1	0.050	0.0	0.0	0	-	-	-	0	-	-	-
Yarn Manufacturing & Cotton Washing	1	0.050	1	0.050	0.0	0.0	0	-	-	-	0	-	-	-
North Carolina	495	0.124	250	0.129	21.2	28.0	208	0.128	21.6	27.9	37	0.076	8.1	18.9
Yarn Manufacturing & Cotton Washing	380	0.132	189	0.144	24.9	24.9	166	0.131	24.1	24.1	25	0.074	12.0	12.0
Textile Mill Waste House	27	0.118	15	0.087	0.0	13.3	11	0.201	9.1	36.4	1	0.037	0.0	0.0
Textile Slashing & Weaving	53	0.161	31	0.141	12.9	51.6	16	0.255	25.0	68.8	6	0.096	0.0	33.3
Cotton Waste Proc/Recycl & Garnetting	22	0.202	9	0.255	22.2	55.6	9	0.172	0.0	33.3	4	0.170	0.0	50.0
Undetermined Process	13	0.003	6	0.003	-	0.0	6	0.003	-	0.0	1	0.003	-	0.0
South Carolina	118	0.156	47	0.202	21.3	40.4	51	0.115	27.5	33.3	20	0.184	10.0	45.0
Yarn Manufacturing & Cotton Washing	78	0.123	26	0.130	15.4	15.4	43	0.125	30.2	30.2	9	0.098	0.0	0.0
Textile Mill Waste House	12	0.247	9	0.224	44.4	55.6	0	-	-	-	3	0.332	66.7	66.7
Textile Slashing & Weaving	20	0.403	12	0.489	16.7	83.3	0	-	-	-	8	0.302	0.0	87.5
Cotton Waste Proc/Recycl & Garnetting	5	0.521	0	-	-	-	5	0.521	20.0	80.0	0	-	-	-
Undetermined Process	3	0.003	0	-	-	-	3	0.003	-	0.0	0	-	-	-
Tennessee	16	0.011	4	0.645	25.0	100.0	9	0.003	0.0	0.0	3	0.003	0.0	0.0
Yarn Manufacturing & Cotton Washing	1	7.400	1	7.400	100.0	100.0	0	-	-	-	0	-	-	-
Cotton Waste Proc/Recycl & Garnetting	3	0.286	3	0.286	0.0	100.0	0	-	-	-	0	-	-	-
Undetermined Process	12	0.003	0	-	-	-	9	0.003	-	0.0	3	0.003	-	0.0

See footnotes at end of table.

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OSHA Region	All years		1980 - 1989				1990 - 1994				1995 - 1999			
	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	8	3.415	7	3.479	71.4	71.4	1	3.000	100.0	100.0	0	-	-	-
Illinois	7	3.479	7	3.479	71.4	71.4	0	-	-	-	0	-	-	-
Yarn Manufacturing & Cotton Washing	2	0.200	2	0.200	0.0	0.0	0	-	-	-	0	-	-	-
Textile Mill Waste House	2	7.421	2	7.421	100.0	100.0	0	-	-	-	0	-	-	-
Cotton Waste Proc/Recycl & Garnetting	3	14.092	3	14.092	100.0	100.0	0	-	-	-	0	-	-	-
Michigan	1	3.000	0	-	-	-	1	3.000	100.0	100.0	0	-	-	-
Cotton Waste Proc/Recycl & Garnetting	1	3.000	0	-	-	-	1	3.000	100.0	100.0	0	-	-	-
Region 6	77	0.281	75	0.283	54.7	62.7	2	0.212	0.0	50.0	0	-	-	-
Texas	77	0.281	75	0.283	54.7	62.7	2	0.212	0.0	50.0	0	-	-	-
Yarn Manufacturing & Cotton Washing	62	0.278	62	0.278	61.3	61.3	0	-	-	-	0	-	-	-
Textile Mill Waste House	4	0.139	4	0.139	0.0	25.0	0	-	-	-	0	-	-	-
Textile Slashing & Weaving	1	0.410	1	0.410	0.0	100.0	0	-	-	-	0	-	-	-
Cotton Waste Proc/Recycl & Garnetting	10	0.380	8	0.439	37.5	87.5	2	0.212	0.0	50.0	0	-	-	-
Region 7	19	0.493	1	0.740	0.0	100.0	18	0.482	66.7	88.9	0	-	-	-
Kansas	18	0.482	0	-	-	-	18	0.482	66.7	88.9	0	-	-	-
Textile Mill Waste House	17	0.593	0	-	-	-	17	0.593	70.6	94.1	0	-	-	-
Undetermined Process	1	0.014	0	-	-	-	1	0.014	-	0.0	0	-	-	-
Missouri	1	0.740	1	0.740	0.0	100.0	0	-	-	-	0	-	-	-
Cotton Waste Proc/Recycl & Garnetting	1	0.740	1	0.740	0.0	100.0	0	-	-	-	0	-	-	-
Region 8	4	0.714	4	0.714	0.0	100.0	0	-	-	-	0	-	-	-
Colorado	2	0.570	2	0.570	0.0	100.0	0	-	-	-	0	-	-	-
Cotton Waste Proc/Recycl & Garnetting	2	0.570	2	0.570	0.0	100.0	0	-	-	-	0	-	-	-
Utah	2	0.896	2	0.896	0.0	100.0	0	-	-	-	0	-	-	-
Cotton Waste Proc/Recycl & Garnetting	2	0.896	2	0.896	0.0	100.0	0	-	-	-	0	-	-	-
Region 9	1	1.958	0	-	-	-	0	-	-	-	1	1.958	100.0	100.0
Hawaii	1	1.958	0	-	-	-	0	-	-	-	1	1.958	100.0	100.0
Yarn Manufacturing & Cotton Washing	1	1.958	0	-	-	-	0	-	-	-	1	1.958	100.0	100.0
TOTAL	1,039	0.153	571	0.180	33.8	42.4	391	0.133	24.0	32.5	77	0.091	14.3	28.6

- indicates incalculable field PEL - permissible exposure limit REL - recommended exposure limit GM - geometric mean mg/m³ - milligrams per cubic meter
NOTE: The OSHA PEL is 0.2 mg/m³ for yarn manufacturing and cotton washing operations, 0.5 mg/m³ for textile mill waste house operations or for dust from lower grade washed cotton used during yarn manufacturing, 0.75 mg/m³ for textile slashing and weaving operations, and 1.0 mg/m³ for cotton waste processing operations or waste recycling (i.e., sorting, blending, cleaning, and willowing) and garnetting. The NIOSH REL is 0.2 mg/m³. See appendices for source description, methods, and agents.
SOURCE: Occupational Safety and Health Administration (OSHA) Integrated Management Information System.