

Table VI-1

Estimated Number of Establishments With Respirator Users, by Type

SIC	Title	All Respirator Types	Nonpowered Air-Purifying				Supplied-Air	
			Filtering Facepiece	Half-mask	Full-face	PAPR	Total	SCBA
07	Agricultural services	7,566	6,466	1,142	33 *	105 *	240 *	164 *
08	Forestry	261	261	208	1 *	4 *	8 *	6 *
09	Fishing, hunting, and trapping	0	0	0	0	0	0	0
13	Oil and gas extraction	1,097	490	1,097	499	220	412	250
15	General building contractors	19,071	15,069	6,729	1,859	1,520	1,213	674
16	Heavy construction, except building	4,718	3,816	2,432	915	757	1,213	355
17	Special trade contractors	40,823	31,380	17,025	10,161	7,136	8,198	2,693
20	Food and kindred products	3,608	1,926	1,433	1,901	428	1,010	720
21	Tobacco products	30	17	13 *	0	20	20	20
22	Textile mill products	720	627	272	201	139	9	0
23	Apparel and other textile products	1,111	943 *	925	14 *	0	0	0
24	Lumber and wood products	1,995	1,326	1,273	353	197	168	106
25	Furniture and fixtures	2,053	1,745	1,469	317	80	83	28
26	Paper and allied products	649	448	329	293	122	193	153
27	Printing and publishing	124	105 *	45	2 *	0	3	0
28	Chemicals and allied products	5,052	3,047	2,896	2,698	910	2,077	1,632
29	Petroleum and coal products	432	64	189	200	99	249	151
30	Rubber and misc. plastics products	3,140	2,094	1,707	1,117	695	938	121
31	Leather and leather products	14 *	12 *	6 *	0	0	340	0
32	Stone, clay, and glass products	3,109	2,089	1,765	495	589	530	119
33	Primary metal industries	1,974	1,533	861	385	491	550	183
34	Fabricated metal products	7,374	4,601	4,988	1,103	1,510	2,456	361
35	Industrial machinery and equipment	7,458	4,425	4,151	1,700	1,093	2,131	441
36	Electronic and other electric equipment	2,731	1,676	1,412	656	341	525	252
37	Transportation equipment	3,788	1,957	2,158	1,656	738	1,225	337
38	Instruments and related products	1,282	711	1,033	736	468	568	155
39	Miscellaneous manufacturing industries	3,140	2,389	2,295	1,442	1,276	439	133
40	Railroad transportation	846	417	803	380	375	503	134
41	Local and interurban passenger transit	809	405	522	87 *	73	86	86
42	Trucking and warehousing	4,090	3,240	793	850	463	751	617
43	United States Postal Service	1,012 **	801 **	196 **	210 **	115 **	186 **	153 **
44	Water transportation	50 *	7 *	50 *	5 *	14 *	55	0
45	Transportation by air	48 *	7 *	48 *	5 *	13	10 *	0
46	Pipelines, except natural gas	252	35 *	180	74	69 *	96 *	91
47	Transportation services	8 *	1 *	7 *	0	2	7	0
48	Communications	100 *	14 *	99 *	11 *	27	18 *	0
49	Electric, gas, and sanitary services	5,085	1,856	2,975	1,486	821	2,737 *	1,956
50	Wholesale trade—durable goods	18,854	10,795	9,641	3,259	2,776	2,926	1,278
51	Wholesale trade—nondurable goods	8,573	4,660	3,619	4,303	2,192	3,045	2,533
52	Building materials and garden supplies	2,386	2,386	1,433	688 *	496	89	66
53	General merchandise stores	687 *	211 *	471 *	190 *	143 *	19 *	19 *
54	Food stores	2,394 *	736 *	1,642 *	662 *	498	67 *	67 *
55	Automotive dealers and service stations	10,243	7,139	6,127	2,271	2,403	3,211 *	1,048 *
56	Apparel and accessory stores	308 *	95 *	211 *	85 *	64	1,442	9
57	Furniture and home furnishings stores	2,769	2,586	1,710	799 *	576 *	77 *	77 *
58	Eating and drinking places	0	0	0	0	0	0	0
59	Miscellaneous retail	978	679	700 *	282 *	203	27	27
60	Depository institutions	1,372 *	1,349 *	36 *	59 *	6 *	0	0
61	Nondepository institutions	299 *	294 *	8 *	13 *	1	0	0
62	Security and commodity brokers	278 *	274 *	7 *	12 *	1	0	0
63	Insurance carriers	442 *	435 *	62	19 *	2	0	0
64	Insurance agents, brokers, and services	744 *	732 *	19 *	32 *	3	0	0
65	Real estate	1,541	1,031	1,115	67 *	7	0	0
67	Holding and other investment offices	157 *	155 *	4 *	7 *	0	0	0
70	Hotels and other lodging places	1,326	1,326	621	531	7 *	0	0
72	Personal services	9,743	4,779	9,115	1,192	52 *	0	0
73	Business services	13,517	11,574	4,952	4,578	72 *	925	925
75	Auto repair, services, and parking	32,113	26,523	19,568	5,793	5,655	8,778 *	3,263 *
76	Miscellaneous repair services	3,375	3,375	1,199 *	313 *	18 *	4,259	0

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Estimated Number of Establishments With Respirator Users, by Type

SIC Title	All Respirator Types	Nonpowered Air-Purifying			PAPR	Supplied-Air	
		Filtering Facepiece	Half-mask	Full-face		Total	SCBA
78 Motion pictures	17 *	8 *	6 *	2 *	0	2	0
79 Amusement and recreation services	1,612	1,348	1,184	150 *	9 *	0	0
80 Health services	16,486	14,625	1,991	1,307	879	303	260
81 Legal services	61 *	29 *	22 *	6 *	0	3	0
82 Educational services	564	267 *	431	52 *	3 *	0	0
83 Social services	6,668	5,812	2,217 *	579 *	36 *	0	0
84 Museums, botanical, zoological gardens	235	112 *	235	22 *	1 *	16	16
86 Membership organizations	533	252 *	383	49 *	3 *	0	0
87 Engineering and management services	10,292	4,004	7,297	1,800	5,117	254	254
89 Services, n.e.c.	6 *	3 *	2 *	0	0	3	0
State and local governments	6,893 ***	4,936 ***	3,392 ***	1,479 **	1,023 **	1,327 **	530 **
Totals	291,085	208,528	142,947	62,448	43,154	56,022	22,461

Source: Preliminary results from the 2001 NIOSH/BLS Survey of Respirator Use and Practices, in press. Benchmarked to 1997 establishment counts from U.S. Bureau of the Census, Statistics of U.S. Businesses, 1997.

* Suppressed industry-level estimates extrapolated from sector totals.

** Estimated based on respirator use patterns in SIC 42.

*** Estimated based on private-sector respirator use patterns.

Table VI-2

Estimated Number of Respirator Users, by Type

SIC	Title	Nonpowered Air-Purifying				Supplied-Air	
		Filtering Facepiece	Half-mask	Full-face	PAPR	Total	SCBA
07	Agricultural services	52,919	6,030 *	1,713 *	139 *	942 *	567 *
08	Forestry	765 *	208 *	23 *	3 *	32 *	20 *
09	Fishing, hunting, and trapping	0	0	0	0	0	0
13	Oil and gas extraction	12,086 *	14,108	1,587 *	6,242	3,071	2,405
15	General building contractors	77,827	36,770	7,752	2,750	6,047	4,744
16	Heavy construction, except building	31,518	30,503	8,747	4,929	8,652	1,933
17	Special trade contractors	259,240	247,483	156,559	49,285	81,803	17,005
20	Food and kindred products	31,317	15,454	13,559	2,465	9,693	7,093
21	Tobacco products	4,232 *	390 *	0	173	412	412
22	Textile mill products	31,996 *	3,198	3,510	3,243	41	0
23	Apparel and other textile products	3,326 *	2,444	213 *	0	0	0
24	Lumber and wood products	17,615 *	8,855	2,869	3,083	1,761	1,096
25	Furniture and fixtures	15,196	7,544	1,916 *	843	530	180
26	Paper and allied products	13,435	16,139	6,313	1,808	6,724	6,222
27	Printing and publishing	1,060 *	341 *	57 *	0	0	0
28	Chemicals and allied products	62,742	88,807	71,534	14,156	46,708	28,306
29	Petroleum and coal products	3,021 *	20,737	20,737	3,448	19,007	12,675
30	Rubber and misc. plastics products	20,523	15,285	5,902	1,729	5,803	1,383
31	Leather and leather products	101 *	8 *	0	0	0	0
32	Stone, clay, and glass products	34,520 *	17,862	5,433	2,595	2,025	705
33	Primary metal industries	42,014	50,150	8,770	6,316	12,168	5,827
34	Fabricated metal products	41,546	38,192	6,824	6,135	11,960	2,335
35	Industrial machinery and equipment	29,381	23,080	9,998	4,313	9,605	2,448
36	Electronic and other electric equipment	20,550	28,259	10,688	2,339	11,422	7,882
37	Transportation equipment	42,965	86,796	18,958	6,520	16,930	3,493
38	Instruments and related products	11,414	13,602	9,192	1,342	4,470	1,296
39	Miscellaneous manufacturing industries	18,431	15,452	2,401	6,554	2,337	555
40	Railroad transportation	9,190	128,159	4,124	1,267	1,215	0
41	Local and interurban passenger transit	5,589 *	2,536	203 *	467	587 *	419 *
42	Trucking and warehousing	26,422 *	9,486 *	7,702	4,299	4,879	2,446
43	United States Postal Service	6,536 **	2,347 **	1,905 **	1,064 **	1,207 **	605 **
44	Water transportation	973 *	20,591 *	143 *	20,591	64 *	0
45	Transportation by air	3,443 *	3,443 *	3,443 *	13	11,282	0
46	Pipelines, except natural gas	40 *	471 *	237 *	160	295	215
47	Transportation services	25 *	214 *	0	2	8 *	0
48	Communications	336 *	2,844 *	49 *	27	18 *	0
49	Electric, gas, and sanitary services	22,784	62,648	35,279	7,147	27,403	13,905
50	Wholesale trade--durable goods	35,783	22,876	16,548 *	4,734	6,936	5,072
51	Wholesale trade--nondurable goods	75,813 *	50,120	13,576	16,524	19,157	4,244
52	Building materials and garden supplies	34,024 *	8,296 *	4,061 *	496	89 *	66 *
53	General merchandise stores	1,008 *	1,008 *	190 *	1,008	19 *	19 *
54	Food stores	2,786 *	2,110 *	802 *	498	921	921
55	Automotive dealers and service stations	66,440	52,361	22,888	16,426	19,415	7,139
56	Apparel and accessory stores	867 *	345 *	85 *	64	1,442 *	9 *
57	Furniture and homefurnishings stores	4,556 *	2,723 *	799 *	1,494	77 *	77 *
58	Eating and drinking places	0	0	0	0	0	0
59	Miscellaneous retail	7,034 *	1,577 *	767 *	203	27 *	27 *
60	Depository institutions	1,933 *	1,790 *	59 *	57	0	0
61	Nondepository institutions	294 *	238 *	13 *	1	0	0
62	Security and commodity brokers	274 *	222 *	12 *	1	0	0
63	Insurance carriers	1,055 *	761 *	19 *	2	0	0
64	Insurance agents, brokers, and services	732 *	593 *	32 *	3	0	0

Table VI-2

Estimated Number of Respirator Users, by Type

SIC Title	Nonpowered Air-Purifying				Supplied-Air	
	Filtering Facepiece	Half-mask	Full-face	PAPR	Total	SCBA
65 Real estate	5,760 *	10,161	218 *	7	0	0
67 Holding and other investment offices	595 *	165 *	7 *	0	0	0
70 Hotels and other lodging places	72,978 *	4,959	16,012 *	21 *	0	0
72 Personal services	10,771 *	19,239 *	12,074 *	188 *	0	0
73 Business services	78,724	45,461 *	24,576 *	261 *	30,116	29,997
75 Auto repair, services, and parking	115,969	56,952	15,320	12,868	23,583	6,787
76 Miscellaneous repair services	26,018	15,868 *	6,066 *	72 *	4,730	0
78 Motion pictures	859 *	650 *	243 *	0	0	0
79 Amusement and recreation services	14,915	7,217	3,650 *	26 *	0	0
80 Health services	637,932	123,157	64,125	69,893	4,230	3,829
81 Legal services	3,145 *	2,379 *	890 *	0 *	0	0
82 Educational services	29,197 *	2,891	8,259 *	226	0	0
83 Social services	7,868 *	5,128 *	1,813 *	129 *	0	0
84 Museums, botanical, zoological gardens	2,212 *	2,652 *	586 *	4 *	625	624
86 Membership organizations	1,035 *	1,276 *	326 *	9 *	0	0
87 Engineering and management services	69,687 *	42,515 *	19,530 *	6,350	3,354	3,354
89 Services, n.e.c.	715 *	928 *	0	0	0	0
State and local governments	53,692 ***	35,756 ***	15,683 **	7,173 **	10,742 **	4,491 **
Totals	2,319,745	1,542,809	677,569	304,186	434,565	192,824

Source: Preliminary results from the 2001 NIOSH/BLS Survey of Respirator Use and Practices, in press. Benchmarked to 1997 establishment counts from U.S. Bureau of the Census, Statistics of U.S. Businesses, 1997.

* Suppressed industry-level estimates extrapolated from sector totals.

** Estimated based on respirator use patterns in SIC 42.

*** Estimated based on private-sector respirator use patterns.

The proposed standard would have different impacts on employers using respirators to comply with OSHA substance-specific standards than for employers using respirators for other purposes. Therefore, OSHA used findings from the NIOSH-BLS survey of establishments that reported respirator

use, by general respirator class, for protection against specific substances (see Table VI-3). OSHA applied these numbers to all respirator users and establishments within the industries that make up each sector to derive substance-specific estimates of respirator use. For those section 6(b)(5)

substances not reported by NIOSH, OSHA used expert judgments of a consultant with experience in the respirator industry to estimate the percentage of establishments and employees that use respirators for protection against these chemicals (Ex. 6-2) (see Table VI-3).

Table VI-3A
Establishments Using Respirators to Protect Against Selected Substances

Sector/Respirator Class	Establishments with Respirators [a,b]	Arsenic	Asbestos	Cadmium	Lead	Cotton Dust [a]	Coke Oven Emissions
Air-Purifying Respirators							
Agriculture	13,200	1,200	1,200	1,200	1,100	2,500	1,000
Mining	3,500	200	400	200	300	100	100
Construction	60,000	2,900	6,000	2,600	7,900	800	900
Manufacturing	46,200	2,500	4,000	2,700	5,500	1,400	2,000
Transportation and utilities	9,700	900	2,200	600	1,400	200	200
Wholesale trade	28,000	800	2,600	1,800	3,700	1,100	700
Retail trade	16,100	100	300	200	600	100	0
Finance, insurance, and real estate	4,200	0	0	0	0	0	0
Services	86,600	1,600	8,700	1,500	10,800	1,000	800
Total	267,500	10,200	25,400	10,800	31,300	7,200	5,700
Supplied-Air Respirators							
Agriculture	500	0	0	0	0	1	0
Mining	600	0	0	0	0	0	0
Construction	10,500	1,700	1,000	1,600	2,400	0	0
Manufacturing	12,700	400	600	600	1,100	3	200
Transportation and utilities	3,800	100	1,000	100	300	1	0
Wholesale trade	6,800	0	0	0	700	1	0
Retail trade	2,900	0	0	0	200	0	0
Finance, insurance, and real estate	0	NA	NA	NA	NA	NA	NA
Services	9,500	0	0	0	400	0	0
Total	47,300	2,200	2,600	2,300	5,100	6	200

Source: The 2001 NIOSH/BLS Survey of Respirator Use and Practices. "Respirator Use and Practice." Bureau of Labor Statistics Press Release, March 20, 2002.

[a] Estimates for supplied-air respirators provided by ERG consultant Jeffrey Stull of International Personal Protection, Inc.
[b] Establishment estimates as reported by NIOSH. These may differ from establishment estimates shown in Table VI-1 that have been benchmarked to the 1997 establishment counts from U.S. Bureau of the Census, Statistics of U.S. Businesses, 1997.

Table VI-3B
Establishments Using Respirators to Protect Against Selected Substances

Sector/Respirator Class	Establishments with Respirators [a,b]	Establishments Using Respirators to Protect Against Selected Substances							
		Acrylonitrile	Formaldehyde	DBCP	Ethylene oxide	Vinyl chloride	Butadiene		
Air-Purifying Respirators									
Agriculture	13,200	0	66	1	0	0	0	0	0
Mining	3,500	0	4	0	0	0	0	0	0
Construction	60,000	0	480	0	0	0	0	0	0
Manufacturing	46,200	92	554	5	231	462	1.00%	370	0.80%
Transportation and utilities	9,700	5	1	0	1	1	0.01%	0	0.00%
Wholesale trade	28,000	0	0	0	0	0	0.00%	0	0.00%
Retail trade	16,100	0	0	0	0	0	0.00%	0	0.00%
Finance, insurance, and real estate	4,200	0	0	0	0	0	0.00%	0	0.00%
Services	86,600	0	0	0	43	0	0.05%	0	0.00%
Total	267,500	97	1,105	6	275	463	0.17%	370	0.14%
Supplied-Air Respirators									
Agriculture	500	0	0	0	0	0	0.01%	0	0.00%
Mining	600	0	0	0	0	0	0.00%	0	0.00%
Construction	10,500	0	5	0	0	0	0.00%	0	0.00%
Manufacturing	12,700	64	102	1	114	152	0.90%	76	0.60%
Transportation and utilities	3,800	1	1	0	1	1	0.02%	0	0.01%
Wholesale trade	6,800	0	0	0	0	0	0.00%	0	0.00%
Retail trade	2,900	0	0	0	0	0	0.00%	0	0.00%
Finance, insurance, and real estate	0	NA	NA	NA	NA	NA	NA	NA	NA
Services	9,500	0	0	0	1	0	0.01%	0	0.00%
Total	47,300	64	108	1	116	152	0.2%	77	0.16%

Source: Estimates provided by ERG consultant Jeffrey Stull of International Personal Protection, Inc.

[a] The 2001 NIOSH/BLS Survey of Respirator Use and Practices. "Respirator Use and Practice." Bureau of Labor Statistics Press Release, March 20, 2002.

[b] Establishment estimates as reported by NIOSH. These may differ from establishment estimates shown in Table VI-1 that have been benchmarked to the 1997 establishment counts from U.S. Bureau of the Census, Statistics of U.S. Businesses, 1997.