

# Respirator Usage in Private Sector Firms, 2001



U.S. Department of Labor  
Bureau of Labor Statistics

U.S. Department of Health and Human Services  
Centers for Disease Control and Prevention  
National Institute for Occupational Safety and Health

September 2003



# Respirator Usage in Private Sector Firms, 2001



U.S. Department of Labor  
Bureau of Labor Statistics

U.S. Department of Health and Human Services  
Centers for Disease Control and Prevention  
National Institute for Occupational Safety and Health

September 2003



## Preface

The Bureau of Labor Statistics (BLS) and the National Institute for Occupational Safety and Health (NIOSH) conducted the voluntary Survey of Respirator Use and Practices from August 2001 through January 2002, by means of a questionnaire mailed to a representative sample of U.S. employers. This publication summarizes the data obtained from the survey. The data identify the numbers of establishments and employees using respirators, by type of respirator and type of use. The data also identify the characteristics of the respirator program at the establishment level.

This publication has four sections and several supporting appendixes. Section 1 is an overview of the data collected from the survey. Section 2 provides information on the number and percent of establishments that use respirators, by type of use and two-digit industry division, major industry division, and employment size group. Section 3 contains reference tables presenting the numbers and percentages of establishments and employees using respirators in the 12 months prior to the survey, by two-digit industry, major industry division, and employment size group. Section 4 provides the characteristics of the respirator programs within establishments in the 12 months prior to the survey, by major industry division and employment size group. The appendixes present the scope and method of the survey, definitions, the questionnaire, and a cross-index of questionnaire items with the numbers of the tables in which pertinent information appears.

Questions about the Survey of Respirator Use and Practices can be directed to:

The National Institute for Occupational Safety and Health  
Division of Respiratory Disease Studies  
Surveillance Branch  
1095 Willowdale Road  
Mailstop H-G900.2  
Morgantown, WV 26505  
(304) 285-6115

Telephone: 1(800) 35NIOSH

The BLS Office of Safety, Health, and Working Conditions and the NIOSH staff prepared this publication. Many other organizations and persons contributed to the success of this survey, including the BLS National Office's Statistical Methods Group, which helped perform quality control. Using the original survey questionnaire that the NIOSH staff developed, the BLS Office of Survey Methods Research designed and tested the final version. BLS also wishes to express its appreciation to the many employers who responded to the survey, without whose cooperation this report would not be possible.

Material in this publication is in the public domain, and, with appropriate credit, may be used without permission. This information is available to sensory-impaired individuals upon request. Voice phone: (202) 691-5200; Federal Relay Service: 1-800-877-8339.

# Contents

	<i>Page</i>
<b>Preface</b> .....	iii
<b>Contents</b> .....	v
<b>Section 1. Overview</b> .....	1
Text tables:	
1. Number and percent of establishments using respirators, by selected type of use and industry division.....	2
2. Number and percent of establishments using respirators, by selected type of use and employment size group .....	3
3. Number and percent of establishments requiring respirator use during the 12 months prior to the survey, and number and percent of affected workers, by industry division.....	4
4. Number and percent of establishments requiring respirator use during the 12 months prior to the survey, and number and percent of affected workers, by employment size group.....	4
5. Number and percent of establishments requiring respirator use during the 12 months prior to the survey, by type of respirator and industry division .....	5
6. Number and percent of establishments requiring respirator use during the 12 months prior to the survey, by respirator use practices and industry division .....	6
<b>Section 2. Estimates of Respirator Use</b> .....	9
Tables:	
1. Number of establishments using respirators, by selected type of use and industry .....	10
2. Type of use as a percent of establishments using respirators, by industry.....	13
3. Number and percent of establishments using respirators, by selected type of use and industry division.....	16
4. Number and percent of establishments using respirators, by selected type of use and employment size group .....	17
<b>Section 3. Estimates of Required Respirator Use During the 12 Months Prior to the Survey</b> .....	19
Tables:	
<b>Respirator use, by two-digit standard industrial classification</b>	
5. Number of establishments using respirators, by selected type of use and industry .....	20
6. Type of use as a percent of establishments using respirators, by industry.....	23
7. Number and percent of establishments and employees using respirators, by industry .....	26
8. Number and percent of establishments and employees using air-purifying respirators, by industry .....	28
9. Number of establishments using non-powered air-purifying respirators, by respirator type and industry.....	30
10. Respirator type as a percent of establishments using non-powered air-purifying respirators, by industry .....	33
11. Number of establishments using powered air-purifying respirators, by respirator type and industry .....	36
12. Respirator type as a percent of establishments using powered air-purifying respirators, by industry .....	39
13. Number of establishments and employees using non-powered air-purifying or powered air-purifying respirators, by industry .....	42

## Contents – Continued

14. Respirator type as a percent of establishments and employees using non-powered air-purifying or powered air-purifying respirators, by industry .....	45
15. Number and percent of establishments and employees using air-supplied respirators, by industry .....	48
16. Number of establishments using air-supplied respirators, by respirator type and industry....	51
17. Respirator type as a percent of establishments using air-supplied respirators, by industry ...	54
18. Number of employees using air-supplied respirators, by respirator type and industry. ....	57
19. Respirator type as a percent of employees using air-supplied respirators, by industry.....	60
20. Number and percent of establishments using both air-supplied and air-purifying respirators, by industry.....	63
<b>Respirator use, by industry division</b>	
21. Number and percent of establishments using respirators, by selected type of use and industry division.....	66
22. Number and percent of establishments and employees using respirators, by respirator type and industry division.....	67
23. Number and percent of establishments using non-powered air-purifying respirators to protect against a hazard, by selected type of hazard and industry division.....	69
24. Number and percent of employees using non-powered air-purifying respirators to protect against a hazard, by selected type of hazard and industry division.....	71
25. Number and percent of establishments using powered air-purifying respirators to protect against a hazard, by selected type of hazard and industry division.....	73
26. Number and percent of employees using powered air-purifying respirators to protect against a hazard, by selected type of hazard and industry division.....	75
27. Number and percent of establishments and employees using air-supplied respirators, by respirator type and industry division.....	77
<b>Respirator use, by employment size group</b>	
28. Number and percent of establishments using respirators, by selected type of use and employment size group .....	78
29. Number and percent of establishments and employees using respirators, by respirator type and employment size group.....	79
30. Number and percent of establishments using non-powered air-purifying respirators to protect against a hazard, by selected type of hazard and employment size group .....	81
31. Number and percent of employees using non-powered air-purifying respirators to protect against a hazard, by selected type of hazard and employment size group .....	83
32. Number and percent of establishments using powered air-purifying respirators to protect against a hazard, by selected type of hazard and employment size group .....	85
33. Number and percent of employees using powered air-purifying respirators to protect against a hazard, by selected type of hazard and employment size group .....	87
34. Number and percent of establishments and employees using air-supplied respirators, by respirator type and employment size group.....	89
<b>Section 4. Respirator Program Characteristics</b> .....	91
Tables:	
<b>Respirator program characteristics, by industry division</b>	
35. Number and percent of establishments and employees using respirators, by characteristics of respirator program and industry division .....	93
36. Number and percent of establishments using respirators, by education or training of program administrator and industry division.....	96

## Contents – Continued

37.	Number and percent of establishments using respirators, by education or training of program administrator and respirator type.....	98
38.	Number and percent of establishments using respirators, by provider of employee training and industry division .....	100
39.	Number and percent of establishments and employees using respirators, by method of determining respirator use and industry division.....	101
40.	Number and percent of establishments and employees using air-purifying respirators, by method of determining respirator use and industry division .....	103
41.	Number and percent of establishments and employees using air-supplied respirators, by method of determining respirator use and industry division .....	105
42.	Number and percent of establishments using both air-purifying and air-supplied respirators, by method of determining respirator use and industry division .....	107
43.	Number and percent of establishments and employees using respirators, by method of assessing employees' medical fitness and industry division.....	108
44.	Number and percent of establishments and employees using air-purifying respirators, by method of assessing employees' medical fitness and industry division.....	110
45.	Number and percent of establishments and employees using air-supplied respirators, by method of assessing employees' medical fitness and industry division.....	112
46.	Number and percent of establishments using both air-purifying and air-supplied respirators, by method of assessing employees' medical fitness and industry division.....	114
47.	Number and percent of establishments and employees using respirators, by determiner of employees' medical fitness and industry division .....	115
48.	Number and percent of establishments and employees using air-purifying respirators, by determiner of employees' medical fitness and industry division .....	117
49.	Number and percent of establishments and employees using air-supplied respirators, by determiner of employees' medical fitness and industry division .....	119
50.	Number and percent of establishments using both air-purifying and air-supplied respirators, by determiner of employees' medical fitness and industry division .....	121
51.	Number and percent of establishments and employees using respirators, by method of determining appropriate respirators and industry division .....	122
52.	Number and percent of establishments and employees using air-purifying respirators, by method of determining appropriate respirators and industry division.....	124
53.	Number and percent of establishments and employees using air-supplied respirators, by method of determining appropriate respirators and industry division.....	127
54.	Number and percent of establishments using both air-purifying and air-supplied respirators, by method of determining appropriate respirators and industry division.....	130
55.	Number and percent of establishments using respirators, by length of time since last evaluation of respirator use and industry division .....	132
56.	Number and percent of establishments using air-purifying respirators, by filter replacement policy and industry division .....	133
57.	Number and percent of establishments using airline respirators, by compatibility of hose couplings and industry division.....	135
58.	Number and percent of establishments using airline respirators, by method used to adjust airflow and industry division.....	136
59.	Number and percent of establishments using tight-fitting respirators, by existence of employee fit testing and industry division .....	138
60.	Number and percent of establishments using tight-fitting respirators, by conductor of fit testing and industry division. ....	139
61.	Number and percent of establishments using respirators, by method of fit testing and industry division.....	141

## Contents – Continued

62. Number and percent of establishments, by fit testing method(s) used.....	142
63. Number and percent of establishments that fit test employees, by fit testing method and locus of responsibility for the respirator program .....	143
64. Number and percent of establishments and employees using respirators, by employer evaluation of NIOSH approval labels and manufacturers' instructions and industry division.....	144
65. Number of establishments that used air-purifying respirators and conducted air-sampling/monitoring for selected substances, by industry division.....	149
66. Percent of establishments that used air-purifying respirators and conducted air-sampling/monitoring for selected substances, by industry division.....	154
67. Number of establishments that used air-supplied respirators and conducted air-sampling/monitoring for selected substances, by industry division.....	159
68. Percent of establishments that used air-supplied respirators and conducted air-sampling/monitoring for selected substances, by industry division.....	164
69. Number of establishments that used either air-purifying or air-supplied respirators and conducted air-sampling/monitoring for selected substances, by industry division .....	169
70. Percent of establishments that used either air-purifying or air-supplied respirators and conducted air-sampling/monitoring for selected substances, by industry division .....	174

### **Respirator program characteristics, by employment size group**

71. Number and percent of establishments and employees using respirators, by characteristics of respirator program and employment size group.....	179
72. Number and percent of establishments using respirators, by education or training of program administrator and employment size group .....	182
73. Number and percent of establishments using respirators, by provider of employee training and employment size group .....	183
74. Number and percent of establishments and employees using respirators, by method of determining respirator use and employment size group .....	184
75. Number and percent of establishments and employees using air-purifying respirators, by method of determining respirator use and employment size group.....	186
76. Number and percent of establishments and employees using air-supplied respirators, by method of determining respirator use and employment size group.....	188
77. Number and percent of establishments using both air-purifying and air-supplied respirators, by method of determining respirator use and employment size group.....	190
78. Number and percent of establishments and employees using respirators, by method of assessing employees' medical fitness and employment size group .....	191
79. Number and percent of establishments and employees using air-purifying respirators, by method of assessing employees' medical fitness and employment size group .....	193
80. Number and percent of establishments and employees using air-supplied respirators, by method of assessing employees' medical fitness and employment size group .....	195
81. Number and percent of establishments using both air-purifying and air-supplied respirators, by method of assessing employees' medical fitness and employment size group .....	197
82. Number and percent of establishments and employees using respirators, by determiner of employees' medical fitness and employment size group .....	198
83. Number and percent of establishments and employees using air-purifying respirators, by determiner of employees' medical fitness and employment size group.....	200
84. Number and percent of establishments and employees using air-supplied respirators, by determiner of employees' medical fitness and employment size group.....	202
85. Number and percent of establishments using both air-purifying and air-supplied respirators, by determiner of employees' medical fitness and employment size group .....	204

## Contents – Continued

86. Number and percent of establishments and employees using respirators, by method of determining appropriate respirators and employment size group .....	205
87. Number and percent of establishments and employees using air-purifying respirators, by method of determining appropriate respirators and employment size group .....	207
88. Number and percent of establishments and employees using air-supplied respirators, by method of determining appropriate respirators and employment size group .....	209
89. Number and percent of establishments using both air-purifying and air-supplied respirators, by method of determining appropriate respirators and employment size group .....	211
90. Number and percent of establishments using respirators, by time since last evaluation of respirator use and employment size group.....	212
91. Number and percent of establishments using air-purifying respirators, by filter replacement policy and employment size group .....	213
92. Number and percent of establishments using airline respirators, by compatibility of hose couplings and employment size group .....	215
93. Number and percent of establishments using airline respirators, by method used to adjust airflow and employment size group .....	216
94. Number and percent of establishments using tight-fitting respirators, by existence of employee fit testing and employment size group.....	218
95. Number and percent of establishments using tight-fitting respirators, by conductor of fit testing and employment size group .....	219
96. Number and percent of establishments using respirators, by method of fit testing and employment size group .....	221
97. Number and percent of establishments and employees using respirators, by employer evaluation of NIOSH approval labels and manufacturers' instructions and employment size group .....	222
98. Number of establishments that used air-purifying respirators and conducted air-sampling/monitoring for selected substances, by employment size group .....	227
99. Percent of establishments that used air-purifying respirators and conducted air-sampling/monitoring for selected substances, by employment size group .....	232
100. Number of establishments that used air-supplied respirators and conducted air-sampling/monitoring for selected substances, by employment size group .....	237
101. Percent of establishments that used air-supplied respirators and conducted air-sampling/monitoring for selected substances, by employment size group .....	242
102. Number of establishments that used either air-purifying or air-supplied respirators and conducted air-sampling/monitoring for selected substances, by employment size group....	247
103. Percent of establishments that used either air-purifying or air-supplied respirators and conducted air-sampling/monitoring for selected substances, by employment size group....	252

### Appendixes:

A. Scope and Method of Survey.....	257
B. Definitions .....	260
C. Survey Questionnaire and Instructions .....	261
D. Cross-index of Survey Questionnaire Items with Table Numbers.....	273

## Section 1. Overview

In 2001, the National Institute for Occupational Safety and Health (NIOSH) and the U.S. Department of Labor's Bureau of Labor Statistics (BLS) conducted a voluntary survey of U.S. employers regarding the use of respiratory protective devices. This survey provides a greater level of detail than any previous survey of job-related respirator use. The survey findings are intended to provide information to develop educational interventions for specific populations and to increase the frequency and effectiveness of respirator use in the workplace.

*Definitions.* Respirators are devices worn by workers to protect against the inhalation of a potentially hazardous atmosphere. Respirators are categorized into two principal types, air-purifying and air-supplied. Air-purifying respirators remove contaminants from the ambient air. Air-supplied respirators provide air from a source other than the surrounding atmosphere. These two types can be further subclassified by the manner in which they operate. For example, air-purifying respirators can be non-powered or powered. With non-powered air-purifying respirators, the user draws the air through particulate or gas/vapor filters by inhalation only, unassisted by a blower. Powered air-purifying respirators use a blower to draw air through a particulate or gas/vapor filter. Air-supplied respirators are classified according to the method by which air is supplied and the way in which the air supply is regulated. These methods include self-contained breathing apparatus (SCBA), airline respirators, and combination airline and self-contained respirators.

*Regulatory background.* The Occupational Safety and Health Administration's (OSHA) Standard 29 CFR 1910.134-Respiratory Protection requires employers to provide respirators when they are necessary to protect the health of the employee. Furthermore, the standard requires that employers develop and implement a written respiratory protection program when respirators are required. Under this standard, employers may also allow employees to voluntarily wear respirators in circumstances that do not require respiratory protection.

*Survey description.* The Survey of Respirator Use and Practices provides estimates of the number and percent of private sector establishments that used respirators, by voluntary and required use. The survey also provides more detailed estimates, by type of respirator, of the number and percent of establishments and employees using respirators for required purposes only during the 12-month period prior to completing the survey. The 12-month survey period began anytime from August 2000 to January 2001. The survey also collected data on the characteristics of the respiratory protection program at the establishments. Public sector establishments and the self-employed were excluded

from the survey. The survey was sent to a sample of 40,002 establishments designed to represent all private sector establishments. There was a 75.5-percent response rate.

*Survey findings.* The survey found that an estimated 619,400 workplaces used respirators for voluntary or required purposes. Of these establishments, 281,800 reported use only for required purposes in the 12 months prior to the survey.

Respirators had been used by employees in about 10 percent of private industry workplaces. In nearly half of the estimated 619,400 establishments in which respirators were used, they were used by employees on a voluntary basis only, and, in about 12 percent, they were used when required because of emergencies. (See text table 1.)

Fifty-three percent of the establishments in which respirators had been used had 10 or fewer employees. Fifty-eight percent of those small establishments had only voluntary use of respirators, although 8.5 percent of the small establishments using respirators had at least some required emergency use of respirators. By comparison, 42 percent of the largest establishments (with 1,000 or more employees) using respirators had at least some required emergency use of respirators. In general, smaller establishments reported more voluntary respirator use than did larger establishments. Conversely, larger employers reported more required use. (See text table 2.)

Text tables 3 through 6 summarize respirator use and practices during the 12 months prior to completion of the survey. A total of 3.3 million employees, or about 3 percent of all private sector employees, used respirators for required purposes during that period. These employees were distributed among 281,800 establishments, or 4 percent of all private workplaces. The highest rate of usage by industry was 13 percent for manufacturing. (See text table 3.)

Thirty-two percent of all employees required to wear respirators worked at establishments with 1,000 or more employees. Fifty-five percent of these large establishments required at least some respirator use by their employees. In general, smaller establishments were less likely to have required respirator use during the prior 12 months. (See text table 4.)

The survey indicates that air-purifying respirators are the most commonly used. Of all establishments with some required respirator use, 95 percent used air-purifying devices, whereas only 17 percent used air-supplied devices. Of establishments using respirators for required use, the transportation and public utilities industry had the highest usage rate (37 percent) of air-supplied respirators. (See text table 5.)

The survey data regarding respirator program characteristics indicate that, of establishments that required

respirator use, 59 percent provided training to workers to help them understand the use and limitations of respirators. Among these establishments, firms in the mining industry reported the highest rate (82 percent) of worker training. Forty-seven percent of establishments that required respirator use performed an assessment of the employees' medical fitness to wear respirators. (See text table 6.)

Thirty-four percent of establishments that required respirator use had established a written respiratory protection program, adopted by management, to guide the manner of respirator use within the establishment. The wholesale trade

industry reported the highest percentage (56 percent) of establishments with written respirator programs. (See text table 6.)

Twenty-four percent of all the establishments that required respirator use included air sampling in their own establishment as a means to determine which respirator would be appropriate to protect employees from substance(s) in the workplace. The mining industry had the highest percentage (50 percent) of establishments using air sampling data from their own establishment. (See text table 6.)

Text table 1. Number and percent of establishments using respirators, by selected type of use and industry division

(Numbers in thousands)

Type of use	Private industry <sup>1</sup>	Goods producing				Service producing				
		Agriculture, forestry, and fishing <sup>1</sup>	Mining	Construction	Manufacturing	Transportation and public utilities	Wholesale trade	Retail trade	Finance, insurance, and real estate	Services
<b>Number of establishments</b>										
Total use.....	619.4	27.3	8.4	153.9	100.9	29.0	66.3	43.7	12.9	177.1
Voluntary only <sup>2</sup> .....	306.3	12.2	4.5	85.2	50.1	14.1	31.0	25.4	8.4	75.5
Both voluntary and required <sup>3</sup> .....	116.6	5.4	2.0	33.9	24.2	3.3	12.5	4.6	0.7	30.0
Required non-emergency <sup>4</sup> .....	296.4	14.9	3.8	67.2	49.6	10.5	34.0	17.3	4.3	94.9
Required emergency <sup>5</sup> .....	73.5	1.6	1.3	13.9	11.9	8.3	9.9	2.7	0.5	23.6
<b>Percent of establishments</b>										
Total use.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Voluntary only <sup>2</sup> .....	49.4	44.7	53.0	55.4	49.6	48.7	46.7	58.1	65.3	42.6
Both voluntary and required <sup>3</sup> .....	18.8	19.6	24.3	22.0	24.0	11.3	18.9	10.6	5.1	17.0
Required non-emergency <sup>4</sup> .....	47.8	54.7	44.9	43.7	49.1	36.2	51.2	39.7	33.1	53.6
Required emergency <sup>5</sup> .....	11.9	5.7	15.2	9.0	11.7	28.5	14.9	6.3	3.7	13.3

<sup>1</sup> Excludes farms with fewer than 11 employees.

<sup>2</sup> Employee decides to use a respirator (with the employer's approval) for personal reasons (for example, allergy, desire to reduce exposure beyond that required by regulation).

<sup>3</sup> Includes establishments that use respirators for both voluntary and required non-emergency and/or emergency use.

<sup>4</sup> Respirator use for exposure to known substances that is required by regulation or by the employer.

<sup>5</sup> Respirator use as a result of an unplanned situation, including

escape from or entry into a potentially hazardous environment.

NOTE: Because of rounding, exclusion of nonclassifiable responses, and establishment use of respirators for more than one type of use, data do not sum to the totals. Dashes indicate data that do not meet publication guidelines. A measure of sampling variability for each estimate is available upon request.

SOURCE: Bureau of Labor Statistics, U.S. Department of Labor.

**Text table 2. Number and percent of establishments using respirators, by selected type of use and employment size group**

(Numbers in thousands)

Type of use	Total	Employment size group				
		1 – 10 workers	11 – 49 workers	50 – 249 workers	250 – 999 workers	1000 or more workers
<b>Number of establishments</b>						
Total use.....	619.4	328.2	163.4	81.5	34.6	11.7
Voluntary only <sup>1</sup> .....	306.3	190.4	70.9	31.2	10.6	3.1
Both voluntary and required <sup>2</sup> .....	116.6	50.4	30.5	21.7	8.7	5.2
Required non-emergency <sup>3</sup> .....	296.4	129.4	88.4	47.6	22.6	8.4
Required emergency <sup>4</sup> .....	73.5	27.9	18.1	13.5	9.2	4.9
<b>Percent of establishments</b>						
Total use.....	100.0	100.0	100.0	100.0	100.0	100.0
Voluntary only <sup>1</sup> .....	49.4	58.0	43.4	38.3	30.5	26.5
Both voluntary and required <sup>2</sup> .....	18.8	15.4	18.7	26.7	25.1	44.7
Required non-emergency <sup>3</sup> .....	47.8	39.4	54.1	58.4	65.3	71.5
Required emergency <sup>4</sup> .....	11.9	8.5	11.1	16.6	26.5	41.7

<sup>1</sup> Employee decides to use a respirator (with the employer's approval) for personal reasons (for example, allergy, desire to reduce exposure beyond that required by regulation).

<sup>2</sup> Includes establishments that use respirators for both voluntary and required non-emergency and/or emergency use.

<sup>3</sup> Respirator use for exposure to known substances that is required by regulation or by the employer.

<sup>4</sup> Respirator use as a result of an unplanned situation, including escape from or entry into a potentially hazardous environment.

NOTE: Because of rounding, exclusion of nonclassifiable responses, and establishment use of respirators for more than one type of use, data do not sum to the totals. Dashes indicate data that do not meet publication guidelines. A measure of sampling variability for each estimate is available upon request.

SOURCE: Bureau of Labor Statistics, U.S. Department of Labor.

**Text table 3. Number and percent of establishments requiring respirator use during the 12 months <sup>1</sup> prior to the survey, and number and percent of affected workers, by industry division**

(Numbers in thousands)

Industry	Number of establishments using respirators	Percent of establishments using respirators	Number of employees using respirators	Percent of employees using respirators
<b>Private industry<sup>2</sup></b> .....	281.8	4.5	3,303.4	3.1
Agriculture, forestry, and fishing <sup>2</sup> .....	13.2	9.4	101.8	5.8
Mining.....	3.5	11.7	54.0	9.9
Construction.....	64.2	9.6	591.0	8.9
Manufacturing.....	48.6	12.8	882.5	4.8
Transportation and public utilities.....	10.4	3.7	189.9	2.8
Wholesale trade.....	31.2	5.2	182.9	2.6
Retail trade.....	16.9	1.3	118.2	0.5
Finance, insurance, and real estate..	4.2	0.7	22.9	0.3
Services.....	89.6	4.0	1,160.3	3.2

<sup>1</sup> The 12-month period represents required use of respirators during the 12 months prior to the establishment's completion of the survey. The survey was mailed to establishments in August 2001.

<sup>2</sup> Excludes farms with fewer than 11 employees.

responses, and establishment use of respirators for more than one type of use, data do not sum to the totals. Dashes indicate data that do not meet publication guidelines. A measure of sampling variability for each estimate is available upon request.

NOTE: Because of rounding, exclusion of nonclassifiable

SOURCE: Bureau of Labor Statistics, U.S. Department of Labor.

**Text table 4. Number and percent of establishments requiring respirator use during the 12 months <sup>1</sup> prior to the survey, and number and percent of affected workers, by employment size group**

(Numbers in thousands)

Employment size group	Number of establishments using respirators	Percent of establishments using respirators	Number of employees using respirators	Percent of employees using respirators
<b>Total</b> .....	281.8	4.5	3,303.4	3.1
1 – 10 workers.....	122.6	2.7	243.5	2.1
11 – 49 workers.....	83.7	6.2	596.4	2.6
50 – 249 workers.....	45.3	12.4	734.3	2.5
250 – 999 workers.....	21.7	29.8	660.8	2.7
1000 or more workers.....	8.4	55.5	1,068.5	5.5

<sup>1</sup> The 12-month period represents required use of respirators during the 12 months prior to the establishment's completion of the survey. The survey was mailed to establishments in August 2001.

type of use, data do not sum to the totals. Dashes indicate data that do not meet publication guidelines. A measure of sampling variability for each estimate is available upon request.

NOTE: Because of rounding, exclusion of nonclassifiable responses, and establishment use of respirators for more than one

SOURCE: Bureau of Labor Statistics, U.S. Department of Labor.

Text table 5. Number and percent of establishments requiring respirator use during the 12 months<sup>1</sup> prior to the survey, by type of respirator and industry division

(Numbers in thousands)

Respirator type	Private industry <sup>2</sup>	Goods producing				Service producing				
		Agriculture, forestry, and fishing <sup>2</sup>	Mining	Construction	Manufacturing	Transportation and public utilities	Wholesale trade	Retail trade	Finance, insurance, and real estate	Services
<b>Number of establishments</b>										
Total use.....	281.8	13.2	3.5	64.2	48.6	10.4	31.2	16.9	4.2	89.6
Total air-purifying.....	267.5	13.2	3.5	60.0	46.2	9.7	28.0	16.1	4.2	86.6
Non-powered air-purifying.....	264.4	12.7	3.5	58.7	45.5	9.6	27.9	15.9	4.2	86.2
Powered air-purifying.....	42.1	1.0	0.4	9.3	9.0	1.5	5.7	3.7	--	11.4
Total air-supplied.....	47.3	0.5	0.6	10.5	12.7	3.8	6.8	2.9	--	9.5
SCBA <sup>3</sup> .....	21.9	0.3	0.4	3.7	4.9	2.8	4.4	1.1	--	4.5
Airline.....	37.1	0.4	0.3	9.7	10.5	2.1	3.1	2.6	--	8.3
Combination SCBA <sup>3</sup> /airline.....	10.0	--	0.3	3.6	1.9	2.1	1.9	--	--	0.2
Air-purifying and air-supplied.....	41.3	0.5	0.6	9.9	11.0	3.2	6.7	2.4	--	7.2
<b>Percent of establishments</b>										
Total use.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Total air-purifying.....	94.9	99.9	98.8	93.5	95.2	93.9	89.5	95.0	100.0	96.6
Non-powered air-purifying.....	93.8	96.4	98.8	91.5	93.8	93.2	89.4	94.0	100.0	96.2
Powered air-purifying.....	14.9	7.5	12.1	14.6	18.5	14.7	18.1	22.1	--	12.8
Total air-supplied.....	16.8	3.6	16.9	16.4	26.2	36.6	21.8	17.0	--	10.6
SCBA <sup>3</sup> .....	7.8	1.9	10.8	5.8	10.1	26.7	13.9	6.5	--	5.0
Airline.....	13.2	3.1	9.5	15.1	21.7	20.0	10.1	15.6	--	9.3
Combination SCBA <sup>3</sup> /airline.....	3.5	--	8.2	5.6	3.9	20.3	6.1	--	--	0.2
Air-purifying and air-supplied.....	14.7	3.5	16.1	15.4	22.6	30.5	21.5	14.0	--	8.0

<sup>1</sup> The 12-month period represents required use of respirators during the 12 months prior to the establishment's completion of the survey. The survey was mailed to establishments in August 2001.

<sup>2</sup> Excludes farms with fewer than 11 employees.

<sup>3</sup> Self-contained breathing apparatus.

responses, and establishment use of respirators for more than one type of use, data may not sum to the totals. Dashes indicate data that do not meet publication guidelines. A measure of sampling variability for each estimate is available upon request.

SOURCE: Bureau of Labor Statistics, U.S. Department of Labor.

NOTE: Because of rounding, exclusion of nonclassifiable

Text table 6. Number and percent of establishments requiring respirator use during the 12 months<sup>1</sup> prior to the survey, by respirator use practices and industry division

(Numbers in thousands)

Respirator use practice	Private industry <sup>2</sup>	Goods producing				Service producing				
		Agriculture, forestry, and fishing <sup>2</sup>	Mining	Construction	Manufacturing	Transportation and public utilities	Wholesale trade	Retail trade	Finance, insurance, and real estate	Services
<b>Number of establishments</b>										
Total use.....	281.8	13.2	3.5	64.2	48.6	10.4	31.2	16.9	4.2	89.6
<b>Training regarding respirator use provided to employees<sup>3</sup>:</b>										
No training required.....	24.3	1.7	0.1	8.9	3.5	--	1.5	2.3	0.6	5.7
Wearers follow manufacturers' instructions.....	90.8	3.7	0.6	23.1	12.7	2.4	6.4	5.9	0.4	35.6
Wearers are trained to understand the use and limitations of respirators.....	166.7	7.8	2.9	32.1	32.4	7.9	23.3	8.8	3.2	48.3
<b>Assessment of employees' medical fitness to wear respirators</b>										
Yes.....	132.3	3.3	2.2	24.1	27.2	9.0	20.1	4.5	2.8	39.1
No.....	130.6	7.8	1.1	33.5	18.3	1.4	10.7	11.4	1.2	45.2
Don't know.....	13.6	2.1	0.2	4.3	1.5	--	0.5	0.6	--	4.3
<b>How establishments determine respirator use<sup>4</sup></b>										
Supervisors decide based on employee input and job characteristics.....	64.1	6.8	1.0	14.7	13.3	1.5	6.7	4.1	3.3	12.8
Employees decide based on job characteristics.....	63.1	2.2	0.5	17.8	5.3	0.5	3.9	6.4	--	26.4
Written program adopted by management.....	96.2	1.8	1.7	19.3	22.9	5.1	17.6	2.9	0.8	23.9
Respirator manufacturers' written instructions.....	57.4	2.0	0.3	12.4	6.4	3.2	3.0	3.6	--	26.5
<b>How establishments determine which respirator is appropriate for substance(s) faced by employees</b>										
Employee's suggestion.....	48.5	1.2	0.6	16.1	8.3	2.9	4.2	3.5	--	9.2
Local store products/salesperson.....	37.7	1.1	0.3	15.5	4.7	0.1	2.6	3.0	--	10.1
Air sampling at establishment.....	66.3	0.2	1.8	12.2	18.8	4.3	15.3	2.4	0.3	11.0
Air sampling at similar establishment.....	16.3	--	0.5	4.5	2.9	1.7	2.3	0.2	--	4.2
Respirator manufacturers' representative.....	58.4	3.1	0.8	8.7	12.7	1.1	7.8	4.7	--	19.5
Respirator manufacturers' literature.....	126.5	5.2	1.7	25.4	22.7	4.1	16.6	7.3	--	40.5
Assigned protection factor (APF).....	39.1	0.7	0.5	8.0	6.3	2.7	5.4	2.9	0.2	12.3
Hazard ratio.....	15.4	0.7	0.1	3.4	2.3	0.2	3.9	3.3	--	1.6
Material safety data sheets.....	161.1	7.1	2.2	31.8	31.2	5.8	20.6	9.3	3.9	49.2
Other, n.e.c. ....	32.3	3.6	0.3	5.1	3.9	1.5	2.5	0.8	0.1	14.3

See footnotes at end of table.

Text table 6. Number and percent of establishments requiring respirator use during the 12 months<sup>1</sup> prior to the survey, by respirator use practices and industry division - Continued

(Numbers in thousands)

Respirator use practice	Private industry <sup>2</sup>	Goods producing				Service producing				
		Agriculture, forestry, and fishing <sup>2</sup>	Mining	Construction	Manufacturing	Transportation and public utilities	Wholesale trade	Retail trade	Finance, insurance, and real estate	Services
<b>Percent of establishments</b>	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
<b>Training regarding respirator use provided to employees<sup>3</sup></b>										
No training required.....	8.6	13.0	1.5	13.9	7.1	--	4.9	13.3	14.0	6.4
Wearers follow manufacturers' instructions.....	32.2	27.7	16.5	36.1	26.1	23.4	20.4	35.0	9.4	39.7
Wearers are trained to understand the use and limitations of respirators.....	59.2	59.3	82.1	50.1	66.8	76.1	74.6	51.7	76.6	53.9
<b>Assessment of employees' medical fitness to wear respirators</b>										
Yes.....	47.0	25.1	64.3	37.6	56.0	86.8	64.3	26.8	66.1	43.6
No.....	46.4	59.2	30.6	52.2	37.7	13.2	34.1	67.5	29.3	50.5
Don't know.....	4.8	15.7	4.3	6.7	3.0	--	1.5	3.8	--	4.8
<b>How establishments determine respirator use<sup>3</sup></b>										
Supervisors decide based on employee input and job.....	22.8	51.5	27.4	22.9	27.4	14.5	21.5	24.0	79.7	14.2
Employees decide based on job characteristics.....	22.4	16.8	14.3	27.7	11.0	5.2	12.6	37.6	--	29.5
Written program adopted by management.....	34.1	13.9	48.8	30.1	47.3	49.6	56.5	17.1	19.8	26.7
Respirator manufacturers' written instructions.....	20.4	15.4	9.6	19.3	13.1	30.7	9.4	21.4	--	29.6
<b>How establishments determine which respirator is appropriate for substance(s) faced by employees</b>										
Employee's suggestion.....	17.2	8.9	17.2	25.0	17.1	27.6	13.4	20.8	--	10.2
Local store products/salesperson.....	13.4	8.7	9.4	24.2	9.6	0.9	8.4	17.9	--	11.2
Air sampling at establishment.....	23.5	1.8	50.3	19.1	38.8	41.3	48.8	14.0	6.8	12.3
Air sampling at similar establishment.....	5.8	--	13.1	7.0	6.0	16.7	7.4	1.1	--	4.7
Respirator manufacturers' representative.....	20.7	23.8	22.3	13.5	26.1	10.4	24.8	27.8	--	21.8
Respirator manufacturers' literature.....	44.9	39.7	48.5	39.6	46.8	39.8	53.3	42.9	--	45.2
Assigned protection factor (APF).....	13.9	5.5	13.6	12.5	12.9	26.4	17.2	17.3	4.1	13.7
Hazard ratio.....	5.5	5.1	4.0	5.2	4.7	1.7	12.6	19.2	--	1.8
Material safety data sheets.....	57.2	53.8	62.4	49.6	64.3	55.7	66.0	55.0	92.6	54.9
Other, n.e.c. ....	11.5	27.3	7.3	8.0	8.1	15.0	8.1	5.0	1.6	16.0

<sup>1</sup> The 12-month period represents required use of respirators in the 12 months prior to the establishment's completion of the survey. The survey was mailed to establishments in August 2001.

<sup>2</sup> Excludes farms with fewer than 11 employees.

<sup>3</sup> Establishments were asked to give the best description of the stated respirator use practice.

responses, data may not sum to the totals. Dashes indicate data that do not meet publication guidelines. A measure of sampling variability for each estimate is available upon request.

n.e.c. = not elsewhere classified

SOURCE: Bureau of Labor Statistics, U.S. Department of Labor.

NOTE: Because of rounding and data exclusion of nonclassifiable



## Section 2. Estimates of Respirator Use

This section (alone) provides information for all establishments that used respirators for voluntary or required purposes in their workplaces. The remaining sections report detailed information on those establishments that had used respirators only for required use within the 12 months prior to the survey. There were an estimated 619,400 workplaces that used respirators for voluntary or required purposes. Of these establishments, 281,800 reported use only for required purposes in the 12 months prior to the survey.

Tables 1 through 4 provide data regarding respirator use for all private

industry establishments by the two-digit Standard Industrial Classification (SIC), as designated by the U.S. Office of Management and Budget in 1987; major industry division; and employment size group. These data were gathered in a question that asked whether the establishment used respirators, regardless of the period during which respirators had been used.

Respirator use within this section is classified as voluntary; both voluntary and required (includes establishments in which respirators are used voluntarily as well as for emergency and/or non-emergency reasons); required non-emergency; and required emergency.

**Table 1. Number of establishments using respirators, by selected type of use and industry**

Industry <sup>1</sup>	SIC code <sup>2</sup>	Number of establishments				
		Total use	Voluntary only <sup>3</sup>	Both voluntary and required <sup>4</sup>	Required non-emergency <sup>5</sup>	Required emergency <sup>6</sup>
<b>Private industry<sup>1</sup></b> .....		619,430	306,264	116,621	296,371	73,507
<b>Agriculture, forestry, and fishing<sup>1</sup></b> .....		27,280	12,205	5,355	14,911	1,556
Agricultural production—crops <sup>1</sup> .....	01	6,194	1,080	1,919	5,056	508
Agricultural production—livestock <sup>1</sup> .....	02	1,152	677	229	474	—
Agricultural services.....	07	19,095	10,094	3,189	8,895	966
Forestry.....	08	573	224	—	350	—
Fishing, hunting, and trapping.....	09	266	—	—	—	—
<b>Mining</b> .....		8,396	4,452	2,040	3,768	1,278
Metal mining.....	10	195	49	83	127	77
Coal mining.....	12	977	693	237	221	131
Oil and gas extraction.....	13	2,246	—	646	1,144	675
Nonmetallic minerals, except fuels.....	14	4,978	2,750	1,074	2,275	395
<b>Construction</b> .....		153,857	85,160	33,861	67,187	13,868
General building contractors.....	15	50,507	30,777	12,368	20,043	2,939
Heavy construction, except building.....	16	8,922	3,804	2,601	5,146	1,823
Special trade contractors.....	17	94,428	50,579	18,892	41,998	9,106
<b>Manufacturing</b> .....		100,942	50,075	24,233	49,555	11,855
Food and kindred products.....	20	6,055	1,957	2,193	3,240	2,144
Tobacco products.....	21	68	—	30	27	30
Textile mill products.....	22	1,437	689	225	727	168
Apparel and other textile products.....	23	2,236	1,923	—	944	—
Lumber and wood products.....	24	6,708	4,741	1,162	1,952	244
Furniture and fixtures.....	25	5,313	3,491	710	1,801	279
Paper and allied products.....	26	1,633	900	434	694	340
Printing and publishing.....	27	1,817	1,490	151	151	—
Chemicals and allied products.....	28	7,339	2,075	2,306	5,199	2,464
Petroleum and coal products.....	29	1,308	732	351	476	352
Rubber and miscellaneous plastics products.....	30	6,701	3,518	1,280	2,972	986
Leather and leather products.....	31	—	—	—	—	—
Stone, clay, and glass products.....	32	6,346	3,151	1,408	3,161	293
Primary metal industries.....	33	3,380	1,264	1,282	2,072	492
Fabricated metal products.....	34	13,968	6,774	3,106	7,084	1,176
Industrial machinery and equipment.....	35	17,006	8,949	3,113	7,877	775
Electronic and other electric equipment.....	36	4,268	1,420	1,411	2,696	759
Transportation equipment.....	37	6,204	2,189	1,595	4,200	522
Instruments and related products.....	38	4,227	2,849	495	1,324	288
Miscellaneous manufacturing industries.....	39	4,553	1,580	2,197	2,939	337

See footnotes at end of table

**Table 1. Number of establishments using respirators, by selected type of use and industry—Continued**

Industry <sup>1</sup>	SIC code <sup>2</sup>	Number of establishments				
		Total use	Voluntary only <sup>3</sup>	Both voluntary and required <sup>4</sup>	Required non-emergency <sup>5</sup>	Required emergency <sup>6</sup>
<b>Transportation and public utilities</b> .....		28,969	14,094	3,272	10,479	8,259
Railroad transportation.....	40	288	113	158	166	125
Local and interurban passenger transit.....	41	1,314	558	153	745	165
Trucking and warehousing.....	42	13,115	6,523	553	4,217	3,394
Water transportation.....	44	1,300	960	—	—	—
Transportation by air.....	45	—	—	—	—	—
Pipelines, except natural gas.....	46	344	46	—	254	315
Transportation services.....	47	200	200	—	—	—
Communications.....	48	2,598	2,598	—	—	—
Electric, gas, and sanitary services.....	49	9,071	2,434	2,233	4,925	4,014
<b>Wholesale trade</b> .....		66,301	30,969	12,530	33,969	9,880
Wholesale trade—durable goods.....	50	41,149	19,736	7,994	21,929	3,708
Wholesale trade—nondurable goods.....	51	25,151	11,233	4,536	12,040	6,173
<b>Retail trade</b> .....		43,655	25,379	4,636	17,325	2,742
Building materials and garden supplies.....	52	6,880	4,496	650	2,170	451
General merchandise stores.....	53	1,152	—	—	—	—
Food stores.....	54	3,578	—	—	—	835
Automotive dealers and service stations.....	55	16,162	7,290	3,291	8,706	1,088
Apparel and accessory stores.....	56	370	314	—	—	—
Furniture and homefurnishings stores.....	57	7,773	5,070	—	2,703	—
Eating and drinking places.....	58	—	—	—	—	—
Miscellaneous retail.....	59	7,740	6,962	—	777	—
<b>Finance, insurance, and real estate</b> .....		12,934	8,441	658	4,279	472
Depository institutions.....	60	2,331	—	—	—	—
Nondepository institutions.....	61	—	—	—	—	—
Security and commodity brokers.....	62	—	—	—	—	—
Insurance carriers.....	63	980	—	79	—	—
Insurance agents, brokers, and service.....	64	—	—	—	—	—
Real estate.....	65	6,610	4,923	554	1,491	—
Holding and other investment offices.....	67	—	—	—	—	—

See footnotes at end of table

**Table 1. Number of establishments using respirators, by selected type of use and industry—Continued**

Industry <sup>1</sup>	SIC code <sup>2</sup>	Number of establishments				
		Total use	Voluntary only <sup>3</sup>	Both voluntary and required <sup>4</sup>	Required non-emergency <sup>5</sup>	Required emergency <sup>6</sup>
<b>Services</b> .....		177,098	75,488	30,036	94,899	23,597
Hotels and other lodging places.....	70	2,484	1,123	349	1,362	881
Personal services.....	72	24,832	14,273	5,343	8,212	6,968
Business services.....	73	30,377	14,092	1,849	15,004	—
Auto repair, services, and parking.....	75	48,078	19,080	13,621	29,490	2,434
Miscellaneous repair services.....	76	8,583	4,062	2,212	4,521	—
Motion pictures.....	78	—	—	—	—	—
Amusement and recreation services.....	79	4,228	2,685	565	1,487	338
Health services.....	80	27,745	7,944	3,955	16,495	9,023
Legal services.....	81	—	—	—	—	—
Educational services.....	82	1,289	644	325	598	183
Social services.....	83	9,462	3,040	—	6,421	935
Museums, botanical, zoological gardens.....	84	628	—	—	162	—
Membership organizations.....	86	1,801	1,587	154	154	—
Engineering and management services.....	87	16,782	5,746	1,373	10,928	1,268
Services, n.e.c. ....	89	—	—	—	—	—

<sup>1</sup> Excludes farms with fewer than 11 employees.

<sup>2</sup> U.S. Office of Management and Budget, *Standard Industrial Classification Manual, 1987 Edition* (Washington, U.S. Government Printing Office, 1987).

<sup>3</sup> Employee decides to use a respirator (with the employer's approval) for personal reasons (such as allergy, desire to reduce exposure beyond that required by regulation).

<sup>4</sup> Includes establishments that use respirators for both voluntary and required non-emergency and/or emergency use.

<sup>5</sup> Respirator use for exposure to known substances that is required by regulation or by the employer.

<sup>6</sup> Respirator use as a result of an unplanned situation, including escape from or entry into a potentially hazardous environment.

NOTE: Because of rounding, exclusion of nonclassifiable responses, and establishment reports of more than one type of respirator use, data do not sum to the totals. Dashes indicate data that do not meet publication guidelines. A measure of sampling variability for each estimate is available upon request.

n.e.c. = not elsewhere classified

SOURCE: Bureau of Labor Statistics, U.S. Department of Labor.

**Table 2. Type of use as a percent of establishments using respirators, by industry**

Industry <sup>1</sup>	SIC code <sup>2</sup>	Percent of establishments				
		Total use	Voluntary only <sup>3</sup>	Both voluntary and required <sup>4</sup>	Required non-emergency <sup>5</sup>	Required emergency <sup>6</sup>
<b>Private industry<sup>1</sup></b> .....		100.0	49.4	18.8	47.8	11.9
<b>Agriculture, forestry, and fishing<sup>1</sup></b> .....		100.0	44.7	19.6	54.7	5.7
Agricultural production—crops <sup>1</sup> .....	01	100.0	17.4	31.0	81.6	8.2
Agricultural production—livestock <sup>1</sup> .....	02	100.0	58.8	19.9	41.2	—
Agricultural services.....	07	100.0	52.9	16.7	46.6	5.1
Forestry.....	08	100.0	39.0	—	61.0	—
Fishing, hunting, and trapping.....	09	100.0	—	—	—	—
<b>Mining</b> .....		100.0	53.0	24.3	44.9	15.2
Metal mining.....	10	100.0	24.9	42.6	65.4	39.5
Coal mining.....	12	100.0	71.0	24.2	22.6	13.4
Oil and gas extraction.....	13	100.0	—	28.8	50.9	30.0
Nonmetallic minerals, except fuels.....	14	100.0	55.2	21.6	45.7	7.9
<b>Construction</b> .....		100.0	55.4	22.0	43.7	9.0
General building contractors.....	15	100.0	60.9	24.5	39.7	5.8
Heavy construction, except building.....	16	100.0	42.6	29.2	57.7	20.4
Special trade contractors.....	17	100.0	53.6	20.0	44.5	9.6
<b>Manufacturing</b> .....		100.0	49.6	24.0	49.1	11.7
Food and kindred products.....	20	100.0	32.3	36.2	53.5	35.4
Tobacco products.....	21	100.0	—	44.1	40.4	44.1
Textile mill products.....	22	100.0	47.9	15.7	50.6	11.7
Apparel and other textile products.....	23	100.0	86.0	—	42.2	—
Lumber and wood products.....	24	100.0	70.7	17.3	29.1	3.6
Furniture and fixtures.....	25	100.0	65.7	13.4	33.9	5.2
Paper and allied products.....	26	100.0	55.1	26.5	42.5	20.8
Printing and publishing.....	27	100.0	82.0	8.3	8.3	—
Chemicals and allied products.....	28	100.0	28.3	31.4	70.8	33.6
Petroleum and coal products.....	29	100.0	56.0	26.9	36.4	26.9
Rubber and miscellaneous plastics products.....	30	100.0	52.5	19.1	44.4	14.7
Leather and leather products.....	31	—	—	—	—	—
Stone, clay, and glass products.....	32	100.0	49.7	22.2	49.8	4.6
Primary metal industries.....	33	100.0	37.4	37.9	61.3	14.6
Fabricated metal products.....	34	100.0	48.5	22.2	50.7	8.4
Industrial machinery and equipment.....	35	100.0	52.6	18.3	46.3	4.6
Electronic and other electric equipment.....	36	100.0	33.3	33.1	63.2	17.8
Transportation equipment.....	37	100.0	35.3	25.7	67.7	8.4
Instruments and related products.....	38	100.0	67.4	11.7	31.3	6.8
Miscellaneous manufacturing industries.....	39	100.0	34.7	48.3	64.5	7.4

See footnotes at end of table

**Table 2. Type of use as a percent of establishments using respirators, by industry—Continued**

Industry <sup>1</sup>	SIC code <sup>2</sup>	Percent of establishments				
		Total use	Voluntary only <sup>3</sup>	Both voluntary and required <sup>4</sup>	Required non-emergency <sup>5</sup>	Required emergency <sup>6</sup>
<b>Transportation and public utilities</b> .....		100.0	48.7	11.3	36.2	28.5
Railroad transportation.....	40	100.0	39.4	54.7	57.5	43.5
Local and interurban passenger transit.....	41	100.0	42.4	11.6	56.6	12.6
Trucking and warehousing.....	42	100.0	49.7	4.2	32.2	25.9
Water transportation.....	44	100.0	73.9	—	—	—
Transportation by air.....	45	—	—	—	—	—
Pipelines, except natural gas.....	46	100.0	13.4	—	73.9	91.7
Transportation services.....	47	100.0	100.0	—	—	—
Communications.....	48	100.0	100.0	—	—	—
Electric, gas, and sanitary services.....	49	100.0	26.8	24.6	54.3	44.3
<b>Wholesale trade</b> .....		100.0	46.7	18.9	51.2	14.9
Wholesale trade—durable goods.....	50	100.0	48.0	19.4	53.3	9.0
Wholesale trade—nondurable goods.....	51	100.0	44.7	18.0	47.9	24.5
<b>Retail trade</b> .....		100.0	58.1	10.6	39.7	6.3
Building materials and garden supplies.....	52	100.0	65.3	9.4	31.5	6.6
General merchandise stores.....	53	100.0	—	—	—	—
Food stores.....	54	100.0	—	—	—	23.3
Automotive dealers and service stations.....	55	100.0	45.1	20.4	53.9	6.7
Apparel and accessory stores.....	56	100.0	85.0	—	—	—
Furniture and homefurnishings stores.....	57	100.0	65.2	—	34.8	—
Eating and drinking places.....	58	—	—	—	—	—
Miscellaneous retail.....	59	100.0	90.0	—	10.0	—
<b>Finance, insurance, and real estate</b> .....		100.0	65.3	5.1	33.1	3.7
Depository institutions.....	60	100.0	—	—	—	—
Nondepository institutions.....	61	—	—	—	—	—
Security and commodity brokers.....	62	—	—	—	—	—
Insurance carriers.....	63	100.0	—	8.1	—	—
Insurance agents, brokers, and service.....	64	—	—	—	—	—
Real estate.....	65	100.0	74.5	8.4	22.6	—
Holding and other investment offices.....	67	—	—	—	—	—

See footnotes at end of table

**Table 2. Type of use as a percent of establishments using respirators, by industry—Continued**

Industry <sup>1</sup>	SIC code <sup>2</sup>	Percent of establishments				
		Total use	Voluntary only <sup>3</sup>	Both voluntary and required <sup>4</sup>	Required non-emergency <sup>5</sup>	Required emergency <sup>6</sup>
<b>Services</b> .....		100.0	42.6	17.0	53.6	13.3
Hotels and other lodging places.....	70	100.0	45.2	14.0	54.8	35.5
Personal services.....	72	100.0	57.5	21.5	33.1	28.1
Business services.....	73	100.0	46.4	6.1	49.4	—
Auto repair, services, and parking.....	75	100.0	39.7	28.3	61.3	5.1
Miscellaneous repair services.....	76	100.0	47.3	25.8	52.7	—
Motion pictures.....	78	—	—	—	—	—
Amusement and recreation services.....	79	100.0	63.5	13.4	35.2	8.0
Health services.....	80	100.0	28.6	14.3	59.5	32.5
Legal services.....	81	—	—	—	—	—
Educational services.....	82	100.0	50.0	25.2	46.4	14.2
Social services.....	83	100.0	32.1	—	67.9	9.9
Museums, botanical, zoological gardens.....	84	100.0	—	—	25.8	—
Membership organizations.....	86	100.0	88.1	8.6	8.6	—
Engineering and management services.....	87	100.0	34.2	8.2	65.1	7.6
Services, n.e.c. ....	89	—	—	—	—	—

<sup>1</sup> Excludes farms with fewer than 11 employees.

<sup>2</sup> U.S. Office of Management and Budget, *Standard Industrial Classification Manual, 1987 Edition* (Washington, U.S. Government Printing Office, 1987).

<sup>3</sup> Employee decides to use a respirator (with the employer's approval) for personal reasons (such as, allergy, desire to reduce exposure beyond that required by regulation).

<sup>4</sup> Includes establishments that use respirators for both voluntary and required non-emergency and/or emergency use.

<sup>5</sup> Respirator use for exposure to known substances that is required by regulation or by the employer.

<sup>6</sup> Respirator use as a result of an unplanned situation, including escape from or entry into a potentially hazardous environment.

NOTE: Because of rounding, exclusion of nonclassifiable responses, and establishment reports of more than one type of respirator use, data do not sum to the totals. Dashes indicate data that do not meet publication guidelines. A measure of sampling variability for each estimate is available upon request.

n.e.c. = not elsewhere classified

SOURCE: Bureau of Labor Statistics, U.S. Department of Labor.

**Table 3. Number and percent of establishments using respirators, by selected type of use and industry division**

Type of use	Private industry <sup>1</sup>	Goods producing				Service producing				
		Agriculture, forestry, and fishing <sup>1</sup>	Mining	Construction	Manufacturing	Transportation and public utilities	Wholesale trade	Retail trade	Finance, insurance, and real estate	Services
<b>Number of establishments</b>										
Total use.....	619,430	27,280	8,396	153,857	100,942	28,969	66,301	43,655	12,934	177,098
Voluntary only <sup>2</sup> .....	306,264	12,205	4,452	85,160	50,075	14,094	30,969	25,379	8,441	75,488
Both voluntary and required <sup>3</sup> .....	116,621	5,355	2,040	33,861	24,233	3,272	12,530	4,636	658	30,036
Required non-emergency <sup>4</sup> .....	296,371	14,911	3,768	67,187	49,555	10,479	33,969	17,325	4,279	94,899
Required emergency <sup>5</sup> .....	73,507	1,556	1,278	13,868	11,855	8,259	9,880	2,742	472	23,597
<b>Percent of establishments</b>										
Total use.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Voluntary only <sup>2</sup> .....	49.4	44.7	53.0	55.4	49.6	48.7	46.7	58.1	65.3	42.6
Both voluntary and required <sup>3</sup> .....	18.8	19.6	24.3	22.0	24.0	11.3	18.9	10.6	5.1	17.0
Required non-emergency <sup>4</sup> .....	47.8	54.7	44.9	43.7	49.1	36.2	51.2	39.7	33.1	53.6
Required emergency <sup>5</sup> .....	11.9	5.7	15.2	9.0	11.7	28.5	14.9	6.3	3.7	13.3

<sup>1</sup> Excludes farms with fewer than 11 employees.

<sup>2</sup> Employee decides to use a respirator (with the employer's approval) for personal reasons (such as allergy, desire to reduce exposure beyond that required by regulation).

<sup>3</sup> Includes establishments that use respirators for both voluntary and required non-emergency and/or emergency use.

<sup>4</sup> Respirator use for exposure to known substances that is required by regulation or by the employer.

<sup>5</sup> Respirator use as a result of an unplanned situation, including escape from or entry into a potentially hazardous environment.

NOTE: Because of rounding, exclusion of nonclassifiable responses, and establishment reports of more than one type of respirator use, data do not sum to the totals. Dashes indicate data that do not meet publication guidelines. A measure of sampling variability for each estimate is available upon request.

SOURCE: Bureau of Labor Statistics, U.S. Department of Labor.

**Table 4. Number and percent of establishments using respirators, by selected type of use and employment size group**

Type of use	Total	Employment size group				
		1–10 workers	11–49 workers	50–249 workers	250–999 workers	1000 workers or more
<b>Number of establishments</b>						
Total use.....	619,430	328,218	163,420	81,505	34,594	11,694
Voluntary only <sup>1</sup> .....	306,264	190,427	70,946	31,223	10,567	3,101
Both voluntary and required <sup>2</sup> .....	116,621	50,413	30,532	21,749	8,696	5,231
Required non-emergency <sup>3</sup> .....	296,371	129,439	88,399	47,578	22,590	8,367
Required emergency <sup>4</sup> .....	73,507	27,911	18,066	13,502	9,154	4,874
<b>Percent of establishments</b>						
Total use.....	100.0	100.0	100.0	100.0	100.0	100.0
Voluntary only <sup>1</sup> .....	49.4	58.0	43.4	38.3	30.5	26.5
Both voluntary and required <sup>2</sup> .....	18.8	15.4	18.7	26.7	25.1	44.7
Required non-emergency <sup>3</sup> .....	47.8	39.4	54.1	58.4	65.3	71.5
Required emergency <sup>4</sup> .....	11.9	8.5	11.1	16.6	26.5	41.7

<sup>1</sup> Employee decides to use a respirator (with the employer's approval) for personal reasons (such as, allergy, desire to reduce exposure beyond that required by regulation).

<sup>2</sup> Includes establishments that use respirators for both voluntary and required non-emergency and/or emergency use.

<sup>3</sup> Respirator use for exposure to known substances that is required by regulation or by the employer.

<sup>4</sup> Respirator use as a result of an unplanned situation, including

escape from or entry into a potentially hazardous environment.

NOTE: Because of rounding, data exclusion of nonclassifiable responses, and establishment reports of more than one type of respirator use, data do not sum to the totals. Dashes indicate data that do not meet publication guidelines. A measure of sampling variability for each estimate is available upon request.

SOURCE: Bureau of Labor Statistics, U.S. Department of Labor.

## **Section 3. Estimates of Required Respirator Use During the 12 Months Prior to the Survey**

**T**he tables in this section provide data regarding required respirator use during the 12 months prior to the survey. Data indicate the number of establishments and employees by major industry division and employment size group.

The tables provide comprehensive data on the types of respirators used and their manner of use. Respirator types are broadly defined into two categories, air-purifying and air-supplied. Respirator use is classified as required non-emergency, required emergency, and both required non-emergency and required emergency use (includes establishments in which respirators are used for emergency as well as non-emergency reasons).

Tables 5 through 20 are respirator use analyses based on two-digit Standard Industrial Classification (SIC), as designated by the U.S. Office of Management and Budget in 1987. Tables 21 through 27 provide similar analyses based on major industrial divisions.

The remainder of the tables in this section provide respirator use analyses based on establishment employment size group. Tables 28 and 29 explore type of use within employment size groups. Tables 30 through 34 describe respirator use (number and percent of establishments and workers) categorized by type of respirator and employment size group.

**Table 5. Number of establishments using respirators during the 12 months<sup>1</sup> prior to the survey, by selected type of use and industry**

Industry <sup>2</sup>	SIC code <sup>3</sup>	Number of establishments			
		Total use	Required non-emergency <sup>4</sup>	Required emergency <sup>5</sup>	Both required non-emergency and emergency <sup>6</sup>
<b>Private industry<sup>2</sup></b> .....		281,776	275,080	28,049	21,353
<b>Agriculture, forestry, and fishing<sup>2</sup></b> .....		13,186	13,163	841	818
Agricultural production—crops <sup>2</sup> .....	01	4,607	4,607	—	—
Agricultural production—livestock <sup>2</sup> .....	02	474	474	—	—
Agricultural services.....	07	7,782	7,759	799	777
Forestry.....	08	323	323	—	—
Fishing, hunting, and trapping.....	09	—	—	—	—
<b>Mining</b> .....		3,493	3,470	420	397
Metal mining.....	10	127	127	32	32
Coal mining.....	12	186	163	34	—
Oil and gas extraction.....	13	1,009	1,009	184	184
Nonmetallic minerals, except fuels.....	14	2,170	2,170	170	170
<b>Construction</b> .....		64,172	61,358	7,793	4,979
General building contractors.....	15	19,009	18,517	1,387	894
Heavy construction, except building.....	16	4,744	4,744	602	602
Special trade contractors.....	17	40,418	38,097	5,804	3,483
<b>Manufacturing</b> .....		48,556	47,594	4,087	3,125
Food and kindred products.....	20	3,586	3,139	1,018	571
Tobacco products.....	21	27	27	18	18
Textile mill products.....	22	693	693	—	—
Apparel and other textile products.....	23	940	940	—	—
Lumber and wood products.....	24	1,897	1,897	105	105
Furniture and fixtures.....	25	1,786	1,777	56	—
Paper and allied products.....	26	674	653	156	134
Printing and publishing.....	27	117	—	—	—
Chemicals and allied products.....	28	5,139	5,091	884	836
Petroleum and coal products.....	29	424	424	92	92
Rubber and miscellaneous plastics products.....	30	2,875	2,805	416	346
Leather and leather products.....	31	—	—	—	—
Stone, clay, and glass products.....	32	3,009	3,009	30	30
Primary metal industries.....	33	2,043	2,031	135	123
Fabricated metal products.....	34	6,862	6,860	126	123
Industrial machinery and equipment.....	35	7,494	7,436	144	85
Electronic and other electric equipment.....	36	2,722	2,667	393	338
Transportation equipment.....	37	4,080	4,070	139	128
Instruments and related products.....	38	1,318	1,304	127	112
Miscellaneous manufacturing industries.....	39	2,851	2,650	—	—

See footnotes at end of table

**Table 5. Number of establishments using respirators during the 12 months<sup>1</sup> prior to the survey, by selected type of use and industry—Continued**

Industry <sup>2</sup>	SIC code <sup>3</sup>	Number of establishments			
		Total use	Required non-emergency <sup>4</sup>	Required emergency <sup>5</sup>	Both required non-emergency and emergency <sup>6</sup>
<b>Transportation and public utilities</b> .....		10,351	9,768	2,437	1,854
Railroad transportation.....	40	158	158	63	63
Local and interurban passenger transit.....	41	757	745	165	153
Trucking and warehousing.....	42	3,833	3,728	614	510
Water transportation.....	44	—	—	—	—
Transportation by air.....	45	—	—	—	—
Pipelines, except natural gas.....	46	238	221	76	58
Transportation services.....	47	—	—	—	—
Communications.....	48	—	—	—	—
Electric, gas, and sanitary services.....	49	5,193	4,744	1,519	1,070
<b>Wholesale trade</b> .....		31,238	31,050	4,387	4,200
Wholesale trade—durable goods.....	50	21,405	21,363	2,250	2,208
Wholesale trade—nondurable goods.....	51	9,833	9,687	2,137	1,992
<b>Retail trade</b> .....		16,948	16,652	423	127
Building materials and garden supplies.....	52	2,111	2,111	—	—
General merchandise stores.....	53	—	—	—	—
Food stores.....	54	—	—	—	—
Automotive dealers and service stations.....	55	8,427	8,260	293	127
Apparel and accessory stores.....	56	—	—	—	—
Furniture and homefurnishings stores.....	57	2,535	2,535	—	—
Eating and drinking places.....	58	—	—	—	—
Miscellaneous retail.....	59	777	777	—	—
<b>Finance, insurance, and real estate</b> .....		4,202	4,202	—	—
Depository institutions.....	60	—	—	—	—
Nondepository institutions.....	61	—	—	—	—
Security and commodity brokers.....	62	—	—	—	—
Insurance carriers.....	63	—	—	—	—
Insurance agents, brokers, and service.....	64	—	—	—	—
Real estate.....	65	1,414	1,414	—	—
Holding and other investment offices.....	67	—	—	—	—

See footnotes at end of table

**Table 5. Number of establishments using respirators during the 12 months<sup>1</sup> prior to the survey, by selected type of use and industry—Continued**

Industry <sup>2</sup>	SIC code <sup>3</sup>	Number of establishments			
		Total use	Required non-emergency <sup>4</sup>	Required emergency <sup>5</sup>	Both required non-emergency and emergency <sup>6</sup>
<b>Services</b> .....		89,629	87,823	7,640	5,833
Hotels and other lodging places.....	70	1,222	1,222	—	—
Personal services.....	72	8,056	8,056	—	—
Business services.....	73	14,719	13,722	—	—
Auto repair, services, and parking.....	75	29,020	28,588	1,360	928
Miscellaneous repair services.....	76	3,002	3,002	—	—
Motion pictures.....	78	—	—	—	—
Amusement and recreation services.....	79	1,487	1,487	—	—
Health services.....	80	14,128	13,863	4,424	4,159
Legal services.....	81	—	—	—	—
Educational services.....	82	483	483	—	—
Social services.....	83	6,249	6,249	—	—
Museums, botanical, zoological gardens.....	84	162	162	—	—
Membership organizations.....	86	214	154	—	—
Engineering and management services.....	87	10,821	10,768	214	161
Services, n.e.c. ....	89	—	—	—	—

<sup>1</sup> The 12-month period represents required use of respirators in the 12 months prior to the establishment's completion of the survey. The survey was mailed to establishments in August 2001.

<sup>2</sup> Excludes farms with fewer than 11 employees.

<sup>3</sup> U.S. Office of Management and Budget, Standard Industrial Classification Manual, 1987 Edition (Washington, U.S. Government Printing Office, 1987).

<sup>4</sup> Respirator use for exposure to known substances that is required by regulation or by the employer.

<sup>5</sup> Respirator use as a result of an unplanned situation, including escape from or entry into a potentially hazardous environment.

<sup>6</sup> Includes establishments that use respirators for both required non-emergency and emergency use.

NOTE: Because of rounding, data exclusion of nonclassifiable responses, and establishment reports of more than one type of respirator use, data do not sum to the totals. Dashes indicate data that do not meet publication guidelines. A measure of sampling variability for each estimate is available upon request.

n.e.c. = not elsewhere classified

SOURCE: Bureau of Labor Statistics, U.S. Department of Labor.

**Table 6. Type of use as a percent of establishments using respirators during the 12 months<sup>1</sup> prior to the survey, by industry**

Industry <sup>2</sup>	SIC code <sup>3</sup>	Percent of establishments			
		Total use	Required non-emergency <sup>4</sup>	Required emergency <sup>5</sup>	Both required non-emergency and emergency <sup>6</sup>
<b>Private industry<sup>2</sup></b> .....		100.0	97.6	10.0	7.6
<b>Agriculture, forestry, and fishing<sup>2</sup></b> .....		100.0	99.8	6.4	6.2
Agricultural production—crops <sup>2</sup> .....	01	100.0	100.0	—	—
Agricultural production—livestock <sup>2</sup> .....	02	100.0	100.0	—	—
Agricultural services.....	07	100.0	99.7	10.3	10.0
Forestry.....	08	100.0	100.0	—	—
Fishing, hunting, and trapping.....	09	—	—	—	—
<b>Mining</b> .....		100.0	99.3	12.0	11.4
Metal mining.....	10	100.0	100.0	24.9	24.9
Coal mining.....	12	100.0	87.4	18.3	—
Oil and gas extraction.....	13	100.0	100.0	18.3	18.3
Nonmetallic minerals, except fuels.....	14	100.0	100.0	7.8	7.8
<b>Construction</b> .....		100.0	95.6	12.1	7.8
General building contractors.....	15	100.0	97.4	7.3	4.7
Heavy construction, except building.....	16	100.0	100.0	12.7	12.7
Special trade contractors.....	17	100.0	94.3	14.4	8.6
<b>Manufacturing</b> .....		100.0	98.0	8.4	6.4
Food and kindred products.....	20	100.0	87.5	28.4	15.9
Tobacco products.....	21	100.0	100.0	65.5	65.5
Textile mill products.....	22	100.0	100.0	—	—
Apparel and other textile products.....	23	100.0	100.0	—	—
Lumber and wood products.....	24	100.0	100.0	5.6	5.6
Furniture and fixtures.....	25	100.0	99.5	3.2	—
Paper and allied products.....	26	100.0	96.9	23.1	19.9
Printing and publishing.....	27	100.0	—	—	—
Chemicals and allied products.....	28	100.0	99.1	17.2	16.3
Petroleum and coal products.....	29	100.0	100.0	21.8	21.8
Rubber and miscellaneous plastics products.....	30	100.0	97.6	14.5	12.0
Leather and leather products.....	31	—	—	—	—
Stone, clay, and glass products.....	32	100.0	100.0	1.0	1.0
Primary metal industries.....	33	100.0	99.4	6.6	6.0
Fabricated metal products.....	34	100.0	100.0	1.8	1.8
Industrial machinery and equipment.....	35	100.0	99.2	1.9	1.1
Electronic and other electric equipment.....	36	100.0	98.0	14.4	12.4
Transportation equipment.....	37	100.0	99.7	3.4	3.1
Instruments and related products.....	38	100.0	98.9	9.6	8.5
Miscellaneous manufacturing industries.....	39	100.0	93.0	—	—

See footnotes at end of table

**Table 6. Type of use as a percent of establishments using respirators during the 12 months<sup>1</sup> prior to the survey, by industry—Continued**

Industry <sup>2</sup>	SIC code <sup>3</sup>	Percent of establishments			
		Total use	Required non-emergency <sup>4</sup>	Required emergency <sup>5</sup>	Both required non-emergency and emergency <sup>6</sup>
<b>Transportation and public utilities</b> .....		100.0	94.4	23.5	17.9
Railroad transportation.....	40	100.0	100.0	39.9	39.9
Local and interurban passenger transit.....	41	100.0	98.4	21.8	20.2
Trucking and warehousing.....	42	100.0	97.3	16.0	13.3
Water transportation.....	44	—	—	—	—
Transportation by air.....	45	—	—	—	—
Pipelines, except natural gas.....	46	100.0	92.7	31.7	24.4
Transportation services.....	47	—	—	—	—
Communications.....	48	—	—	—	—
Electric, gas, and sanitary services.....	49	100.0	91.4	29.3	20.6
<b>Wholesale trade</b> .....		100.0	99.4	14.0	13.4
Wholesale trade—durable goods.....	50	100.0	99.8	10.5	10.3
Wholesale trade—nondurable goods.....	51	100.0	98.5	21.7	20.3
<b>Retail trade</b> .....		100.0	98.3	2.5	.7
Building materials and garden supplies.....	52	100.0	100.0	—	—
General merchandise stores.....	53	—	—	—	—
Food stores.....	54	—	—	—	—
Automotive dealers and service stations.....	55	100.0	98.0	3.5	1.5
Apparel and accessory stores.....	56	—	—	—	—
Furniture and homefurnishings stores.....	57	100.0	100.0	—	—
Eating and drinking places.....	58	—	—	—	—
Miscellaneous retail.....	59	100.0	100.0	—	—
<b>Finance, insurance, and real estate</b> .....		100.0	100.0	—	—
Depository institutions.....	60	—	—	—	—
Nondepository institutions.....	61	—	—	—	—
Security and commodity brokers.....	62	—	—	—	—
Insurance carriers.....	63	—	—	—	—
Insurance agents, brokers, and service.....	64	—	—	—	—
Real estate.....	65	100.0	100.0	—	—
Holding and other investment offices.....	67	—	—	—	—

See footnotes at end of table

**Table 6. Type of use as a percent of establishments using respirators during the 12 months<sup>1</sup> prior to the survey, by industry—Continued**

Industry <sup>2</sup>	SIC code <sup>3</sup>	Percent of establishments			
		Total use	Required non-emergency <sup>4</sup>	Required emergency <sup>5</sup>	Both required non-emergency and emergency <sup>6</sup>
<b>Services</b> .....		100.0	98.0	8.5	6.5
Hotels and other lodging places.....	70	100.0	100.0	—	—
Personal services.....	72	100.0	100.0	—	—
Business services.....	73	100.0	93.2	—	—
Auto repair, services, and parking.....	75	100.0	98.5	4.7	3.2
Miscellaneous repair services.....	76	100.0	100.0	—	—
Motion pictures.....	78	—	—	—	—
Amusement and recreation services.....	79	100.0	100.0	—	—
Health services.....	80	100.0	98.1	31.3	29.4
Legal services.....	81	—	—	—	—
Educational services.....	82	100.0	100.0	—	—
Social services.....	83	100.0	100.0	—	—
Museums, botanical, zoological gardens.....	84	100.0	100.0	—	—
Membership organizations.....	86	100.0	71.9	—	—
Engineering and management services.....	87	100.0	99.5	2.0	1.5
Services, n.e.c. ....	89	—	—	—	—

<sup>1</sup> The 12-month period represents required use of respirators in the 12 months prior to the establishment's completion of the survey. The survey was mailed to establishments in August 2001.

<sup>2</sup> Excludes farms with fewer than 11 employees.

<sup>3</sup> U.S. Office of Management and Budget, Standard Industrial Classification Manual, 1987 Edition (Washington, U.S. Government Printing Office, 1987).

<sup>4</sup> Respirator use for exposure to known substances that is required by regulation or by the employer.

<sup>5</sup> Respirator use as a result of an unplanned situation, including escape from or entry into a potentially hazardous environment.

<sup>6</sup> Includes establishments that use respirators for both required non-emergency and emergency use.

NOTE: Because of rounding, data exclusion of nonclassifiable responses, and establishment reports of more than one type of respirator use, data do not sum to the totals. Dashes indicate data that do not meet publication guidelines. A measure of sampling variability for each estimate is available upon request.  
n.e.c. = not elsewhere classified

SOURCE: Bureau of Labor Statistics, U.S. Department of Labor.

**Table 7. Number and percent of establishments and employees using respirators during the 12 months<sup>1</sup> prior to the survey, by industry**

Industry <sup>2,3,4</sup>	SIC code <sup>5</sup>	Establishments		Employees	
		Number	Percent	Number	Percent
<b>Private industry<sup>2,3,4</sup></b> .....		281,776	4.5	3,303,414	3.1
<b>Agriculture, forestry, and fishing<sup>2</sup></b> .....		13,186	9.4	101,778	5.8
Agricultural production—crops <sup>2</sup> .....	01	4,607	34.0	38,239	8.2
Agricultural production—livestock <sup>2</sup> .....	02	474	8.3	3,080	2.2
Agricultural services.....	07	7,782	6.7	59,511	5.4
Forestry.....	08	323	9.7	948	3.4
Fishing, hunting, and trapping.....	09	—	—	—	—
<b>Mining<sup>4</sup></b> .....		3,493	11.7	53,984	9.9
Metal mining <sup>4</sup> .....	10	127	39.2	9,584	24.6
Coal mining <sup>4</sup> .....	12	186	8.1	6,107	7.4
Oil and gas extraction.....	13	1,009	6.1	18,787	6.4
Nonmetallic minerals, except fuels <sup>4</sup> .....	14	2,170	20.0	19,506	15.1
<b>Construction</b> .....		64,172	9.6	590,987	8.9
General building contractors.....	15	19,009	9.6	106,492	6.9
Heavy construction, except building.....	16	4,744	12.4	57,851	6.6
Special trade contractors.....	17	40,418	9.4	426,645	10.0
<b>Manufacturing</b> .....		48,556	12.8	882,475	4.8
Food and kindred products.....	20	3,586	16.2	48,808	2.9
Tobacco products.....	21	27	16.5	5,197	14.7
Textile mill products.....	22	693	11.1	34,171	6.4
Apparel and other textile products.....	23	940	4.5	3,955	.6
Lumber and wood products.....	24	1,897	5.3	25,806	3.1
Furniture and fixtures.....	25	1,786	16.6	17,201	3.1
Paper and allied products.....	26	674	9.4	31,155	4.8
Printing and publishing.....	27	117	.2	1,191	.1
Chemicals and allied products.....	28	5,139	36.9	170,166	16.6
Petroleum and coal products.....	29	424	17.6	29,388	23.3
Rubber and miscellaneous plastics products.....	30	2,875	18.1	32,214	3.2
Leather and leather products.....	31	—	—	139	.2
Stone, clay, and glass products.....	32	3,009	18.1	46,507	8.1
Primary metal industries.....	33	2,043	28.2	97,431	14.0
Fabricated metal products.....	34	6,862	18.7	66,702	4.4
Industrial machinery and equipment.....	35	7,494	12.9	56,850	2.7
Electronic and other electric equipment.....	36	2,722	14.7	52,621	3.2
Transportation equipment.....	37	4,080	28.7	118,911	6.5
Instruments and related products.....	38	1,318	10.4	21,664	2.6
Miscellaneous manufacturing industries.....	39	2,851	16.8	22,397	5.7
<b>Transportation and public utilities<sup>4</sup></b> .....		10,351	3.7	189,867	2.8
Railroad transportation <sup>4</sup> .....	40	158	17.6	28,935	9.2
Local and interurban passenger transit.....	41	757	4.0	8,495	1.9
Trucking and warehousing.....	42	3,833	3.0	36,019	2.0
Water transportation.....	44	—	—	18,875	11.4
Transportation by air.....	45	—	—	—	—
Pipelines, except natural gas.....	46	238	26.0	1,188	8.9
Transportation services.....	47	—	—	—	—
Communications.....	48	—	—	—	—
Electric, gas, and sanitary services.....	49	5,193	22.4	87,401	10.3

See footnotes at end of table

**Table 7. Number and percent of establishments and employees using respirators during the 12 months<sup>1</sup> prior to the survey, by industry—Continued**

Industry <sup>2,3,4</sup>	SIC code <sup>5</sup>	Establishments		Employees	
		Number	Percent	Number	Percent
<b>Wholesale trade.....</b>		31,238	5.2	182,922	2.6
Wholesale trade—durable goods.....	50	21,405	5.5	83,218	2.0
Wholesale trade—nondurable goods.....	51	9,833	4.6	99,704	3.5
<b>Retail trade.....</b>		16,948	1.3	118,200	.5
Building materials and garden supplies.....	52	2,111	3.4	31,022	3.1
General merchandise stores.....	53	—	—	—	—
Food stores.....	54	—	—	8,283	.2
Automotive dealers and service stations.....	55	8,427	5.1	66,328	2.8
Apparel and accessory stores.....	56	—	—	633	.1
Furniture and homefurnishings stores.....	57	2,535	2.3	4,423	.4
Eating and drinking places.....	58	—	—	—	—
Miscellaneous retail.....	59	777	.3	—	—
<b>Finance, insurance, and real estate.....</b>		4,202	.7	22,911	.3
Depository institutions.....	60	—	—	—	—
Nondepository institutions.....	61	—	—	—	—
Security and commodity brokers.....	62	—	—	—	—
Insurance carriers.....	63	—	—	3,521	.2
Insurance agents, brokers, and service.....	64	—	—	—	—
Real estate.....	65	1,414	.6	10,451	.7
Holding and other investment offices.....	67	—	—	—	—
<b>Services.....</b>		89,629	4.0	1,160,289	3.2
Hotels and other lodging places.....	70	1,222	2.2	—	—
Personal services.....	72	8,056	4.7	28,556	2.3
Business services.....	73	14,719	3.3	129,152	1.4
Auto repair, services, and parking.....	75	29,020	16.5	110,490	8.7
Miscellaneous repair services.....	76	3,002	4.9	23,141	6.2
Motion pictures.....	78	—	—	—	—
Amusement and recreation services.....	79	1,487	1.6	14,500	.8
Health services.....	80	14,128	3.2	629,946	6.3
Legal services.....	81	—	—	—	—
Educational services.....	82	483	1.1	—	—
Social services.....	83	6,249	4.0	7,801	.3
Museums, botanical, zoological gardens.....	84	162	4.3	1,850	1.8
Membership organizations.....	86	214	.2	602	.1
Engineering and management services.....	87	10,821	3.4	94,559	2.8
Services, n.e.c. ....	89	—	—	733	1.4

<sup>1</sup> The 12-month period represents required use of respirators in the 12 months prior to the establishment's completion of the survey. The survey was mailed to establishments in August 2001.

<sup>2</sup> Excludes farms with fewer than 11 employees.

<sup>3</sup> Percent of establishments or employees is based on the BLS ES-202 estimates for private industry in the 12-month period prior to the establishment's completion of the survey.

<sup>4</sup> Percent of establishments or employees is based on data provided to BLS by the Mine Safety and Health Administration (MSHA), U.S. Department of Labor and by the Federal Railroad Administration, U.S. Department of Transportation.

<sup>5</sup> U.S. Office of Management and Budget, Standard Industrial Classification Manual, 1987 Edition (Washington, U.S. Government Printing Office, 1987).

NOTE: Because of rounding, data exclusion of nonclassifiable responses, and establishment reports of more than one type of respirator use, data do not sum to the totals. Dashes indicate data that do not meet publication guidelines. A measure of sampling variability for each estimate is available upon request.  
n.e.c. = not elsewhere classified

SOURCE: Bureau of Labor Statistics, U.S. Department of Labor.

**Table 8. Number and percent of establishments and employees using air-purifying respirators during the 12 months<sup>1</sup> prior to the survey, by industry**

Industry <sup>2,3,4</sup>	SIC code <sup>5</sup>	Establishments		Employees	
		Number	Percent	Number	Percent
<b>Private industry<sup>2,3,4</sup></b> .....		267,467	4.2	3,114,464	2.9
<b>Agriculture, forestry, and fishing<sup>2</sup></b> .....		13,167	9.4	101,654	5.8
Agricultural production—crops <sup>2</sup> .....	01	4,607	34.0	38,122	8.1
Agricultural production—livestock <sup>2</sup> .....	02	456	7.9	3,073	2.2
Agricultural services.....	07	7,782	6.7	59,511	5.4
Forestry.....	08	323	9.7	948	3.4
Fishing, hunting, and trapping.....	09	—	—	—	—
<b>Mining<sup>4</sup></b> .....		3,453	11.5	47,995	8.8
Metal mining <sup>4</sup> .....	10	127	39.2	9,517	24.4
Coal mining <sup>4</sup> .....	12	173	7.5	3,964	4.8
Oil and gas extraction.....	13	1,009	6.1	15,201	5.2
Nonmetallic minerals, except fuels <sup>4</sup> .....	14	2,143	19.7	19,313	14.9
<b>Construction</b> .....		60,012	9.0	566,909	8.5
General building contractors.....	15	17,334	8.8	103,439	6.7
Heavy construction, except building.....	16	4,298	11.3	55,387	6.3
Special trade contractors.....	17	38,380	8.9	408,084	9.6
<b>Manufacturing</b> .....		46,232	12.2	803,157	4.4
Food and kindred products.....	20	3,450	15.6	44,935	2.7
Tobacco products.....	21	27	16.5	4,826	13.6
Textile mill products.....	22	693	11.1	34,171	6.4
Apparel and other textile products.....	23	940	4.5	3,955	.6
Lumber and wood products.....	24	1,833	5.1	24,606	2.9
Furniture and fixtures.....	25	1,758	16.3	16,843	3.1
Paper and allied products.....	26	653	9.1	27,152	4.2
Printing and publishing.....	27	117	.2	1,191	.1
Chemicals and allied products.....	28	4,844	34.8	151,216	14.8
Petroleum and coal products.....	29	390	16.1	21,350	16.9
Rubber and miscellaneous plastics products.....	30	2,811	17.7	28,955	2.9
Leather and leather products.....	31	—	—	139	.2
Stone, clay, and glass products.....	32	2,975	17.9	45,361	7.9
Primary metal industries.....	33	2,038	28.2	90,654	13.0
Fabricated metal products.....	34	6,478	17.6	60,194	3.9
Industrial machinery and equipment.....	35	6,952	12.0	51,232	2.4
Electronic and other electric equipment.....	36	2,549	13.7	44,524	2.7
Transportation equipment.....	37	3,874	27.2	110,293	6.0
Instruments and related products.....	38	1,289	10.1	20,402	2.5
Miscellaneous manufacturing industries.....	39	2,543	14.9	21,158	5.4
<b>Transportation and public utilities<sup>4</sup></b> .....		9,718	3.4	170,068	2.5
Railroad transportation <sup>4</sup> .....	40	158	17.6	28,284	9.0
Local and interurban passenger transit.....	41	745	4.0	6,835	1.5
Trucking and warehousing.....	42	3,833	3.0	34,484	1.9
Water transportation.....	44	—	—	18,875	11.4
Transportation by air.....	45	—	—	—	—
Pipelines, except natural gas.....	46	238	26.0	793	5.9
Transportation services.....	47	—	—	—	—
Communications.....	48	—	—	—	—
Electric, gas, and sanitary services.....	49	4,573	19.7	71,843	8.5

See footnotes at end of table

**Table 8. Number and percent of establishments and employees using air-purifying respirators during the 12 months<sup>1</sup> prior to the survey, by industry—Continued**

Industry <sup>2,3,4</sup>	SIC code <sup>5</sup>	Establishments		Employees	
		Number	Percent	Number	Percent
<b>Wholesale trade.....</b>		27,966	4.6	164,529	2.3
Wholesale trade—durable goods.....	50	18,705	4.8	77,001	1.8
Wholesale trade—nondurable goods.....	51	9,260	4.3	87,528	3.1
<b>Retail trade.....</b>		16,107	1.2	115,882	.5
Building materials and garden supplies.....	52	2,111	3.4	31,022	3.1
General merchandise stores.....	53	—	—	1,027	—
Food stores.....	54	—	—	7,586	.2
Automotive dealers and service stations.....	55	7,715	4.6	64,849	2.7
Apparel and accessory stores.....	56	—	—	633	.1
Furniture and homefurnishings stores.....	57	2,535	2.3	4,423	.4
Eating and drinking places.....	58	—	—	—	—
Miscellaneous retail.....	59	777	.3	—	—
<b>Finance, insurance, and real estate.....</b>		4,202	.7	22,911	.3
Depository institutions.....	60	—	—	—	—
Nondepository institutions.....	61	—	—	—	—
Security and commodity brokers.....	62	—	—	—	—
Insurance carriers.....	63	—	—	3,521	.2
Insurance agents, brokers, and service.....	64	—	—	—	—
Real estate.....	65	1,414	.6	10,451	.7
Holding and other investment offices.....	67	—	—	—	—
<b>Services.....</b>		86,610	3.8	1,121,358	3.1
Hotels and other lodging places.....	70	1,222	2.2	—	—
Personal services.....	72	8,056	4.7	28,556	2.3
Business services.....	73	13,722	3.1	96,488	1.0
Auto repair, services, and parking.....	75	27,406	15.6	105,519	8.4
Miscellaneous repair services.....	76	3,002	4.9	23,141	6.2
Motion pictures.....	78	—	—	—	—
Amusement and recreation services.....	79	1,487	1.6	14,500	.8
Health services.....	80	14,120	3.2	628,944	6.3
Legal services.....	81	—	—	—	—
Educational services.....	82	483	1.1	—	—
Social services.....	83	5,848	3.8	7,801	.3
Museums, botanical, zoological gardens.....	84	162	4.3	1,850	1.8
Membership organizations.....	86	214	.2	602	.1
Engineering and management services.....	87	10,821	3.4	94,265	2.8
Services, n.e.c. ....	89	—	—	733	1.4

<sup>1</sup> The 12-month period represents required use of respirators in the 12 months prior to the establishment's completion of the survey. The survey was mailed to establishments in August 2001.

<sup>2</sup> Excludes farms with fewer than 11 employees.

<sup>3</sup> Percent of establishments or employees is based on the BLS ES-202 estimates for private industry in the 12-month period prior to the establishment's completion of the survey.

<sup>4</sup> Percent of establishments or employees is based on data provided to BLS by the Mine Safety and Health Administration (MSHA), U.S. Department of Labor and by the Federal Railroad Administration, U.S. Department of Transportation.

<sup>5</sup> U.S. Office of Management and Budget, Standard Industrial Classification Manual, 1987 Edition (Washington, U.S. Government Printing Office, 1987).

NOTE: Because of rounding, data exclusion of nonclassifiable responses, and establishment reports of more than one type of respirator use, data do not sum to the totals. Dashes indicate data that do not meet publication guidelines. A measure of sampling variability for each estimate is available upon request.

n.e.c. = not elsewhere classified

SOURCE: Bureau of Labor Statistics, U.S. Department of Labor.

**Table 9. Number of establishments using non-powered air-purifying respirators during the 12 months<sup>1</sup> prior to the survey, by respirator type and industry**

Industry <sup>2</sup>	SIC code <sup>3</sup>	Non-powered air-purifying respirators			
		Dust mask	Half-mask	Full-facepiece	Mouth-piece
<b>Private industry<sup>2</sup></b> .....		200,995	136,817	61,463	8,357
<b>Agriculture, forestry, and fishing<sup>2</sup></b> .....		10,647	3,348	1,396	1,810
Agricultural production—crops <sup>2</sup> .....	01	3,291	1,860	1,180	—
Agricultural production—livestock <sup>2</sup> .....	02	383	54	181	—
Agricultural services.....	07	6,650	1,175	—	1,671
Forestry.....	08	323	258	—	—
Fishing, hunting, and trapping.....	09	—	—	—	—
<b>Mining</b> .....		2,446	2,052	727	49
Metal mining.....	10	69	104	40	—
Coal mining.....	12	108	99	—	—
Oil and gas extraction.....	13	451	1,009	459	—
Nonmetallic minerals, except fuels.....	14	1,817	840	218	49
<b>Construction</b> .....		49,924	26,008	12,834	2,106
General building contractors.....	15	15,020	6,707	1,853	—
Heavy construction, except building.....	16	3,837	2,445	920	112
Special trade contractors.....	17	31,068	16,856	10,060	1,967
<b>Manufacturing</b> .....		30,784	28,345	15,091	1,508
Food and kindred products.....	20	1,914	1,424	1,889	—
Tobacco products.....	21	15	—	—	—
Textile mill products.....	22	603	262	193	—
Apparel and other textile products.....	23	—	783	—	—
Lumber and wood products.....	24	1,261	1,211	336	—
Furniture and fixtures.....	25	1,518	1,278	276	117
Paper and allied products.....	26	465	342	304	9
Printing and publishing.....	27	—	43	—	—
Chemicals and allied products.....	28	3,099	2,946	2,744	23
Petroleum and coal products.....	29	63	185	196	—
Rubber and miscellaneous plastics products.....	30	1,917	1,563	1,023	—
Leather and leather products.....	31	—	—	—	—
Stone, clay, and glass products.....	32	2,022	1,708	479	51
Primary metal industries.....	33	1,587	891	399	12
Fabricated metal products.....	34	4,281	4,641	1,026	—
Industrial machinery and equipment.....	35	4,447	4,171	1,708	200
Electronic and other electric equipment.....	36	1,670	1,407	654	—
Transportation equipment.....	37	2,108	2,324	1,784	709
Instruments and related products.....	38	731	1,062	757	—
Miscellaneous manufacturing industries.....	39	2,169	2,084	1,309	—

See footnotes at end of table

**Table 9. Number of establishments using non-powered air-purifying respirators during the 12 months<sup>1</sup> prior to the survey, by respirator type and industry—Continued**

Industry <sup>2</sup>	SIC code <sup>3</sup>	Non-powered air-purifying respirators			
		Dust mask	Half-mask	Full-facepiece	Mouth-piece
<b>Transportation and public utilities</b> .....		5,446	4,760	2,556	58
Railroad transportation.....	40	78	150	71	—
Local and interurban passenger transit.....	41	379	488	—	—
Trucking and warehousing.....	42	3,036	743	797	—
Water transportation.....	44	—	—	—	—
Transportation by air.....	45	—	—	—	—
Pipelines, except natural gas.....	46	—	170	70	—
Transportation services.....	47	—	—	—	—
Communications.....	48	—	—	—	—
Electric, gas, and sanitary services.....	49	1,896	3,038	1,518	—
<b>Wholesale trade</b> .....		17,599	15,096	8,637	—
Wholesale trade—durable goods.....	50	12,255	10,945	3,700	—
Wholesale trade—nondurable goods.....	51	5,345	4,151	4,936	—
<b>Retail trade</b> .....		11,843	10,556	4,289	926
Building materials and garden supplies.....	52	2,111	1,268	—	—
General merchandise stores.....	53	—	—	—	—
Food stores.....	54	—	—	—	—
Automotive dealers and service stations.....	55	5,873	5,041	1,868	739
Apparel and accessory stores.....	56	—	—	—	—
Furniture and homefurnishings stores.....	57	2,367	1,565	—	—
Eating and drinking places.....	58	—	—	—	—
Miscellaneous retail.....	59	539	—	—	—
<b>Finance, insurance, and real estate</b> .....		3,688	1,145	182	—
Depository institutions.....	60	—	—	—	—
Nondepository institutions.....	61	—	—	—	—
Security and commodity brokers.....	62	—	—	—	—
Insurance carriers.....	63	—	61	—	—
Insurance agents, brokers, and service.....	64	—	—	—	—
Real estate.....	65	946	1,023	—	—
Holding and other investment offices.....	67	—	—	—	—

See footnotes at end of table

**Table 9. Number of establishments using non-powered air-purifying respirators during the 12 months<sup>1</sup> prior to the survey, by respirator type and industry—Continued**

Industry <sup>2</sup>	SIC code <sup>3</sup>	Non-powered air-purifying respirators			
		Dust mask	Half-mask	Full-facepiece	Mouth-piece
<b>Services</b> .....		68,617	45,508	15,753	1,211
Hotels and other lodging places.....	70	1,222	572	489	—
Personal services.....	72	3,952	7,537	986	—
Business services.....	73	12,603	5,392	4,985	—
Auto repair, services, and parking.....	75	23,969	17,684	5,235	948
Miscellaneous repair services.....	76	3,002	—	—	—
Motion pictures.....	78	—	—	—	—
Amusement and recreation services.....	79	1,243	1,092	—	—
Health services.....	80	12,533	1,706	1,120	—
Legal services.....	81	—	—	—	—
Educational services.....	82	—	369	—	—
Social services.....	83	5,447	—	—	—
Museums, botanical, zoological gardens.....	84	—	162	—	—
Membership organizations.....	86	—	154	—	—
Engineering and management services.....	87	4,210	7,672	1,893	—
Services, n.e.c. ....	89	—	—	—	—

<sup>1</sup> The 12-month period represents required use of respirators in the 12 months prior to the establishment's completion of the survey. The survey was mailed to establishments in August 2001.

<sup>2</sup> Excludes farms with fewer than 11 employees.

<sup>3</sup> U.S. Office of Management and Budget, Standard Industrial Classification Manual, 1987 Edition (Washington, U.S. Government Printing Office, 1987).

NOTE: Because of rounding, data exclusion of nonclassifiable

responses, and establishment reports of more than one type of respirator use, data do not sum to the totals. Dashes indicate data that do not meet publication guidelines. A measure of sampling variability for each estimate is available upon request.  
n.e.c. = not elsewhere classified

SOURCE: Bureau of Labor Statistics, U.S. Department of Labor.

**Table 10. Respirator type as a percent of establishments using non-powered air-purifying respirators during the 12 months<sup>1</sup> prior to the survey, by industry**

Industry <sup>2</sup>	SIC code <sup>3</sup>	Non-powered air-purifying respirators			
		Dust mask	Half-mask	Full-facepiece	Mouth-piece
<b>Private industry<sup>2</sup></b> .....		100.0	100.0	100.0	100.0
<b>Agriculture, forestry, and fishing<sup>2</sup></b> .....		5.3	2.4	2.3	21.7
Agricultural production—crops <sup>2</sup> .....	01	1.6	1.4	1.9	—
Agricultural production—livestock <sup>2</sup> .....	02	.2	—	.3	—
Agricultural services.....	07	3.3	.9	—	20.0
Forestry.....	08	.2	.2	—	—
Fishing, hunting, and trapping.....	09	—	—	—	—
<b>Mining</b> .....		1.2	1.5	1.2	.6
Metal mining.....	10	—	.1	.1	—
Coal mining.....	12	.1	.1	—	—
Oil and gas extraction.....	13	.2	.7	.7	—
Nonmetallic minerals, except fuels.....	14	.9	.6	.4	.6
<b>Construction</b> .....		24.8	19.0	20.9	25.2
General building contractors.....	15	7.5	4.9	3.0	—
Heavy construction, except building.....	16	1.9	1.8	1.5	1.3
Special trade contractors.....	17	15.5	12.3	16.4	23.5
<b>Manufacturing</b> .....		15.3	20.7	24.6	18.0
Food and kindred products.....	20	1.0	1.0	3.1	—
Tobacco products.....	21	—	—	—	—
Textile mill products.....	22	.3	.2	.3	—
Apparel and other textile products.....	23	—	.6	—	—
Lumber and wood products.....	24	.6	.9	.5	—
Furniture and fixtures.....	25	.8	.9	.4	1.4
Paper and allied products.....	26	.2	.2	.5	.1
Printing and publishing.....	27	—	—	—	—
Chemicals and allied products.....	28	1.5	2.2	4.5	.3
Petroleum and coal products.....	29	—	.1	.3	—
Rubber and miscellaneous plastics products.....	30	1.0	1.1	1.7	—
Leather and leather products.....	31	—	—	—	—
Stone, clay, and glass products.....	32	1.0	1.2	.8	.6
Primary metal industries.....	33	.8	.7	.6	.1
Fabricated metal products.....	34	2.1	3.4	1.7	—
Industrial machinery and equipment.....	35	2.2	3.0	2.8	2.4
Electronic and other electric equipment.....	36	.8	1.0	1.1	—
Transportation equipment.....	37	1.0	1.7	2.9	8.5
Instruments and related products.....	38	.4	.8	1.2	—
Miscellaneous manufacturing industries.....	39	1.1	1.5	2.1	—

See footnotes at end of table

**Table 10. Respirator type as a percent of establishments using non-powered air-purifying respirators during the 12 months<sup>1</sup> prior to the survey, by industry —Continued**

Industry <sup>2</sup>	SIC code <sup>3</sup>	Non-powered air-purifying respirators			
		Dust mask	Half-mask	Full-facepiece	Mouth-piece
<b>Transportation and public utilities.....</b>		2.7	3.5	4.2	0.7
Railroad transportation.....	40	—	.1	.1	—
Local and interurban passenger transit.....	41	.2	.4	—	—
Trucking and warehousing.....	42	1.5	.5	1.3	—
Water transportation.....	44	—	—	—	—
Transportation by air.....	45	—	—	—	—
Pipelines, except natural gas.....	46	—	.1	.1	—
Transportation services.....	47	—	—	—	—
Communications.....	48	—	—	—	—
Electric, gas, and sanitary services.....	49	.9	2.2	2.5	—
<b>Wholesale trade.....</b>		8.8	11.0	14.1	—
Wholesale trade—durable goods.....	50	6.1	8.0	6.0	—
Wholesale trade—nondurable goods.....	51	2.7	3.0	8.0	—
<b>Retail trade.....</b>		5.9	7.7	7.0	11.1
Building materials and garden supplies.....	52	1.1	.9	—	—
General merchandise stores.....	53	—	—	—	—
Food stores.....	54	—	—	—	—
Automotive dealers and service stations.....	55	2.9	3.7	3.0	8.8
Apparel and accessory stores.....	56	—	—	—	—
Furniture and homefurnishings stores.....	57	1.2	1.1	—	—
Eating and drinking places.....	58	—	—	—	—
Miscellaneous retail.....	59	.3	—	—	—
<b>Finance, insurance, and real estate.....</b>		1.8	.8	.3	—
Depository institutions.....	60	—	—	—	—
Nondepository institutions.....	61	—	—	—	—
Security and commodity brokers.....	62	—	—	—	—
Insurance carriers.....	63	—	—	—	—
Insurance agents, brokers, and service.....	64	—	—	—	—
Real estate.....	65	.5	.7	—	—
Holding and other investment offices.....	67	—	—	—	—

See footnotes at end of table

**Table 10. Respirator type as a percent of establishments using non-powered air-purifying respirators during the 12 months<sup>1</sup> prior to the survey, by industry —Continued**

Industry <sup>2</sup>	SIC code <sup>3</sup>	Non-powered air-purifying respirators			
		Dust mask	Half-mask	Full-facepiece	Mouth-piece
<b>Services</b> .....		34.1	33.3	25.6	14.5
Hotels and other lodging places.....	70	.6	.4	.8	—
Personal services.....	72	2.0	5.5	1.6	—
Business services.....	73	6.3	3.9	8.1	—
Auto repair, services, and parking.....	75	11.9	12.9	8.5	11.3
Miscellaneous repair services.....	76	1.5	—	—	—
Motion pictures.....	78	—	—	—	—
Amusement and recreation services.....	79	.6	.8	—	—
Health services.....	80	6.2	1.2	1.8	—
Legal services.....	81	—	—	—	—
Educational services.....	82	—	.3	—	—
Social services.....	83	2.7	—	—	—
Museums, botanical, zoological gardens.....	84	—	.1	—	—
Membership organizations.....	86	—	.1	—	—
Engineering and management services.....	87	2.1	5.6	3.1	—
Services, n.e.c. ....	89	—	—	—	—

<sup>1</sup> The 12-month period represents required use of respirators in the 12 months prior to the establishment's completion of the survey. The survey was mailed to establishments in August 2001.

<sup>2</sup> Excludes farms with fewer than 11 employees.

<sup>3</sup> U.S. Office of Management and Budget, Standard Industrial Classification Manual, 1987 Edition (Washington, U.S. Government Printing Office, 1987).

NOTE: Because of rounding, data exclusion of nonclassifiable

responses, and establishment reports of more than one type of respirator use, data do not sum to the totals. Dashes indicate data that do not meet publication guidelines. A measure of sampling variability for each estimate is available upon request.  
n.e.c. = not elsewhere classified

SOURCE: Bureau of Labor Statistics, U.S. Department of Labor.

**Table 11. Number of establishments using powered air-purifying respirators during the 12 months<sup>1</sup> prior to the survey, by respirator type and industry**

Industry <sup>2</sup>	SIC code <sup>3</sup>	Powered air-purifying respirators				
		Loose-fitting facepiece	Hood/helmet without neck seal	Hood/helmet with neck seal	Tight-fitting half-facepiece	Tight-fitting full-facepiece
<b>Private industry<sup>2</sup></b> .....		7,880	7,941	9,147	13,159	17,855
<b>Agriculture, forestry, and fishing<sup>2</sup></b> .....		—	—	591	—	93
Agricultural production—crops <sup>2</sup> .....	01	—	—	591	—	93
Agricultural production—livestock <sup>2</sup> .....	02	—	—	—	—	—
Agricultural services.....	07	—	—	—	—	—
Forestry.....	08	—	—	—	—	—
Fishing, hunting, and trapping.....	09	—	—	—	—	—
<b>Mining</b> .....		—	67	83	241	265
Metal mining.....	10	—	—	—	—	24
Coal mining.....	12	—	—	37	—	—
Oil and gas extraction.....	13	—	—	—	184	202
Nonmetallic minerals, except fuels.....	14	—	38	38	41	38
<b>Construction</b> .....		2,822	2,454	710	5,012	3,148
General building contractors.....	15	—	511	104	947	—
Heavy construction, except building.....	16	59	104	162	162	388
Special trade contractors.....	17	2,318	1,839	444	3,903	2,747
<b>Manufacturing</b> .....		511	2,759	2,888	2,372	3,398
Food and kindred products.....	20	—	104	81	134	185
Tobacco products.....	21	—	—	18	—	—
Textile mill products.....	22	—	—	71	—	—
Apparel and other textile products.....	23	—	—	—	—	—
Lumber and wood products.....	24	—	53	48	—	102
Furniture and fixtures.....	25	—	24	—	45	—
Paper and allied products.....	26	9	31	46	—	53
Printing and publishing.....	27	—	—	—	—	—
Chemicals and allied products.....	28	69	233	286	87	417
Petroleum and coal products.....	29	—	—	—	—	57
Rubber and miscellaneous plastics products.....	30	—	154	261	—	447
Leather and leather products.....	31	—	—	—	—	—
Stone, clay, and glass products.....	32	68	269	215	132	66
Primary metal industries.....	33	33	192	170	102	101
Fabricated metal products.....	34	161	757	485	121	112
Industrial machinery and equipment.....	35	—	383	551	160	183
Electronic and other electric equipment.....	36	—	59	88	169	46
Transportation equipment.....	37	64	255	324	143	298
Instruments and related products.....	38	—	130	94	—	291
Miscellaneous manufacturing industries.....	39	—	85	135	995	995

See footnotes at end of table

**Table 11. Number of establishments using powered air-purifying respirators during the 12 months<sup>1</sup> prior to the survey, by respirator type and industry—Continued**

Industry <sup>2</sup>	SIC code <sup>3</sup>	Powered air-purifying respirators				
		Loose-fitting facepiece	Hood/helmet without neck seal	Hood/helmet with neck seal	Tight-fitting half-facepiece	Tight-fitting full-facepiece
<b>Transportation and public utilities</b> .....		124	485	311	341	810
Railroad transportation.....	40	25	44	—	—	—
Local and interurban passenger transit.....	41	—	—	68	—	—
Trucking and warehousing.....	42	—	—	—	183	—
Water transportation.....	44	—	—	—	—	—
Transportation by air.....	45	—	—	—	—	—
Pipelines, except natural gas.....	46	—	—	—	—	—
Transportation services.....	47	—	—	—	—	—
Communications.....	48	—	—	—	—	—
Electric, gas, and sanitary services.....	49	—	271	228	32	475
<b>Wholesale trade</b> .....		1,254	—	2,371	814	1,979
Wholesale trade—durable goods.....	50	—	—	1,622	—	1,422
Wholesale trade—nondurable goods.....	51	1,147	—	749	—	—
<b>Retail trade</b> .....		2,188	370	260	2,270	800
Building materials and garden supplies.....	52	—	—	—	—	—
General merchandise stores.....	53	—	—	—	—	—
Food stores.....	54	—	—	—	—	—
Automotive dealers and service stations.....	55	416	370	260	1,001	800
Apparel and accessory stores.....	56	—	—	—	—	—
Furniture and homefurnishings stores.....	57	—	—	—	—	—
Eating and drinking places.....	58	—	—	—	—	—
Miscellaneous retail.....	59	—	—	—	—	—
<b>Finance, insurance, and real estate</b> .....		—	—	—	—	—
Depository institutions.....	60	—	—	—	—	—
Nondepository institutions.....	61	—	—	—	—	—
Security and commodity brokers.....	62	—	—	—	—	—
Insurance carriers.....	63	—	—	—	—	—
Insurance agents, brokers, and service.....	64	—	—	—	—	—
Real estate.....	65	—	—	—	—	—
Holding and other investment offices.....	67	—	—	—	—	—

See footnotes at end of table

**Table 11. Number of establishments using powered air-purifying respirators during the 12 months<sup>1</sup> prior to the survey, by respirator type and industry—Continued**

Industry <sup>2</sup>	SIC code <sup>3</sup>	Powered air-purifying respirators				
		Loose-fitting facepiece	Hood/helmet without neck seal	Hood/helmet with neck seal	Tight-fitting half-facepiece	Tight-fitting full-facepiece
<b>Services</b> .....		833	1,243	1,914	2,110	7,362
Hotels and other lodging places.....	70	—	—	—	—	—
Personal services.....	72	—	—	—	—	—
Business services.....	73	—	—	—	—	—
Auto repair, services, and parking.....	75	700	624	1,660	2,083	2,020
Miscellaneous repair services.....	76	—	—	—	—	—
Motion pictures.....	78	—	—	—	—	—
Amusement and recreation services.....	79	—	—	—	—	—
Health services.....	80	88	403	254	—	30
Legal services.....	81	—	—	—	—	—
Educational services.....	82	—	—	—	—	—
Social services.....	83	—	—	—	—	—
Museums, botanical, zoological gardens.....	84	—	—	—	—	—
Membership organizations.....	86	—	—	—	—	—
Engineering and management services.....	87	—	—	—	—	—
Services, n.e.c. ....	89	—	—	—	—	—

<sup>1</sup> The 12-month period represents required use of respirators in the 12 months prior to the establishment's completion of the survey. The survey was mailed to establishments in August 2001.

<sup>2</sup> Excludes farms with fewer than 11 employees.

<sup>3</sup> U.S. Office of Management and Budget, Standard Industrial Classification Manual, 1987 Edition (Washington, U.S. Government Printing Office, 1987).

NOTE: Because of rounding, data exclusion of nonclassifiable

responses, and establishment reports of more than one type of respirator use, data do not sum to the totals. Dashes indicate data that do not meet publication guidelines. A measure of sampling variability for each estimate is available upon request.

n.e.c. = not elsewhere classified

SOURCE: Bureau of Labor Statistics, U.S. Department of Labor.

**Table 12. Respirator type as a percent of establishments using powered air-purifying respirators during the 12 months<sup>1</sup> prior to the survey, by industry**

Industry <sup>2</sup>	SIC code <sup>3</sup>	Powered air-purifying respirators				
		Loose-fitting facepiece	Hood/helmet without neck seal	Hood/helmet with neck seal	Tight-fitting half-facepiece	Tight-fitting full-facepiece
<b>Private industry<sup>2</sup></b> .....		100.0	100.0	100.0	100.0	100.0
<b>Agriculture, forestry, and fishing<sup>2</sup></b> .....		—	—	6.5	—	.5
Agricultural production—crops <sup>2</sup> .....	01	—	—	6.5	—	.5
Agricultural production—livestock <sup>2</sup> .....	02	—	—	—	—	—
Agricultural services.....	07	—	—	—	—	—
Forestry.....	08	—	—	—	—	—
Fishing, hunting, and trapping.....	09	—	—	—	—	—
<b>Mining</b> .....		—	.8	.9	1.8	1.5
Metal mining.....	10	—	—	—	—	.1
Coal mining.....	12	—	—	.4	—	—
Oil and gas extraction.....	13	—	—	—	1.4	1.1
Nonmetallic minerals, except fuels.....	14	—	.5	.4	.3	.2
<b>Construction</b> .....		35.8	30.9	7.8	38.1	17.6
General building contractors.....	15	—	6.4	1.1	7.2	—
Heavy construction, except building.....	16	.8	1.3	1.8	1.2	2.2
Special trade contractors.....	17	29.4	23.2	4.8	29.7	15.4
<b>Manufacturing</b> .....		6.5	34.7	31.6	18.0	19.0
Food and kindred products.....	20	—	1.3	.9	1.0	1.0
Tobacco products.....	21	—	—	.2	—	—
Textile mill products.....	22	—	—	.8	—	—
Apparel and other textile products.....	23	—	—	—	—	—
Lumber and wood products.....	24	—	.7	.5	—	.6
Furniture and fixtures.....	25	—	.3	—	.3	—
Paper and allied products.....	26	.1	.4	.5	—	.3
Printing and publishing.....	27	—	—	—	—	—
Chemicals and allied products.....	28	.9	2.9	3.1	.7	2.3
Petroleum and coal products.....	29	—	—	—	—	.3
Rubber and miscellaneous plastics products.....	30	—	1.9	2.9	—	2.5
Leather and leather products.....	31	—	—	—	—	—
Stone, clay, and glass products.....	32	.9	3.4	2.4	1.0	.4
Primary metal industries.....	33	.4	2.4	1.9	.8	.6
Fabricated metal products.....	34	2.0	9.5	5.3	.9	.6
Industrial machinery and equipment.....	35	—	4.8	6.0	1.2	1.0
Electronic and other electric equipment.....	36	—	.7	1.0	1.3	.3
Transportation equipment.....	37	.8	3.2	3.5	1.1	1.7
Instruments and related products.....	38	—	1.6	1.0	—	1.6
Miscellaneous manufacturing industries.....	39	—	1.1	1.5	7.6	5.6

See footnotes at end of table

**Table 12. Respirator type as a percent of establishments using powered air-purifying respirators during the 12 months<sup>1</sup> prior to the survey, by industry—Continued**

Industry <sup>2</sup>	SIC code <sup>3</sup>	Powered air-purifying respirators				
		Loose-fitting facepiece	Hood/helmet without neck seal	Hood/helmet with neck seal	Tight-fitting half-facepiece	Tight-fitting full-facepiece
<b>Transportation and public utilities</b> .....		1.6	6.1	3.4	2.6	4.5
Railroad transportation.....	40	.3	.6	—	—	—
Local and interurban passenger transit.....	41	—	—	.7	—	—
Trucking and warehousing.....	42	—	—	—	1.4	—
Water transportation.....	44	—	—	—	—	—
Transportation by air.....	45	—	—	—	—	—
Pipelines, except natural gas.....	46	—	—	—	—	—
Transportation services.....	47	—	—	—	—	—
Communications.....	48	—	—	—	—	—
Electric, gas, and sanitary services.....	49	—	3.4	2.5	.2	2.7
<b>Wholesale trade</b> .....		15.9	—	25.9	6.2	11.1
Wholesale trade—durable goods.....	50	—	—	17.7	—	8.0
Wholesale trade—nondurable goods.....	51	14.6	—	8.2	—	—
<b>Retail trade</b> .....		27.8	4.7	2.8	17.2	4.5
Building materials and garden supplies.....	52	—	—	—	—	—
General merchandise stores.....	53	—	—	—	—	—
Food stores.....	54	—	—	—	—	—
Automotive dealers and service stations.....	55	5.3	4.7	2.8	7.6	4.5
Apparel and accessory stores.....	56	—	—	—	—	—
Furniture and homefurnishings stores.....	57	—	—	—	—	—
Eating and drinking places.....	58	—	—	—	—	—
Miscellaneous retail.....	59	—	—	—	—	—
<b>Finance, insurance, and real estate</b> .....		—	—	—	—	—
Depository institutions.....	60	—	—	—	—	—
Nondepository institutions.....	61	—	—	—	—	—
Security and commodity brokers.....	62	—	—	—	—	—
Insurance carriers.....	63	—	—	—	—	—
Insurance agents, brokers, and service.....	64	—	—	—	—	—
Real estate.....	65	—	—	—	—	—
Holding and other investment offices.....	67	—	—	—	—	—

See footnotes at end of table

**Table 12. Respirator type as a percent of establishments using powered air-purifying respirators during the 12 months<sup>1</sup> prior to the survey, by industry—Continued**

Industry <sup>2</sup>	SIC code <sup>3</sup>	Powered air-purifying respirators				
		Loose-fitting facepiece	Hood/helmet without neck seal	Hood/helmet with neck seal	Tight-fitting half-facepiece	Tight-fitting full-facepiece
<b>Services</b> .....		10.6	15.7	20.9	16.0	41.2
Hotels and other lodging places.....	70	—	—	—	—	—
Personal services.....	72	—	—	—	—	—
Business services.....	73	—	—	—	—	—
Auto repair, services, and parking.....	75	8.9	7.9	18.1	15.8	11.3
Miscellaneous repair services.....	76	—	—	—	—	—
Motion pictures.....	78	—	—	—	—	—
Amusement and recreation services.....	79	—	—	—	—	—
Health services.....	80	1.1	5.1	2.8	—	.2
Legal services.....	81	—	—	—	—	—
Educational services.....	82	—	—	—	—	—
Social services.....	83	—	—	—	—	—
Museums, botanical, zoological gardens.....	84	—	—	—	—	—
Membership organizations.....	86	—	—	—	—	—
Engineering and management services.....	87	—	—	—	—	—
Services, n.e.c. ....	89	—	—	—	—	—

<sup>1</sup> The 12-month period represents required use of respirators in the 12 months prior to the establishment's completion of the survey. The survey was mailed to establishments in August 2001.

<sup>2</sup> Excludes farms with fewer than 11 employees.

<sup>3</sup> U.S. Office of Management and Budget, Standard Industrial Classification Manual, 1987 Edition (Washington, U.S. Government Printing Office, 1987).

NOTE: Because of rounding, data exclusion of nonclassifiable

responses, and establishment reports of more than one type of respirator use, data do not sum to the totals. Dashes indicate data that do not meet publication guidelines. A measure of sampling variability for each estimate is available upon request.

n.e.c. = not elsewhere classified

SOURCE: Bureau of Labor Statistics, U.S. Department of Labor.

**Table 13. Number of establishments and employees using non-powered air-purifying or powered air-purifying respirators during the 12 months<sup>1</sup> prior to the survey, by industry**

Industry <sup>2</sup>	SIC code <sup>3</sup>	Establishments		Employees	
		Non-powered air-purifying	Powered air-purifying	Non-powered air-purifying	Powered air-purifying
<b>Private industry<sup>2</sup></b> .....		264,366	42,121	3,067,325	287,333
<b>Agriculture, forestry, and fishing<sup>2</sup></b> .....		12,715	989	99,921	3,787
Agricultural production—crops <sup>2</sup> .....	01	4,155	823	36,389	3,223
Agricultural production—livestock <sup>2</sup> .....	02	456	—	3,073	—
Agricultural services.....	07	7,782	—	59,511	—
Forestry.....	08	323	—	948	—
Fishing, hunting, and trapping.....	09	—	—	—	—
<b>Mining</b> .....		3,453	422	47,894	7,287
Metal mining.....	10	127	35	9,517	555
Coal mining.....	12	173	37	3,885	388
Oil and gas extraction.....	13	1,009	202	15,201	5,741
Nonmetallic minerals, except fuels.....	14	2,143	148	19,290	603
<b>Construction</b> .....		58,730	9,341	562,342	56,494
General building contractors.....	15	17,290	1,515	103,041	2,741
Heavy construction, except building.....	16	4,298	761	55,351	4,956
Special trade contractors.....	17	37,143	7,065	403,950	48,796
<b>Manufacturing</b> .....		45,536	8,980	782,812	66,547
Food and kindred products.....	20	3,315	425	43,599	2,450
Tobacco products.....	21	27	18	4,720	156
Textile mill products.....	22	693	134	33,626	3,121
Apparel and other textile products.....	23	940	—	3,955	—
Lumber and wood products.....	24	1,833	187	24,544	2,932
Furniture and fixtures.....	25	1,754	70	16,787	733
Paper and allied products.....	26	640	127	26,346	1,879
Printing and publishing.....	27	117	—	1,191	—
Chemicals and allied products.....	28	4,773	926	144,400	14,399
Petroleum and coal products.....	29	354	101	20,351	3,516
Rubber and miscellaneous plastics products.....	30	2,780	636	28,800	1,583
Leather and leather products.....	31	—	—	139	—
Stone, clay, and glass products.....	32	2,886	570	43,949	2,511
Primary metal industries.....	33	2,015	508	88,807	6,538
Fabricated metal products.....	34	6,413	1,405	58,557	5,709
Industrial machinery and equipment.....	35	6,911	1,098	49,764	4,334
Electronic and other electric equipment.....	36	2,460	340	43,693	2,331
Transportation equipment.....	37	3,779	795	108,428	7,023
Instruments and related products.....	38	1,289	481	20,202	1,380
Miscellaneous manufacturing industries.....	39	2,538	1,159	20,954	5,951

See footnotes at end of table

**Table 13. Number of establishments and employees using non-powered air-purifying or powered air-purifying respirators during the 12 months<sup>1</sup> prior to the survey, by industry—Continued**

Industry <sup>2</sup>	SIC code <sup>3</sup>	Establishments		Employees	
		Non-powered air-purifying	Powered air-purifying	Non-powered air-purifying	Powered air-purifying
<b>Transportation and public utilities</b> .....		9,646	1,522	167,994	31,734
Railroad transportation.....	40	158	70	27,348	943
Local and interurban passenger transit.....	41	745	68	6,835	437
Trucking and warehousing.....	42	3,833	434	34,484	4,029
Water transportation.....	44	—	—	18,875	18,875
Transportation by air.....	45	—	—	—	—
Pipelines, except natural gas.....	46	238	—	793	151
Transportation services.....	47	—	—	—	—
Communications.....	48	—	—	—	—
Electric, gas, and sanitary services.....	49	4,501	838	70,705	7,299
<b>Wholesale trade</b> .....		27,918	5,665	160,926	26,322
Wholesale trade—durable goods.....	50	18,689	3,151	73,966	5,374
Wholesale trade—nondurable goods.....	51	9,229	2,514	86,960	20,948
<b>Retail trade</b> .....		15,938	3,749	113,792	15,909
Building materials and garden supplies.....	52	2,111	—	31,022	—
General merchandise stores.....	53	—	—	1,027	1,027
Food stores.....	54	—	—	7,586	—
Automotive dealers and service stations.....	55	7,546	1,977	62,758	13,514
Apparel and accessory stores.....	56	—	—	633	—
Furniture and homefurnishings stores.....	57	2,535	—	4,423	1,368
Eating and drinking places.....	58	—	—	—	—
Miscellaneous retail.....	59	777	—	—	—
<b>Finance, insurance, and real estate</b> .....		4,202	—	22,867	43
Depository institutions.....	60	—	—	—	43
Nondepository institutions.....	61	—	—	—	—
Security and commodity brokers.....	62	—	—	—	—
Insurance carriers.....	63	—	—	3,521	—
Insurance agents, brokers, and service.....	64	—	—	—	—
Real estate.....	65	1,414	—	10,451	—
Holding and other investment offices.....	67	—	—	—	—

See footnotes at end of table

**Table 13. Number of establishments and employees using non-powered air-purifying or powered air-purifying respirators during the 12 months<sup>1</sup> prior to the survey, by industry—Continued**

Industry <sup>2</sup>	SIC code <sup>3</sup>	Establishments		Employees	
		Non-powered air-purifying	Powered air-purifying	Non-powered air-purifying	Powered air-purifying
<b>Services</b> .....		86,227	11,434	1,108,776	79,210
Hotels and other lodging places.....	70	1,222	—	—	—
Personal services.....	72	8,056	—	28,556	—
Business services.....	73	13,722	—	96,488	—
Auto repair, services, and parking.....	75	27,131	5,110	104,801	11,629
Miscellaneous repair services.....	76	3,002	—	23,141	—
Motion pictures.....	78	—	—	—	—
Amusement and recreation services.....	79	1,487	—	14,500	—
Health services.....	80	14,013	753	617,258	59,895
Legal services.....	81	—	—	—	—
Educational services.....	82	483	—	—	257
Social services.....	83	5,848	—	7,801	—
Museums, botanical, zoological gardens.....	84	162	—	1,850	—
Membership organizations.....	86	214	—	602	—
Engineering and management services.....	87	10,821	5,380	94,265	6,676
Services, n.e.c. ....	89	—	—	733	—

<sup>1</sup> The 12-month period represents required use of respirators in the 12 months prior to the establishment's completion of the survey. The survey was mailed to establishments in August 2001.

<sup>2</sup> Excludes farms with fewer than 11 employees.

<sup>3</sup> U.S. Office of Management and Budget, Standard Industrial Classification Manual, 1987 Edition (Washington, U.S. Government Printing Office, 1987).

NOTE: Because of rounding, data exclusion of nonclassifiable responses,

and establishment reports of more than one type of respirator use, data do not sum to the totals. Dashes indicate data that do not meet publication guidelines. A measure of sampling variability for each estimate is available upon request.

n.e.c. = not elsewhere classified

SOURCE: Bureau of Labor Statistics, U.S. Department of Labor.

**Table 14. Respirator type as a percent of establishments and employees using non-powered air-purifying or powered air-purifying respirators during the 12 months<sup>1</sup> prior to the survey, by industry**

Industry <sup>2</sup>	SIC code <sup>3</sup>	Establishments		Employees	
		Non-powered air-purifying	Powered air-purifying	Non-powered air-purifying	Powered air-purifying
<b>Private industry<sup>2</sup></b> .....		100.0	100.0	100.0	100.0
<b>Agriculture, forestry, and fishing<sup>2</sup></b> .....		4.8	2.3	3.3	1.3
Agricultural production—crops <sup>2</sup> .....	01	1.6	2.0	1.2	1.1
Agricultural production—livestock <sup>2</sup> .....	02	.2	—	.1	—
Agricultural services.....	07	2.9	—	1.9	—
Forestry.....	08	.1	—	—	—
Fishing, hunting, and trapping.....	09	—	—	—	—
<b>Mining</b> .....		1.3	1.0	1.6	2.5
Metal mining.....	10	—	.1	.3	.2
Coal mining.....	12	.1	.1	.1	.1
Oil and gas extraction.....	13	.4	.5	.5	2.0
Nonmetallic minerals, except fuels.....	14	.8	.4	.6	.2
<b>Construction</b> .....		22.2	22.2	18.3	19.7
General building contractors.....	15	6.5	3.6	3.4	1.0
Heavy construction, except building.....	16	1.6	1.8	1.8	1.7
Special trade contractors.....	17	14.0	16.8	13.2	17.0
<b>Manufacturing</b> .....		17.2	21.3	25.5	23.2
Food and kindred products.....	20	1.3	1.0	1.4	.9
Tobacco products.....	21	—	—	.2	.1
Textile mill products.....	22	.3	.3	1.1	1.1
Apparel and other textile products.....	23	.4	—	.1	—
Lumber and wood products.....	24	.7	.4	.8	1.0
Furniture and fixtures.....	25	.7	.2	.5	.3
Paper and allied products.....	26	.2	.3	.9	.7
Printing and publishing.....	27	—	—	—	—
Chemicals and allied products.....	28	1.8	2.2	4.7	5.0
Petroleum and coal products.....	29	.1	.2	.7	1.2
Rubber and miscellaneous plastics products.....	30	1.1	1.5	.9	.6
Leather and leather products.....	31	—	—	.0	—
Stone, clay, and glass products.....	32	1.1	1.4	1.4	.9
Primary metal industries.....	33	.8	1.2	2.9	2.3
Fabricated metal products.....	34	2.4	3.3	1.9	2.0
Industrial machinery and equipment.....	35	2.6	2.6	1.6	1.5
Electronic and other electric equipment.....	36	.9	.8	1.4	.8
Transportation equipment.....	37	1.4	1.9	3.5	2.4
Instruments and related products.....	38	.5	1.1	.7	.5
Miscellaneous manufacturing industries.....	39	1.0	2.8	.7	2.1

See footnotes at end of table

**Table 14. Respirator type as a percent of establishments and employees using non-powered air-purifying or powered air-purifying respirators during the 12 months<sup>1</sup> prior to the survey, by industry—Continued**

Industry <sup>2</sup>	SIC code <sup>3</sup>	Establishments		Employees	
		Non-powered air-purifying	Powered air-purifying	Non-powered air-purifying	Powered air-purifying
<b>Transportation and public utilities</b> .....		3.6	3.6	5.5	11.0
Railroad transportation.....	40	.1	.2	.9	.3
Local and interurban passenger transit.....	41	.3	.2	.2	.2
Trucking and warehousing.....	42	1.4	1.0	1.1	1.4
Water transportation.....	44	—	—	.6	6.6
Transportation by air.....	45	—	—	—	—
Pipelines, except natural gas.....	46	.1	—	—	.1
Transportation services.....	47	—	—	—	—
Communications.....	48	—	—	—	—
Electric, gas, and sanitary services.....	49	1.7	2.0	2.3	2.5
<b>Wholesale trade</b> .....		10.6	13.4	5.2	9.2
Wholesale trade—durable goods.....	50	7.1	7.5	2.4	1.9
Wholesale trade—nondurable goods.....	51	3.5	6.0	2.8	7.3
<b>Retail trade</b> .....		6.0	8.9	3.7	5.5
Building materials and garden supplies.....	52	.8	—	1.0	—
General merchandise stores.....	53	—	—	—	.4
Food stores.....	54	—	—	.2	—
Automotive dealers and service stations.....	55	2.9	4.7	2.0	4.7
Apparel and accessory stores.....	56	—	—	—	—
Furniture and homefurnishings stores.....	57	1.0	—	.1	.5
Eating and drinking places.....	58	—	—	—	—
Miscellaneous retail.....	59	.3	—	—	—
<b>Finance, insurance, and real estate</b> .....		1.6	—	.7	—
Depository institutions.....	60	—	—	—	—
Nondepository institutions.....	61	—	—	—	—
Security and commodity brokers.....	62	—	—	—	—
Insurance carriers.....	63	—	—	.1	—
Insurance agents, brokers, and service.....	64	—	—	—	—
Real estate.....	65	.5	—	.3	—
Holding and other investment offices.....	67	—	—	—	—

See footnotes at end of table

**Table 14. Respirator type as a percent of establishments and employees using non-powered air-purifying or powered air-purifying respirators during the 12 months<sup>1</sup> prior to the survey, by industry—Continued**

Industry <sup>2</sup>	SIC code <sup>3</sup>	Establishments		Employees	
		Non-powered air-purifying	Powered air-purifying	Non-powered air-purifying	Powered air-purifying
<b>Services</b> .....		32.6	27.1	36.1	27.6
Hotels and other lodging places.....	70	.5	—	—	—
Personal services.....	72	3.0	—	.9	—
Business services.....	73	5.2	—	3.1	—
Auto repair, services, and parking.....	75	10.3	12.1	3.4	4.0
Miscellaneous repair services.....	76	1.1	—	.8	—
Motion pictures.....	78	—	—	—	—
Amusement and recreation services.....	79	.6	—	.5	—
Health services.....	80	5.3	1.8	20.1	20.8
Legal services.....	81	—	—	—	—
Educational services.....	82	.2	—	—	.1
Social services.....	83	2.2	—	.3	—
Museums, botanical, zoological gardens.....	84	.1	—	.1	—
Membership organizations.....	86	.1	—	—	—
Engineering and management services.....	87	4.1	12.8	3.1	2.3
Services, n.e.c. ....	89	—	—	—	—

<sup>1</sup> The 12-month period represents required use of respirators in the 12 months prior to the establishment's completion of the survey. The survey was mailed to establishments in August 2001.

<sup>2</sup> Excludes farms with fewer than 11 employees.

<sup>3</sup> U.S. Office of Management and Budget, Standard Industrial Classification Manual, 1987 Edition (Washington, U.S. Government Printing Office, 1987).  
NOTE: Because of rounding, data exclusion of nonclassifiable responses,

and establishment reports of more than one type of respirator use, data do not sum to the totals. Dashes indicate data that do not meet publication guidelines. A measure of sampling variability for each estimate is available upon request.

n.e.c. = not elsewhere classified

SOURCE: Bureau of Labor Statistics, U.S. Department of Labor.

**Table 15. Number and percent of establishments and employees using air-supplied respirators during the 12 months<sup>1</sup> prior to the survey, by industry**

Industry <sup>2,3,4</sup>	SIC code <sup>5</sup>	Establishments		Employees	
		Number	Percent	Number	Percent
<b>Private industry<sup>2,3,4</sup></b> .....		47,290	0.7	415,964	0.4
<b>Agriculture, forestry, and fishing<sup>2</sup></b> .....		479	.3	1,544	.1
Agricultural production—crops <sup>2</sup> .....	01	207	1.5	476	.1
Agricultural production—livestock <sup>2</sup> .....	02	—	—	—	—
Agricultural services.....	07	—	—	—	—
Forestry.....	08	—	—	—	—
Fishing, hunting, and trapping.....	09	—	—	—	—
<b>Mining<sup>4</sup></b> .....		592	2.0	8,234	1.5
Metal mining <sup>4</sup> .....	10	54	16.7	1,030	2.6
Coal mining <sup>4</sup> .....	12	34	1.5	—	—
Oil and gas extraction.....	13	379	2.3	4,001	1.4
Nonmetallic minerals, except fuels <sup>4</sup> .....	14	125	1.1	668	.5
<b>Construction</b> .....		10,546	1.6	96,637	1.4
General building contractors.....	15	1,209	.6	6,027	.4
Heavy construction, except building.....	16	1,220	3.2	9,619	1.1
Special trade contractors.....	17	8,117	1.9	80,991	1.9
<b>Manufacturing</b> .....		12,702	3.4	158,657	.9
Food and kindred products.....	20	762	3.4	7,552	.5
Tobacco products.....	21	18	10.8	372	1.1
Textile mill products.....	22	—	—	158	—
Apparel and other textile products.....	23	—	—	—	—
Lumber and wood products.....	24	160	.4	1,675	.2
Furniture and fixtures.....	25	72	.7	461	.1
Paper and allied products.....	26	201	2.8	6,987	1.1
Printing and publishing.....	27	—	—	—	—
Chemicals and allied products.....	28	2,113	15.2	47,510	4.6
Petroleum and coal products.....	29	149	6.2	16,955	13.4
Rubber and miscellaneous plastics products.....	30	859	5.4	5,313	.5
Leather and leather products.....	31	—	—	—	—
Stone, clay, and glass products.....	32	513	3.1	1,960	.3
Primary metal industries.....	33	569	7.9	12,596	1.8
Fabricated metal products.....	34	2,285	6.2	11,129	.7
Industrial machinery and equipment.....	35	2,141	3.7	9,652	.5
Electronic and other electric equipment.....	36	523	2.8	11,384	.7
Transportation equipment.....	37	1,320	9.3	18,236	1.0
Instruments and related products.....	38	584	4.6	4,595	.6
Miscellaneous manufacturing industries.....	39	399	2.3	2,122	.5

See footnotes at end of table

**Table 15. Number and percent of establishments and employees using air-supplied respirators during the 12 months<sup>1</sup> prior to the survey, by industry—Continued**

Industry <sup>2,3,4</sup>	SIC code <sup>5</sup>	Establishments		Employees	
		Number	Percent	Number	Percent
<b>Transportation and public utilities<sup>4</sup></b> .....		3,786	1.3	42,125	0.6
Railroad transportation <sup>4</sup> .....	40	78	8.7	922	.3
Local and interurban passenger transit.....	41	80	.4	—	—
Trucking and warehousing.....	42	704	.6	4,572	.2
Water transportation.....	44	—	—	—	—
Transportation by air.....	45	—	—	6,396	.5
Pipelines, except natural gas.....	46	91	10.0	416	3.1
Transportation services.....	47	—	—	—	—
Communications.....	48	—	—	—	—
Electric, gas, and sanitary services.....	49	2,795	12.0	27,986	3.3
<b>Wholesale trade</b> .....		6,816	1.1	29,848	.4
Wholesale trade—durable goods.....	50	3,322	.9	7,874	.2
Wholesale trade—nondurable goods.....	51	3,493	1.6	21,974	.8
<b>Retail trade</b> .....		2,879	.2	16,952	.1
Building materials and garden supplies.....	52	—	—	—	—
General merchandise stores.....	53	—	—	—	—
Food stores.....	54	—	—	836	—
Automotive dealers and service stations.....	55	2,642	1.6	15,973	.7
Apparel and accessory stores.....	56	—	—	—	—
Furniture and homefurnishings stores.....	57	—	—	—	—
Eating and drinking places.....	58	—	—	—	—
Miscellaneous retail.....	59	—	—	—	—
<b>Finance, insurance, and real estate</b> .....		—	—	—	—
Depository institutions.....	60	—	—	—	—
Nondepository institutions.....	61	—	—	—	—
Security and commodity brokers.....	62	—	—	—	—
Insurance carriers.....	63	—	—	—	—
Insurance agents, brokers, and service.....	64	—	—	—	—
Real estate.....	65	—	—	—	—
Holding and other investment offices.....	67	—	—	—	—

See footnotes at end of table

**Table 15. Number and percent of establishments and employees using air-supplied respirators during the 12 months<sup>1</sup> prior to the survey, by industry—Continued**

Industry <sup>2,3,4</sup>	SIC code <sup>5</sup>	Establishments		Employees	
		Number	Percent	Number	Percent
<b>Services</b> .....		9,490	0.4	61,967	0.2
Hotels and other lodging places.....	70	—	—	—	—
Personal services.....	72	—	—	—	—
Business services.....	73	—	—	32,664	.3
Auto repair, services, and parking.....	75	7,933	4.5	21,312	1.7
Miscellaneous repair services.....	76	—	—	412	.1
Motion pictures.....	78	—	—	—	—
Amusement and recreation services.....	79	—	—	—	—
Health services.....	80	260	.1	3,625	—
Legal services.....	81	—	—	—	—
Educational services.....	82	—	—	—	—
Social services.....	83	—	—	—	—
Museums, botanical, zoological gardens.....	84	—	—	429	.4
Membership organizations.....	86	—	—	—	—
Engineering and management services.....	87	267	.1	3,526	.1
Services, n.e.c. ....	89	—	—	—	—

<sup>1</sup> The 12-month period represents required use of respirators in the 12 months prior to the establishment's completion of the survey. The survey was mailed to establishments in August 2001.

<sup>2</sup> Excludes farms with fewer than 11 employees.

<sup>3</sup> Percent of establishments or employees is based on the BLS ES-202 estimates for private industry in the 12-month period prior to the establishment's completion of the survey.

<sup>4</sup> Percent of establishments or employees is based on data provided to BLS by the Mine Safety and Health Administration (MSHA), U.S. Department of Labor and by the Federal Railroad Administration, U.S. Department of Transportation.

<sup>5</sup> U.S. Office of Management and Budget, Standard Industrial Classification Manual, 1987 Edition (Washington, U.S. Government Printing Office, 1987).

NOTE: Because of rounding, data exclusion of nonclassifiable responses, and establishment reports of more than one type of respirator use, data do not sum to the totals. Dashes indicate data that do not meet publication guidelines. A measure of sampling variability for each estimate is available upon request.

n.e.c. = not elsewhere classified

SOURCE: Bureau of Labor Statistics, U.S. Department of Labor.

**Table 16. Number of establishments using air-supplied respirators during the 12 months<sup>1</sup> prior to the survey, by respirator type and industry**

Industry <sup>2</sup>	SIC code <sup>3</sup>	Air-supplied respirators				
		SCBA <sup>4</sup>	Airline, with half-mask	Airline, with full-facepiece	Airline, with integral hood/helmet	Combination SCBA <sup>4</sup> /airline
<b>Private industry<sup>2</sup></b> .....		21,917	10,302	19,828	18,747	10,001
<b>Agriculture, forestry, and fishing<sup>2</sup></b> .....		254	—	—	305	—
Agricultural production—crops <sup>2</sup> .....	01	68	—	—	—	—
Agricultural production—livestock <sup>2</sup> .....	02	—	—	—	—	—
Agricultural services.....	07	—	—	—	—	—
Forestry.....	08	—	—	—	—	—
Fishing, hunting, and trapping.....	09	—	—	—	—	—
<b>Mining</b> .....		376	47	131	218	287
Metal mining.....	10	54	—	31	—	—
Coal mining.....	12	34	—	—	—	—
Oil and gas extraction.....	13	230	—	—	—	238
Nonmetallic minerals, except fuels.....	14	58	29	64	50	29
<b>Construction</b> .....		3,695	2,184	6,244	4,902	3,591
General building contractors.....	15	672	934	704	1,000	—
Heavy construction, except building.....	16	357	246	746	352	143
Special trade contractors.....	17	2,666	1,004	4,794	3,550	2,821
<b>Manufacturing</b> .....		4,914	1,971	4,506	7,545	1,905
Food and kindred products.....	20	716	—	169	93	281
Tobacco products.....	21	18	—	—	—	—
Textile mill products.....	22	—	—	—	—	—
Apparel and other textile products.....	23	—	—	—	—	—
Lumber and wood products.....	24	101	—	27	48	—
Furniture and fixtures.....	25	24	—	24	40	—
Paper and allied products.....	26	159	—	111	57	99
Printing and publishing.....	27	—	—	—	—	—
Chemicals and allied products.....	28	1,660	244	985	600	672
Petroleum and coal products.....	29	148	15	103	36	140
Rubber and miscellaneous plastics products.....	30	111	468	558	527	266
Leather and leather products.....	31	—	—	—	—	—
Stone, clay, and glass products.....	32	115	—	60	457	—
Primary metal industries.....	33	189	31	93	396	93
Fabricated metal products.....	34	336	486	579	1,890	—
Industrial machinery and equipment.....	35	443	121	520	1,582	77
Electronic and other electric equipment.....	36	251	167	228	145	86
Transportation equipment.....	37	363	294	578	911	43
Instruments and related products.....	38	159	24	358	491	30
Miscellaneous manufacturing industries.....	39	121	94	—	272	—

See footnotes at end of table

**Table 16. Number of establishments using air-supplied respirators during the 12 months<sup>1</sup> prior to the survey, by respirator type and industry—Continued**

Industry <sup>2</sup>	SIC code <sup>3</sup>	Air-supplied respirators				
		SCBA <sup>4</sup>	Airline, with half-mask	Airline, with full-facepiece	Airline, with integral hood/helmet	Combination SCBA <sup>4</sup> /airline
<b>Transportation and public utilities</b> .....		2,767	522	1,693	664	2,104
Railroad transportation.....	40	25	—	52	70	—
Local and interurban passenger transit.....	41	80	—	—	—	—
Trucking and warehousing.....	42	578	—	409	172	—
Water transportation.....	44	—	—	—	—	—
Transportation by air.....	45	—	—	—	—	—
Pipelines, except natural gas.....	46	86	—	—	—	—
Transportation services.....	47	—	—	—	—	—
Communications.....	48	—	—	—	—	—
Electric, gas, and sanitary services.....	49	1,998	451	1,101	379	1,577
<b>Wholesale trade</b> .....		4,355	726	1,067	2,109	1,892
Wholesale trade—durable goods.....	50	1,451	647	953	1,613	—
Wholesale trade—nondurable goods.....	51	2,905	—	—	—	1,207
<b>Retail trade</b> .....		1,099	1,053	1,367	720	—
Building materials and garden supplies.....	52	—	—	—	—	—
General merchandise stores.....	53	—	—	—	—	—
Food stores.....	54	—	—	—	—	—
Automotive dealers and service stations.....	55	862	1,053	1,367	720	—
Apparel and accessory stores.....	56	—	—	—	—	—
Furniture and homefurnishings stores.....	57	—	—	—	—	—
Eating and drinking places.....	58	—	—	—	—	—
Miscellaneous retail.....	59	—	—	—	—	—
<b>Finance, insurance, and real estate</b> .....		—	—	—	—	—
Depository institutions.....	60	—	—	—	—	—
Nondepository institutions.....	61	—	—	—	—	—
Security and commodity brokers.....	62	—	—	—	—	—
Insurance carriers.....	63	—	—	—	—	—
Insurance agents, brokers, and service.....	64	—	—	—	—	—
Real estate.....	65	—	—	—	—	—
Holding and other investment offices.....	67	—	—	—	—	—

See footnotes at end of table

**Table 16. Number of establishments using air-supplied respirators during the 12 months<sup>1</sup> prior to the survey, by respirator type and industry—Continued**

Industry <sup>2</sup>	SIC code <sup>3</sup>	Air-supplied respirators				
		SCBA <sup>4</sup>	Airline, with half-mask	Airline, with full-facepiece	Airline, with integral hood/helmet	Combination SCBA <sup>4</sup> /airline
<b>Services.....</b>		4,457	3,800	4,718	2,284	203
Hotels and other lodging places.....	70	—	—	—	—	—
Personal services.....	72	—	—	—	—	—
Business services.....	73	—	—	—	—	—
Auto repair, services, and parking.....	75	2,949	3,788	4,527	2,084	—
Miscellaneous repair services.....	76	—	—	—	—	—
Motion pictures.....	78	—	—	—	—	—
Amusement and recreation services.....	79	—	—	—	—	—
Health services.....	80	223	—	46	147	30
Legal services.....	81	—	—	—	—	—
Educational services.....	82	—	—	—	—	—
Social services.....	83	—	—	—	—	—
Museums, botanical, zoological gardens.....	84	—	—	—	—	—
Membership organizations.....	86	—	—	—	—	—
Engineering and management services.....	87	267	—	—	—	—
Services, n.e.c. ....	89	—	—	—	—	—

<sup>1</sup> The 12-month period represents required use of respirators in the 12 months prior to the establishment's completion of the survey. The survey was mailed to establishments in August 2001.

<sup>2</sup> Excludes farms with fewer than 11 employees.

<sup>3</sup> U.S. Office of Management and Budget, Standard Industrial Classification Manual, 1987 Edition (Washington, U.S. Government Printing Office, 1987).

<sup>4</sup> Self-contained breathing apparatus.

NOTE: Because of rounding, data exclusion of nonclassifiable responses, and establishment reports of more than one type of respirator use, data do not sum to the totals. Dashes indicate data that do not meet publication guidelines. A measure of sampling variability for each estimate is available upon request.

n.e.c. = not elsewhere classified

SOURCE: Bureau of Labor Statistics, U.S. Department of Labor.

**Table 17. Respirator type as a percent of establishments using air-supplied respirators during the 12 months<sup>1</sup> prior to the survey, by industry**

Industry <sup>2</sup>	SIC code <sup>3</sup>	Air-supplied respirators				
		SCBA <sup>4</sup>	Airline, with half-mask	Airline, with full-facepiece	Airline, with integral hood/helmet	Combination SCBA <sup>4</sup> /airline
<b>Private industry<sup>2</sup></b> .....		100.0	100.0	100.0	100.0	100.0
<b>Agriculture, forestry, and fishing<sup>2</sup></b> .....		1.2	—	—	1.6	—
Agricultural production—crops <sup>2</sup> .....	01	.3	—	—	—	—
Agricultural production—livestock <sup>2</sup> .....	02	—	—	—	—	—
Agricultural services.....	07	—	—	—	—	—
Forestry.....	08	—	—	—	—	—
Fishing, hunting, and trapping.....	09	—	—	—	—	—
<b>Mining</b> .....		1.7	.5	.7	1.2	2.9
Metal mining.....	10	.2	—	.2	—	—
Coal mining.....	12	.2	—	—	—	—
Oil and gas extraction.....	13	1.0	—	—	—	2.4
Nonmetallic minerals, except fuels.....	14	.3	.3	.3	.3	.3
<b>Construction</b> .....		16.9	21.2	31.5	26.1	35.9
General building contractors.....	15	3.1	9.1	3.5	5.3	—
Heavy construction, except building.....	16	1.6	2.4	3.8	1.9	1.4
Special trade contractors.....	17	12.2	9.7	24.2	18.9	28.2
<b>Manufacturing</b> .....		22.4	19.1	22.7	40.2	19.0
Food and kindred products.....	20	3.3	—	.9	.5	2.8
Tobacco products.....	21	.1	—	—	—	—
Textile mill products.....	22	—	—	—	—	—
Apparel and other textile products.....	23	—	—	—	—	—
Lumber and wood products.....	24	.5	—	.1	.3	—
Furniture and fixtures.....	25	.1	—	.1	.2	—
Paper and allied products.....	26	.7	—	.6	.3	1.0
Printing and publishing.....	27	—	—	—	—	—
Chemicals and allied products.....	28	7.6	2.4	5.0	3.2	6.7
Petroleum and coal products.....	29	.7	.1	.5	.2	1.4
Rubber and miscellaneous plastics products.....	30	.5	4.5	2.8	2.8	2.7
Leather and leather products.....	31	—	—	—	—	—
Stone, clay, and glass products.....	32	.5	—	.3	2.4	—
Primary metal industries.....	33	.9	.3	.5	2.1	.9
Fabricated metal products.....	34	1.5	4.7	2.9	10.1	—
Industrial machinery and equipment.....	35	2.0	1.2	2.6	8.4	.8
Electronic and other electric equipment.....	36	1.1	1.6	1.1	.8	.9
Transportation equipment.....	37	1.7	2.9	2.9	4.9	.4
Instruments and related products.....	38	.7	.2	1.8	2.6	.3
Miscellaneous manufacturing industries.....	39	.6	.9	—	1.4	—

See footnotes at end of table

**Table 17. Respirator type as a percent of establishments using air-supplied respirators during the 12 months<sup>1</sup> prior to the survey, by industry—Continued**

Industry <sup>2</sup>	SIC code <sup>3</sup>	Air-supplied respirators				
		SCBA <sup>4</sup>	Airline, with half-mask	Airline, with full-facepiece	Airline, with integral hood/helmet	Combination SCBA <sup>4</sup> /airline
<b>Transportation and public utilities</b> .....		12.6	5.1	8.5	3.5	21.0
Railroad transportation.....	40	.1	—	.3	.4	—
Local and interurban passenger transit.....	41	.4	—	—	—	—
Trucking and warehousing.....	42	2.6	—	2.1	.9	—
Water transportation.....	44	—	—	—	—	—
Transportation by air.....	45	—	—	—	—	—
Pipelines, except natural gas.....	46	.4	—	—	—	—
Transportation services.....	47	—	—	—	—	—
Communications.....	48	—	—	—	—	—
Electric, gas, and sanitary services.....	49	9.1	4.4	5.6	2.0	15.8
<b>Wholesale trade</b> .....		19.9	7.0	5.4	11.3	18.9
Wholesale trade—durable goods.....	50	6.6	6.3	4.8	8.6	—
Wholesale trade—nondurable goods.....	51	13.3	—	—	—	12.1
<b>Retail trade</b> .....		5.0	10.2	6.9	3.8	—
Building materials and garden supplies.....	52	—	—	—	—	—
General merchandise stores.....	53	—	—	—	—	—
Food stores.....	54	—	—	—	—	—
Automotive dealers and service stations.....	55	3.9	10.2	6.9	3.8	—
Apparel and accessory stores.....	56	—	—	—	—	—
Furniture and homefurnishings stores.....	57	—	—	—	—	—
Eating and drinking places.....	58	—	—	—	—	—
Miscellaneous retail.....	59	—	—	—	—	—
<b>Finance, insurance, and real estate</b> .....		—	—	—	—	—
Depository institutions.....	60	—	—	—	—	—
Nondepository institutions.....	61	—	—	—	—	—
Security and commodity brokers.....	62	—	—	—	—	—
Insurance carriers.....	63	—	—	—	—	—
Insurance agents, brokers, and service.....	64	—	—	—	—	—
Real estate.....	65	—	—	—	—	—
Holding and other investment offices.....	67	—	—	—	—	—

See footnotes at end of table

**Table 17. Respirator type as a percent of establishments using air-supplied respirators during the 12 months<sup>1</sup> prior to the survey, by industry—Continued**

Industry <sup>2</sup>	SIC code <sup>3</sup>	Air-supplied respirators				
		SCBA <sup>4</sup>	Airline, with half-mask	Airline, with full-facepiece	Airline, with integral hood/helmet	Combination SCBA <sup>4</sup> /airline
<b>Services.....</b>		20.3	36.9	23.8	12.2	2.0
Hotels and other lodging places.....	70	—	—	—	—	—
Personal services.....	72	—	—	—	—	—
Business services.....	73	—	—	—	—	—
Auto repair, services, and parking.....	75	13.5	36.8	22.8	11.1	—
Miscellaneous repair services.....	76	—	—	—	—	—
Motion pictures.....	78	—	—	—	—	—
Amusement and recreation services.....	79	—	—	—	—	—
Health services.....	80	1.0	—	.2	.8	.3
Legal services.....	81	—	—	—	—	—
Educational services.....	82	—	—	—	—	—
Social services.....	83	—	—	—	—	—
Museums, botanical, zoological gardens.....	84	—	—	—	—	—
Membership organizations.....	86	—	—	—	—	—
Engineering and management services.....	87	1.2	—	—	—	—
Services, n.e.c. ....	89	—	—	—	—	—

<sup>1</sup> The 12-month period represents required use of respirators in the 12 months prior to the establishment's completion of the survey. The survey was mailed to establishments in August 2001.

<sup>2</sup> Excludes farms with fewer than 11 employees.

<sup>3</sup> U.S. Office of Management and Budget, Standard Industrial Classification Manual, 1987 Edition (Washington, U.S. Government Printing Office, 1987).

<sup>4</sup> Self-contained breathing apparatus.

NOTE: Because of rounding, data exclusion of nonclassifiable responses, and establishment reports of more than one type of respirator use, data do not sum to the totals. Dashes indicate data that do not meet publication guidelines. A measure of sampling variability for each estimate is available upon request.

n.e.c. = not elsewhere classified

SOURCE: Bureau of Labor Statistics, U.S. Department of Labor.

**Table 18. Number of employees using air-supplied respirators during the 12 months<sup>1</sup> prior to the survey, by respirator type and industry**

Industry <sup>2</sup>	SIC code <sup>3</sup>	Air-supplied respirators				
		SCBA <sup>4</sup>	Airline, with half-mask	Airline, with full-facepiece	Airline, with integral hood/helmet	Combination SCBA <sup>4</sup> /airline
<b>Private industry<sup>2</sup></b> .....		195,482	47,715	162,150	103,025	103,507
<b>Agriculture, forestry, and fishing<sup>2</sup></b> .....		929	—	—	681	—
Agricultural production—crops <sup>2</sup> .....	01	—	—	—	—	—
Agricultural production—livestock <sup>2</sup> .....	02	—	—	497	—	—
Agricultural services.....	07	—	—	—	—	—
Forestry.....	08	—	—	—	—	—
Fishing, hunting, and trapping.....	09	—	—	—	—	—
<b>Mining</b> .....		6,124	—	974	734	4,287
Metal mining.....	10	1,030	—	337	94	94
Coal mining.....	12	—	—	—	178	2,143
Oil and gas extraction.....	13	2,212	178	—	289	1,855
Nonmetallic minerals, except fuels.....	14	348	15	400	173	195
<b>Construction</b> .....		23,508	12,898	62,589	22,828	42,376
General building contractors.....	15	4,728	—	2,768	1,671	2,689
Heavy construction, except building.....	16	1,944	1,372	3,721	1,663	5,153
Special trade contractors.....	17	16,836	10,138	56,100	19,493	—
<b>Manufacturing</b> .....		82,385	11,254	49,271	49,337	34,055
Food and kindred products.....	20	7,049	42	1,064	516	1,632
Tobacco products.....	21	372	—	—	—	—
Textile mill products.....	22	—	—	158	—	—
Apparel and other textile products.....	23	—	—	—	—	—
Lumber and wood products.....	24	1,042	—	—	315	781
Furniture and fixtures.....	25	157	45	122	286	—
Paper and allied products.....	26	6,465	—	2,558	204	2,820
Printing and publishing.....	27	—	—	—	—	—
Chemicals and allied products.....	28	28,792	3,365	18,912	8,619	11,551
Petroleum and coal products.....	29	12,439	204	5,747	224	8,562
Rubber and miscellaneous plastics products.....	30	1,266	1,115	1,658	2,952	1,152
Leather and leather products.....	31	—	—	—	—	—
Stone, clay, and glass products.....	32	682	—	207	1,388	—
Primary metal industries.....	33	6,032	690	2,591	4,028	2,492
Fabricated metal products.....	34	2,173	1,121	2,040	8,504	517
Industrial machinery and equipment.....	35	2,460	442	1,567	6,538	850
Electronic and other electric equipment.....	36	7,856	308	4,135	958	2,972
Transportation equipment.....	37	3,763	3,555	5,577	10,918	439
Instruments and related products.....	38	1,332	109	1,843	2,733	261
Miscellaneous manufacturing industries.....	39	504	252	—	1,154	—

See footnotes at end of table

**Table 18. Number of employees using air-supplied respirators during the 12 months<sup>1</sup> prior to the survey, by respirator type and industry—Continued**

Industry <sup>2</sup>	SIC code <sup>3</sup>	Air-supplied respirators				
		SCBA <sup>4</sup>	Airline, with half-mask	Airline, with full-facepiece	Airline, with integral hood/helmet	Combination SCBA <sup>4</sup> /airline
<b>Transportation and public utilities</b> .....		19,027	2,359	21,548	3,653	15,599
Railroad transportation.....	40	—	5	133	298	—
Local and interurban passenger transit.....	41	—	—	121	—	—
Trucking and warehousing.....	42	2,292	1,317	3,143	1,005	1,257
Water transportation.....	44	—	—	—	—	—
Transportation by air.....	45	—	—	6,396	—	—
Pipelines, except natural gas.....	46	203	—	26	—	—
Transportation services.....	47	—	—	—	—	—
Communications.....	48	—	—	—	—	—
Electric, gas, and sanitary services.....	49	14,201	1,036	11,729	2,176	14,115
<b>Wholesale trade</b> .....		10,626	1,164	3,670	—	3,949
Wholesale trade—durable goods.....	50	5,758	908	3,032	1,983	1,327
Wholesale trade—nondurable goods.....	51	4,868	256	638	—	2,622
<b>Retail trade</b> .....		6,851	8,001	12,111	2,406	—
Building materials and garden supplies.....	52	—	—	—	—	—
General merchandise stores.....	53	—	—	—	—	—
Food stores.....	54	836	—	—	—	—
Automotive dealers and service stations.....	55	5,873	8,001	12,111	2,406	—
Apparel and accessory stores.....	56	—	—	—	—	—
Furniture and homefurnishings stores.....	57	—	—	—	—	—
Eating and drinking places.....	58	—	—	—	—	—
Miscellaneous retail.....	59	—	—	—	—	—
<b>Finance, insurance, and real estate</b> .....		—	—	—	—	—
Depository institutions.....	60	—	—	—	—	—
Nondepository institutions.....	61	—	—	—	—	—
Security and commodity brokers.....	62	—	—	—	—	—
Insurance carriers.....	63	—	—	—	—	—
Insurance agents, brokers, and service.....	64	—	—	—	—	—
Real estate.....	65	—	—	—	—	—
Holding and other investment offices.....	67	—	—	—	—	—

See footnotes at end of table

**Table 18. Number of employees using air-supplied respirators during the 12 months<sup>1</sup> prior to the survey, by respirator type and industry—Continued**

Industry <sup>2</sup>	SIC code <sup>3</sup>	Air-supplied respirators				
		SCBA <sup>4</sup>	Airline, with half-mask	Airline, with full-facepiece	Airline, with integral hood/helmet	Combination SCBA <sup>4</sup> /airline
<b>Services</b> .....		46,033	11,846	11,469	4,993	3,234
Hotels and other lodging places.....	70	—	—	—	—	—
Personal services.....	72	—	—	—	—	—
Business services.....	73	32,664	—	—	—	—
Auto repair, services, and parking.....	75	6,133	11,434	9,698	4,020	—
Miscellaneous repair services.....	76	—	412	412	—	—
Motion pictures.....	78	—	—	—	—	—
Amusement and recreation services.....	79	—	—	—	—	—
Health services.....	80	3,281	—	390	771	—
Legal services.....	81	—	—	—	—	—
Educational services.....	82	—	—	—	—	—
Social services.....	83	—	—	—	—	—
Museums, botanical, zoological gardens.....	84	429	—	—	—	—
Membership organizations.....	86	—	—	—	—	—
Engineering and management services.....	87	3,526	—	969	202	969
Services, n.e.c. ....	89	—	—	—	—	—

<sup>1</sup> The 12-month period represents required use of respirators in the 12 months prior to the establishment's completion of the survey. The survey was mailed to establishments in August 2001.

<sup>2</sup> Excludes farms with fewer than 11 employees.

<sup>3</sup> U.S. Office of Management and Budget, Standard Industrial Classification Manual, 1987 Edition (Washington, U.S. Government Printing Office, 1987).

<sup>4</sup> Self-contained breathing apparatus.

NOTE: Because of rounding, data exclusion of nonclassifiable responses,

and establishment reports of more than one type of respirator use, data do not sum to the totals. Dashes indicate data that do not meet publication guidelines. A measure of sampling variability for each estimate is available upon request.  
n.e.c. = not elsewhere classified

SOURCE: Bureau of Labor Statistics, U.S. Department of Labor.

**Table 19. Respirator type as a percent of employees using air-supplied respirators during the 12 months<sup>1</sup> prior to the survey, by industry**

Industry <sup>2</sup>	SIC code <sup>3</sup>	Air-supplied respirators				
		SCBA <sup>4</sup>	Airline, with half-mask	Airline, with full-facepiece	Airline, with integral hood/helmet	Combination SCBA <sup>4</sup> /airline
<b>Private industry<sup>2</sup></b> .....		100.0	100.0	100.0	100.0	100.0
<b>Agriculture, forestry, and fishing<sup>2</sup></b> .....		.5	—	—	.7	—
Agricultural production—crops <sup>2</sup> .....	01	—	—	—	—	—
Agricultural production—livestock <sup>2</sup> .....	02	—	—	.3	—	—
Agricultural services.....	07	—	—	—	—	—
Forestry.....	08	—	—	—	—	—
Fishing, hunting, and trapping.....	09	—	—	—	—	—
<b>Mining</b> .....		3.1	—	.6	.7	4.1
Metal mining.....	10	.5	—	.2	.1	.1
Coal mining.....	12	—	—	—	.2	2.1
Oil and gas extraction.....	13	1.1	.4	—	.3	1.8
Nonmetallic minerals, except fuels.....	14	.2	.0	.2	.2	.2
<b>Construction</b> .....		12.0	27.0	38.6	22.2	40.9
General building contractors.....	15	2.4	—	1.7	1.6	2.6
Heavy construction, except building.....	16	1.0	2.9	2.3	1.6	5.0
Special trade contractors.....	17	8.6	21.2	34.6	18.9	—
<b>Manufacturing</b> .....		42.1	23.6	30.4	47.9	32.9
Food and kindred products.....	20	3.6	.1	.7	.5	1.6
Tobacco products.....	21	.2	—	—	—	—
Textile mill products.....	22	—	—	.1	—	—
Apparel and other textile products.....	23	—	—	—	—	—
Lumber and wood products.....	24	.5	—	—	.3	.8
Furniture and fixtures.....	25	.1	.1	.1	.3	—
Paper and allied products.....	26	3.3	—	1.6	.2	2.7
Printing and publishing.....	27	—	—	—	—	—
Chemicals and allied products.....	28	14.7	7.1	11.7	8.4	11.2
Petroleum and coal products.....	29	6.4	.4	3.5	.2	8.3
Rubber and miscellaneous plastics products.....	30	.6	2.3	1.0	2.9	1.1
Leather and leather products.....	31	—	—	—	—	—
Stone, clay, and glass products.....	32	.3	—	.1	1.3	—
Primary metal industries.....	33	3.1	1.4	1.6	3.9	2.4
Fabricated metal products.....	34	1.1	2.3	1.3	8.3	.5
Industrial machinery and equipment.....	35	1.3	.9	1.0	6.3	.8
Electronic and other electric equipment.....	36	4.0	.6	2.6	.9	2.9
Transportation equipment.....	37	1.9	7.4	3.4	10.6	.4
Instruments and related products.....	38	.7	.2	1.1	2.7	.3
Miscellaneous manufacturing industries.....	39	.3	.5	—	1.1	—

See footnotes at end of table

**Table 19. Respirator type as a percent of employees using air-supplied respirators during the 12 months<sup>1</sup> prior to the survey, by industry—Continued**

Industry <sup>2</sup>	SIC code <sup>3</sup>	Air-supplied respirators				
		SCBA <sup>4</sup>	Airline, with half-mask	Airline, with full-facepiece	Airline, with integral hood/helmet	Combination SCBA <sup>4</sup> /airline
<b>Transportation and public utilities</b> .....		9.7	4.9	13.3	3.5	15.1
Railroad transportation.....	40	—	—	.1	.3	—
Local and interurban passenger transit.....	41	—	—	.1	—	—
Trucking and warehousing.....	42	1.2	2.8	1.9	1.0	1.2
Water transportation.....	44	—	—	—	—	—
Transportation by air.....	45	—	—	3.9	—	—
Pipelines, except natural gas.....	46	.1	—	—	—	—
Transportation services.....	47	—	—	—	—	—
Communications.....	48	—	—	—	—	—
Electric, gas, and sanitary services.....	49	7.3	2.2	7.2	2.1	13.6
<b>Wholesale trade</b> .....		5.4	2.4	2.3	—	3.8
Wholesale trade—durable goods.....	50	2.9	1.9	1.9	1.9	1.3
Wholesale trade—nondurable goods.....	51	2.5	.5	.4	—	2.5
<b>Retail trade</b> .....		3.5	16.8	7.5	2.3	—
Building materials and garden supplies.....	52	—	—	—	—	—
General merchandise stores.....	53	—	—	—	—	—
Food stores.....	54	.4	—	—	—	—
Automotive dealers and service stations.....	55	3.0	16.8	7.5	2.3	—
Apparel and accessory stores.....	56	—	—	—	—	—
Furniture and homefurnishings stores.....	57	—	—	—	—	—
Eating and drinking places.....	58	—	—	—	—	—
Miscellaneous retail.....	59	—	—	—	—	—
<b>Finance, insurance, and real estate</b> .....		—	—	—	—	—
Depository institutions.....	60	—	—	—	—	—
Nondepository institutions.....	61	—	—	—	—	—
Security and commodity brokers.....	62	—	—	—	—	—
Insurance carriers.....	63	—	—	—	—	—
Insurance agents, brokers, and service.....	64	—	—	—	—	—
Real estate.....	65	—	—	—	—	—
Holding and other investment offices.....	67	—	—	—	—	—

See footnotes at end of table

**Table 19. Respirator type as a percent of employees using air-supplied respirators during the 12 months<sup>1</sup> prior to the survey, by industry—Continued**

Industry <sup>2</sup>	SIC code <sup>3</sup>	Air-supplied respirators				
		SCBA <sup>4</sup>	Airline, with half-mask	Airline, with full-facepiece	Airline, with integral hood/helmet	Combination SCBA <sup>4</sup> /airline
<b>Services</b> .....		23.5	24.8	7.1	4.8	3.1
Hotels and other lodging places.....	70	—	—	—	—	—
Personal services.....	72	—	—	—	—	—
Business services.....	73	16.7	—	—	—	—
Auto repair, services, and parking.....	75	3.1	24.0	6.0	3.9	—
Miscellaneous repair services.....	76	—	.9	.3	—	—
Motion pictures.....	78	—	—	—	—	—
Amusement and recreation services.....	79	—	—	—	—	—
Health services.....	80	1.7	—	.2	.7	—
Legal services.....	81	—	—	—	—	—
Educational services.....	82	—	—	—	—	—
Social services.....	83	—	—	—	—	—
Museums, botanical, zoological gardens.....	84	.2	—	—	—	—
Membership organizations.....	86	—	—	—	—	—
Engineering and management services.....	87	1.8	—	.6	.2	.9
Services, n.e.c. ....	89	—	—	—	—	—

<sup>1</sup> The 12-month period represents required use of respirators in the 12 months prior to the establishment's completion of the survey. The survey was mailed to establishments in August 2001.

<sup>2</sup> Excludes farms with fewer than 11 employees.

<sup>3</sup> U.S. Office of Management and Budget, Standard Industrial Classification Manual, 1987 Edition (Washington, U.S. Government Printing Office, 1987).

<sup>4</sup> Self-contained breathing apparatus.

NOTE: Because of rounding, data exclusion of nonclassifiable responses, and establishment reports of more than one type of respirator use, data do not sum to the totals. Dashes indicate data that do not meet publication guidelines. A measure of sampling variability for each estimate is available upon request.

n.e.c. = not elsewhere classified

SOURCE: Bureau of Labor Statistics, U.S. Department of Labor.

**Table 20. Number and percent of establishments using both air-supplied and air-purifying respirators during the 12 months<sup>1</sup> prior to the survey, by industry**

Industry <sup>2,3,4</sup>	SIC code <sup>5</sup>	Establishments	
		Number	Percent
<b>Private industry<sup>2,3,4</sup></b> .....		41,290	0.7
<b>Agriculture, forestry, and fishing<sup>2</sup></b> .....		460	.3
Agricultural production—crops <sup>2</sup> .....	01	207	1.5
Agricultural production—livestock <sup>2</sup> .....	02	—	—
Agricultural services.....	07	—	—
Forestry.....	08	—	—
Fishing, hunting, and trapping.....	09	—	—
<b>Mining<sup>4</sup></b> .....		561	1.9
Metal mining <sup>4</sup> .....	10	54	16.7
Coal mining <sup>4</sup> .....	12	—	—
Oil and gas extraction.....	13	379	2.3
Nonmetallic minerals, except fuels <sup>4</sup> .....	14	107	1.0
<b>Construction</b> .....		9,880	1.5
General building contractors.....	15	1,083	.5
Heavy construction, except building.....	16	794	2.1
Special trade contractors.....	17	8,004	1.9
<b>Manufacturing</b> .....		10,979	2.9
Food and kindred products.....	20	626	2.8
Tobacco products.....	21	18	10.8
Textile mill products.....	22	—	—
Apparel and other textile products.....	23	—	—
Lumber and wood products.....	24	96	.3
Furniture and fixtures.....	25	44	.4
Paper and allied products.....	26	180	2.5
Printing and publishing.....	27	—	—
Chemicals and allied products.....	28	1,825	13.1
Petroleum and coal products.....	29	143	5.9
Rubber and miscellaneous plastics products.....	30	794	5.0
Leather and leather products.....	31	—	—
Stone, clay, and glass products.....	32	479	2.9
Primary metal industries.....	33	565	7.8
Fabricated metal products.....	34	1,901	5.2
Industrial machinery and equipment.....	35	1,754	3.0
Electronic and other electric equipment.....	36	485	2.6
Transportation equipment.....	37	1,196	8.4
Instruments and related products.....	38	554	4.4
Miscellaneous manufacturing industries.....	39	286	1.7

See footnotes at end of table

**Table 20. Number and percent of establishments using both air-supplied and air-purifying respirators during the 12 months<sup>1</sup> prior to the survey, by industry—Continued**

Industry <sup>2,3,4</sup>	SIC code <sup>5</sup>	Establishments	
		Number	Percent
<b>Transportation and public utilities<sup>4</sup></b> .....		3,154	1.1
Railroad transportation <sup>4</sup> .....	40	78	8.7
Local and interurban passenger transit.....	41	68	.4
Trucking and warehousing.....	42	704	.6
Water transportation.....	44	—	—
Transportation by air.....	45	—	—
Pipelines, except natural gas.....	46	91	10.0
Transportation services.....	47	—	—
Communications.....	48	—	—
Electric, gas, and sanitary services.....	49	2,175	9.4
<b>Wholesale trade</b> .....		6,721	1.1
Wholesale trade—durable goods.....	50	3,227	.8
Wholesale trade—nondurable goods.....	51	3,493	1.6
<b>Retail trade</b> .....		2,374	.2
Building materials and garden supplies.....	52	—	—
General merchandise stores.....	53	—	—
Food stores.....	54	—	—
Automotive dealers and service stations.....	55	2,267	1.4
Apparel and accessory stores.....	56	—	—
Furniture and homefurnishings stores.....	57	—	—
Eating and drinking places.....	58	—	—
Miscellaneous retail.....	59	—	—
<b>Finance, insurance, and real estate</b> .....		—	—
Depository institutions.....	60	—	—
Nondepository institutions.....	61	—	—
Security and commodity brokers.....	62	—	—
Insurance carriers.....	63	—	—
Insurance agents, brokers, and service.....	64	—	—
Real estate.....	65	—	—
Holding and other investment offices.....	67	—	—

See footnotes at end of table

**Table 20. Number and percent of establishments using both air-supplied and air-purifying respirators during the 12 months<sup>1</sup> prior to the survey, by industry—Continued**

Industry <sup>2,3,4</sup>	SIC code <sup>5</sup>	Establishments	
		Number	Percent
<b>Services</b> .....		7,160	0.3
Hotels and other lodging places.....	70	—	—
Personal services.....	72	—	—
Business services.....	73	—	—
Auto repair, services, and parking.....	75	6,608	3.7
Miscellaneous repair services.....	76	—	—
Motion pictures.....	78	—	—
Amusement and recreation services.....	79	—	—
Health services.....	80	253	.1
Legal services.....	81	—	—
Educational services.....	82	—	—
Social services.....	83	—	—
Museums, botanical, zoological gardens.....	84	—	—
Membership organizations.....	86	—	—
Engineering and management services.....	87	267	.1
Services, n.e.c. ....	89	—	—

<sup>1</sup> The 12-month period represents required use of respirators in the 12 months prior to the establishment's completion of the survey. The survey was mailed to establishments in August 2001.

<sup>2</sup> Excludes farms with fewer than 11 employees.

<sup>3</sup> Percent of establishments or employees is based on the BLS ES 202 estimates for private industry in the 12-month period prior to the establishment's completion of the survey.

<sup>4</sup> Percent of establishments or employees is based on data provided to BLS by the Mine Safety and Health Administration (MSHA), U.S. Department of Labor and by the Federal Railroad Administration, U.S. Department of Transportation.

<sup>5</sup> U.S. Office of Management and Budget, Standard Industrial Classification Manual, 1987 Edition (Washington, U.S. Government Printing Office, 1987).

NOTE: Because of rounding, data exclusion of nonclassifiable responses, and establishment reports of more than one type of respirator use, data do not sum to the totals. Dashes indicate data that do not meet publication guidelines. A measure of sampling variability for each estimate is available upon request.  
n.e.c. = not elsewhere classified

SOURCE: Bureau of Labor Statistics, U.S. Department of Labor.

**Table 21. Number and percent of establishments using respirators during the 12 months<sup>1</sup> prior to the survey, by selected type of use and industry division**

Type of use	Private industry <sup>2</sup>	Goods producing				Service producing				
		Agriculture, forestry, and fishing <sup>2</sup>	Mining	Construction	Manufacturing	Transportation and public utilities	Wholesale trade	Retail trade	Finance, insurance, and real estate	Services
<b>Number of establishments</b>										
Total use.....	281,776	13,186	3,493	64,172	48,556	10,351	31,238	16,948	4,202	89,629
Required non-emergency <sup>3</sup> .....	275,080	13,163	3,470	61,358	47,594	9,768	31,050	16,652	4,202	87,823
Required emergency <sup>4</sup> .....	28,049	841	420	7,793	4,087	2,437	4,387	423	—	7,640
Both required non-emergency and emergency <sup>5</sup> .....	21,353	818	397	4,979	3,125	1,854	4,200	127	—	5,833
<b>Percent of establishments</b>										
Total use.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Required non-emergency <sup>3</sup> .....	97.6	99.8	99.3	95.6	98.0	94.4	99.4	98.3	100.0	98.0
Required emergency <sup>4</sup> .....	10.0	6.4	12.0	12.1	8.4	23.5	14.0	2.5	—	8.5
Both required non-emergency and emergency <sup>5</sup> .....	7.6	6.2	11.4	7.8	6.4	17.9	13.4	.7	—	6.5

<sup>1</sup> The 12-month period represents required use of respirators in the 12 months prior to the establishment's completion of the survey. The survey was mailed to establishments in August 2001.

<sup>2</sup> Excludes farms with fewer than 11 employees.

<sup>3</sup> Respirator use for exposure to known substances that is required by regulation or by the employer.

<sup>4</sup> Respirator use as a result of an unplanned situation, including escape from or entry into a potentially hazardous environment.

<sup>5</sup> Includes establishments that use respirators for both required non-emergency

and emergency use.

NOTE: Because of rounding, data exclusion of nonclassifiable responses, and establishment reports of more than one type of respirator use, data do not sum to the totals. Dashes indicate data that do not meet publication guidelines. A measure of sampling variability for each estimate is available upon request.

SOURCE: Bureau of Labor Statistics, U.S. Department of Labor.

**Table 22. Number and percent of establishments and employees using respirators during the 12 months<sup>1</sup> prior to the survey, by respirator type and industry division**

Respirator type	Private industry <sup>2</sup>	Goods producing				Service producing				
		Agriculture, forestry, and fishing <sup>2</sup>	Mining	Construction	Manufacturing	Transportation and public utilities	Wholesale trade	Retail trade	Finance, insurance, and real estate	Services
<b>Number of establishments</b>										
Total use.....	281,776	13,186	3,493	64,172	48,556	10,351	31,238	16,948	4,202	89,629
Total air-purifying respirators.....	267,467	13,167	3,453	60,012	46,232	9,718	27,966	16,107	4,202	86,610
Non-powered.....	264,366	12,715	3,453	58,730	45,536	9,646	27,918	15,938	4,202	86,227
Powered.....	42,121	989	422	9,341	8,980	1,522	5,665	3,749	—	11,434
Total air-supplied respirators.....	47,290	479	592	10,546	12,702	3,786	6,816	2,879	—	9,490
SCBA <sup>3</sup> .....	21,917	254	376	3,695	4,914	2,767	4,355	1,099	—	4,457
Airline.....	37,132	409	333	9,672	10,538	2,075	3,147	2,642	—	8,316
Combination SCBA <sup>3</sup> /airline.....	10,001	—	287	3,591	1,905	2,104	1,892	—	—	203
Both air-purifying and air-supplied respirators.....	41,290	460	561	9,880	10,979	3,154	6,721	2,374	—	7,160
<b>Percent of establishments</b>										
Total use.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Total air-purifying respirators.....	94.9	99.9	98.8	93.5	95.2	93.9	89.5	95.0	100.0	96.6
Non-powered.....	93.8	96.4	98.8	91.5	93.8	93.2	89.4	94.0	100.0	96.2
Powered.....	14.9	7.5	12.1	14.6	18.5	14.7	18.1	22.1	—	12.8
Total air-supplied respirators.....	16.8	3.6	16.9	16.4	26.2	36.6	21.8	17.0	—	10.6
SCBA <sup>3</sup> .....	7.8	1.9	10.8	5.8	10.1	26.7	13.9	6.5	—	5.0
Airline.....	13.2	3.1	9.5	15.1	21.7	20.0	10.1	15.6	—	9.3
Combination SCBA <sup>3</sup> /airline.....	3.5	—	8.2	5.6	3.9	20.3	6.1	—	—	.2
Both air-purifying and air-supplied respirators.....	14.7	3.5	16.1	15.4	22.6	30.5	21.5	14.0	—	8.0

See footnotes at end of table

**Table 22. Number and percent of establishments and employees using respirators during the 12 months<sup>1</sup> prior to the survey, by respirator type and industry division—Continued**

Respirator type	Private industry <sup>2</sup>	Goods producing				Service producing				
		Agriculture, forestry, and fishing <sup>2</sup>	Mining	Construction	Manufacturing	Transportation and public utilities	Wholesale trade	Retail trade	Finance, insurance, and real estate	Services
<b>Number of employees</b>										
Total use.....	3,303,414	101,778	53,984	590,987	882,475	189,867	182,922	118,200	22,911	1,160,289
Total air-purifying respirators.....	3,114,464	101,654	47,995	566,909	803,157	170,068	164,529	115,882	22,911	1,121,358
Non-powered.....	3,067,325	99,921	47,894	562,342	782,812	167,994	160,926	113,792	22,867	1,108,776
Powered.....	287,333	3,787	7,287	56,494	66,547	31,734	26,322	15,909	43	79,210
Total air-supplied respirators.....	415,964	1,544	8,234	96,637	158,657	42,125	29,848	16,952	—	61,967
SCBA <sup>3</sup> .....	195,482	929	6,124	23,508	82,385	19,027	10,626	6,851	—	46,033
Combination SCBA <sup>3</sup> /airline.....	103,507	—	4,287	42,376	34,055	15,599	3,949	—	—	3,234
<b>Percent of employees</b>										
Total use.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Total air-purifying respirators.....	94.3	99.9	88.9	95.9	91.0	89.6	89.9	98.0	100.0	96.6
Non-powered.....	92.9	98.2	88.7	95.2	88.7	88.5	88.0	96.3	99.8	95.6
Powered.....	8.7	3.7	13.5	9.6	7.5	16.7	14.4	13.5	.2	6.8
Total air-supplied respirators.....	12.6	1.5	15.3	16.4	18.0	22.2	16.3	14.3	—	5.3
SCBA <sup>3</sup> .....	5.9	.9	11.3	4.0	9.3	10.0	5.8	5.8	—	4.0
Combination SCBA <sup>3</sup> /airline.....	3.1	—	7.9	7.2	3.9	8.2	2.2	—	—	.3

<sup>1</sup> The 12-month period represents required use of respirators in the 12 months prior to the establishment's completion of the survey. The survey was mailed to establishments in August 2001.

<sup>2</sup> Excludes farms with fewer than 11 employees.

<sup>3</sup> Self-contained breathing apparatus.

NOTE: Because of rounding, data exclusion of nonclassifiable responses,

and establishment reports of more than one type of respirator use, data do not sum to the totals. Dashes indicate data that do not meet publication guidelines. A measure of sampling variability for each estimate is available upon request.

SOURCE: Bureau of Labor Statistics, U.S. Department of Labor.

**Table 23. Number and percent of establishments using non-powered air-purifying respirators to protect against a hazard<sup>1</sup> during the 12 months<sup>2</sup> prior to the survey, by selected type of hazard<sup>1</sup> and industry division**

Type of hazard <sup>1</sup>	Private industry <sup>3</sup>	Goods producing				Service producing				
		Agriculture, forestry, and fishing <sup>3</sup>	Mining	Construction	Manufacturing	Transportation and public utilities	Wholesale trade	Retail trade	Finance, insurance, and real estate	Services
<b>Number of establishments</b>										
Total use.....	281,776	13,186	3,493	64,172	48,556	10,351	31,238	16,948	4,202	89,629
Total air-purifying respirators.....	267,467	13,167	3,453	60,012	46,232	9,718	27,966	16,107	4,202	86,610
Total non-powered air-purifying respirators.....	264,366	12,715	3,453	58,730	45,536	9,646	27,918	15,938	4,202	86,227
Dust mask (disposable).....	200,995	10,647	2,446	49,924	30,784	5,446	17,599	11,843	3,688	68,617
Particulate.....	181,021	9,934	2,347	45,518	28,186	5,377	15,938	11,051	1,152	61,518
Gas/vapor.....	35,699	541	68	7,172	3,050	388	1,543	1,199	—	19,279
Combination particulate and gas/vapor.....	24,964	1,152	194	5,682	4,749	160	2,509	959	—	9,482
Half-mask.....	136,817	3,348	2,052	26,008	28,345	4,760	15,096	10,556	1,145	45,508
Particulate.....	66,232	908	934	15,111	12,522	3,326	6,710	5,446	488	20,786
Gas/vapor.....	49,126	451	442	10,274	11,543	1,687	5,546	2,710	—	16,473
Combination particulate and gas/vapor.....	60,974	2,126	1,120	13,060	11,994	2,007	7,438	4,973	930	17,326
Full-facepiece.....	61,463	1,396	727	12,834	15,091	2,556	8,637	4,289	182	15,753
Particulate.....	24,921	620	165	7,596	6,148	1,157	1,418	886	161	6,769
Gas/vapor.....	23,996	263	267	5,233	6,688	663	5,866	834	—	4,182
Combination particulate and gas/vapor.....	28,806	546	332	7,670	5,500	1,284	2,589	3,259	—	7,598
Mouth-piece.....	8,357	1,810	49	2,106	1,508	58	—	926	—	1,211
Particulate.....	5,022	1,117	39	1,640	460	—	—	505	—	1,020
Gas/vapor.....	4,239	—	—	1,884	844	—	—	457	—	395
Combination particulate and gas/vapor.....	2,379	728	—	426	332	—	—	367	—	441

See footnotes at end of table

**Table 23. Number and percent of establishments using non-powered air-purifying respirators to protect against a hazard<sup>1</sup> during the 12 months<sup>2</sup> prior to the survey, by selected type of hazard<sup>1</sup> and industry division—Continued**

Type of hazard <sup>1</sup>	Private industry <sup>3</sup>	Goods producing				Service producing				
		Agriculture, forestry, and fishing <sup>3</sup>	Mining	Construction	Manufacturing	Transportation and public utilities	Wholesale trade	Retail trade	Finance, insurance, and real estate	Services
<b>Percent of establishments</b>										
Total non-powered air-purifying respirators.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Dust mask (disposable).....	76.0	83.7	70.8	85.0	67.6	56.5	63.0	74.3	87.8	79.6
Particulate.....	68.5	78.1	68.0	77.5	61.9	55.7	57.1	69.3	27.4	71.3
Gas/vapor.....	13.5	4.3	2.0	12.2	6.7	4.0	5.5	7.5	—	22.4
Combination particulate and gas/vapor.....	9.4	9.1	5.6	9.7	10.4	1.7	9.0	6.0	—	11.0
Half-mask.....	51.8	26.3	59.4	44.3	62.2	49.3	54.1	66.2	27.2	52.8
Particulate.....	25.1	7.1	27.1	25.7	27.5	34.5	24.0	34.2	11.6	24.1
Gas/vapor.....	18.6	3.5	12.8	17.5	25.3	17.5	19.9	17.0	—	19.1
Combination particulate and gas/vapor.....	23.1	16.7	32.4	22.2	26.3	20.8	26.6	31.2	22.1	20.1
Full-facepiece.....	23.2	11.0	21.1	21.9	33.1	26.5	30.9	26.9	4.3	18.3
Particulate.....	9.4	4.9	4.8	12.9	13.5	12.0	5.1	5.6	3.8	7.9
Gas/vapor.....	9.1	2.1	7.7	8.9	14.7	6.9	21.0	5.2	—	4.9
Combination particulate and gas/vapor.....	10.9	4.3	9.6	13.1	12.1	13.3	9.3	20.4	—	8.8
Mouth-piece.....	3.2	14.2	1.4	3.6	3.3	.6	—	5.8	—	1.4
Particulate.....	1.9	8.8	1.1	2.8	1.0	—	—	3.2	—	1.2
Gas/vapor.....	1.6	—	—	3.2	1.9	—	—	2.9	—	.5
Combination particulate and gas/vapor.....	.9	5.7	—	.7	.7	—	—	2.3	—	.5

<sup>1</sup> Respiratory hazard such as particulate or gas/vapor for which a respirator is worn for protection.

<sup>2</sup> The 12-month period represents required use of respirators in the 12 months prior to the establishment's completion of the survey. The survey was mailed to establishments in August 2001.

<sup>3</sup> Excludes farms with fewer than 11 employees.

NOTE: Because of rounding, data exclusion of nonclassifiable responses, and establishment reports of more than one type of respirator use, data do not sum to the totals. Dashes indicate data that do not meet publication guidelines. A measure of sampling variability for each estimate is available upon request.

SOURCE: Bureau of Labor Statistics, U.S. Department of Labor.

**Table 24. Number and percent of employees using non-powered air-purifying respirators to protect against a hazard<sup>1</sup> during the 12 months<sup>2</sup> prior to the survey, by selected type of hazard<sup>1</sup> and industry division**

Type of hazard <sup>1</sup>	Private industry <sup>3</sup>	Goods producing				Service producing				
		Agriculture, forestry, and fishing <sup>3</sup>	Mining	Construction	Manufacturing	Transportation and public utilities	Wholesale trade	Retail trade	Finance, insurance, and real estate	Services
<b>Number of employees</b>										
Total use.....	3,303,414	101,778	53,984	590,987	882,475	189,867	182,922	118,200	22,911	1,160,289
Total air-purifying respirators.....	3,114,464	101,654	47,995	566,909	803,157	170,068	164,529	115,882	22,911	1,121,358
Total non-powered air-purifying respirators.....	3,067,325	99,921	47,894	562,342	782,812	167,994	160,926	113,792	22,867	1,108,776
Dust mask (disposable):										
Particulate.....	1,881,408	80,690	24,321	304,648	378,072	52,080	100,651	88,256	7,669	845,022
Gas/vapor.....	192,948	2,276	333	26,581	20,306	4,705	—	5,565	7,126	94,719
Combination particulate and gas/vapor.....	157,069	5,936	2,898	34,703	41,142	2,089	4,787	5,321	—	60,071
Half-mask:										
Particulate.....	598,118	4,438	19,373	146,585	175,242	40,683	43,207	22,366	3,102	143,123
Gas/vapor.....	320,425	2,322	8,334	51,132	117,692	34,201	22,246	10,054	—	74,444
Combination particulate and gas/vapor.....	510,638	16,460	4,309	114,630	172,440	62,070	18,007	26,167	9,403	87,152
Full-facepiece:										
Particulate.....	197,257	1,358	597	51,804	53,203	9,722	3,326	6,508	198	70,542
Gas/vapor.....	211,033	—	1,582	51,950	69,430	7,790	23,309	5,754	—	48,523
Combination particulate and gas/vapor.....	244,840	2,556	487	67,772	79,402	33,498	7,722	12,082	37	41,285
Mouth-piece:										
Particulate.....	63,591	3,949	93	3,654	2,848	—	—	1,444	1,076	—
Gas/vapor.....	15,111	—	22	7,435	3,827	172	—	590	—	1,780
Combination particulate and gas/vapor.....	10,241	—	—	—	1,861	292	111	597	—	1,954

See footnotes at end of table

**Table 24. Number and percent of employees using non-powered air-purifying respirators to protect against a hazard<sup>1</sup> during the 12 months<sup>2</sup> prior to the survey, by selected type of hazard<sup>1</sup> and industry division—Continued**

Type of hazard <sup>1</sup>	Private industry <sup>3</sup>	Goods producing				Service producing				
		Agriculture, forestry, and fishing <sup>3</sup>	Mining	Construction	Manufacturing	Transportation and public utilities	Wholesale trade	Retail trade	Finance, insurance, and real estate	Services
<b>Percent of employees</b>										
Total non-powered air-purifying respirators.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Dust mask (disposable):										
Particulate.....	61.3	80.8	50.8	54.2	48.3	31.0	62.5	77.6	33.5	76.2
Gas/vapor.....	6.3	2.3	.7	4.7	2.6	2.8	—	4.9	31.2	8.5
Combination particulate and gas/vapor.....	5.1	5.9	6.1	6.2	5.3	1.2	3.0	4.7	—	5.4
Half-mask:										
Particulate.....	19.5	4.4	40.4	26.1	22.4	24.2	26.8	19.7	13.6	12.9
Gas/vapor.....	10.4	2.3	17.4	9.1	15.0	20.4	13.8	8.8	—	6.7
Combination particulate and gas/vapor.....	16.6	16.5	9.0	20.4	22.0	36.9	11.2	23.0	41.1	7.9
Full-facepiece:										
Particulate.....	6.4	1.4	1.2	9.2	6.8	5.8	2.1	5.7	.9	6.4
Gas/vapor.....	6.9	—	3.3	9.2	8.9	4.6	14.5	5.1	—	4.4
Combination particulate and gas/vapor.....	8.0	2.6	1.0	12.1	10.1	19.9	4.8	10.6	.2	3.7
Mouth-piece:										
Particulate.....	2.1	4.0	.2	.6	.4	—	—	1.3	4.7	—
Gas/vapor.....	.5	—	.0	1.3	.5	.1	—	.5	—	.2
Combination particulate and gas/vapor.....	.3	—	—	—	.2	.2	.1	.5	—	.2

<sup>1</sup> Respiratory hazard such as particulate or gas/vapor for which a respirator is worn for protection.

<sup>2</sup> The 12-month period represents required use of respirators in the 12 months prior to the establishment's completion of the survey. The survey was mailed to establishments in August 2001.

<sup>3</sup> Excludes farms with fewer than 11 employees.

NOTE: Because of rounding, data exclusion of nonclassifiable responses, and establishment reports of more than one type of respirator use, data do not sum to the totals. Dashes indicate data that do not meet publication guidelines. A measure of sampling variability for each estimate is available upon request.

SOURCE: Bureau of Labor Statistics, U.S. Department of Labor.

**Table 25. Number and percent of establishments using powered air-purifying respirators to protect against a hazard<sup>1</sup> during the 12 months<sup>2</sup> prior to the survey, by selected type of hazard<sup>1</sup> and industry division**

Type of hazard <sup>1</sup>	Private industry <sup>3</sup>	Goods producing				Service producing				
		Agriculture, forestry, and fishing <sup>3</sup>	Mining	Construction	Manufacturing	Transportation and public utilities	Wholesale trade	Retail trade	Finance, insurance, and real estate	Services
<b>Number of establishments</b>										
Total use.....	281,776	13,186	3,493	64,172	48,556	10,351	31,238	16,948	4,202	89,629
Total air-purifying respirators.....	267,467	13,167	3,453	60,012	46,232	9,718	27,966	16,107	4,202	86,610
Total powered air-purifying respirators....	42,121	989	422	9,341	8,980	1,522	5,665	3,749	—	11,434
Loose-fitting facepiece.....	7,880	—	—	2,822	511	124	1,254	2,188	—	833
Particulate.....	6,487	—	—	1,778	420	124	1,248	2,017	—	751
Gas/vapor.....	1,940	—	—	1,043	61	—	—	—	—	243
Combination particulate and gas/vapor.....	3,265	—	—	2,479	82	25	—	159	—	514
Hood/helmet without neck seal.....	7,941	—	67	2,454	2,759	485	—	370	—	1,243
Particulate.....	5,289	—	38	2,024	1,927	288	—	146	—	828
Gas/vapor.....	2,766	—	—	1,065	784	—	—	113	—	303
Combination particulate and gas/vapor.....	2,991	—	—	1,391	716	196	—	223	—	399
Hood/helmet with neck seal.....	9,147	591	83	710	2,888	311	2,371	260	—	1,914
Particulate.....	4,380	—	53	507	1,875	216	575	186	—	829
Gas/vapor.....	2,610	125	—	119	680	77	1,105	—	—	485
Combination particulate and gas/vapor.....	4,011	—	—	321	1,003	98	1,263	—	—	895
Tight-fitting half facepiece.....	13,159	—	241	5,012	2,372	341	814	2,270	—	2,110
Particulate.....	7,320	—	57	2,619	1,646	—	—	1,737	—	1,152
Gas/vapor.....	4,430	—	194	2,131	545	—	221	531	—	708
Combination particulate and gas/vapor.....	6,624	—	—	2,832	1,480	228	—	191	—	1,267
Tight-fitting full facepiece.....	17,855	93	265	3,148	3,398	810	1,979	800	—	7,362
Particulate.....	11,838	—	43	2,653	1,050	207	—	437	—	6,546
Gas/vapor.....	5,557	—	204	1,776	1,392	149	—	281	—	1,114
Combination particulate and gas/vapor.....	6,269	—	—	1,415	1,720	511	—	352	—	1,659

See footnotes at end of table

**Table 25. Number and percent of establishments using powered air-purifying respirators to protect against a hazard<sup>1</sup> during the 12 months<sup>2</sup> prior to the survey, by selected type of hazard<sup>1</sup> and industry division—Continued**

Type of hazard <sup>1</sup>	Private industry <sup>3</sup>	Goods producing				Service producing				
		Agriculture, forestry, and fishing <sup>3</sup>	Mining	Construction	Manufacturing	Transportation and public utilities	Wholesale trade	Retail trade	Finance, insurance, and real estate	Services
<b>Percent of establishments</b>										
Total powered air-purifying respirators.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Loose-fitting facepiece.....	18.7	—	—	30.2	5.7	8.1	22.1	58.4	—	7.3
Particulate.....	15.4	—	—	19.0	4.7	8.1	22.0	53.8	—	6.6
Gas/vapor.....	4.6	—	—	11.2	.7	—	—	—	—	2.1
Combination particulate and gas/vapor.....	7.8	—	—	26.5	.9	1.7	—	4.2	—	4.5
Hood/helmet without neck seal.....	18.9	—	15.8	26.3	30.7	31.9	—	9.9	—	10.9
Particulate.....	12.6	—	9.1	21.7	21.5	19.0	—	3.9	—	7.2
Gas/vapor.....	6.6	—	—	11.4	8.7	—	—	3.0	—	2.7
Combination particulate and gas/vapor.....	7.1	—	—	14.9	8.0	12.9	—	5.9	—	3.5
Hood/helmet with neck seal.....	21.7	59.7	19.7	7.6	32.2	20.5	41.9	6.9	—	16.7
Particulate.....	10.4	—	12.5	5.4	20.9	14.2	10.2	5.0	—	7.2
Gas/vapor.....	6.2	12.6	—	1.3	7.6	5.1	19.5	—	—	4.2
Combination particulate and gas/vapor.....	9.5	—	—	3.4	11.2	6.4	22.3	—	—	7.8
Tight-fitting half facepiece.....	31.2	—	57.1	53.7	26.4	22.4	14.4	60.5	—	18.5
Particulate.....	17.4	—	13.4	28.0	18.3	—	—	46.3	—	10.1
Gas/vapor.....	10.5	—	46.0	22.8	6.1	—	3.9	14.2	—	6.2
Combination particulate and gas/vapor.....	15.7	—	—	30.3	16.5	15.0	—	5.1	—	11.1
Tight-fitting full facepiece.....	42.4	9.4	62.7	33.7	37.8	53.3	34.9	21.3	—	64.4
Particulate.....	28.1	—	10.1	28.4	11.7	13.6	—	11.7	—	57.3
Gas/vapor.....	13.2	—	48.3	19.0	15.5	9.8	—	7.5	—	9.7
Combination particulate and gas/vapor.....	14.9	—	—	15.2	19.2	33.6	—	9.4	—	14.5

<sup>1</sup> Respiratory hazard such as particulate or gas/vapor for which a respirator is worn for protection.

<sup>2</sup> The 12-month period represents required use of respirators in the 12 months prior to the establishment's completion of the survey. The survey was mailed to establishments in August 2001.

<sup>3</sup> Excludes farms with fewer than 11 employees.

NOTE: Because of rounding, data exclusion of nonclassifiable responses, and establishment reports of more than one type of respirator use, data do not sum to the totals. Dashes indicate data that do not meet publication guidelines. A measure of sampling variability for each estimate is available upon request.

SOURCE: Bureau of Labor Statistics, U.S. Department of Labor.

**Table 26. Number and percent of employees using powered air-purifying respirators to protect against a hazard<sup>1</sup> during the 12 months<sup>2</sup> prior to the survey, by selected type of hazard<sup>1</sup> and industry division**

Type of hazard <sup>1</sup>	Private industry <sup>3</sup>	Goods producing				Service producing				
		Agriculture, forestry, and fishing <sup>3</sup>	Mining	Construction	Manufacturing	Transportation and public utilities	Wholesale trade	Retail trade	Finance, insurance, and real estate	Services
<b>Number of employees</b>										
Total use.....	3,303,414	101,778	53,984	590,987	882,475	189,867	182,922	118,200	22,911	1,160,289
Total air-purifying respirators.....	3,114,464	101,654	47,995	566,909	803,157	170,068	164,529	115,882	22,911	1,121,358
Total powered air-purifying respirators....	287,333	3,787	7,287	56,494	66,547	31,734	26,322	15,909	43	79,210
Loose-fitting facepiece										
Particulate.....	81,946	937	11	6,567	2,628	764	—	3,186	—	—
Gas/vapor.....	20,068	—	—	—	602	6	16,143	—	—	339
Combination particulate and gas/vapor.....	10,943	—	—	5,955	1,797	—	83	737	—	1,950
Hood/helmet without neck seal										
Particulate.....	25,748	—	84	4,687	13,233	925	—	396	—	6,314
Gas/vapor.....	7,837	—	—	—	2,722	36	1,291	—	—	573
Combination particulate and gas/vapor.....	13,846	—	297	2,984	7,368	1,207	—	1,014	—	778
Hood/helmet with neck seal										
Particulate.....	28,937	—	352	4,014	14,239	995	3,660	2,578	—	2,982
Gas/vapor.....	11,186	1,546	—	—	4,129	135	1,078	—	—	1,635
Combination particulate and gas/vapor.....	13,008	—	178	3,984	5,492	491	1,002	—	43	1,293
Tight-fitting half facepiece										
Particulate.....	33,791	—	559	18,626	6,061	493	67	2,864	—	5,122
Gas/vapor.....	39,808	—	4,899	6,099	3,006	—	674	3,626	—	2,335
Combination particulate and gas/vapor.....	22,457	—	—	8,135	6,832	2,890	409	715	—	3,476
Tight-fitting full facepiece										
Particulate.....	48,619	—	482	25,394	8,863	2,864	—	2,149	—	8,517
Gas/vapor.....	25,208	—	551	10,435	8,853	381	536	1,623	—	2,489
Combination particulate and gas/vapor.....	26,145	—	178	7,593	8,135	4,829	—	2,675	—	2,609

See footnotes at end of table

**Table 26. Number and percent of employees using powered air-purifying respirators to protect against a hazard<sup>1</sup> during the 12 months<sup>2</sup> prior to the survey, by selected type of hazard<sup>1</sup> and industry division—Continued**

Type of hazard <sup>1</sup>	Private industry <sup>3</sup>	Goods producing				Service producing				
		Agriculture, forestry, and fishing <sup>3</sup>	Mining	Construction	Manufacturing	Transportation and public utilities	Wholesale trade	Retail trade	Finance, insurance, and real estate	Services
<b>Percent of employees</b>										
Total powered air-purifying respirators....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Loose-fitting facepiece										
Particulate.....	28.5	24.7	.2	11.6	3.9	2.4	—	20.0	—	—
Gas/vapor.....	7.0	—	—	—	.9	.0	61.3	—	—	.4
Combination particulate and gas/vapor.....	3.8	—	—	10.5	2.7	—	.3	4.6	—	2.5
Hood/helmet without neck seal										
Particulate.....	9.0	—	1.1	8.3	19.9	2.9	—	2.5	—	8.0
Gas/vapor.....	2.7	—	—	—	4.1	.1	4.9	—	—	.7
Combination particulate and gas/vapor.....	4.8	—	4.1	5.3	11.1	3.8	—	6.4	—	1.0
Hood/helmet with neck seal										
Particulate.....	10.1	—	4.8	7.1	21.4	3.1	13.9	16.2	—	3.8
Gas/vapor.....	3.9	40.8	—	—	6.2	.4	4.1	—	—	2.1
Combination particulate and gas/vapor.....	4.5	—	2.4	7.1	8.3	1.5	3.8	—	100.0	1.6
Tight-fitting half facepiece										
Particulate.....	11.8	—	7.7	33.0	9.1	1.6	.3	18.0	—	6.5
Gas/vapor.....	13.9	—	67.2	10.8	4.5	—	2.6	22.8	—	2.9
Combination particulate and gas/vapor.....	7.8	—	—	14.4	10.3	9.1	1.6	4.5	—	4.4
Tight-fitting full facepiece										
Particulate.....	16.9	—	6.6	45.0	13.3	9.0	—	13.5	—	10.8
Gas/vapor.....	8.8	—	7.6	18.5	13.3	1.2	2.0	10.2	—	3.1
Combination particulate and gas/vapor.....	9.1	—	2.4	13.4	12.2	15.2	—	16.8	—	3.3

<sup>1</sup> Respiratory hazard such as particulate or gas/vapor for which a respirator is worn for protection.

<sup>2</sup> The 12-month period represents required use of respirators in the 12 months prior to the establishment's completion of the survey. The survey was mailed to establishments in August 2001.

<sup>3</sup> Excludes farms with fewer than 11 employees.

NOTE: Because of rounding, data exclusion of nonclassifiable responses, and establishment reports of more than one type of respirator use, data do not sum to the totals. Dashes indicate data that do not meet publication guidelines. A measure of sampling variability for each estimate is available upon request.

SOURCE: Bureau of Labor Statistics, U.S. Department of Labor.

**Table 27. Number and percent of establishments and employees using air-supplied respirators during the 12 months<sup>1</sup> prior to the survey, by respirator type and industry division**

Respirator type	Private industry <sup>2</sup>	Goods producing				Service producing				
		Agriculture, forestry, and fishing <sup>2</sup>	Mining	Construction	Manufacturing	Transportation and public utilities	Wholesale trade	Retail trade	Finance, insurance, and real estate	Services
<b>Number of establishments</b>										
Total use.....	281,776	13,186	3,493	64,172	48,556	10,351	31,238	16,948	4,202	89,629
Total air-supplied respirators.....	47,290	479	592	10,546	12,702	3,786	6,816	2,879	—	9,490
SCBA <sup>3</sup> .....	21,917	254	376	3,695	4,914	2,767	4,355	1,099	—	4,457
Airline, with half-mask.....	10,302	—	47	2,184	1,971	522	726	1,053	—	3,800
Airline, with full-facepiece.....	19,828	—	131	6,244	4,506	1,693	1,067	1,367	—	4,718
Airline, with integral hood/helmet.....	18,747	305	218	4,902	7,545	664	2,109	720	—	2,284
Combination SCBA <sup>3</sup> /airline.....	10,001	—	287	3,591	1,905	2,104	1,892	—	—	203
<b>Percent of establishments</b>										
Total air-supplied respirators.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
SCBA <sup>3</sup> .....	46.3	53.0	63.6	35.0	38.7	73.1	63.9	38.2	—	47.0
Airline, with half-mask.....	21.8	—	8.0	20.7	15.5	13.8	10.6	36.6	—	40.0
Airline, with full-facepiece.....	41.9	—	22.1	59.2	35.5	44.7	15.7	47.5	—	49.7
Airline, with integral hood/helmet.....	39.6	63.8	36.8	46.5	59.4	17.5	30.9	25.0	—	24.1
Combination SCBA <sup>3</sup> /airline.....	21.1	—	48.5	34.1	15.0	55.6	27.8	—	—	2.1
<b>Number of employees</b>										
Total use.....	3,303,414	101,778	53,984	590,987	882,475	189,867	182,922	118,200	22,911	1,160,289
Total air-supplied respirators.....	415,964	1,544	8,234	96,637	158,657	42,125	29,848	16,952	—	61,967
SCBA <sup>3</sup> .....	195,482	929	6,124	23,508	82,385	19,027	10,626	6,851	—	46,033
Airline, with half-mask.....	47,715	—	—	12,898	11,254	2,359	1,164	8,001	—	11,846
Airline, with full-facepiece.....	162,150	—	974	62,589	49,271	21,548	3,670	12,111	—	11,469
Airline, with integral hood/helmet.....	103,025	681	734	22,828	49,337	3,653	—	2,406	—	4,993
Combination SCBA <sup>3</sup> /airline.....	103,507	—	4,287	42,376	34,055	15,599	3,949	—	—	3,234
<b>Percent of employees</b>										
Total air-supplied respirators.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
SCBA <sup>3</sup> .....	47.0	60.2	74.4	24.3	51.9	45.2	35.6	40.4	—	74.3
Airline, with half-mask.....	11.5	—	—	13.3	7.1	5.6	3.9	47.2	—	19.1
Airline, with full-facepiece.....	39.0	—	11.8	64.8	31.1	51.2	12.3	71.4	—	18.5
Airline, with integral hood/helmet.....	24.8	44.1	8.9	23.6	31.1	8.7	—	14.2	—	8.1
Combination SCBA <sup>3</sup> /airline.....	24.9	—	52.1	43.9	21.5	37.0	13.2	—	—	5.2

<sup>1</sup> The 12-month period represents required use of respirators in the 12 months prior to the establishment's completion of the survey. The survey was mailed to establishments in August 2001.

<sup>2</sup> Excludes farms with fewer than 11 employees.

<sup>3</sup> Self-contained breathing apparatus.

NOTE: Because of rounding, data exclusion of nonclassifiable responses,

and establishment reports of more than one type of respirator use, data do not sum to the totals. Dashes indicate data that do not meet publication guidelines. A measure of sampling variability for each estimate is available upon request.

SOURCE: Bureau of Labor Statistics, U.S. Department of Labor.

**Table 28. Number and percent of establishments using respirators during the 12 months<sup>1</sup> prior to the survey by selected type of use and employment size group**

Type of use	Total	Employment size group				
		1–10 workers	11–49 workers	50–249 workers	250–999 workers	1000 workers or more
<b>Number of establishments</b>						
Total use.....	281,776	122,620	83,716	45,291	21,742	8,406
Required non-emergency <sup>2</sup> .....	275,080	119,684	81,550	44,239	21,362	8,245
Required emergency <sup>3</sup> .....	28,049	9,548	6,372	5,503	3,285	3,341
Both required non-emergency and emergency <sup>4</sup> .....	21,353	6,611	4,206	4,451	2,905	3,180
<b>Percent of establishments</b>						
Total use.....	100.0	100.0	100.0	100.0	100.0	100.0
Required non-emergency <sup>2</sup> .....	97.6	97.6	97.4	97.7	98.3	98.1
Required emergency <sup>3</sup> .....	10.0	7.8	7.6	12.2	15.1	39.7
Both required non-emergency and emergency <sup>4</sup> .....	7.6	5.4	5.0	9.8	13.4	37.8

<sup>1</sup> The 12-month period represents required use of respirators in the 12 months prior to the establishment's completion of the survey. The survey was mailed to establishments in August 2001.

<sup>2</sup> Respirator use for exposure to known substances that is required by regulation or by the employer.

<sup>3</sup> Respirator use as a result of an unplanned situation, including escape from or entry into a potentially hazardous environment.

<sup>4</sup> Includes establishments that use respirators for both required

non-emergency and emergency use.

NOTE: Because of rounding, data exclusion of nonclassifiable responses, and establishment reports of more than one type of respirator use, data do not sum to the totals. Dashes indicate data that do not meet publication guidelines. A measure of sampling variability for each estimate is available upon request.

SOURCE: Bureau of Labor Statistics, U.S. Department of Labor.

**Table 29. Number and percent of establishments and employees using respirators during the 12 months<sup>1</sup> prior to the survey, by respirator type and employment size group**

Respirator type	Total	Employment size group				
		1 - 10 workers	11 - 49 workers	50 - 249 workers	250 - 999 workers	1000 workers or more
<b>Number of establishments</b>						
Total use.....	281,776	122,620	83,716	45,291	21,742	8,406
Total air-purifying respirators.....	267,467	113,797	80,249	44,247	20,865	8,309
Non-powered.....	264,366	112,494	79,455	43,495	20,655	8,267
Powered.....	42,121	16,717	9,129	8,647	4,413	3,215
Total air-supplied respirators.....	47,290	10,909	12,451	12,376	8,232	3,322
SCBA <sup>2</sup> .....	21,917	5,305	4,340	5,513	4,223	2,536
Airline.....	37,132	9,714	9,431	9,792	6,013	2,182
Combination SCBA <sup>2</sup> /airline.....	10,001	1,267	2,354	2,903	2,460	1,016
Both air-purifying and air-supplied respirators....	41,290	9,263	10,115	11,333	7,354	3,225
<b>Percent of establishments</b>						
Total use.....	100.0	100.0	100.0	100.0	100.0	100.0
Total air-purifying respirators.....	94.9	92.8	95.9	97.7	96.0	98.9
Non-powered.....	93.8	91.7	94.9	96.0	95.0	98.3
Powered.....	14.9	13.6	10.9	19.1	20.3	38.2
Total air-supplied respirators.....	16.8	8.9	14.9	27.3	37.9	39.5
SCBA <sup>2</sup> .....	7.8	4.3	5.2	12.2	19.4	30.2
Airline.....	13.2	7.9	11.3	21.6	27.7	26.0
Combination SCBA <sup>2</sup> /airline.....	3.5	1.0	2.8	6.4	11.3	12.1
Both air-purifying and air-supplied respirators....	14.7	7.6	12.1	25.0	33.8	38.4

See footnotes at end of table

**Table 29. Number and percent of establishments and employees using respirators during the 12 months<sup>1</sup> prior to the survey, by respirator type and employment size group—Continued**

Respirator type	Total	Employment size group				
		1–10 workers	11–49 workers	50–249 workers	250–999 workers	1000 workers or more
<b>Number of employees</b>						
Total use.....	3,303,414	243,518	596,392	734,253	660,756	1,068,495
Total air-purifying respirators.....	3,114,464	238,986	551,760	704,946	610,441	1,008,331
Non-powered.....	3,067,325	236,337	549,030	693,518	600,078	988,361
Powered.....	287,333	28,640	38,895	71,882	71,312	76,604
Total air-supplied respirators.....	415,964	17,313	75,633	120,002	116,296	86,721
SCBA <sup>2</sup> .....	195,482	7,734	43,924	44,728	54,259	44,837
Combination SCBA <sup>2</sup> /airline.....	103,507	1,400	5,065	49,665	29,605	17,772
<b>Percent of employees</b>						
Total use.....	100.0	100.0	100.0	100.0	100.0	100.0
Total air-purifying respirators.....	94.3	98.1	92.5	96.0	92.4	94.4
Non-powered.....	92.9	97.1	92.1	94.5	90.8	92.5
Powered.....	8.7	11.8	6.5	9.8	10.8	7.2
Total air-supplied respirators.....	12.6	7.1	12.7	16.3	17.6	8.1
SCBA <sup>2</sup> .....	5.9	3.2	7.4	6.1	8.2	4.2
Combination SCBA <sup>2</sup> /airline.....	3.1	.6	.8	6.8	4.5	1.7

<sup>1</sup> The 12-month period represents required use of respirators in the 12 months prior to the establishment's completion of the survey. The survey was mailed to establishments in August 2001.

<sup>2</sup> Self-contained breathing apparatus.

NOTE: Because of rounding, data exclusion of nonclassifiable responses, and establishment reports of more than one type of

respirator use, data do not sum to the totals. Dashes indicate data that do not meet publication guidelines. A measure of sampling variability for each estimate is available upon request.

SOURCE: Bureau of Labor Statistics, U.S. Department of Labor.

**Table 30. Number and percent of establishments using non-powered air-purifying respirators to protect against a hazard<sup>1</sup> during the 12 months<sup>2</sup> prior to the survey, by selected type of hazard<sup>1</sup> and employment size group**

Type of hazard <sup>1</sup>	Total	Employment size group				
		1–10 workers	11–49 workers	50–249 workers	250–999 workers	1000 workers or more
<b>Number of establishments</b>						
Total use.....	281,776	122,620	83,716	45,291	21,742	8,406
Total air-purifying respirators.....	267,467	113,797	80,249	44,247	20,865	8,309
Total non-powered air-purifying respirators.....	264,366	112,494	79,455	43,495	20,655	8,267
Dust mask (disposable).....	200,995	91,081	60,583	31,483	13,544	4,303
Particulate.....	181,021	80,654	54,495	28,978	12,827	4,066
Gas/vapor.....	35,699	24,165	7,021	2,782	1,505	225
Combination particulate and gas/vapor.....	24,964	11,361	7,706	4,465	1,234	197
Half-mask.....	136,817	53,592	39,174	24,634	14,892	4,525
Particulate.....	66,232	26,565	16,711	11,060	9,143	2,754
Gas/vapor.....	49,126	18,854	14,978	9,825	4,380	1,090
Combination particulate and gas/vapor.....	60,974	22,937	16,869	12,676	5,552	2,940
Full-facepiece.....	61,463	17,334	21,256	13,298	5,842	3,734
Particulate.....	24,921	8,613	8,353	5,294	1,631	1,030
Gas/vapor.....	23,996	5,991	6,111	6,858	3,123	1,912
Combination particulate and gas/vapor.....	28,806	8,208	9,459	6,794	3,099	1,245
Mouth-piece.....	8,357	4,982	2,381	761	139	95
Particulate.....	5,022	3,758	784	381	47	51
Gas/vapor.....	4,239	2,965	929	237	45	63
Combination particulate and gas/vapor.....	2,379	392	1,657	259	46	—

See footnotes at end of table

**Table 30. Number and percent of establishments using non-powered air-purifying respirators to protect against a hazard<sup>1</sup> during the 12 months<sup>2</sup> prior to the survey, by selected type of hazard<sup>1</sup> and employment size group—Continued**

Type of hazard <sup>1</sup>	Total	Employment size group				
		1–10 workers	11–49 workers	50–249 workers	250–999 workers	1000 workers or more
<b>Percent of establishments</b>						
Total non-powered air-purifying respirators.....	100.0	100.0	100.0	100.0	100.0	100.0
Dust mask (disposable).....	76.0	81.0	76.2	72.4	65.6	52.1
Particulate.....	68.5	71.7	68.6	66.6	62.1	49.2
Gas/vapor.....	13.5	21.5	8.8	6.4	7.3	2.7
Combination particulate and gas/vapor.....	9.4	10.1	9.7	10.3	6.0	2.4
Half-mask.....	51.8	47.6	49.3	56.6	72.1	54.7
Particulate.....	25.1	23.6	21.0	25.4	44.3	33.3
Gas/vapor.....	18.6	16.8	18.9	22.6	21.2	13.2
Combination particulate and gas/vapor.....	23.1	20.4	21.2	29.1	26.9	35.6
Full-facepiece.....	23.2	15.4	26.8	30.6	28.3	45.2
Particulate.....	9.4	7.7	10.5	12.2	7.9	12.5
Gas/vapor.....	9.1	5.3	7.7	15.8	15.1	23.1
Combination particulate and gas/vapor.....	10.9	7.3	11.9	15.6	15.0	15.1
Mouth-piece.....	3.2	4.4	3.0	1.7	.7	1.1
Particulate.....	1.9	3.3	1.0	.9	.2	.6
Gas/vapor.....	1.6	2.6	1.2	.5	.2	.8
Combination particulate and gas/vapor.....	.9	.3	2.1	.6	.2	—

<sup>1</sup> Respiratory hazard such as particulate or gas/vapor for which a respirator is worn for protection.

<sup>2</sup> The 12-month period represents required use of respirators in the 12 months prior to the establishment's completion of the survey. The survey was mailed to establishments in August 2001.

NOTE: Because of rounding, data exclusion of nonclassifiable

responses, and establishment reports of more than one type of respirator use, data do not sum to the totals. Dashes indicate data that do not meet publication guidelines. A measure of sampling variability for each estimate is available upon request.

SOURCE: Bureau of Labor Statistics, U.S. Department of Labor.

**Table 31. Number and percent of employees using non-powered air-purifying respirators to protect against a hazard<sup>1</sup> during the 12 months<sup>2</sup> prior to the survey, by selected type of hazard<sup>1</sup> and employment size group**

Type of hazard <sup>1</sup>	Total	Employment size group				
		1–10 workers	11–49 workers	50–249 workers	250–999 workers	1000 workers or more
<b>Number of employees</b>						
Total use.....	3,303,414	243,518	596,392	734,253	660,756	1,068,495
Total air-purifying respirators.....	3,114,464	238,986	551,760	704,946	610,441	1,008,331
Total non-powered air-purifying respirators.....	3,067,325	236,337	549,030	693,518	600,078	988,361
Dust mask (disposable)						
Particulate.....	1,881,408	160,839	368,420	431,776	291,687	628,685
Gas/vapor.....	192,948	46,364	56,434	32,662	37,630	19,858
Combination particulate and gas/vapor.....	157,069	21,186	52,557	40,941	22,060	20,326
Half-mask						
Particulate.....	598,118	42,883	87,935	132,746	161,010	173,544
Gas/vapor.....	320,425	25,565	73,673	85,699	85,495	49,993
Combination particulate and gas/vapor.....	510,638	48,044	85,602	144,214	105,712	127,066
Full-facepiece						
Particulate.....	197,257	11,139	45,013	47,609	28,918	64,578
Gas/vapor.....	211,033	6,387	23,546	72,184	41,087	67,828
Combination particulate and gas/vapor.....	244,840	13,022	36,433	62,686	60,776	71,924
Mouth-piece						
Particulate.....	63,591	11,461	2,029	2,410	923	—
Gas/vapor.....	15,111	5,407	4,600	1,155	1,993	1,956
Combination particulate and gas/vapor.....	10,241	1,086	6,816	575	234	—

See footnotes at end of table

**Table 31. Number and percent of employees using non-powered air-purifying respirators to protect against a hazard<sup>1</sup> during the 12 months<sup>2</sup> prior to the survey, by selected type of hazard<sup>1</sup> and employment size group—Continued**

Type of hazard <sup>1</sup>	Total	Employment size group				
		1–10 workers	11–49 workers	50–249 workers	250–999 workers	1000 workers or more
<b>Percent of employees</b>						
Total non-powered air-purifying respirators.....	100.0	100.0	100.0	100.0	100.0	100.0
Dust mask (disposable)						
Particulate.....	61.3	68.1	67.1	62.3	48.6	63.6
Gas/vapor.....	6.3	19.6	10.3	4.7	6.3	2.0
Combination particulate and gas/vapor.....	5.1	9.0	9.6	5.9	3.7	2.1
Half-mask						
Particulate.....	19.5	18.1	16.0	19.1	26.8	17.6
Gas/vapor.....	10.4	10.8	13.4	12.4	14.2	5.1
Combination particulate and gas/vapor.....	16.6	20.3	15.6	20.8	17.6	12.9
Full-facepiece						
Particulate.....	6.4	4.7	8.2	6.9	4.8	6.5
Gas/vapor.....	6.9	2.7	4.3	10.4	6.8	6.9
Combination particulate and gas/vapor.....	8.0	5.5	6.6	9.0	10.1	7.3
Mouth-piece						
Particulate.....	2.1	4.8	.4	.3	.2	—
Gas/vapor.....	.5	2.3	.8	.2	.3	.2
Combination particulate and gas/vapor.....	.3	.5	1.2	.1	.0	—

<sup>1</sup> Respiratory hazard such as particulate or gas/vapor for which a respirator is worn for protection..

<sup>2</sup> The 12-month period represents required use of respirators in the 12 months prior to the establishment's completion of the survey. The survey was mailed to establishments in August 2001.

NOTE: Because of rounding, data exclusion of nonclassifiable

responses, and establishment reports of more than one type of respirator use, data do not sum to the totals. Dashes indicate data that do not meet publication guidelines. A measure of sampling variability for each estimate is available upon request.

SOURCE: Bureau of Labor Statistics, U.S. Department of Labor.

**Table 32. Number and percent of establishments using powered air-purifying respirators to protect against a hazard<sup>1</sup> during the 12 months<sup>2</sup> prior to the survey, by selected type of hazard<sup>1</sup> and employment size group**

Type of hazard <sup>1</sup>	Total	Employment size group				
		1–10 workers	11–49 workers	50–249 workers	250–999 workers	1000 workers or more
<b>Number of establishments</b>						
Total use.....	281,776	122,620	83,716	45,291	21,742	8,406
Total air-purifying respirators.....	267,467	113,797	80,249	44,247	20,865	8,309
Total powered air-purifying respirators.....	42,121	16,717	9,129	8,647	4,413	3,215
Loose-fitting facepiece.....	7,880	3,927	2,089	1,050	622	193
Particulate.....	6,487	2,964	1,933	869	589	132
Gas/vapor.....	1,940	—	157	—	—	44
Combination particulate and gas/vapor.....	3,265	2,248	314	591	37	75
Hood/helmet without neck seal.....	7,941	1,144	1,907	2,244	2,152	493
Particulate.....	5,289	755	1,528	1,453	1,304	249
Gas/vapor.....	2,766	809	123	829	927	76
Combination particulate and gas/vapor.....	2,991	830	439	1,217	303	202
Hood/helmet with neck seal.....	9,147	1,611	2,327	2,789	772	1,649
Particulate.....	4,380	737	1,097	1,507	304	735
Gas/vapor.....	2,610	215	564	974	212	646
Combination particulate and gas/vapor.....	4,011	724	1,242	1,213	324	508
Tight-fitting half facepiece.....	13,159	6,929	2,802	2,483	887	59
Particulate.....	7,320	3,967	1,428	1,703	183	39
Gas/vapor.....	4,430	1,819	856	1,174	554	26
Combination particulate and gas/vapor.....	6,624	3,923	1,445	1,050	186	19
Tight-fitting full facepiece.....	17,855	8,607	3,924	3,358	988	978
Particulate.....	11,838	6,839	1,895	1,791	411	902
Gas/vapor.....	5,557	1,652	1,695	1,763	406	42
Combination particulate and gas/vapor.....	6,269	2,987	1,510	1,296	412	65

See footnotes at end of table

**Table 32. Number and percent of establishments using powered air-purifying respirators to protect against a hazard<sup>1</sup> during the 12 months<sup>2</sup> prior to the survey, by selected type of hazard<sup>1</sup> and employment size group—Continued**

Type of hazard <sup>1</sup>	Total	Employment size group				
		1–10 workers	11–49 workers	50–249 workers	250–999 workers	1000 workers or more
<b>Percent of establishments</b>						
Total powered air-purifying respirators.....	100.0	100.0	100.0	100.0	100.0	100.0
Loose-fitting facepiece.....	18.7	23.5	22.9	12.1	14.1	6.0
Particulate.....	15.4	17.7	21.2	10.0	13.3	4.1
Gas/vapor.....	4.6	—	1.7	—	—	1.4
Combination particulate and gas/vapor.....	7.8	13.5	3.4	6.8	.8	2.3
Hood/helmet without neck seal.....	18.9	6.8	20.9	26.0	48.8	15.3
Particulate.....	12.6	4.5	16.7	16.8	29.5	7.7
Gas/vapor.....	6.6	4.8	1.4	9.6	21.0	2.4
Combination particulate and gas/vapor.....	7.1	5.0	4.8	14.1	6.9	6.3
Hood/helmet with neck seal.....	21.7	9.6	25.5	32.3	17.5	51.3
Particulate.....	10.4	4.4	12.0	17.4	6.9	22.9
Gas/vapor.....	6.2	1.3	6.2	11.3	4.8	20.1
Combination particulate and gas/vapor.....	9.5	4.3	13.6	14.0	7.3	15.8
Tight-fitting half facepiece.....	31.2	41.4	30.7	28.7	20.1	1.8
Particulate.....	17.4	23.7	15.6	19.7	4.2	1.2
Gas/vapor.....	10.5	10.9	9.4	13.6	12.6	.8
Combination particulate and gas/vapor.....	15.7	23.5	15.8	12.1	4.2	.6
Tight-fitting full facepiece.....	42.4	51.5	43.0	38.8	22.4	30.4
Particulate.....	28.1	40.9	20.8	20.7	9.3	28.1
Gas/vapor.....	13.2	9.9	18.6	20.4	9.2	1.3
Combination particulate and gas/vapor.....	14.9	17.9	16.5	15.0	9.3	2.0

<sup>1</sup> Respiratory hazard such as particulate or gas/vapor for which a respirator is worn for protection.

<sup>2</sup> The 12-month period represents required use of respirators in the 12 months prior to the establishment's completion of the survey. The survey was mailed to establishments in August 2001.

NOTE: Because of rounding, data exclusion of nonclassifiable

responses, and establishment reports of more than one type of respirator use, data do not sum to the totals. Dashes indicate data that do not meet publication guidelines. A measure of sampling variability for each estimate is available upon request.

SOURCE: Bureau of Labor Statistics, U.S. Department of Labor.

**Table 33. Number and percent of employees using powered air-purifying respirators to protect against a hazard<sup>1</sup> during the 12 months<sup>2</sup> prior to the survey, by selected type of hazard<sup>1</sup> and employment size group**

Type of hazard <sup>1</sup>	Total	Employment size group				
		1–10 workers	11–49 workers	50–249 workers	250–999 workers	1000 workers or more
<b>Number of employees</b>						
Total use.....	3,303,414	243,518	596,392	734,253	660,756	1,068,495
Total air-purifying respirators.....	3,114,464	238,986	551,760	704,946	610,441	1,008,331
Total powered air-purifying respirators.....	287,333	28,640	38,895	71,882	71,312	76,604
Loose-fitting facepiece						
Particulate.....	81,946	4,658	6,727	5,574	—	—
Gas/vapor.....	20,068	—	—	—	—	383
Combination particulate and gas/vapor.....	10,943	3,933	2,189	2,615	1,445	760
Hood/helmet without neck seal						
Particulate.....	25,748	464	3,508	8,900	7,490	5,387
Gas/vapor.....	7,837	592	—	2,656	2,261	1,357
Combination particulate and gas/vapor.....	13,846	548	1,392	6,002	3,642	2,262
Hood/helmet with neck seal						
Particulate.....	28,937	946	2,766	11,704	4,924	8,596
Gas/vapor.....	11,186	436	1,439	5,462	687	3,163
Combination particulate and gas/vapor.....	13,008	999	3,444	5,351	1,905	1,309
Tight-fitting half facepiece						
Particulate.....	33,791	9,066	15,557	6,808	1,547	813
Gas/vapor.....	39,808	3,254	4,680	11,298	—	641
Combination particulate and gas/vapor.....	22,457	8,369	5,071	6,376	2,403	239
Tight-fitting full facepiece						
Particulate.....	48,619	7,688	9,017	23,059	7,802	1,053
Gas/vapor.....	25,208	2,100	3,840	12,546	5,024	1,698
Combination particulate and gas/vapor.....	26,145	3,641	4,497	11,515	5,563	930

See footnotes at end of table

**Table 33. Number and percent of employees using powered air-purifying respirators to protect against a hazard<sup>1</sup> during the 12 months<sup>2</sup> prior to the survey, by selected type of hazard<sup>1</sup> and employment size group—Continued**

Type of hazard <sup>1</sup>	Total	Employment size group				
		1–10 workers	11–49 workers	50–249 workers	250–999 workers	1000 workers or more
<b>Percent of employees</b>						
Total powered air-purifying respirators.....	100.0	100.0	100.0	100.0	100.0	100.0
Loose-fitting facepiece						
Particulate.....	28.5	16.3	17.3	7.8	—	—
Gas/vapor.....	7.0	—	—	—	—	.5
Combination particulate and gas/vapor.....	3.8	13.7	5.6	3.6	2.0	1.0
Hood/helmet without neck seal						
Particulate.....	9.0	1.6	9.0	12.4	10.5	7.0
Gas/vapor.....	2.7	2.1	—	3.7	3.2	1.8
Combination particulate and gas/vapor.....	4.8	1.9	3.6	8.3	5.1	3.0
Hood/helmet with neck seal						
Particulate.....	10.1	3.3	7.1	16.3	6.9	11.2
Gas/vapor.....	3.9	1.5	3.7	7.6	1.0	4.1
Combination particulate and gas/vapor.....	4.5	3.5	8.9	7.4	2.7	1.7
Tight-fitting half facepiece						
Particulate.....	11.8	31.7	40.0	9.5	2.2	1.1
Gas/vapor.....	13.9	11.4	12.0	15.7	—	.8
Combination particulate and gas/vapor.....	7.8	29.2	13.0	8.9	3.4	.3
Tight-fitting full facepiece						
Particulate.....	16.9	26.8	23.2	32.1	10.9	1.4
Gas/vapor.....	8.8	7.3	9.9	17.5	7.0	2.2
Combination particulate and gas/vapor.....	9.1	12.7	11.6	16.0	7.8	1.2

<sup>1</sup> Respiratory hazard such as particulate or gas/vapor for which a respirator is worn for protection.

<sup>2</sup> The 12-month period represents required use of respirators in the 12 months prior to the establishment's completion of the survey. The survey was mailed to establishments in August 2001.

NOTE: Because of rounding, data exclusion of nonclassifiable

responses, and establishment reports of more than one type of respirator use, data do not sum to the totals. Dashes indicate data that do not meet publication guidelines. A measure of sampling variability for each estimate is available upon request.

SOURCE: Bureau of Labor Statistics, U.S. Department of Labor.

**Table 34. Number and percent of establishments and employees using air-supplied respirators during the 12 months<sup>1</sup> prior to the survey, by selected type and employment size group**

Respirator type	Total	Employment size group				
		1–10 workers	11–49 workers	50–249 workers	250–999 workers	1000 workers or more
<b>Number of establishments</b>						
Total use.....	281,776	122,620	83,716	45,291	21,742	8,406
Total air-supplied respirators.....	47,290	10,909	12,451	12,376	8,232	3,322
SCBA <sup>2</sup> .....	21,917	5,305	4,340	5,513	4,223	2,536
Airline, with half-mask.....	10,302	4,022	2,949	1,609	1,655	67
Airline, with full-facepiece.....	19,828	6,009	4,643	4,850	2,828	1,498
Airline, with integral hood/helmet.....	18,747	2,108	5,289	5,366	4,196	1,788
Combination SCBA <sup>2</sup> /airline.....	10,001	1,267	2,354	2,903	2,460	1,016
<b>Percent of establishments</b>						
Total air-supplied respirators.....	100.0	100.0	100.0	100.0	100.0	100.0
SCBA <sup>2</sup> .....	46.3	48.6	34.9	44.5	51.3	76.3
Airline, with half-mask.....	21.8	36.9	23.7	13.0	20.1	2.0
Airline, with full-facepiece.....	41.9	55.1	37.3	39.2	34.4	45.1
Airline, with integral hood/helmet.....	39.6	19.3	42.5	43.4	51.0	53.8
Combination SCBA <sup>2</sup> /airline.....	21.1	11.6	18.9	23.5	29.9	30.6
<b>Number of employees</b>						
Total use.....	3,303,414	243,518	596,392	734,253	660,756	1,068,495
Total air-supplied respirators.....	415,964	17,313	75,633	120,002	116,296	86,721
SCBA <sup>2</sup> .....	195,482	7,734	43,924	44,728	54,259	44,837
Airline, with half-mask.....	47,715	6,331	13,963	17,894	6,781	2,746
Airline, with full-facepiece.....	162,150	10,711	18,858	66,057	34,510	32,014
Airline, with integral hood/helmet.....	103,025	2,686	17,761	27,045	39,476	16,058
Combination SCBA <sup>2</sup> /airline.....	103,507	1,400	5,065	49,665	29,605	17,772
<b>Percent of employees</b>						
Total air-supplied respirators.....	100.0	100.0	100.0	100.0	100.0	100.0
SCBA <sup>2</sup> .....	47.0	44.7	58.1	37.3	46.7	51.7
Airline, with half-mask.....	11.5	36.6	18.5	14.9	5.8	3.2
Airline, with full-facepiece.....	39.0	61.9	24.9	55.0	29.7	36.9
Airline, with integral hood/helmet.....	24.8	15.5	23.5	22.5	33.9	18.5
Combination SCBA <sup>2</sup> /airline.....	24.9	8.1	6.7	41.4	25.5	20.5

<sup>1</sup> The 12-month period represents required use of respirators in the 12 months prior to the establishment's completion of the survey. The survey was mailed to establishments in August 2001.

<sup>2</sup> Self-contained breathing apparatus.

NOTE: Because of rounding, data exclusion of nonclassifiable responses, and establishment reports of more than one type of

respirator use, data do not sum to the totals. Dashes indicate data that do not meet publication guidelines. A measure of sampling variability for each estimate is available upon request.

SOURCE: Bureau of Labor Statistics, U.S. Department of Labor.

## Section 4. Respirator Program Characteristics

This section provides information on program characteristics, such as fit-testing methods for those employees who used tight-fitting respirators; the methods by which establishments determine which respirator is appropriate to protect against hazards in the workplace; the characteristics of respirator training at the establishment; and the usefulness of NIOSH approval labels and respirator manufacturers' instructions. The practices described in this section relate to respirator program components required by Occupational Safety and Health Administration respiratory protection regulations (29 CFR 1910.134).

The tables in this section present respirator program practices for private industry establishments, and the number and percent of employees affected by those practices, primarily by industry and establishment employment size group. With the exception of tables 37, 62, and 63, tables 35 through 70 provide data by major industry division; the remaining tables provide data for employment size groups. Table 37 compares respirator program administrator qualifications with the types of respirators used. Table 62 shows breakouts by fit-test method used and table 63 compares the fit-test methods with the number of people responsible for an establishment's respirator program. All tables in this section provide estimates of respirator use practices in the 12-month period prior to the survey.

Tables 35 and 71 provide the number and percent of establishments and employees associated with the following respirator program characteristics:

- Number of persons responsible for the establishment's respirator program
- Training provided to employees
- Existence of written procedures

Tables 36 and 72 provide the number and percent of establishments that have respirator program administrators with various types of education and training.

Tables 38 and 73 present the number and percent of establishments with various sources of training regarding respirator use.

Tables 39 and 74 show the number and percent of establishments and employees associated with various means of determining respirator use. Tables 40 through 42 and 75 through 77 provide the same information for specific types of respirators (air-purifying, air-supplied, or both types).

Tables 43 through 46 and 78 through 81 provide the number and percent of establishments and employees associated with various means of assessing employees' medical fitness to wear respirators and with the use of specific types of respirators at an establishment (air-purifying, air-supplied, or both).

Tables 47 through 50 and 82 through 85 present the number and percent of establishments and employees associated with the designation of various parties as determiners of employees' medical fitness for respirator use, and include data for specific types of respirators used at an establishment.

Tables 51 through 54 and 86 through 89 provide the number and percent of establishments and employees associated with various means of determining which respirator is appropriate for the substance(s) faced by employees, including data for specific types of respirators used at an establishment.

Tables 55 and 90 present the number and percent of establishments that had evaluated the effectiveness of respirator use within various periods prior to the survey.

Tables 56 and 91 show the number and percent of establishments that have various policies regarding replacement of filters for air-purifying respirators.

Tables 57 and 92 present the number and percent of establishments using air-supplied respirators with hose couplings that are compatible with couplings for other air or gas supply lines.

Tables 58 and 93 provide the number and percent of establishments whose employees use various methods to adjust the airflow of airline respirators.

Tables 59 and 94 show the number and percent of establishments that conduct fit testing for employees who wear tight-fitting respirators.

Tables 60 and 95 provide information as to the number and percent of establishments with various sources of fit testing.

Tables 61 through 63 and 96 present the number and percent of establishments that employ various types of fit-testing methods.

Tables 64 and 97 provide the number and percent of establishments and employees at establishments with various perceptions of NIOSH approval labels.

Tables 65, 66, 98, and 99 present the number and percent

of establishments that have conducted air sampling for various substances while using air-purifying respirators. Tables 67, 68, 100, and 101 provide the same information for establishments using air-supplied respirators. Tables 69, 70, 102, and 103 provide the same information for establishments using either air-purifying or air-supplied respirators.

**Table 35. Number and percent of establishments and employees using respirators during the 12 months<sup>1</sup> prior to the survey, by characteristics of respirator program and industry division**

Respirator use practice	Private industry <sup>2</sup>	Goods producing				Service producing				
		Agriculture, forestry, and fishing <sup>2</sup>	Mining	Construction	Manufacturing	Transportation and public utilities	Wholesale trade	Retail trade	Finance, insurance, and real estate	Services
<b>Number of establishments</b>										
Total use.....	281,776	13,186	3,493	64,172	48,556	10,351	31,238	16,948	4,202	89,629
<b>Establishment has one person responsible for directing and overseeing respirator program</b>										
Yes.....	155,312	7,565	1,174	34,390	27,345	4,136	18,859	10,099	697	51,047
More than one person.....	87,916	4,809	2,223	19,045	16,838	5,525	9,370	2,803	1,039	26,262
No.....	38,547	812	96	10,737	4,373	690	3,008	4,046	—	12,320
<b>Training regarding respirator use provided to employees<sup>3</sup></b>										
No training required.....	24,291	1,710	51	8,897	3,450	—	1,542	2,261	587	5,739
Wearers follow manufacturers' instructions.....	90,786	3,658	575	23,149	12,693	2,420	6,376	5,929	397	35,589
Wearers trained to understand the use and limitations of respirators.....	166,699	7,818	2,867	32,126	32,413	7,878	23,319	8,759	3,218	48,301
<b>Establishment has written procedures and schedules for maintaining respirators</b>										
Yes.....	141,044	3,827	2,138	25,691	27,913	6,607	22,030	5,989	3,168	43,681
No.....	98,563	5,485	772	27,365	14,871	3,154	7,364	8,398	631	30,522
Not needed.....	35,263	3,110	537	10,008	4,884	560	1,654	2,025	—	12,080
Don't know.....	6,759	764	46	1,107	741	—	190	536	—	3,346
<b>Percent of establishments</b>										
Total use.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
<b>Establishment has one person responsible for directing and overseeing respirator program</b>										
Yes.....	55.1	57.4	33.6	53.6	56.3	40.0	60.4	59.6	16.6	57.0
More than one person.....	31.2	36.5	63.6	29.7	34.7	53.4	30.0	16.5	24.7	29.3
No.....	13.7	6.2	2.8	16.7	9.0	6.7	9.6	23.9	—	13.7
<b>Training regarding respirator use provided to employees<sup>3</sup></b>										
No training required.....	8.6	13.0	1.5	13.9	7.1	—	4.9	13.3	14.0	6.4
Wearers follow manufacturers' instructions.....	32.2	27.7	16.5	36.1	26.1	23.4	20.4	35.0	9.4	39.7
Wearers trained to understand the use and limitations of respirators.....	59.2	59.3	82.1	50.1	66.8	76.1	74.6	51.7	76.6	53.9

See footnotes at end of table

**Table 35. Number and percent of establishments and employees using respirators during the 12 months<sup>1</sup> prior to the survey, by characteristics of respirator program and industry division—Continued**

Respirator use practice	Private industry <sup>2</sup>	Goods producing				Service producing				
		Agriculture, forestry, and fishing <sup>2</sup>	Mining	Construction	Manufacturing	Transportation and public utilities	Wholesale trade	Retail trade	Finance, insurance, and real estate	Services
<b>Percent of establishments</b>										
<b>Establishment has written procedures and schedules for maintaining respirators</b>										
Yes.....	50.1	29.0	61.2	40.0	57.5	63.8	70.5	35.3	75.4	48.7
No.....	35.0	41.6	22.1	42.6	30.6	30.5	23.6	49.6	15.0	34.1
Not needed.....	12.5	23.6	15.4	15.6	10.1	5.4	5.3	12.0	—	13.5
Don't know.....	2.4	5.8	1.3	1.7	1.5	—	.6	3.2	—	3.7
<b>Number of employees</b>										
Total use.....	3,303,414	101,778	53,984	590,987	882,475	189,867	182,922	118,200	22,911	1,160,289
<b>Establishment has one person responsible for directing and overseeing respirator program</b>										
Yes.....	1,524,712	65,822	22,743	258,841	522,632	84,101	82,357	66,237	6,840	415,139
More than one person.....	1,507,151	33,294	30,921	247,080	319,609	93,907	65,127	37,530	8,895	670,788
No.....	271,550	2,662	320	85,066	40,234	—	—	14,433	—	74,362
<b>Training regarding respirator use provided to employees<sup>3</sup></b>										
No training required.....	143,934	23,059	—	20,510	17,892	73	1,326	21,785	3,659	55,389
Wearers follow manufacturers' instructions.....	432,109	17,683	3,089	88,697	75,480	13,895	9,772	33,740	2,664	187,090
Wearers trained to understand the use and limitations of respirators.....	2,727,371	61,037	50,653	481,781	789,103	175,899	171,824	62,675	16,588	917,810
<b>Establishment has written procedures and schedules for maintaining respirators</b>										
Yes.....	2,442,238	35,033	42,554	404,570	742,794	164,126	154,256	44,830	15,995	838,079
No.....	507,341	39,883	6,978	127,135	102,753	13,517	25,310	41,601	5,397	144,766
Not needed.....	296,213	23,695	4,413	52,188	31,590	—	1,604	7,330	1,518	162,041
Don't know.....	57,113	3,166	39	7,094	4,828	390	1,752	24,439	—	15,403
<b>Percent of employees</b>										
Total use.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
<b>Establishment has one person responsible for directing and overseeing respirator program</b>										
Yes.....	46.2	64.7	42.1	43.8	59.2	44.3	45.0	56.0	29.9	35.8
More than one person.....	45.6	32.7	57.3	41.8	36.2	49.5	35.6	31.8	38.8	57.8
No.....	8.2	2.6	0.6	14.4	4.6	—	—	12.2	—	6.4

See footnotes at end of table

**Table 35. Number and percent of establishments and employees using respirators during the 12 months<sup>1</sup> prior to the survey, by characteristics of respirator program and industry division—Continued**

Respirator use practice	Private industry <sup>2</sup>	Goods producing				Service producing				
		Agriculture, forestry, and fishing <sup>2</sup>	Mining	Construction	Manufacturing	Transportation and public utilities	Wholesale trade	Retail trade	Finance, insurance, and real estate	Services
<b>Percent of employees</b>										
<b>Training regarding respirator use provided to employees<sup>3</sup></b>										
No training required.....	4.4	22.7	—	3.5	2.0	0.0	0.7	18.4	16.0	4.8
Wearers follow manufacturers' instructions.....	13.1	17.4	5.7	15.0	8.6	7.3	5.3	28.5	11.6	16.1
Wearers trained to understand the use and limitations of respirators.....	82.6	60.0	93.8	81.5	89.4	92.6	93.9	53.0	72.4	79.1
<b>Establishment has written procedures and schedules for maintaining respirators</b>										
Yes.....	73.9	34.4	78.8	68.5	84.2	86.4	84.3	37.9	69.8	72.2
No.....	15.4	39.2	12.9	21.5	11.6	7.1	13.8	35.2	23.6	12.5
Not needed.....	9.0	23.3	8.2	8.8	3.6	—	.9	6.2	6.6	14.0
Don't know.....	1.7	3.1	.1	1.2	.5	.2	1.0	20.7	—	1.3

<sup>1</sup> The 12-month period represents required use of respirators in the 12 months prior to the establishment's completion of the survey. The survey was mailed to establishments in August 2001.

<sup>2</sup> Excludes farms with fewer than 11 employees.

<sup>3</sup> Establishments were asked to select the best description of how respirators are used.

NOTE: Because of rounding, data exclusion of nonclassifiable responses,

and establishment reports of more than one type of respirator use, data do not sum to the totals. Dashes indicate data that do not meet publication guidelines. A measure of sampling variability for each estimate is available upon request.

SOURCE: Bureau of Labor Statistics, U.S. Department of Labor.

**Table 36. Number and percent of establishments using respirators during the 12 months<sup>1</sup> prior to the survey, by education or training of program administrator and industry division**

Respirator use practice	Private industry <sup>2</sup>	Goods producing				Service producing				
		Agriculture, forestry, and fishing <sup>2</sup>	Mining	Construction	Manufacturing	Transportation and public utilities	Wholesale trade	Retail trade	Finance, insurance, and real estate	Services
<b>Number of establishments</b>										
Total use.....	281,776	13,186	3,493	64,172	48,556	10,351	31,238	16,948	4,202	89,629
<b>Education, training, and/or job experience of respirator program administrator</b>										
No training.....	118,138	6,508	597	30,811	19,141	3,231	12,543	9,877	553	34,878
Trained Industrial Hygienist.....	6,555	—	191	1,275	2,085	655	1,672	—	—	659
Certified Industrial Hygienist (C.I.H.).....	2,640	—	84	—	656	538	—	—	—	792
Occupational Safety and Health Technician.....	13,671	—	201	4,392	1,852	379	—	—	—	6,714
Trained Safety Engineer/Safety Specialist.....	28,122	480	1,210	8,134	7,408	1,460	6,212	1,182	—	1,995
Certified Safety Professional (C.S.P.).....	8,891	—	183	1,014	1,552	655	2,906	—	—	1,776
Occupational Health Nurse.....	3,212	—	41	126	932	—	—	—	—	1,157
Physician.....	3,458	—	—	1,072	211	—	—	—	—	1,726
One-day respirator use training course.....	59,238	2,055	588	13,767	10,986	1,174	6,656	2,639	204	21,170
Multi-day respirator use training course.....	38,908	1,296	875	6,654	6,032	2,083	4,212	1,407	59	16,290
Other.....	74,238	4,262	875	13,161	11,788	2,982	5,235	3,251	1,103	31,582

See footnotes at end of table

**Table 36. Number and percent of establishments using respirators during the 12 months<sup>1</sup> prior to the survey, by education or training of program administrator and industry division—Continued**

Respirator use practice	Private industry <sup>2</sup>	Goods producing				Service producing				
		Agriculture, forestry, and fishing <sup>2</sup>	Mining	Construction	Manufacturing	Transportation and public utilities	Wholesale trade	Retail trade	Finance, insurance, and real estate	Services
<b>Percent of establishments</b>										
Total use.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
<b>Education, training, and/or job experience of respirator program administrator</b>										
No training.....	41.9	49.4	17.1	48.0	39.4	31.2	40.2	58.3	13.2	38.9
Trained Industrial Hygienist.....	2.3	—	5.5	2.0	4.3	6.3	5.4	—	—	.7
Certified Industrial Hygienist (C.I.H.).....	.9	—	2.4	—	1.4	5.2	—	—	—	.9
Occupational Safety and Health Technician.....	4.9	—	5.7	6.8	3.8	3.7	—	—	—	7.5
Trained Safety Engineer/Safety Specialist.....	10.0	3.6	34.6	12.7	15.3	14.1	19.9	7.0	—	2.2
Certified Safety Professional (C.S.P.).....	3.2	—	5.2	1.6	3.2	6.3	9.3	—	—	2.0
Occupational Health Nurse.....	1.1	—	1.2	.2	1.9	—	—	—	—	1.3
Physician.....	1.2	—	—	1.7	.4	—	—	—	—	1.9
One-day respirator use training course.....	21.0	15.6	16.8	21.5	22.6	11.3	21.3	15.6	4.9	23.6
Multi-day respirator use training course.....	13.8	9.8	25.0	10.4	12.4	20.1	13.5	8.3	1.4	18.2
Other.....	26.3	32.3	25.0	20.5	24.3	28.8	16.8	19.2	26.2	35.2

<sup>1</sup> The 12-month period represents required use of respirators in the 12 months prior to the establishment's completion of the survey. The survey was mailed to establishments in August 2001.

<sup>2</sup> Excludes farms with fewer than 11 employees.

NOTE: Because of rounding, data exclusion of nonclassifiable responses,

and establishment reports of more than one type of respirator use, data do not sum to the totals. Dashes indicate data that do not meet publication guidelines. A measure of sampling variability for each estimate is available upon request.

SOURCE: Bureau of Labor Statistics, U.S. Department of Labor.

**Table 37. Number and percent of establishments using respirators during the 12 months<sup>1</sup> prior to the survey, by education or training of program administrator and respirator type**

Respirator use practice	Respirator type			
	Total	Air-purifying	Air-supplied	Both air-purifying and air-supplied
<b>Number of establishments</b>				
Total use.....	281,776	267,467	47,290	41,290
<b>Education, training, and/or job experience of respirator program administrator</b>				
No training.....	118,138	114,545	10,038	8,604
Trained Industrial Hygienist.....	6,555	6,363	3,548	3,446
Certified Industrial Hygienist (C.I.H.).....	2,640	2,621	1,147	1,128
Occupational Safety and Health Technician.....	13,671	13,542	2,220	2,161
Trained Safety Engineer/Safety Specialist.....	28,122	25,458	10,957	10,662
Certified Safety Professional (C.S.P.).....	8,891	8,348	3,306	3,186
Occupational Health Nurse.....	3,212	3,175	339	328
Physician.....	3,458	3,455	130	128
One-day respirator use training course.....	59,238	55,508	13,101	10,781
Multi-day respirator use training course.....	38,908	37,192	11,206	10,597
Other.....	74,238	69,260	10,284	8,166

See footnotes at end of table

**Table 37. Number and percent of establishments using respirators during the 12 months<sup>1</sup> prior to the survey, by education or training of program administrator and respirator type—Continued**

Respirator use practice	Respirator type			
	Total	Air-purifying	Air-supplied	Both air-purifying and air-supplied
<b>Percent of establishments</b>				
Total use.....	100.0	100.0	100.0	100.0
<b>Education, training, and/or job experience of respirator program administrator</b>				
No training.....	41.9	42.8	21.2	20.8
Trained Industrial Hygienist.....	2.3	2.4	7.5	8.3
Certified Industrial Hygienist (C.I.H.).....	.9	1.0	2.4	2.7
Occupational Safety and Health Technician.....	4.9	5.1	4.7	5.2
Trained Safety Engineer/Safety Specialist.....	10.0	9.5	23.2	25.8
Certified Safety Professional (C.S.P.).....	3.2	3.1	7.0	7.7
Occupational Health Nurse.....	1.1	1.2	.7	.8
Physician.....	1.2	1.3	.3	.3
One-day respirator use training course.....	21.0	20.8	27.7	26.1
Multi-day respirator use training course.....	13.8	13.9	23.7	25.7
Other.....	26.3	25.9	21.7	19.8

<sup>1</sup> The 12-month period represents required use of respirators in the 12 months prior to the establishment's completion of the survey. The survey was mailed to establishments in August 2001.

NOTE: Because of rounding, data exclusion of nonclassifiable responses, and establishment reports of more than one type of respirator use, data do not sum

to the totals. Dashes indicate data that do not meet publication guidelines. A measure of sampling variability for each estimate is available upon request.

SOURCE: Bureau of Labor Statistics, U.S. Department of Labor.

**Table 38. Number and percent of establishments using respirators during the 12 months<sup>1</sup> prior to the survey, by provider of employee training and industry division**

Respirator use practice	Private industry <sup>2</sup>	Goods producing				Service producing				
		Agriculture, forestry, and fishing <sup>2</sup>	Mining	Construction	Manufacturing	Transportation and public utilities	Wholesale trade	Retail trade	Finance, insurance, and real estate	Services
<b>Number of establishments</b>										
Total use.....	281,776	13,186	3,493	64,172	48,556	10,351	31,238	16,948	4,202	89,629
<b>Who provides training to employees regarding respirator use</b>										
No training is needed.....	59,276	2,320	235	22,101	6,554	—	3,406	4,828	794	16,997
Respirator program manager.....	50,865	1,287	922	8,552	13,743	1,793	8,195	1,622	625	14,126
Supervisor.....	95,142	6,032	961	22,520	16,794	2,032	11,559	5,234	—	27,270
Medical personnel.....	12,190	—	310	4,021	2,681	328	1,941	408	—	2,317
External consultant.....	29,461	1,330	925	6,032	6,903	1,689	6,486	1,296	—	4,763
Respirator manufacturer sales/technical representative.....	49,414	1,175	563	7,345	9,003	1,388	5,097	3,756	231	20,856
Designated employee.....	38,365	1,935	1,092	10,123	7,820	3,650	4,110	602	175	8,859
Other.....	25,071	339	493	3,677	3,056	1,991	2,458	985	—	11,988
<b>Percent of establishments</b>										
Total use.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
<b>Who provides training to employees regarding respirator use</b>										
No training is needed.....	21.0	17.6	6.7	34.4	13.5	—	10.9	28.5	18.9	19.0
Respirator program manager.....	18.1	9.8	26.4	13.3	28.3	17.3	26.2	9.6	14.9	15.8
Supervisor.....	33.8	45.7	27.5	35.1	34.6	19.6	37.0	30.9	—	30.4
Medical personnel.....	4.3	—	8.9	6.3	5.5	3.2	6.2	2.4	—	2.6
External consultant.....	10.5	10.1	26.5	9.4	14.2	16.3	20.8	7.6	—	5.3
Respirator manufacturer sales/technical representative.....	17.5	8.9	16.1	11.4	18.5	13.4	16.3	22.2	5.5	23.3
Designated employee.....	13.6	14.7	31.3	15.8	16.1	35.3	13.2	3.6	4.2	9.9
Other.....	8.9	2.6	14.1	5.7	6.3	19.2	7.9	5.8	—	13.4

<sup>1</sup> The 12-month period represents required use of respirators in the 12 months prior to the establishment's completion of the survey. The survey was mailed to establishments in August 2001.

<sup>2</sup> Excludes farms with fewer than 11 employees.

NOTE: Because of rounding, data exclusion of nonclassifiable responses, and establishment reports of more than one type of respirator use, data do

not sum to the totals. Dashes indicate data that do not meet publication guidelines. A measure of sampling variability for each estimate is available upon request.

SOURCE: Bureau of Labor Statistics, U.S. Department of Labor.

**Table 39. Number and percent of establishments and employees using respirators during the 12 months<sup>1</sup> prior to the survey, by method of determining respirator use and industry division**

Respirator use practice	Private industry <sup>2</sup>	Goods producing				Service producing				
		Agriculture, forestry, and fishing <sup>2</sup>	Mining	Construction	Manufacturing	Transportation and public utilities	Wholesale trade	Retail trade	Finance, insurance, and real estate	Services
<b>Number of establishments</b>										
Total use.....	281,776	13,186	3,493	64,172	48,556	10,351	31,238	16,948	4,202	89,629
<b>How establishments determine respirator use<sup>3</sup></b>										
Supervisors decide based on employee input and job characteristics.....	64,132	6,785	956	14,715	13,299	1,505	6,710	4,060	3,349	12,753
Employees decide based on job characteristics.....	63,107	2,215	498	17,764	5,318	540	3,934	6,369	—	26,449
Written program adopted by management.....	96,207	1,835	1,703	19,323	22,944	5,133	17,642	2,890	832	23,905
Respirator manufacturers' written instructions.....	57,371	2,025	336	12,370	6,363	3,174	2,951	3,629	—	26,523
<b>Percent of establishments</b>										
Total use.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
<b>How establishments determine respirator use<sup>3</sup></b>										
Supervisors decide based on employee input and job characteristics.....	22.8	51.5	27.4	22.9	27.4	14.5	21.5	24.0	79.7	14.2
Employees decide based on job characteristics.....	22.4	16.8	14.3	27.7	11.0	5.2	12.6	37.6	—	29.5
Written program adopted by management.....	34.1	13.9	48.8	30.1	47.3	49.6	56.5	17.1	19.8	26.7
Respirator manufacturers' written instructions.....	20.4	15.4	9.6	19.3	13.1	30.7	9.4	21.4	—	29.6

See footnotes at end of table

**Table 39. Number and percent of establishments and employees using respirators during the 12 months<sup>1</sup> prior to the survey, by method of determining respirator use and industry division—Continued**

Respirator use practice	Private industry <sup>2</sup>	Goods producing				Service producing				
		Agriculture, forestry, and fishing <sup>2</sup>	Mining	Construction	Manufacturing	Transportation and public utilities	Wholesale trade	Retail trade	Finance, insurance, and real estate	Services
<b>Number of employees</b>										
Total use.....	3,303,414	101,778	53,984	590,987	882,475	189,867	182,922	118,200	22,911	1,160,289
<b>How establishments determine respirator use<sup>3</sup></b>										
Supervisors decide based on employee input and job characteristics.....	459,253	66,674	4,537	101,813	95,549	29,344	13,239	22,904	13,124	112,069
Employees decide based on job characteristics.....	370,994	5,520	8,030	64,700	40,096	3,929	25,571	47,032	1,825	174,291
Written program adopted by management.....	2,116,875	19,639	37,036	375,807	684,366	137,746	125,891	18,999	7,962	709,429
Respirator manufacturers' written instructions.....	355,425	9,758	4,381	48,666	61,783	18,849	18,220	29,266	—	164,500
<b>Percent of employees</b>										
Total use.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
<b>How establishments determine respirator use<sup>3</sup></b>										
Supervisors decide based on employee input and job characteristics.....	13.9	65.5	8.4	17.2	10.8	15.5	7.2	19.4	57.3	9.7
Employees decide based on job characteristics.....	11.2	5.4	14.9	10.9	4.5	2.1	14.0	39.8	8.0	15.0
Written program adopted by management.....	64.1	19.3	68.6	63.6	77.6	72.5	68.8	16.1	34.8	61.1
Respirator manufacturers' written instructions.....	10.8	9.6	8.1	8.2	7.0	9.9	10.0	24.8	—	14.2

<sup>1</sup> The 12-month period represents required use of respirators in the 12 months prior to the establishment's completion of the survey. The survey was mailed to establishments in August 2001.

<sup>2</sup> Excludes farms with fewer than 11 employees.

<sup>3</sup> Establishments were asked to select the best description of how respirators are used.

NOTE: Because of rounding, data exclusion of nonclassifiable responses, and establishment reports of more than one type of respirator use, data do not sum to the totals. Dashes indicate data that do not meet publication guidelines. A measure of sampling variability for each estimate is available upon request.

SOURCE: Bureau of Labor Statistics, U.S. Department of Labor.

**Table 40. Number and percent of establishments and employees using air-purifying respirators during the 12 months<sup>1</sup> prior to the survey, by method of determining respirator use and industry division**

Respirator use practice	Private industry <sup>2</sup>	Goods producing				Service producing				
		Agriculture, forestry, and fishing <sup>2</sup>	Mining	Construction	Manufacturing	Transportation and public utilities	Wholesale trade	Retail trade	Finance, insurance, and real estate	Services
<b>Number of establishments</b>										
Total use.....	281,776	13,186	3,493	64,172	48,556	10,351	31,238	16,948	4,202	89,629
Total air-purifying respirators.....	267,467	13,167	3,453	60,012	46,232	9,718	27,966	16,107	4,202	86,610
<b>How establishments determine respirator use<sup>3</sup></b>										
Supervisors decide based on employee input and job characteristics.....	62,751	6,785	956	14,635	12,843	1,451	6,217	4,060	3,349	12,456
Employees decide based on job characteristics.....	61,287	2,215	498	17,283	5,158	525	3,512	6,136	—	25,940
Written program adopted by management.....	88,938	1,816	1,676	17,064	21,739	4,595	15,349	2,602	832	23,265
Respirator manufacturers' written instructions.....	53,533	2,025	324	11,030	5,862	3,147	2,888	3,309	—	24,950
<b>Percent of establishments</b>										
Total air-purifying respirators.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
<b>How establishments determine respirator use<sup>3</sup></b>										
Supervisors decide based on employee input and job characteristics.....	23.5	51.5	27.7	24.4	27.8	14.9	22.2	25.2	79.7	14.4
Employees decide based on job characteristics.....	22.9	16.8	14.4	28.8	11.2	5.4	12.6	38.1	—	30.0
Written program adopted by management.....	33.3	13.8	48.5	28.4	47.0	47.3	54.9	16.2	19.8	26.9
Respirator manufacturers' written instructions.....	20.0	15.4	9.4	18.4	12.7	32.4	10.3	20.5	—	28.8

See footnotes at end of table

**Table 40. Number and percent of establishments and employees using air-purifying respirators during the 12 months<sup>1</sup> prior to the survey, by method of determining respirator use and industry division—Continued**

Respirator use practice	Private industry <sup>2</sup>	Goods producing				Service producing				
		Agriculture, forestry, and fishing <sup>2</sup>	Mining	Construction	Manufacturing	Transportation and public utilities	Wholesale trade	Retail trade	Finance, insurance, and real estate	Services
<b>Number of employees</b>										
Total use.....	3,303,414	101,778	53,984	590,987	882,475	189,867	182,922	118,200	22,911	1,160,289
Total air-purifying respirators.....	3,114,464	101,654	47,995	566,909	803,157	170,068	164,529	115,882	22,911	1,121,358
<b>How establishments determine respirator use<sup>3</sup></b>										
Supervisors decide based on employee input and job characteristics.....	450,768	66,556	4,470	99,863	92,786	28,093	12,247	22,692	13,124	110,937
Employees decide based on job characteristics.....	367,014	5,520	8,011	64,392	37,932	3,681	25,571	46,730	1,825	173,352
Written program adopted by management.....	1,985,454	19,632	33,276	354,527	614,340	121,052	109,188	17,921	7,962	707,556
Respirator manufacturers' written instructions.....	310,360	9,758	2,239	48,128	57,418	17,242	17,523	28,539	—	129,514
<b>Percent of employees</b>										
Total air-purifying respirators.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
<b>How establishments determine respirator use<sup>3</sup></b>										
Supervisors decide based on employee input and job characteristics.....	14.5	65.5	9.3	17.6	11.6	16.5	7.4	19.6	57.3	9.9
Employees decide based on job characteristics.....	11.8	5.4	16.7	11.4	4.7	2.2	15.5	40.3	8.0	15.5
Written program adopted by management.....	63.7	19.3	69.3	62.5	76.5	71.2	66.4	15.5	34.8	63.1
Respirator manufacturers' written instructions.....	10.0	9.6	4.7	8.5	7.1	10.1	10.7	24.6	—	11.5

<sup>1</sup> The 12-month period represents required use of respirators in the 12 months prior to the establishment's completion of the survey. The survey was mailed to establishments in August 2001.

<sup>2</sup> Excludes farms with fewer than 11 employees.

<sup>3</sup> Establishments were asked to select the best description of how respirators are used.

NOTE: Because of rounding, data exclusion of nonclassifiable responses, and establishment reports of more than one type of respirator use, data do not sum to the totals. Dashes indicate data that do not meet publication guidelines. A measure of sampling variability for each estimate is available upon request.

SOURCE: Bureau of Labor Statistics, U.S. Department of Labor.

**Table 41. Number and percent of establishments and employees using air-supplied respirators during the 12 months<sup>1</sup> prior to the survey, by method of determining respirator use and industry division**

Respirator use practice	Private industry <sup>2</sup>	Goods producing				Service producing				
		Agriculture, forestry, and fishing <sup>2</sup>	Mining	Construction	Manufacturing	Transportation and public utilities	Wholesale trade	Retail trade	Finance, insurance, and real estate	Services
<b>Number of establishments</b>										
Total use.....	281,776	13,186	3,493	64,172	48,556	10,351	31,238	16,948	4,202	89,629
Total air-supplied respirators.....	47,290	479	592	10,546	12,702	3,786	6,816	2,879	—	9,490
<b>How establishments determine respirator use<sup>3</sup></b>										
Supervisors decide based on employee input and job characteristics.....	7,112	357	39	2,161	2,231	737	647	350	—	589
Employees decide based on job characteristics.....	4,963	—	57	157	776	101	—	915	—	2,400
Written program adopted by management.....	27,458	—	453	7,259	8,490	2,818	5,466	418	—	2,432
Respirator manufacturers' written instructions.....	7,756	—	42	968	1,205	130	146	1,197	—	4,069
<b>Percent of establishments</b>										
Total air-supplied respirators.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
<b>How establishments determine respirator use<sup>3</sup></b>										
Supervisors decide based on employee input and job characteristics.....	15.0	74.5	6.7	20.5	17.6	19.5	9.5	12.2	—	6.2
Employees decide based on job characteristics.....	10.5	—	9.7	1.5	6.1	2.7	—	31.8	—	25.3
Written program adopted by management.....	58.1	—	76.6	68.8	66.8	74.4	80.2	14.5	—	25.6
Respirator manufacturers' written instructions.....	16.4	—	7.1	9.2	9.5	3.4	2.1	41.6	—	42.9

See footnotes at end of table

**Table 41. Number and percent of establishments and employees using air-supplied respirators during the 12 months<sup>1</sup> prior to the survey, by method of determining respirator use and industry division—Continued**

Respirator use practice	Private industry <sup>2</sup>	Goods producing				Service producing				
		Agriculture, forestry, and fishing <sup>2</sup>	Mining	Construction	Manufacturing	Transportation and public utilities	Wholesale trade	Retail trade	Finance, insurance, and real estate	Services
<b>Number of employees</b>										
Total use.....	3,303,414	101,778	53,984	590,987	882,475	189,867	182,922	118,200	22,911	1,160,289
Total air-supplied respirators.....	415,964	1,544	8,234	96,637	158,657	42,125	29,848	16,952	—	61,967
<b>How establishments determine respirator use<sup>3</sup></b>										
Supervisors decide based on employee input and job characteristics.....	27,556	1,020	243	9,200	7,679	2,594	1,451	4,042	—	1,327
Employees decide based on job characteristics.....	18,068	—	—	361	5,069	1,504	—	4,543	—	4,847
Written program adopted by management.....	307,107	—	4,978	84,558	139,141	34,289	26,338	1,829	—	15,449
Respirator manufacturers' written instructions.....	63,233	—	—	2,517	6,768	3,739	697	6,537	—	40,344
<b>Percent of employees</b>										
Total air-supplied respirators.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
<b>How establishments determine respirator use<sup>3</sup></b>										
Supervisors decide based on employee input and job characteristics.....	6.6	66.1	2.9	9.5	4.8	6.2	4.9	23.8	—	2.1
Employees decide based on job characteristics.....	4.3	—	—	.4	3.2	3.6	—	26.8	—	7.8
Written program adopted by management.....	73.8	—	60.5	87.5	87.7	81.4	88.2	10.8	—	24.9
Respirator manufacturers' written instructions.....	15.2	—	—	2.6	4.3	8.9	2.3	38.6	—	65.1

<sup>1</sup> The 12-month period represents required use of respirators in the 12 months prior to the establishment's completion of the survey. The survey was mailed to establishments in August 2001.

<sup>2</sup> Excludes farms with fewer than 11 employees.

<sup>3</sup> Establishments were asked to select the best description of how respirators are used.

NOTE: Because of rounding, data exclusion of nonclassifiable responses, and establishment reports of more than one type of respirator use, data do not sum to the totals. Dashes indicate data that do not meet publication guidelines. A measure of sampling variability for each estimate is available upon request.

SOURCE: Bureau of Labor Statistics, U.S. Department of Labor.

**Table 42. Number and percent of establishments using both air-purifying and air-supplied respirators during the 12 months<sup>1</sup> prior to the survey, by method of determining respirator use and industry division**

Respirator use practice	Private industry <sup>2</sup>	Goods producing				Service producing				
		Agriculture, forestry, and fishing <sup>2</sup>	Mining	Construction	Manufacturing	Transportation and public utilities	Wholesale trade	Retail trade	Finance, insurance, and real estate	Services
<b>Number of establishments</b>										
Total use.....	281,776	13,186	3,493	64,172	48,556	10,351	31,238	16,948	4,202	89,629
Both air-purifying and air-supplied respirators.....	41,290	460	561	9,880	10,979	3,154	6,721	2,374	—	7,160
<b>How establishments determine respirator use<sup>3</sup></b>										
Supervisors decide based on employee input and job characteristics.....	6,508	357	39	2,081	1,913	684	647	350	—	436
Employees decide based on job characteristics.....	4,406	—	57	157	672	87	—	842	—	2,035
Written program adopted by management.....	25,511	—	436	7,100	7,658	2,279	5,435	306	—	2,194
Respirator manufacturers' written instructions.....	4,865	—	29	541	737	104	—	877	—	2,495
<b>Percent of establishments</b>										
Both air-purifying and air-supplied respirators.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
<b>How establishments determine respirator use<sup>3</sup></b>										
Supervisors decide based on employee input and job characteristics.....	15.8	77.6	7.0	21.1	17.4	21.7	9.6	14.7	—	6.1
Employees decide based on job characteristics.....	10.7	—	10.2	1.6	6.1	2.8	—	35.4	—	28.4
Written program adopted by management.....	61.8	—	77.6	71.9	69.7	72.3	80.9	12.9	—	30.6
Respirator manufacturers' written instructions.....	11.8	—	5.2	5.5	6.7	3.3	—	36.9	—	34.9

<sup>1</sup> The 12-month period represents required use of respirators in the 12 months prior to the establishment's completion of the survey. The survey was mailed to establishments in August 2001.

<sup>2</sup> Excludes farms with fewer than 11 employees.

<sup>3</sup> Establishments were asked to select the best description of how respirators are used.

NOTE: Because of rounding, data exclusion of nonclassifiable responses, and establishment reports of more than one type of respirator use, data do not sum to the totals. Dashes indicate data that do not meet publication guidelines. A measure of sampling variability for each estimate is available upon request.

SOURCE: Bureau of Labor Statistics, U.S. Department of Labor.

**Table 43. Number and percent of establishments and employees using respirators during the 12 months<sup>1</sup> prior to the survey, by method of assessing employees' medical fitness and industry division**

Respirator use practice	Private industry <sup>2</sup>	Goods producing				Service producing				
		Agriculture, forestry, and fishing <sup>2</sup>	Mining	Construction	Manufacturing	Transportation and public utilities	Wholesale trade	Retail trade	Finance, insurance, and real estate	Services
<b>Number of establishments</b>										
Total use.....	281,776	13,186	3,493	64,172	48,556	10,351	31,238	16,948	4,202	89,629
<b>Establishment assesses employees' medical fitness to wear respirators</b>										
Yes.....	132,346	3,309	2,246	24,142	27,172	8,984	20,093	4,544	2,777	39,081
<b>Method of assessment used by establishment</b>										
Questionnaire only.....	14,761	746	178	1,589	977	400	514	456	—	9,900
Questionnaire with follow-up exam, as needed.....	64,839	1,141	1,223	15,540	17,905	4,045	12,446	2,465	—	7,457
Physical exam only.....	40,950	584	569	6,341	5,410	3,406	5,663	1,406	—	17,570
Other.....	13,157	837	305	1,742	3,320	1,132	1,470	273	161	3,917
No.....	130,648	7,805	1,068	33,522	18,315	1,366	10,662	11,440	1,230	45,240
Don't know.....	13,598	2,073	150	4,324	1,457	—	483	640	—	4,275
<b>Percent of establishments</b>										
Total use.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
<b>Establishment assesses employees' medical fitness to wear respirators</b>										
Yes.....	47.0	25.1	64.3	37.6	56.0	86.8	64.3	26.8	66.1	43.6
<b>Method of assessment used by establishment</b>										
Questionnaire only.....	5.2	5.7	5.1	2.5	2.0	3.9	1.6	2.7	—	11.0
Questionnaire with follow-up exam, as needed.....	23.0	8.7	35.0	24.2	36.9	39.1	39.8	14.5	—	8.3
Physical exam only.....	14.5	4.4	16.3	9.9	11.1	32.9	18.1	8.3	—	19.6
Other.....	4.7	6.3	8.7	2.7	6.8	10.9	4.7	1.6	3.8	4.4
No.....	46.4	59.2	30.6	52.2	37.7	13.2	34.1	67.5	29.3	50.5
Don't know.....	4.8	15.7	4.3	6.7	3.0	—	1.5	3.8	—	4.8

See footnotes at end of table

**Table 43. Number and percent of establishments and employees using respirators during the 12 months<sup>1</sup> prior to the survey, by method of assessing employees' medical fitness and industry division—Continued**

Respirator use practice	Private industry <sup>2</sup>	Goods producing				Service producing				
		Agriculture, forestry, and fishing <sup>2</sup>	Mining	Construction	Manufacturing	Transportation and public utilities	Wholesale trade	Retail trade	Finance, insurance, and real estate	Services
<b>Number of employees</b>										
Total use.....	3,303,414	101,778	53,984	590,987	882,475	189,867	182,922	118,200	22,911	1,160,289
<b>Establishment assesses employees' medical fitness to wear respirators</b>										
Yes.....	2,452,845	34,311	41,617	415,265	742,013	176,288	163,247	46,935	11,690	821,479
<b>Method of assessment used by establishment</b>										
Questionnaire only.....	229,446	7,381	468	18,248	13,030	1,194	4,374	1,454	—	183,297
Questionnaire with follow-up exam, as needed.....	1,676,084	21,276	28,414	286,522	565,311	104,126	103,310	38,426	—	518,036
Physical exam only.....	349,665	2,153	5,477	86,814	85,135	51,705	51,715	4,800	—	61,866
Other.....	209,353	3,501	7,307	23,576	90,845	19,263	3,847	2,610	1,027	57,377
No.....	695,176	61,655	11,986	155,915	103,389	13,579	17,131	41,439	10,144	279,939
Don't know.....	116,378	5,812	333	13,202	17,100	—	2,544	23,016	1,076	53,294
<b>Percent of employees</b>										
Total use.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
<b>Establishment assesses employees' medical fitness to wear respirators</b>										
Yes.....	74.3	33.7	77.1	70.3	84.1	92.8	89.2	39.7	51.0	70.8
<b>Method of assessment used by establishment</b>										
Questionnaire only.....	6.9	7.3	.9	3.1	1.5	.6	2.4	1.2	—	15.8
Questionnaire with follow-up exam, as needed.....	50.7	20.9	52.6	48.5	64.1	54.8	56.5	32.5	—	44.6
Physical exam only.....	10.6	2.1	10.1	14.7	9.6	27.2	28.3	4.1	—	5.3
Other.....	6.3	3.4	13.5	4.0	10.3	10.1	2.1	2.2	4.5	4.9
No.....	21.0	60.6	22.2	26.4	11.7	7.2	9.4	35.1	44.3	24.1
Don't know.....	3.5	5.7	.6	2.2	1.9	—	1.4	19.5	4.7	4.6

<sup>1</sup> The 12-month period represents required use of respirators in the 12 months prior to the establishment's completion of the survey. The survey was mailed to establishments in August 2001.

<sup>2</sup> Excludes farms with fewer than 11 employees.

NOTE: Because of rounding, data exclusion of nonclassifiable responses,

and establishment reports of more than one type of respirator use, data do not sum to the totals. Dashes indicate data that do not meet publication guidelines. A measure of sampling variability for each estimate is available upon request.

SOURCE: Bureau of Labor Statistics, U.S. Department of Labor.

**Table 44. Number and percent of establishments and employees using air-purifying respirators during the 12 months<sup>1</sup> prior to the survey, by method of assessing employees' medical fitness and industry division**

Respirator use practice	Private industry <sup>2</sup>	Goods producing				Service producing				
		Agriculture, forestry, and fishing <sup>2</sup>	Mining	Construction	Manufacturing	Transportation and public utilities	Wholesale trade	Retail trade	Finance, insurance, and real estate	Services
<b>Number of establishments</b>										
Total use.....	281,776	13,186	3,493	64,172	48,556	10,351	31,238	16,948	4,202	89,629
Total air-purifying respirators.....	267,467	13,167	3,453	60,012	46,232	9,718	27,966	16,107	4,202	86,610
<b>Establishment assesses employees' medical fitness to wear respirators</b>										
Yes.....	124,015	3,290	2,228	21,397	25,372	8,759	17,800	4,183	2,777	38,211
<b>Method of assessment used by establishment</b>										
Questionnaire only.....	14,664	746	178	1,589	879	400	514	456	—	9,900
Questionnaire with follow-up exam, as needed.....	57,649	1,123	1,205	12,527	16,765	3,834	10,576	2,340	—	6,664
Physical exam only.....	39,861	584	569	6,188	5,139	3,399	5,240	1,171	—	17,570
Other.....	12,777	837	305	1,682	3,084	1,125	1,470	273	161	3,840
No.....	126,152	7,805	1,045	33,069	17,836	960	9,683	11,002	1,230	43,522
Don't know.....	12,597	2,073	150	3,843	1,412	—	483	598	—	3,843
<b>Percent of establishments</b>										
Total air-purifying respirators.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
<b>Establishment assesses employees' medical fitness to wear respirators</b>										
Yes.....	46.4	25.0	64.5	35.7	54.9	90.1	63.7	26.0	66.1	44.1
<b>Method of assessment used by establishment</b>										
Questionnaire only.....	5.5	5.7	5.1	2.6	1.9	4.1	1.8	2.8	—	11.4
Questionnaire with follow-up exam, as needed.....	21.6	8.5	34.9	20.9	36.3	39.4	37.8	14.5	—	7.7
Physical exam only.....	14.9	4.4	16.5	10.3	11.1	35.0	18.7	7.3	—	20.3
Other.....	4.8	6.4	8.8	2.8	6.7	11.6	5.3	1.7	3.8	4.4
No.....	47.2	59.3	30.3	55.1	38.6	9.9	34.6	68.3	29.3	50.3
Don't know.....	4.7	15.7	4.3	6.4	3.1	—	1.7	3.7	—	4.4

See footnotes at end of table

**Table 44. Number and percent of establishments and employees using air-purifying respirators during the 12 months<sup>1</sup> prior to the survey, by method of assessing employees' medical fitness and industry division—Continued**

Respirator use practice	Private industry <sup>2</sup>	Goods producing				Service producing				
		Agriculture, forestry, and fishing <sup>2</sup>	Mining	Construction	Manufacturing	Transportation and public utilities	Wholesale trade	Retail trade	Finance, insurance, and real estate	Services
<b>Number of employees</b>										
Total use.....	3,303,414	101,778	53,984	590,987	882,475	189,867	182,922	118,200	22,911	1,160,289
Total air-purifying respirators.....	3,114,464	101,654	47,995	566,909	803,157	170,068	164,529	115,882	22,911	1,121,358
<b>Establishment assesses employees' medical fitness to wear respirators</b>										
Yes.....	2,309,052	34,304	37,838	392,079	666,235	157,046	145,656	45,250	11,690	818,954
<b>Method of assessment used by establishment</b>										
Questionnaire only.....	227,822	7,381	468	18,202	11,451	1,194	4,374	1,454	—	183,297
Questionnaire with follow-up exam, as needed.....	1,569,536	21,269	24,646	267,580	508,096	88,327	95,903	37,476	—	515,576
Physical exam only.....	324,944	2,153	5,465	82,793	76,634	50,357	41,610	4,066	—	61,866
Other.....	197,863	3,501	7,307	23,397	81,771	17,169	3,769	2,610	1,027	57,312
No.....	651,470	61,538	9,776	155,173	100,664	13,022	16,329	40,883	10,144	243,940
Don't know.....	115,693	5,812	333	13,052	17,011	—	2,544	22,938	1,076	52,926
<b>Percent of employees</b>										
Total air-purifying respirators.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
<b>Establishment assesses employees' medical fitness to wear respirators</b>										
Yes.....	74.1	33.7	78.8	69.2	83.0	92.3	88.5	39.0	51.0	73.0
<b>Method of assessment used by establishment</b>										
Questionnaire only.....	7.3	7.3	1.0	3.2	1.4	.7	2.7	1.3	—	16.3
Questionnaire with follow-up exam, as needed.....	50.4	20.9	51.4	47.2	63.3	51.9	58.3	32.3	—	46.0
Physical exam only.....	10.4	2.1	11.4	14.6	9.5	29.6	25.3	3.5	—	5.5
Other.....	6.4	3.4	15.2	4.1	10.2	10.1	2.3	2.3	4.5	5.1
No.....	20.9	60.5	20.4	27.4	12.5	7.7	9.9	35.3	44.3	21.8
Don't know.....	3.7	5.7	.7	2.3	2.1	—	1.5	19.8	4.7	4.7

<sup>1</sup> The 12-month period represents required use of respirators in the 12 months prior to the establishment's completion of the survey. The survey was mailed to establishments in August 2001.

<sup>2</sup> Excludes farms with fewer than 11 employees.

NOTE: Because of rounding, data exclusion of nonclassifiable responses, and establishment reports of more than one type of respirator use, data do

not sum to the totals. Dashes indicate data that do not meet publication guidelines. A measure of sampling variability for each estimate is available upon request.

SOURCE: Bureau of Labor Statistics, U.S. Department of Labor.

**Table 45. Number and percent of establishments and employees using air-supplied respirators during the 12 months<sup>1</sup> prior to the survey, by method of assessing employees' medical fitness and industry division**

Respirator use practice	Private industry <sup>2</sup>	Goods producing				Service producing				
		Agriculture, forestry, and fishing <sup>2</sup>	Mining	Construction	Manufacturing	Transportation and public utilities	Wholesale trade	Retail trade	Finance, insurance, and real estate	Services
<b>Number of establishments</b>										
Total use.....	281,776	13,186	3,493	64,172	48,556	10,351	31,238	16,948	4,202	89,629
Total air-supplied respirators.....	47,290	479	592	10,546	12,702	3,786	6,816	2,879	—	9,490
<b>Establishment assesses employees' medical fitness to wear respirators</b>										
Yes.....	33,533	254	503	9,249	10,205	3,343	6,067	1,004	—	2,908
<b>Method of assessment used by establishment</b>										
Questionnaire only.....	1,370	—	—	132	266	—	—	—	—	—
Questionnaire with follow-up exam, as needed.....	21,047	212	439	6,186	6,965	1,880	3,314	543	—	1,508
Physical exam only.....	7,809	—	—	2,178	1,825	808	2,195	373	—	411
Other.....	3,385	—	46	753	1,189	625	—	125	—	88
No.....	12,383	—	88	1,237	2,010	444	748	1,497	—	6,134
Don't know.....	934	—	—	—	317	—	—	153	—	403
<b>Percent of establishments</b>										
Total air-supplied respirators.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
<b>Establishment assesses employees' medical fitness to wear respirators</b>										
Yes.....	70.9	53.0	85.1	87.7	80.3	88.3	89.0	34.9	—	30.6
<b>Method of assessment used by establishment</b>										
Questionnaire only.....	2.9	—	—	1.3	2.1	—	—	—	—	—
Questionnaire with follow-up exam, as needed.....	44.5	44.3	74.2	58.7	54.8	49.6	48.6	18.9	—	15.9
Physical exam only.....	16.5	—	—	20.7	14.4	21.3	32.2	13.0	—	4.3
Other.....	7.2	—	7.7	7.1	9.4	16.5	—	4.3	—	.9
No.....	26.2	—	14.9	11.7	15.8	11.7	11.0	52.0	—	64.6
Don't know.....	2.0	—	—	—	2.5	—	—	5.3	—	4.2

See footnotes at end of table

**Table 45. Number and percent of establishments and employees using air-supplied respirators during the 12 months<sup>1</sup> prior to the survey, by method of assessing employees' medical fitness and industry division—Continued**

Respirator use practice	Private industry <sup>2</sup>	Goods producing				Service producing				
		Agriculture, forestry, and fishing <sup>2</sup>	Mining	Construction	Manufacturing	Transportation and public utilities	Wholesale trade	Retail trade	Finance, insurance, and real estate	Services
<b>Number of employees</b>										
Total use.....	3,303,414	101,778	53,984	590,987	882,475	189,867	182,922	118,200	22,911	1,160,289
Total air-supplied respirators.....	415,964	1,544	8,234	96,637	158,657	42,125	29,848	16,952	—	61,967
<b>Establishment assesses employees' medical fitness to wear respirators</b>										
Yes.....	345,730	929	5,323	93,986	152,172	41,538	28,826	6,376	—	16,581
<b>Method of assessment used by establishment</b>										
Questionnaire only.....	8,955	—	—	—	2,032	143	—	—	—	—
Questionnaire with follow-up exam, as needed.....	231,980	832	4,566	53,581	115,008	32,998	10,687	5,292	—	9,014
Physical exam only.....	75,852	—	34	36,301	15,957	4,204	—	1,044	—	737
Other.....	29,535	—	723	3,773	19,639	4,193	563	166	—	—
No.....	64,016	—	2,911	2,501	4,822	587	1,023	6,871	—	44,685
Don't know.....	1,817	—	—	150	847	—	—	289	—	531
<b>Percent of employees</b>										
Total air-supplied respirators.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
<b>Establishment assesses employees' medical fitness to wear respirators</b>										
Yes.....	83.1	60.2	64.6	97.3	95.9	98.6	96.6	37.6	—	26.8
<b>Method of assessment used by establishment</b>										
Questionnaire only.....	2.2	—	—	—	1.3	.3	—	—	—	—
Questionnaire with follow-up exam, as needed.....	55.8	53.9	55.5	55.4	72.5	78.3	35.8	31.2	—	14.5
Physical exam only.....	18.2	—	.4	37.6	10.1	10.0	—	6.2	—	1.2
Other.....	7.1	—	8.8	3.9	12.4	10.0	1.9	1.0	—	—
No.....	15.4	—	35.4	2.6	3.0	1.4	3.4	40.5	—	72.1
Don't know.....	.4	—	—	.2	.5	—	—	1.7	—	.9

<sup>1</sup> The 12-month period represents required use of respirators in the 12 months prior to the establishment's completion of the survey. The survey was mailed to establishments in August 2001.

<sup>2</sup> Excludes farms with fewer than 11 employees.

NOTE: Because of rounding, data exclusion of nonclassifiable responses, and establishment reports of more than one type of respirator use, data do

not sum to the totals. Dashes indicate data that do not meet publication guidelines. A measure of sampling variability for each estimate is available upon request.

SOURCE: Bureau of Labor Statistics, U.S. Department of Labor.

**Table 46. Number and percent of establishments using both air-purifying and air-supplied respirators during the 12 months<sup>1</sup> prior to the survey, by method of assessing employees' medical fitness and industry division**

Respirator use practice	Private industry <sup>2</sup>	Goods producing				Service producing				
		Agriculture, forestry, and fishing <sup>2</sup>	Mining	Construction	Manufacturing	Transportation and public utilities	Wholesale trade	Retail trade	Finance, insurance, and real estate	Services
<b>Number of establishments</b>										
Total use.....	281,776	13,186	3,493	64,172	48,556	10,351	31,238	16,948	4,202	89,629
Both air-purifying and air-supplied respirators.....	41,290	460	561	9,880	10,979	3,154	6,721	2,374	—	7,160
<b>Establishment assesses employees' medical fitness to wear respirators</b>										
Yes.....	30,746	235	486	8,664	8,951	3,117	6,036	820	—	2,439
<b>Method of assessment used by establishment</b>										
Questionnaire only.....	1,273	—	—	132	169	—	—	—	—	—
Questionnaire with follow-up exam, as needed.....	19,305	193	421	5,753	6,364	1,668	3,282	506	—	1,117
Physical exam only.....	7,237	—	—	2,025	1,561	800	2,195	226	—	411
Other.....	3,065	—	46	753	953	618	—	125	—	—
No.....	9,545	—	76	1,156	1,587	37	685	1,219	—	4,560
Don't know.....	558	—	—	—	272	—	—	112	—	115
<b>Percent of establishments</b>										
Both air-purifying and air-supplied respirators.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
<b>Establishment assesses employees' medical fitness to wear respirators</b>										
Yes.....	74.5	51.0	86.5	87.7	81.5	98.8	89.8	34.5	—	34.1
<b>Method of assessment used by establishment</b>										
Questionnaire only.....	3.1	—	—	1.3	1.5	—	—	—	—	—
Questionnaire with follow-up exam, as needed.....	46.8	42.0	75.0	58.2	58.0	52.9	48.8	21.3	—	15.6
Physical exam only.....	17.5	—	—	20.5	14.2	25.4	32.7	9.5	—	5.7
Other.....	7.4	—	8.2	7.6	8.7	19.6	—	5.3	—	—
No.....	23.1	—	13.5	11.7	14.5	1.2	10.2	51.3	—	63.7
Don't know.....	1.4	—	—	—	2.5	—	—	4.7	—	1.6

<sup>1</sup> The 12-month period represents required use of respirators in the 12 months prior to the establishment's completion of the survey. The survey was mailed to establishments in August 2001.

<sup>2</sup> Excludes farms with fewer than 11 employees.

NOTE: Because of rounding, data exclusion of nonclassifiable responses, and establishment reports of more than one type of respirator use, data do

not sum to the totals. Dashes indicate data that do not meet publication guidelines. A measure of sampling variability for each estimate is available upon request.

SOURCE: Bureau of Labor Statistics, U.S. Department of Labor.

**Table 47. Number and percent of establishments and employees using respirators during the 12 months<sup>1</sup> prior to the survey, by determiner of employees' medical fitness and industry division**

Respirator use practice	Private industry <sup>2</sup>	Goods producing				Service producing				
		Agriculture, forestry, and fishing <sup>2</sup>	Mining	Construction	Manufacturing	Transportation and public utilities	Wholesale trade	Retail trade	Finance, insurance, and real estate	Services
<b>Number of establishments</b>										
Total use.....	281,776	13,186	3,493	64,172	48,556	10,351	31,238	16,948	4,202	89,629
<b>Who determines employees' medical fitness for respirator use</b>										
Nurse(s) employed by contract, direct salary, or fee for service.....	10,124	—	70	1,974	2,665	424	2,390	—	—	2,282
Physician(s) employed by contract, direct salary, or fee for service.....	64,589	1,174	773	13,010	15,332	5,957	9,549	2,769	222	15,804
Individual employees' personal physicians.....	22,891	643	116	3,764	2,652	424	921	534	—	11,377
Contract occupational health service.....	39,218	734	1,154	8,955	10,487	2,851	11,087	534	—	3,320
Other.....	15,132	787	307	1,348	1,197	565	693	506	—	9,727
Don't know.....	3,466	—	—	1,119	490	—	—	225	—	1,459
<b>Percent of establishments</b>										
Total use.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
<b>Who determines employees' medical fitness for respirator use</b>										
Nurse(s) employed by contract, direct salary, or fee for service.....	3.6	—	2.0	3.1	5.5	4.1	7.7	—	—	2.5
Physician(s) employed by contract, direct salary, or fee for service.....	22.9	8.9	22.1	20.3	31.6	57.5	30.6	16.3	5.3	17.6
Individual employees' personal physicians.....	8.1	4.9	3.3	5.9	5.5	4.1	2.9	3.2	—	12.7
Contract occupational health service.....	13.9	5.6	33.0	14.0	21.6	27.5	35.5	3.2	—	3.7
Other.....	5.4	6.0	8.8	2.1	2.5	5.5	2.2	3.0	—	10.9
Don't know.....	1.2	—	—	1.7	1.0	—	—	1.3	—	7.0

See footnotes at end of table

**Table 47. Number and percent of establishments and employees using respirators during the 12 months<sup>1</sup> prior to the survey, by determiner of employees' medical fitness and industry division—Continued**

Respirator use practice	Private industry <sup>2</sup>	Goods producing				Service producing				
		Agriculture, forestry, and fishing <sup>2</sup>	Mining	Construction	Manufacturing	Transportation and public utilities	Wholesale trade	Retail trade	Finance, insurance, and real estate	Services
<b>Number of employees</b>										
Total use.....	3,303,414	101,778	53,984	590,987	882,475	189,867	182,922	118,200	22,911	1,160,289
<b>Who determines employees' medical fitness for respirator use</b>										
Nurse(s) employed by contract, direct salary, or fee for service.....	776,140	—	1,538	139,466	200,252	17,503	34,346	303	—	376,011
Physician(s) employed by contract, direct salary, or fee for service.....	1,430,407	9,536	19,063	308,903	489,742	119,878	122,884	34,459	3,617	322,323
Individual employees' personal physicians.....	205,435	2,522	586	19,073	24,391	2,690	—	2,792	7,126	131,983
Contract occupational health service.....	589,523	14,811	20,367	113,291	219,743	60,242	56,078	6,429	947	97,614
Other.....	235,484	5,238	5,251	23,693	32,950	4,825	4,060	3,127	—	156,340
Don't know.....	19,761	—	56	7,002	3,135	—	222	—	—	—
<b>Percent of employees</b>										
Total use.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
<b>Who determines employees' medical fitness for respirator use</b>										
Nurse(s) employed by contract, direct salary, or fee for service.....	23.5	—	2.8	23.6	22.7	9.2	18.8	.3	—	32.4
Physician(s) employed by contract, direct salary, or fee for service.....	43.3	9.4	35.3	52.3	55.5	63.1	67.2	29.2	15.8	27.8
Individual employees' personal physicians.....	6.2	2.5	1.1	3.2	2.8	1.4	—	2.4	31.1	11.4
Contract occupational health service.....	17.8	14.6	37.7	19.2	24.9	31.7	30.7	5.4	4.1	8.4
Other.....	7.1	5.1	9.7	4.0	3.7	2.5	2.2	2.6	—	13.5
Don't know.....	.6	—	.1	1.2	.4	—	.1	—	—	—

<sup>1</sup> The 12-month period represents required use of respirators in the 12 months prior to the establishment's completion of the survey. The survey was mailed to establishments in August 2001.

<sup>2</sup> Excludes farms with fewer than 11 employees.

NOTE: Because of rounding, data exclusion of nonclassifiable responses, establishment reports of more than one type of respirator use, and

establishment omission of questionnaire response, data do not sum to the totals. Dashes indicate data that do not meet publication guidelines. A measure of sampling variability for each estimate is available upon request.

SOURCE: Bureau of Labor Statistics, U.S. Department of Labor.

**Table 48. Number and percent of establishments and employees using air-purifying respirators during the 12 months<sup>1</sup> prior to the survey, by determiner of employees' medical fitness and industry division**

Respirator use practice	Private industry <sup>2</sup>	Goods producing				Service producing				
		Agriculture, forestry, and fishing <sup>2</sup>	Mining	Construction	Manufacturing	Transportation and public utilities	Wholesale trade	Retail trade	Finance, insurance, and real estate	Services
<b>Number of establishments</b>										
Total use.....	281,776	13,186	3,493	64,172	48,556	10,351	31,238	16,948	4,202	89,629
Total air-purifying respirators.....	267,467	13,167	3,453	60,012	46,232	9,718	27,966	16,107	4,202	86,610
<b>Who determines employees' medical fitness for respirator use</b>										
Nurse(s) employed by contract, direct salary, or fee for service.....	9,922	—	70	1,974	2,572	424	2,320	—	—	2,242
Physician(s) employed by contract, direct salary, or fee for service.....	60,416	1,174	755	11,740	14,427	5,781	8,594	2,680	222	15,043
Individual employees' personal physicians.....	22,275	643	116	3,338	2,469	417	921	534	—	11,377
Contract occupational health service.....	35,279	716	1,154	7,113	9,996	2,794	9,740	350	—	3,320
Other.....	14,807	787	307	1,228	1,069	565	693	506	—	9,651
Don't know.....	3,193	—	—	1,119	306	—	—	—	—	1,459
<b>Percent of establishments</b>										
Total air-purifying respirators.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
<b>Who determines employees' medical fitness for respirator use</b>										
Nurse(s) employed by contract, direct salary, or fee for service.....	3.7	—	2.0	3.3	5.6	4.4	8.3	—	—	2.6
Physician(s) employed by contract, direct salary, or fee for service.....	22.6	8.9	21.9	19.6	31.2	59.5	30.7	16.6	5.3	17.4
Individual employees' personal physicians.....	8.3	4.9	3.4	5.6	5.3	4.3	3.3	3.3	—	13.1
Contract occupational health service.....	13.2	5.4	33.4	11.9	21.6	28.8	34.8	2.2	—	3.8
Other.....	5.5	6.0	8.9	2.0	2.3	5.8	2.5	3.1	—	11.1
Don't know.....	1.2	—	—	1.9	.7	—	—	—	—	1.7

See footnotes at end of table

**Table 48. Number and percent of establishments and employees using air-purifying respirators during the 12 months<sup>1</sup> prior to the survey, by determiner of employees' medical fitness and industry division—Continued**

Respirator use practice	Private industry <sup>2</sup>	Goods producing				Service producing				
		Agriculture, forestry, and fishing <sup>2</sup>	Mining	Construction	Manufacturing	Transportation and public utilities	Wholesale trade	Retail trade	Finance, insurance, and real estate	Services
<b>Number of employees</b>										
Total use.....	3,303,414	101,778	53,984	590,987	882,475	189,867	182,922	118,200	22,911	1,160,289
Total air-purifying respirators.....	3,114,464	101,654	47,995	566,909	803,157	170,068	164,529	115,882	22,911	1,121,358
<b>Who determines employees' medical fitness for respirator use</b>										
Nurse(s) employed by contract, direct salary, or fee for service.....	724,081	—	1,430	123,286	174,124	13,329	29,617	303	—	375,269
Physician(s) employed by contract, direct salary, or fee for service.....	1,326,782	9,536	18,785	288,117	436,383	107,901	107,862	33,551	3,617	321,029
Individual employees' personal physicians.....	201,465	2,522	480	17,543	22,844	2,163	—	2,792	7,126	131,723
Contract occupational health service.....	557,689	14,805	16,984	111,308	203,121	53,954	53,177	5,780	947	97,614
Other.....	229,332	5,238	5,251	21,451	29,918	4,434	4,060	3,127	—	155,854
Don't know.....	19,611	—	56	7,002	2,985	—	222	—	—	—
<b>Percent of employees</b>										
Total air-purifying respirators.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
<b>Who determines employees' medical fitness for respirator use</b>										
Nurse(s) employed by contract, direct salary, or fee for service.....	23.2	—	3.0	21.7	21.7	7.8	18.0	.3	—	33.5
Physician(s) employed by contract, direct salary, or fee for service.....	42.6	9.4	39.1	50.8	54.3	63.4	65.6	29.0	15.8	28.6
Individual employees' personal physicians.....	6.5	2.5	1.0	3.1	2.8	1.3	—	2.4	31.1	11.7
Contract occupational health service.....	17.9	14.6	35.4	19.6	25.3	31.7	32.3	5.0	4.1	8.7
Other.....	7.4	5.2	10.9	3.8	3.7	2.6	2.5	2.7	—	13.9
Don't know.....	.6	—	.1	1.2	.4	—	.1	—	—	—

<sup>1</sup> The 12-month period represents required use of respirators in the 12 months prior to the establishment's completion of the survey. The survey was mailed to establishments in August 2001.

<sup>2</sup> Excludes farms with fewer than 11 employees.

NOTE: Because of rounding, data exclusion of nonclassifiable responses, establishment reports of more than one type of respirator use, and

establishment omission of questionnaire response, data do not sum to the totals. Dashes indicate data that do not meet publication guidelines. A measure of sampling variability for each estimate is available upon request.

SOURCE: Bureau of Labor Statistics, U.S. Department of Labor.

**Table 49. Number and percent of establishments and employees using air-supplied respirators during the 12 months<sup>1</sup> prior to the survey, by determiner of employees' medical fitness and industry division**

Respirator use practice	Private industry <sup>2</sup>	Goods producing				Service producing				
		Agriculture, forestry, and fishing <sup>2</sup>	Mining	Construction	Manufacturing	Transportation and public utilities	Wholesale trade	Retail trade	Finance, insurance, and real estate	Services
<b>Number of establishments</b>										
Total use.....	281,776	13,186	3,493	64,172	48,556	10,351	31,238	16,948	4,202	89,629
Total air-supplied respirators.....	47,290	479	592	10,546	12,702	3,786	6,816	2,879	—	9,490
<b>Who determines employees' medical fitness for respirator use</b>										
Nurse(s) employed by contract, direct salary, or fee for service.....	4,352	—	—	1,572	1,374	279	843	—	—	254
Physician(s) employed by contract, direct salary, or fee for service.....	21,348	—	92	7,541	6,227	2,496	3,667	422	—	887
Individual employees' personal physicians.....	3,224	—	—	1,520	215	59	—	145	—	1,258
Contract occupational health service.....	12,633	—	363	3,107	3,860	1,369	3,165	264	—	470
Other.....	1,448	208	38	314	488	72	—	125	—	203
Don't know.....	238	—	—	—	189	—	—	—	—	—
<b>Percent of establishments</b>										
Total air-supplied respirators.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
<b>Who determines employees' medical fitness for respirator use</b>										
Nurse(s) employed by contract, direct salary, or fee for service.....	9.2	—	—	14.9	10.8	7.4	12.4	—	—	2.7
Physician(s) employed by contract, direct salary, or fee for service.....	45.1	—	15.6	71.5	49.0	65.9	53.8	14.7	—	9.3
Individual employees' personal physicians.....	6.8	—	—	14.4	1.7	1.6	—	5.0	—	13.3
Contract occupational health service.....	26.7	—	61.3	29.5	30.4	36.2	46.4	9.2	—	5.0
Other.....	3.1	43.4	6.4	3.0	3.8	1.9	—	4.3	—	2.1
Don't know.....	.5	—	—	—	1.5	—	—	—	—	—

See footnotes at end of table

**Table 49. Number and percent of establishments and employees using air-supplied respirators during the 12 months<sup>1</sup> prior to the survey, by determiner of employees' medical fitness and industry division—Continued**

Respirator use practice	Private industry <sup>2</sup>	Goods producing				Service producing				
		Agriculture, forestry, and fishing <sup>2</sup>	Mining	Construction	Manufacturing	Transportation and public utilities	Wholesale trade	Retail trade	Finance, insurance, and real estate	Services
<b>Number of employees</b>										
Total use.....	3,303,414	101,778	53,984	590,987	882,475	189,867	182,922	118,200	22,911	1,160,289
Total air-supplied respirators.....	415,964	1,544	8,234	96,637	158,657	42,125	29,848	16,952	—	61,967
<b>Who determines employees' medical fitness for respirator use</b>										
Nurse(s) employed by contract, direct salary, or fee for service.....	84,535	243	345	24,902	44,627	5,556	5,105	—	—	3,756
Physician(s) employed by contract, direct salary, or fee for service.....	252,739	—	1,197	80,752	110,794	23,708	25,079	4,925	—	6,264
Individual employees' personal physicians.....	15,067	—	—	4,371	2,892	626	—	227	—	6,845
Contract occupational health service.....	109,734	—	3,634	41,586	37,127	19,568	5,022	843	—	1,927
Other.....	12,978	660	553	3,265	6,909	796	—	166	—	629
Don't know.....	315	—	—	—	270	—	—	—	—	—
<b>Percent of employees</b>										
Total air-supplied respirators.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
<b>Who determines employees' medical fitness for respirator use</b>										
Nurse(s) employed by contract, direct salary, or fee for service.....	20.3	15.8	4.2	25.8	28.1	13.2	17.1	—	—	6.1
Physician(s) employed by contract, direct salary, or fee for service.....	60.8	—	14.5	83.6	69.8	56.3	84.0	29.1	—	10.1
Individual employees' personal physicians.....	3.6	—	—	4.5	1.8	1.5	—	1.3	—	11.0
Contract occupational health service.....	26.4	—	44.1	43.0	23.4	46.5	16.8	5.0	—	3.1
Other.....	3.1	42.8	6.7	3.4	4.4	1.9	—	1.0	—	1.0
Don't know.....	.1	—	—	—	.2	—	—	—	—	—

<sup>1</sup> The 12-month period represents required use of respirators in the 12 months prior to the establishment's completion of the survey. The survey was mailed to establishments in August 2001.

<sup>2</sup> Excludes farms with fewer than 11 employees.

NOTE: Because of rounding, data exclusion of nonclassifiable responses, establishment reports of more than one type of respirator use, and

establishment omission of questionnaire response, data do not sum to the totals. Dashes indicate data that do not meet publication guidelines. A measure of sampling variability for each estimate is available upon request.

SOURCE: Bureau of Labor Statistics, U.S. Department of Labor.

**Table 50. Number and percent of establishments using both air-purifying and air-supplied respirators during the 12 months<sup>1</sup> prior to the survey, by determiner of employees' medical fitness and industry division**

Respirator use practice	Private industry <sup>2</sup>	Goods producing				Service producing				
		Agriculture, forestry, and fishing <sup>2</sup>	Mining	Construction	Manufacturing	Transportation and public utilities	Wholesale trade	Retail trade	Finance, insurance, and real estate	Services
<b>Number of establishments</b>										
Total use.....	281,776	13,186	3,493	64,172	48,556	10,351	31,238	16,948	4,202	89,629
Both air-purifying and air-supplied respirators.....	41,290	460	561	9,880	10,979	3,154	6,721	2,374	—	7,160
<b>Who determines employees' medical fitness for respirator use</b>										
Nurse(s) employed by contract, direct salary, or fee for service.....	4,301	—	—	1,572	1,363	279	843	—	—	214
Physician(s) employed by contract, direct salary, or fee for service.....	19,644	—	74	7,075	5,573	2,320	3,635	422	—	528
Individual employees' personal physicians.....	2,747	—	—	1,094	172	52	—	145	—	1,258
Contract occupational health service.....	11,509	—	363	2,680	3,423	1,312	3,165	80	—	470
Other.....	1,124	208	38	194	360	72	—	125	—	127
Don't know.....	182	—	—	—	134	—	—	—	—	—
<b>Percent of establishments</b>										
Both air-purifying and air-supplied respirators.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
<b>Who determines employees' medical fitness for respirator use</b>										
Nurse(s) employed by contract, direct salary, or fee for service.....	10.4	—	—	15.9	12.4	8.8	12.5	—	—	3.0
Physician(s) employed by contract, direct salary, or fee for service.....	47.6	—	13.3	71.6	50.8	73.6	54.1	17.8	—	7.4
Individual employees' personal physicians.....	6.7	—	—	11.1	1.6	1.6	—	6.1	—	17.6
Contract occupational health service.....	27.9	—	64.6	27.1	31.2	41.6	47.1	3.4	—	6.6
Other.....	2.7	45.2	6.8	2.0	3.3	2.3	—	5.3	—	1.8
Don't know.....	.4	—	—	—	1.2	—	—	—	—	—

<sup>1</sup> The 12-month period represents required use of respirators in the 12 months prior to the establishment's completion of the survey. The survey was mailed to establishments in August 2001.

<sup>2</sup> Excludes farms with fewer than 11 employees.

NOTE: Because of rounding, data exclusion of nonclassifiable responses, establishment reports of more than one type of respirator use, and

establishment omission of questionnaire response, data do not sum to the totals. Dashes indicate data that do not meet publication guidelines. A measure of sampling variability for each estimate is available upon request.

SOURCE: Bureau of Labor Statistics, U.S. Department of Labor.

**Table 51. Number and percent of establishments and employees using respirators during the 12 months<sup>1</sup> prior to the survey, by method of determining appropriate respirators and industry division**

Respirator use practice	Private industry <sup>2</sup>	Goods producing				Service producing				
		Agriculture, forestry, and fishing <sup>2</sup>	Mining	Construction	Manufacturing	Transportation and public utilities	Wholesale trade	Retail trade	Finance, insurance, and real estate	Services
<b>Number of establishments</b>										
Total use.....	281,776	13,186	3,493	64,172	48,556	10,351	31,238	16,948	4,202	89,629
<b>How establishments determine which respirator is appropriate for the substance(s) faced by employees</b>										
Employees suggestion.....	48,480	1,177	601	16,059	8,304	2,857	4,171	3,530	—	9,159
Local store products/salesperson.....	37,683	1,149	329	15,517	4,652	95	2,609	3,029	—	10,058
Air sampling (air monitoring) conducted at your facility.....	66,251	231	1,756	12,228	18,839	4,278	15,251	2,368	285	11,014
Air sampling (air monitoring) conducted at facilities with operations similar to your own.....	16,342	—	458	4,510	2,924	1,726	2,314	194	—	4,209
Respirator manufacturers' representative.....	58,423	3,133	781	8,679	12,686	1,072	7,750	4,705	—	19,534
Respirator manufacturers' literature.....	126,473	5,230	1,695	25,400	22,734	4,116	16,642	7,264	—	40,506
Assigned Protection Factor (APF).....	39,067	729	474	8,034	6,285	2,736	5,381	2,940	172	12,315
Hazard Ratio.....	15,442	672	140	3,358	2,305	172	3,946	3,260	—	1,589
Material Safety Data Sheets.....	161,097	7,089	2,181	31,843	31,209	5,762	20,607	9,315	3,891	49,201
Other.....	32,282	3,606	256	5,142	3,947	1,549	2,540	843	66	14,332
<b>Percent of establishments</b>										
Total use.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
<b>How establishments determine which respirator is appropriate for the substance(s) faced by employees</b>										
Employees suggestion.....	17.2	8.9	17.2	25.0	17.1	27.6	13.4	20.8	—	10.2
Local store products/salesperson.....	13.4	8.7	9.4	24.2	9.6	.9	8.4	17.9	—	11.2
Air sampling (air monitoring) conducted at your facility.....	23.5	1.8	50.3	19.1	38.8	41.3	48.8	14.0	6.8	12.3
Air sampling (air monitoring) conducted at facilities with operations similar to your own.....	5.8	—	13.1	7.0	6.0	16.7	7.4	1.1	—	4.7
Respirator manufacturers' representative.....	20.7	23.8	22.3	13.5	26.1	10.4	24.8	27.8	—	21.8
Respirator manufacturers' literature.....	44.9	39.7	48.5	39.6	46.8	39.8	53.3	42.9	—	45.2
Assigned Protection Factor (APF).....	13.9	5.5	13.6	12.5	12.9	26.4	17.2	17.3	4.1	13.7
Hazard Ratio.....	5.5	5.1	4.0	5.2	4.7	1.7	12.6	19.2	—	1.8
Material Safety Data Sheets.....	57.2	53.8	62.4	49.6	64.3	55.7	66.0	55.0	92.6	54.9
Other.....	11.5	27.3	7.3	8.0	8.1	15.0	8.1	5.0	1.6	16.0

See footnotes at end of table

**Table 51. Number and percent of establishments and employees using respirators during the 12 months<sup>1</sup> prior to the survey, by method of determining appropriate respirators and industry division—Continued**

Respirator use practice	Private industry <sup>2</sup>	Goods producing				Service producing				
		Agriculture, forestry, and fishing <sup>2</sup>	Mining	Construction	Manufacturing	Transportation and public utilities	Wholesale trade	Retail trade	Finance, insurance, and real estate	Services
<b>Number of employees</b>										
Total use.....	3,303,414	101,778	53,984	590,987	882,475	189,867	182,922	118,200	22,911	1,160,289
<b>How establishments determine which respirator is appropriate for the substance(s) faced by employees</b>										
Employees suggestion.....	333,716	8,613	4,006	72,419	99,707	25,083	23,651	14,555	—	75,924
Local store products/salesperson.....	274,658	25,565	2,721	72,321	38,638	3,947	6,063	22,679	—	100,624
Air sampling (air monitoring) conducted at your facility.....	1,522,121	3,902	28,860	222,366	647,370	135,506	130,477	15,561	2,863	335,215
Air sampling (air monitoring) conducted at facilities with operations similar to your own.....	376,226	—	4,335	143,554	98,150	25,123	56,380	1,277	50	47,359
Respirator manufacturers' representative.....	785,596	16,863	14,038	114,335	258,831	24,886	58,576	37,604	—	259,802
Respirator manufacturers' literature.....	1,479,221	43,488	29,106	198,869	380,745	103,231	121,645	34,370	—	558,159
Assigned Protection Factor (APF).....	885,602	3,541	7,948	132,162	310,039	82,523	81,881	17,744	1,130	248,633
Hazard Ratio.....	259,101	2,772	332	47,350	76,288	5,099	54,860	11,672	—	60,728
Material Safety Data Sheets.....	1,937,308	55,329	41,471	384,492	642,156	105,911	153,733	43,888	19,552	490,774
Other.....	560,508	35,940	6,367	49,806	86,531	39,665	29,399	2,607	3,350	306,843
<b>Percent of employees</b>										
Total use.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
<b>How establishments determine which respirator is appropriate for the substance(s) faced by employees</b>										
Employees suggestion.....	10.1	8.5	7.4	12.3	11.3	13.2	12.9	12.3	—	6.5
Local store products/salesperson.....	8.3	25.1	5.0	12.2	4.4	2.1	3.3	19.2	—	8.7
Air sampling (air monitoring) conducted at your facility.....	46.1	3.8	53.5	37.6	73.4	71.4	71.3	13.2	12.5	28.9
Air sampling (air monitoring) conducted at facilities with operations similar to your own.....	11.4	—	8.0	24.3	11.1	13.2	30.8	1.1	.2	4.1
Respirator manufacturers' representative.....	23.8	16.6	26.0	19.3	29.3	13.1	32.0	31.8	—	22.4
Respirator manufacturers' literature.....	44.8	42.7	53.9	33.7	43.1	54.4	66.5	29.1	—	48.1
Assigned Protection Factor (APF).....	26.8	3.5	14.7	22.4	35.1	43.5	44.8	15.0	4.9	21.4
Hazard Ratio.....	7.8	2.7	.6	8.0	8.6	2.7	30.0	9.9	—	5.2
Material Safety Data Sheets.....	58.6	54.4	76.8	65.1	72.8	55.8	84.0	37.1	85.3	42.3
Other.....	17.0	35.3	11.8	8.4	9.8	20.9	16.1	2.2	14.6	26.4

<sup>1</sup> The 12-month period represents required use of respirators in the 12 months prior to the establishment's completion of the survey. The survey was mailed to establishments in August 2001.

<sup>2</sup> Excludes farms with fewer than 11 employees.

NOTE: Because of rounding, data exclusion of nonclassifiable responses,

and establishment reports of more than one type of respirator use, data do not sum to the totals. Dashes indicate data that do not meet publication guidelines. A measure of sampling variability for each estimate is available upon request.

SOURCE: Bureau of Labor Statistics, U.S. Department of Labor.

**Table 52. Number and percent of establishments and employees using air-purifying respirators during the 12 months<sup>1</sup> prior to the survey, by method of determining appropriate respirators and industry division**

Respirator use practice	Private industry <sup>2</sup>	Goods producing				Service producing				
		Agriculture, forestry, and fishing <sup>2</sup>	Mining	Construction	Manufacturing	Transportation and public utilities	Wholesale trade	Retail trade	Finance, insurance, and real estate	Services
<b>Number of establishments</b>										
Total use.....	281,776	13,186	3,493	64,172	48,556	10,351	31,238	16,948	4,202	89,629
Total air-purifying respirators.....	267,467	13,167	3,453	60,012	46,232	9,718	27,966	16,107	4,202	86,610
<b>How establishments determine which respirator is appropriate for the substance(s) faced by employees</b>										
Employees suggestion.....	46,919	1,177	601	15,577	7,872	2,789	4,171	3,383	—	8,727
Local store products/salesperson.....	37,201	1,149	329	15,517	4,616	80	2,609	3,029	—	9,626
Air sampling (air monitoring) conducted at your facility.....	62,246	231	1,738	11,403	18,018	4,136	13,451	2,168	285	10,816
Air sampling (air monitoring) conducted at facilities with operations similar to your own.....	15,656	—	448	4,105	2,861	1,665	2,166	194	—	4,209
Respirator manufacturers' representative.....	53,844	3,133	781	7,508	12,020	1,022	6,413	4,243	—	18,641
Respirator manufacturers' literature.....	121,595	5,230	1,695	24,223	22,356	4,013	14,812	6,937	—	39,444
Assigned Protection Factor (APF).....	36,594	729	474	7,120	5,778	2,715	4,388	2,903	172	12,315
Hazard Ratio.....	14,191	672	140	3,278	2,092	97	3,101	3,223	—	1,589
Material Safety Data Sheets.....	153,946	7,070	2,181	29,051	29,936	5,299	18,673	8,865	3,891	48,980
Other.....	31,246	3,606	243	4,769	3,489	1,509	2,540	843	66	14,181
<b>Percent of establishments</b>										
Total air-purifying respirators.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
<b>How establishments determine which respirator is appropriate for the substance(s) faced by employees</b>										
Employees suggestion.....	17.5	8.9	17.4	26.0	17.0	28.7	14.9	21.0	—	10.1
Local store products/salesperson.....	13.9	8.7	9.5	25.9	10.0	.8	9.3	18.8	—	11.1
Air sampling (air monitoring) conducted at your facility.....	23.3	1.8	50.3	19.0	39.0	42.6	48.1	13.5	6.8	12.5
Air sampling (air monitoring) conducted at facilities with operations similar to your own.....	5.9	—	13.0	6.8	6.2	17.1	7.7	1.2	—	4.9
Respirator manufacturers' representative.....	20.1	23.8	22.6	12.5	26.0	10.5	22.9	26.3	—	21.5
Respirator manufacturers' literature.....	45.5	39.7	49.1	40.4	48.4	41.3	53.0	43.1	—	45.5
Assigned Protection Factor (APF).....	13.7	5.5	13.7	11.9	12.5	27.9	15.7	18.0	4.1	14.2
Hazard Ratio.....	5.3	5.1	4.1	5.5	4.5	1.0	11.1	20.0	—	1.8
Material Safety Data Sheets.....	57.6	53.7	63.2	48.4	64.8	54.5	66.8	55.0	92.6	56.6
Other.....	11.7	27.4	7.0	7.9	7.5	15.5	9.1	5.2	1.6	16.4

See footnotes at end of table

**Table 52. Number and percent of establishments and employees using air-purifying respirators during the 12 months<sup>1</sup> prior to the survey, by method of determining appropriate respirators and industry division—Continued**

Respirator use practice	Private industry <sup>2</sup>	Goods producing				Service producing				
		Agriculture, forestry, and fishing <sup>2</sup>	Mining	Construction	Manufacturing	Transportation and public utilities	Wholesale trade	Retail trade	Finance, insurance, and real estate	Services
<b>Number of employees</b>										
Total use.....	3,303,414	101,778	53,984	590,987	882,475	189,867	182,922	118,200	22,911	1,160,289
Total air-purifying respirators.....	3,114,464	101,654	47,995	566,909	803,157	170,068	164,529	115,882	22,911	1,121,358
<b>How establishments determine which respirator is appropriate for the substance(s) faced by employees</b>										
Employees suggestion.....	317,061	8,613	3,994	72,074	88,584	23,875	22,469	13,463	—	74,232
Local store products/salesperson.....	267,923	25,565	2,721	70,598	37,414	3,125	6,063	22,510	—	97,827
Air sampling (air monitoring) conducted at your facility.....	1,407,167	3,902	28,482	208,985	578,103	124,008	112,521	14,568	2,863	333,734
Air sampling (air monitoring) conducted at facilities with operations similar to your own.....	341,661	—	4,335	137,817	85,910	19,757	45,157	1,277	50	47,359
Respirator manufacturers' representative.....	745,113	16,863	13,819	111,353	234,861	19,841	55,551	36,370	—	255,794
Respirator manufacturers' literature.....	1,409,735	43,488	25,715	195,505	344,296	95,718	107,251	33,714	—	554,440
Assigned Protection Factor (APF).....	824,939	3,541	7,840	130,032	272,849	75,787	69,166	16,963	1,130	247,632
Hazard Ratio.....	235,224	2,772	332	46,480	65,594	4,255	44,212	11,588	—	59,991
Material Safety Data Sheets.....	1,831,240	55,205	37,962	371,568	584,841	95,204	136,880	42,331	19,552	487,697
Other.....	536,010	35,940	4,225	49,645	72,026	35,858	26,254	2,607	3,350	306,105

See footnotes at end of table

**Table 52. Number and percent of establishments and employees using air-purifying respirators during the 12 months<sup>1</sup> prior to the survey, by method of determining appropriate respirators and industry division—Continued**

Respirator use practice	Private industry <sup>2</sup>	Goods producing				Service producing				
		Agriculture, forestry, and fishing <sup>2</sup>	Mining	Construction	Manufacturing	Transportation and public utilities	Wholesale trade	Retail trade	Finance, insurance, and real estate	Services
<b>Percent of employees</b>										
Total air-purifying respirators.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
<b>How establishments determine which respirator is appropriate for the substance(s) faced by employees</b>										
Employees suggestion.....	10.2	8.5	8.3	12.7	11.0	14.0	13.7	11.6	—	6.6
Local store products/salesperson.....	8.6	25.1	5.7	12.5	4.7	1.8	3.7	19.4	—	8.7
Air sampling (air monitoring) conducted at your facility.....	45.2	3.8	59.3	36.9	72.0	72.9	68.4	12.6	12.5	29.8
Air sampling (air monitoring) conducted at facilities with operations similar to your own.....	11.0	—	9.0	24.3	10.7	11.6	27.4	1.1	.2	4.2
Respirator manufacturers' representative.....	23.9	16.6	28.8	19.6	29.2	11.7	33.8	31.4	—	22.8
Respirator manufacturers' literature.....	45.3	42.8	53.6	34.5	42.9	56.3	65.2	29.1	—	49.4
Assigned Protection Factor (APF).....	26.5	3.5	16.3	22.9	34.0	44.6	42.0	14.6	4.9	22.1
Hazard Ratio.....	7.6	2.7	.7	8.2	8.2	2.5	26.9	10.0	—	5.3
Material Safety Data Sheets.....	58.8	54.3	79.1	65.5	72.8	56.0	83.2	36.5	85.3	43.5
Other.....	17.2	35.4	8.8	8.8	9.0	21.1	16.0	2.2	14.6	27.3

<sup>1</sup> The 12-month period represents required use of respirators in the 12 months prior to the establishment's completion of the survey. The survey was mailed to establishments in August 2001.

<sup>2</sup> Excludes farms with fewer than 11 employees.

NOTE: Because of rounding, data exclusion of nonclassifiable responses,

and establishment reports of more than one type of respirator use, data do not sum to the totals. Dashes indicate data that do not meet publication guidelines. A measure of sampling variability for each estimate is available upon request.

SOURCE: Bureau of Labor Statistics, U.S. Department of Labor.

**Table 53. Number and percent of establishments and employees using air-supplied respirators during the 12 months<sup>1</sup> prior to the survey, by method of determining appropriate respirators and industry division**

Respirator use practice	Private industry <sup>2</sup>	Goods producing				Service producing				
		Agriculture, forestry, and fishing <sup>2</sup>	Mining	Construction	Manufacturing	Transportation and public utilities	Wholesale trade	Retail trade	Finance, insurance, and real estate	Services
<b>Number of establishments</b>										
Total use.....	281,776	13,186	3,493	64,172	48,556	10,351	31,238	16,948	4,202	89,629
Total air-supplied respirators.....	47,290	479	592	10,546	12,702	3,786	6,816	2,879	—	9,490
<b>How establishments determine which respirator is appropriate for the substance(s) faced by employees</b>										
Employees suggestion.....	5,232	—	—	330	2,140	192	200	523	—	1,741
Local store products/salesperson.....	5,095	—	—	1,140	649	64	587	744	—	1,733
Air sampling (air monitoring) conducted at your facility.....	22,121	—	167	5,117	7,547	2,241	5,794	331	—	882
Air sampling (air monitoring) conducted at facilities with operations similar to your own.....	6,117	—	—	2,772	1,113	967	1,174	—	—	82
Respirator manufacturers' representative.....	15,999	—	185	2,436	4,206	476	2,490	1,625	—	4,414
Respirator manufacturers' literature.....	20,595	—	402	3,738	5,273	1,349	4,059	1,178	—	4,596
Assigned Protection Factor (APF).....	11,616	—	26	3,677	3,437	1,312	2,126	362	—	676
Hazard Ratio.....	4,534	—	—	1,500	1,117	136	1,090	226	—	464
Material Safety Data Sheets.....	33,741	392	451	7,683	9,190	3,200	6,241	1,440	—	5,143
Other.....	4,904	—	—	1,054	1,561	730	789	—	—	670
<b>Percent of establishments</b>										
Total air-supplied respirators.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
<b>How establishments determine which respirator is appropriate for the substance(s) faced by employees</b>										
Employees suggestion.....	11.1	—	—	3.1	16.8	5.1	2.9	18.2	—	18.3
Local store products/salesperson.....	10.8	—	—	10.8	5.1	1.7	8.6	25.8	—	18.3
Air sampling (air monitoring) conducted at your facility.....	46.8	—	28.2	48.5	59.4	59.2	85.0	11.5	—	9.3
Air sampling (air monitoring) conducted at facilities with operations similar to your own.....	12.9	—	—	26.3	8.8	25.5	17.2	—	—	.9
Respirator manufacturers' representative.....	33.8	—	31.3	23.1	33.1	12.6	36.5	56.5	—	46.5
Respirator manufacturers' literature.....	43.6	—	68.0	35.4	41.5	35.6	59.5	40.9	—	48.4
Assigned Protection Factor (APF).....	24.6	—	4.4	34.9	27.1	34.6	31.2	12.6	—	7.1
Hazard Ratio.....	9.6	—	—	14.2	8.8	3.6	16.0	7.9	—	4.9
Material Safety Data Sheets.....	71.3	82.0	76.3	72.9	72.3	84.5	91.6	50.0	—	54.2
Other.....	10.4	—	—	10.0	12.3	19.3	11.6	—	—	7.1

See footnotes at end of table

**Table 53. Number and percent of establishments and employees using air-supplied respirators during the 12 months<sup>1</sup> prior to the survey, by method of determining appropriate respirators and industry division—Continued**

Respirator use practice	Private industry <sup>2</sup>	Goods producing				Service producing				
		Agriculture, forestry, and fishing <sup>2</sup>	Mining	Construction	Manufacturing	Transportation and public utilities	Wholesale trade	Retail trade	Finance, insurance, and real estate	Services
<b>Number of employees</b>										
Total use.....	3,303,414	101,778	53,984	590,987	882,475	189,867	182,922	118,200	22,911	1,160,289
Total air-supplied respirators.....	415,964	1,544	8,234	96,637	158,657	42,125	29,848	16,952	—	61,967
<b>How establishments determine which respirator is appropriate for the substance(s) faced by employees</b>										
Employees suggestion.....	32,298	497	—	1,801	19,924	1,995	1,389	2,509	—	4,017
Local store products/salesperson.....	20,141	—	154	5,043	4,114	931	288	3,912	—	5,135
Air sampling (air monitoring) conducted at your facility.....	242,644	—	2,279	39,444	135,300	30,573	28,342	1,597	—	5,013
Air sampling (air monitoring) conducted at facilities with operations similar to your own.....	98,845	—	94	44,860	25,527	9,313	—	—	—	1,042
Respirator manufacturers' representative.....	101,801	—	792	15,911	46,415	8,481	4,779	10,505	—	14,355
Respirator manufacturers' literature.....	160,378	—	4,523	21,193	74,813	19,411	22,894	2,727	—	14,817
Assigned Protection Factor (APF).....	149,796	—	225	23,363	83,535	15,340	20,805	1,426	—	5,102
Hazard Ratio.....	54,789	—	—	7,670	23,389	2,254	—	1,100	—	3,168
Material Safety Data Sheets.....	288,952	1,046	4,980	74,962	121,270	31,692	27,881	4,810	—	22,311
Other.....	53,370	497	2,143	9,387	22,960	12,943	3,453	—	—	1,988

See footnotes at end of table

**Table 53. Number and percent of establishments and employees using air-supplied respirators during the 12 months<sup>1</sup> prior to the survey, by method of determining appropriate respirators and industry division—Continued**

Respirator use practice	Private industry <sup>2</sup>	Goods producing				Service producing				
		Agriculture, forestry, and fishing <sup>2</sup>	Mining	Construction	Manufacturing	Transportation and public utilities	Wholesale trade	Retail trade	Finance, insurance, and real estate	Services
<b>Percent of employees</b>										
Total air-supplied respirators.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
<b>How establishments determine which respirator is appropriate for the substance(s) faced by employees</b>										
Employees suggestion.....	7.8	32.2	—	1.9	12.6	4.7	4.7	14.8	—	6.5
Local store products/salesperson.....	4.8	—	1.9	5.2	2.6	2.2	1.0	23.1	—	8.3
Air sampling (air monitoring) conducted at your facility.....	58.3	—	27.7	40.8	85.3	72.6	95.0	9.4	—	8.1
Air sampling (air monitoring) conducted at facilities with operations similar to your own.....	23.8	—	1.1	46.4	16.1	22.1	—	—	—	1.7
Respirator manufacturers' representative.....	24.5	—	9.6	16.5	29.3	20.1	16.0	62.0	—	23.2
Respirator manufacturers' literature.....	38.6	—	54.9	21.9	47.2	46.1	76.7	16.1	—	23.9
Assigned Protection Factor (APF).....	36.0	—	2.7	24.2	52.7	36.4	69.7	8.4	—	8.2
Hazard Ratio.....	13.2	—	—	7.9	14.7	5.4	—	6.5	—	5.1
Material Safety Data Sheets.....	69.5	67.8	60.5	77.6	76.4	75.2	93.4	28.4	—	36.0
Other.....	12.8	32.2	26.0	9.7	14.5	30.7	11.6	—	—	3.2

<sup>1</sup> The 12-month period represents required use of respirators in the 12 months prior to the establishment's completion of the survey. The survey was mailed to establishments in August 2001.

<sup>2</sup> Excludes farms with fewer than 11 employees.

NOTE: Because of rounding, data exclusion of nonclassifiable responses,

and establishment reports of more than one type of respirator use, data do not sum to the totals. Dashes indicate data that do not meet publication guidelines. A measure of sampling variability for each estimate is available upon request.

SOURCE: Bureau of Labor Statistics, U.S. Department of Labor.

**Table 54. Number and percent of establishments using both air-purifying and air-supplied respirators during the 12 months<sup>1</sup> prior to the survey, by method of determining appropriate respirators and industry division**

Respirator use practice	Private industry <sup>2</sup>	Goods producing				Service producing				
		Agriculture, forestry, and fishing <sup>2</sup>	Mining	Construction	Manufacturing	Transportation and public utilities	Wholesale trade	Retail trade	Finance, insurance, and real estate	Services
<b>Number of establishments</b>										
Total use.....	281,776	13,186	3,493	64,172	48,556	10,351	31,238	16,948	4,202	89,629
Both air-purifying and air-supplied respirators.....	41,290	460	561	9,880	10,979	3,154	6,721	2,374	—	7,160
<b>How establishments determine which respirator is appropriate for the substance(s) faced by employees</b>										
Employees suggestion.....	4,426	—	—	330	1,836	125	200	375	—	1,453
Local store products/salesperson.....	4,757	—	—	1,140	614	50	587	744	—	1,445
Air sampling (air monitoring) conducted at your facility.....	20,526	—	149	4,685	6,887	2,099	5,762	219	—	684
Air sampling (air monitoring) conducted at facilities with operations similar to your own.....	5,988	—	—	2,739	1,078	907	1,174	—	—	82
Respirator manufacturers' representative.....	13,905	—	185	2,009	3,675	426	2,490	1,288	—	3,665
Respirator manufacturers' literature.....	18,926	—	402	3,305	5,004	1,245	4,059	976	—	3,935
Assigned Protection Factor (APF).....	10,811	—	26	3,244	3,124	1,290	2,126	325	—	676
Hazard Ratio.....	4,157	—	—	1,420	933	61	1,090	189	—	464
Material Safety Data Sheets.....	31,599	374	451	7,050	8,519	2,736	6,146	1,255	—	5,067
Other.....	4,390	—	—	1,054	1,109	689	789	—	—	663

See footnotes at end of table

**Table 54. Number and percent of establishments using both air-purifying and air-supplied respirators during the 12 months<sup>1</sup> prior to the survey, by method of determining appropriate respirators and industry division—Continued**

Respirator use practice	Private industry <sup>2</sup>	Goods producing				Service producing				
		Agriculture, forestry, and fishing <sup>2</sup>	Mining	Construction	Manufacturing	Transportation and public utilities	Wholesale trade	Retail trade	Finance, insurance, and real estate	Services
<b>Percent of establishments</b>										
Both air-purifying and air-supplied respirators.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
<b>How establishments determine which respirator is appropriate for the substance(s) faced by employees</b>										
Employees suggestion.....	10.7	—	—	3.3	16.7	4.0	3.0	15.8	—	20.3
Local store products/salesperson.....	11.5	—	—	11.5	5.6	1.6	8.7	31.3	—	20.2
Air sampling (air monitoring) conducted at your facility.....	49.7	—	26.6	47.4	62.7	66.6	85.7	9.2	—	9.6
Air sampling (air monitoring) conducted at facilities with operations similar to your own.....	14.5	—	—	27.7	9.8	28.7	17.5	—	—	1.1
Respirator manufacturers' representative.....	33.7	—	33.0	20.3	33.5	13.5	37.1	54.2	—	51.2
Respirator manufacturers' literature.....	45.8	—	71.6	33.5	45.6	39.5	60.4	41.1	—	55.0
Assigned Protection Factor (APF).....	26.2	—	4.6	32.8	28.5	40.9	31.6	13.7	—	9.4
Hazard Ratio.....	10.1	—	—	14.4	8.5	1.9	16.2	8.0	—	6.5
Material Safety Data Sheets.....	76.5	81.2	80.4	71.4	77.6	86.8	91.5	52.9	—	70.8
Other.....	10.6	—	—	10.7	10.1	21.8	11.7	—	—	9.3

<sup>1</sup> The 12-month period represents required use of respirators in the 12 months prior to the establishment's completion of the survey. The survey was mailed to establishments in August 2001.

<sup>2</sup> Excludes farms with fewer than 11 employees.

NOTE: Because of rounding, data exclusion of nonclassifiable responses,

and establishment reports of more than one type of respirator use, data do not sum to the totals. Dashes indicate data that do not meet publication guidelines. A measure of sampling variability for each estimate is available upon request.

SOURCE: Bureau of Labor Statistics, U.S. Department of Labor.

**Table 55. Number and percent of establishments using respirators during the 12 months<sup>1</sup> prior to the survey, by length of time since last evaluation of respirator use and industry division**

Respirator use practice	Private industry <sup>2</sup>	Goods producing				Service producing				
		Agriculture, forestry, and fishing <sup>2</sup>	Mining	Construction	Manufacturing	Transportation and public utilities	Wholesale trade	Retail trade	Finance, insurance, and real estate	Services
<b>Number of establishments</b>										
Total use.....	281,776	13,186	3,493	64,172	48,556	10,351	31,238	16,948	4,202	89,629
<b>Last evaluation of the effectiveness of respirator use at establishment</b>										
Within the last 3 months.....	66,550	4,284	445	10,564	10,080	1,370	9,087	5,309	—	22,562
Within the last 3-6 months.....	35,201	1,255	492	7,376	6,606	754	5,803	2,760	145	10,009
Within the last 6-12 months.....	61,864	1,283	1,336	9,979	13,026	3,269	4,076	2,479	615	25,801
More than 12 months ago.....	14,048	390	153	3,477	3,596	1,251	2,854	540	—	1,788
No evaluation.....	84,513	4,795	882	27,879	11,271	2,778	6,224	3,689	592	26,402
Don't know.....	19,601	1,179	185	4,897	3,978	929	3,193	2,172	—	3,067
<b>Percent of establishments</b>										
Total use.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
<b>Last evaluation of the effectiveness of respirator use at establishment</b>										
Within the last 3 months.....	23.6	32.5	12.7	16.5	20.8	13.2	29.1	31.3	—	25.2
Within the last 3-6 months.....	12.5	9.5	14.1	11.5	13.6	7.3	18.6	16.3	3.5	11.2
Within the last 6-12 months.....	22.0	9.7	38.2	15.6	26.8	31.6	13.0	14.6	14.6	28.8
More than 12 months ago.....	5.0	3.0	4.4	5.4	7.4	12.1	9.1	3.2	—	2.0
No evaluation.....	30.0	36.4	25.3	43.4	23.2	26.8	19.9	21.8	14.1	29.5
Don't know.....	7.0	8.9	5.3	7.6	8.2	9.0	10.2	12.8	—	3.4

<sup>1</sup> The 12-month period represents required use of respirators in the 12 months prior to the establishment's completion of the survey. The survey was mailed to establishments in August 2001.

<sup>2</sup> Excludes farms with fewer than 11 employees.

NOTE: Because of rounding, data exclusion of nonclassifiable responses,

and establishment reports of more than one type of respirator use, data do not sum to the totals. Dashes indicate data that do not meet publication guidelines. A measure of sampling variability for each estimate is available upon request.

SOURCE: Bureau of Labor Statistics, U.S. Department of Labor.

**Table 56. Number and percent of establishments using air-purifying respirators during the 12 months<sup>1</sup> prior to the survey, by filter replacement policy and industry division**

Respirator use practice	Private industry <sup>2</sup>	Goods producing				Service producing				
		Agriculture, forestry, and fishing <sup>2</sup>	Mining	Construction	Manufacturing	Transportation and public utilities	Wholesale trade	Retail trade	Finance, insurance, and real estate	Services
<b>Number of establishments</b>										
Total use.....	281,776	13,186	3,493	64,172	48,556	10,351	31,238	16,948	4,202	89,629
Total air-purifying respirators.....	267,467	13,167	3,453	60,012	46,232	9,718	27,966	16,107	4,202	86,610
<b>Establishment's policy regarding when to replace particulate filters for air-purifying respirators</b>										
Don't use particulate filters.....	33,592	2,944	333	8,629	3,538	561	4,996	1,003	469	11,119
Respirator manufacturers' instructions.....	125,550	5,015	2,013	30,815	23,748	3,789	13,089	10,924	802	35,355
Establishment's own testing.....	16,809	936	69	3,941	3,340	54	2,353	182	—	3,455
Written change out schedule.....	32,694	289	362	3,424	7,062	1,768	4,756	1,664	430	12,940
Employees decide.....	95,727	3,651	1,553	19,335	20,349	4,713	7,788	3,114	364	34,860
Other.....	23,180	1,101	484	6,527	5,224	1,644	3,658	1,130	308	3,104
Don't know.....	18,181	1,560	229	3,686	1,869	74	694	689	—	9,372
<b>Establishment's policy regarding when to replace gas/vapor filters for air-purifying respirators</b>										
Don't use gas/vapor filters.....	100,408	6,812	1,497	25,982	11,171	3,857	8,631	4,239	788	37,432
Respirator manufacturers' instructions.....	97,765	3,392	1,345	21,240	21,931	3,815	11,795	8,764	420	25,062
Establishment's own testing.....	12,857	688	37	2,957	3,032	59	841	589	—	2,020
Written change out schedule.....	30,447	527	311	3,127	8,598	1,423	6,488	1,715	507	7,749
Employees decide.....	53,846	1,194	763	10,240	14,249	2,011	4,883	2,205	232	18,069
Other.....	16,599	723	376	4,918	3,678	841	4,207	493	300	1,062
Don't know.....	17,421	1,248	238	4,549	1,537	213	409	729	—	8,498

See footnotes at end of table

**Table 56. Number and percent of establishments using air-purifying respirators during the 12 months<sup>1</sup> prior to the survey, by filter replacement policy and industry division—Continued**

Respirator use practice	Private industry <sup>2</sup>	Goods producing				Service producing				
		Agriculture, forestry, and fishing <sup>2</sup>	Mining	Construction	Manufacturing	Transportation and public utilities	Wholesale trade	Retail trade	Finance, insurance, and real estate	Services
<b>Percent of establishments</b>										
Total air-purifying respirators.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
<b>Establishment's policy regarding when to replace particulate filters for air-purifying respirators</b>										
Don't use particulate filters.....	12.6	22.4	9.6	14.4	7.7	5.8	17.9	6.2	11.2	12.8
Respirator manufacturers' instructions.....	46.9	38.1	58.3	51.3	51.4	39.0	46.8	67.8	19.1	40.8
Establishment's own testing.....	6.3	7.1	2.0	6.6	7.2	.6	8.4	1.1	—	4.0
Written change out schedule.....	12.2	2.2	10.5	5.7	15.3	18.2	17.0	10.3	10.2	14.9
Employees decide.....	35.8	27.7	45.0	32.2	44.0	48.5	27.8	19.3	8.7	40.2
Other.....	8.7	8.4	14.0	10.9	11.3	16.9	13.1	7.0	7.3	3.6
Don't know.....	6.8	11.8	6.6	6.1	4.0	.8	2.5	4.3	—	10.8
<b>Establishment's policy regarding when to replace gas/vapor filters for air-purifying respirators</b>										
Don't use gas/vapor filters.....	37.5	51.7	43.4	43.3	24.2	39.7	30.9	26.3	18.8	43.2
Respirator manufacturers' instructions.....	36.6	25.8	39.0	35.4	47.4	39.3	42.2	54.4	10.0	28.9
Establishment's own testing.....	4.8	5.2	1.1	4.9	6.6	.6	3.0	3.7	—	2.3
Written change out schedule.....	11.4	4.0	9.0	5.2	18.6	14.6	23.2	10.6	12.1	8.9
Employees decide.....	20.1	9.1	22.1	17.1	30.8	20.7	17.5	13.7	5.5	20.9
Other.....	6.2	5.5	10.9	8.2	8.0	8.7	15.0	3.1	7.1	1.2
Don't know.....	6.5	9.5	6.9	7.6	3.3	2.2	1.5	4.5	—	9.8

<sup>1</sup> The 12-month period represents required use of respirators in the 12 months prior to the establishment's completion of the survey. The survey was mailed to establishments in August 2001.

<sup>2</sup> Excludes farms with fewer than 11 employees.

NOTE: Because of rounding, data exclusion of nonclassifiable responses,

and establishment reports of more than one type of respirator use, data do not sum to the totals. Dashes indicate data that do not meet publication guidelines. A measure of sampling variability for each estimate is available upon request.

SOURCE: Bureau of Labor Statistics, U.S. Department of Labor.

**Table 57. Number and percent of establishments using airline respirators during the 12 months<sup>1</sup> prior to the survey, by compatibility of hose couplings and industry division**

Respirator use practice	Private industry <sup>2</sup>	Goods producing				Service producing				
		Agriculture, forestry, and fishing <sup>2</sup>	Mining	Construction	Manufacturing	Transportation and public utilities	Wholesale trade	Retail trade	Finance, insurance, and real estate	Services
<b>Number of establishments</b>										
Total use.....	281,776	13,186	3,493	64,172	48,556	10,351	31,238	16,948	4,202	89,629
Total airline and combination airline/ SCBA <sup>3</sup> respirators.....	41,562	427	548	9,803	11,416	3,448	4,939	2,642	—	8,339
<b>Are the hose couplings compatible with couplings for other air or gas supply lines in the work place?</b>										
Yes.....	7,360	—	219	1,702	1,937	466	934	521	—	1,414
No.....	29,534	—	317	7,373	7,930	1,712	3,402	2,009	—	6,566
Don't know.....	2,486	—	—	686	648	586	—	112	—	359
<b>Percent of establishments</b>										
Total airline and combination airline/ SCBA <sup>3</sup> respirators.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
<b>Are the hose couplings compatible with couplings for other air or gas supply lines in the work place?</b>										
Yes.....	17.7	—	40.0	17.4	17.0	13.5	18.9	19.7	—	17.0
No.....	71.1	—	57.8	75.2	69.5	49.7	68.9	76.0	—	78.7
Don't know.....	6.0	—	—	7.0	5.7	17.0	—	4.2	—	4.3

<sup>1</sup> The 12-month period represents required use of respirators in the 12 months prior to the establishment's completion of the survey. The survey was mailed to establishments in August 2001.

<sup>2</sup> Excludes farms with fewer than 11 employees.

<sup>3</sup> Self-contained breathing apparatus.

NOTE: Because of rounding, data exclusion of nonclassifiable responses,

and establishment reports of more than one type of respirator use, data do not sum to the totals. Dashes indicate data that do not meet publication guidelines. A measure of sampling variability for each estimate is available upon request.

SOURCE: Bureau of Labor Statistics, U.S. Department of Labor.

**Table 58. Number and percent of establishments using airline respirators during the 12 months<sup>1</sup> prior to the survey, by method used to adjust airflow and industry division**

Respirator use practice	Private industry <sup>2</sup>	Goods producing				Service producing				
		Agriculture, forestry, and fishing <sup>2</sup>	Mining	Construction	Manufacturing	Transportation and public utilities	Wholesale trade	Retail trade	Finance, insurance, and real estate	Services
<b>Number of establishments</b>										
Total use.....	281,776	13,186	3,493	64,172	48,556	10,351	31,238	16,948	4,202	89,629
Total airline and combination airline/ SCBA <sup>3</sup> respirators.....	41,562	427	548	9,803	11,416	3,448	4,939	2,642	—	8,339
<b>Method used by employees to adjust the airflow of airline respirators<sup>4</sup></b>										
Employees adjust airflow to the maximum comfort level.....	9,453	—	42	3,363	2,661	371	748	487	—	1,679
Airflow is set at 4 or 6 cubic feet per minute.....	1,873	—	37	210	331	100	929	—	—	266
Airflow is only controlled where the air hose connects with compressed air source and is set according to pressure given on certification label or in user's instructions.....	6,172	—	202	1,217	1,641	638	600	341	—	1,533
Airflow rate is set according to the flow rate recommendations of the respirator manufacturer.....	17,469	—	255	3,310	4,863	1,090	2,010	1,554	—	4,221
Don't know.....	3,310	—	—	1,016	765	586	—	186	—	602

See footnotes at end of table

**Table 58. Number and percent of establishments using airline respirators during the 12 months<sup>1</sup> prior to the survey, by method used to adjust airflow and industry division—Continued**

Respirator use practice	Private industry <sup>2</sup>	Goods producing				Service producing				
		Agriculture, forestry, and fishing <sup>2</sup>	Mining	Construction	Manufacturing	Transportation and public utilities	Wholesale trade	Retail trade	Finance, insurance, and real estate	Services
<b>Percent of establishments</b>										
Total airline and combination airline/ SCBA <sup>3</sup> respirators.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
<b>Method used by employees to adjust the airflow of airline respirators<sup>4</sup></b>										
Employees adjust airflow to the maximum comfort level.....	22.7	—	7.7	34.3	23.3	10.8	15.1	18.4	—	20.1
Airflow is set at 4 or 6 cubic feet per minute.....	4.5	—	6.8	2.1	2.9	2.9	18.8	—	—	3.2
Airflow is only controlled where the air hose connects with compressed air source and is set according to pressure given on certification label or in user's instructions.....	14.9	—	36.9	12.4	14.4	18.5	12.1	12.9	—	18.4
Airflow rate is set according to the flow rate recommendations of the respirator manufacturer.....	42.0	—	46.5	33.8	42.6	31.6	40.7	58.8	—	50.6
Don't know.....	8.0	—	—	10.4	6.7	17.0	—	7.0	—	7.2

<sup>1</sup> The 12-month period represents required use of respirators in the 12 months prior to the establishment's completion of the survey. The survey was mailed to establishments in August 2001.

<sup>2</sup> Excludes farms with fewer than 11 employees.

<sup>3</sup> Self-contained breathing apparatus.

<sup>4</sup> Establishments were asked to select the best description of how respirators are used.

NOTE: Because of rounding, data exclusion of nonclassifiable responses, and establishment reports of more than one type of respirator use, data do not sum to the totals. Dashes indicate data that do not meet publication guidelines. A measure of sampling variability for each estimate is available upon request.

SOURCE: Bureau of Labor Statistics, U.S. Department of Labor.

**Table 59. Number and percent of establishments using tight-fitting respirators during the 12 months<sup>1</sup> prior to the survey, by existence of employee fit testing and industry division**

Respirator use practices	Private industry <sup>2</sup>	Goods producing				Service producing				
		Agriculture, forestry, and fishing <sup>2</sup>	Mining	Construction	Manufacturing	Transportation and public utilities	Wholesale trade	Retail trade	Finance, insurance, and real estate	Services
<b>Number of establishments</b>										
Total tight-fitting respirators <sup>3</sup> .....	269,389	12,041	3,474	59,922	46,665	10,283	27,918	16,570	4,202	88,314
<b>Fit testing for employees who wear tight-fitting respirators</b>										
Yes.....	154,410	5,460	2,739	31,801	33,819	7,121	18,494	8,160	3,212	43,604
No.....	52,817	3,186	275	13,389	6,133	713	5,284	5,470	—	18,367
Not needed.....	12,520	893	71	715	1,466	255	1,557	1,708	—	5,856
Don't know.....	5,665	799	—	1,323	1,333	168	607	337	—	884
Employer responded did not use tight fitting respirators.....	34,484	1,128	303	11,630	3,148	—	1,735	670	794	13,080
Employer responded did not know if tight fitting respirators were used.....	9,492	576	68	1,063	766	—	241	225	—	—
<b>Percent of establishments</b>										
Total tight fitting respirators <sup>3</sup> .....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
<b>Fit testing for employees who wear tight-fitting respirators</b>										
Yes.....	57.3	45.3	78.8	53.1	72.5	69.2	66.2	49.2	76.4	49.4
No.....	19.6	26.5	7.9	22.3	13.1	6.9	18.9	33.0	—	20.8
Not needed.....	4.6	7.4	2.0	1.2	3.1	2.5	5.6	10.3	—	6.6
Don't know.....	2.1	6.6	—	2.2	2.9	1.6	2.2	2.0	—	1.0
Employer responded did not use tight fitting respirators.....	12.8	9.4	8.7	19.4	6.7	—	6.2	4.0	18.9	14.8
Employer responded did not know if tight fitting respirators were used.....	3.5	4.8	2.0	1.8	1.6	—	.9	1.4	—	—

<sup>1</sup> The 12-month period represents required use of respirators in the 12 months prior to the establishment's completion of the survey. The survey was mailed to establishments in August 2001.

<sup>2</sup> Excludes farms with fewer than 11 employees.

<sup>3</sup> The total number of tight fitting respirators, which are respirators that form a complete seal with the face, was calculated from establishment responses to questions on respirator type. These respirator types include non-powered air-purifying (dust mask, half-mask, and full-facepiece); powered air-purifying (tight fitting half-facepiece and tight fitting full-facepiece); airline

(half-mask and full-facepiece), self-contained breathing apparatus (SCBA), and combination airline and SCBA.

NOTE: Because of rounding, data exclusion of nonclassifiable responses, and establishment reports of more than one type of respirator use, data do not sum to the totals. Dashes indicate data that do not meet publication guidelines. A measure of sampling variability for each estimate is available upon request.

SOURCE: Bureau of Labor Statistics, U.S. Department of Labor.

**Table 60. Number and percent of establishments using tight-fitting respirators during the 12 months<sup>1</sup> prior to the survey, by conductor of fit testing and industry division**

Respirator use practice	Private industry <sup>2</sup>	Goods producing				Service producing				
		Agriculture, forestry, and fishing <sup>2</sup>	Mining	Construction	Manufacturing	Transportation and public utilities	Wholesale trade	Retail trade	Finance, insurance, and real estate	Services
<b>Number of establishments</b>										
Total tight-fitting respirators <sup>3</sup> .....	269,389	12,041	3,474	59,922	46,665	10,283	27,918	16,570	4,202	88,314
<b>Fit testing for employees who wear tight-fitting respirators</b>										
Yes.....	154,410	5,460	2,739	31,801	33,819	7,121	18,494	8,160	3,212	43,604
<b>Who conducts fit testing</b>										
In-house staff.....	85,557	4,439	1,619	18,861	18,991	4,268	11,972	2,521	563	22,324
Employees fit test themselves.....	45,385	3,032	609	12,532	8,782	527	3,745	2,219	—	11,061
Respirator manufacturers' sales/technical representatives.....	27,658	227	575	5,739	6,463	477	4,542	2,439	—	7,120
Other outside party.....	39,073	479	1,000	8,047	7,848	2,992	6,092	2,104	138	10,373
Don't know.....	373	—	—	—	64	—	—	—	—	—
No.....	52,817	3,186	275	13,389	6,133	713	5,284	5,470	—	18,367
Not needed.....	12,520	893	71	715	1,466	255	1,557	1,708	—	5,856
Don't know.....	5,665	799	—	1,323	1,333	168	607	337	—	884
Employer responded did not use tight fitting respirators.....	34,484	1,128	303	11,630	3,148	—	1,735	670	794	13,080
Employer responded did not know if tight fitting respirators were used.....	9,492	576	68	1,063	766	—	241	225	—	—

See footnotes at end of table

**Table 60. Number and percent of establishments using tight-fitting respirators in the 12 months<sup>1</sup> prior to the survey, by conductor of fit testing and industry division—Continued**

Respirator use practice	Private industry <sup>2</sup>	Goods producing				Service producing				
		Agriculture, forestry, and fishing <sup>2</sup>	Mining	Construction	Manufacturing	Transportation and public utilities	Wholesale trade	Retail trade	Finance, insurance, and real estate	Services
<b>Percent of establishments</b>										
Total tight-fitting respirators <sup>3</sup> .....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
<b>Fit testing for employees who wear tight-fitting respirators</b>										
Yes.....	57.3	45.3	78.8	53.1	72.5	69.2	66.2	49.2	76.4	49.4
<b>Who conducts fit testing</b>										
In-house staff.....	31.8	36.9	46.6	31.5	40.7	41.5	42.9	15.2	13.4	25.3
Employees fit test themselves.....	16.8	25.2	17.5	20.9	18.8	5.1	13.4	13.4	—	12.5
Respirator manufacturers' sales/technical representatives.....	10.3	1.9	16.5	9.6	13.8	4.6	16.3	14.7	—	8.1
Other outside party.....	14.5	4.0	28.8	13.4	16.8	29.1	21.8	12.7	3.3	11.7
Don't know.....	.1	—	—	—	.1	—	—	—	—	—
No.....	19.6	26.5	7.9	22.3	13.1	6.9	18.9	33.0	—	20.8
Not needed.....	4.6	7.4	2.0	1.2	3.1	2.5	5.6	10.3	—	6.6
Don't know.....	2.1	6.6	—	2.2	2.9	1.6	2.2	2.0	—	1.0
Employer responded did not use tight fitting respirators.....	12.8	9.4	8.7	19.4	6.7	—	6.2	4.0	18.9	14.8
Employer responded did not know if tight fitting respirators were used.....	3.5	4.8	2.0	1.8	1.6	—	.9	1.4	—	—

<sup>1</sup> The 12-month period represents required use of respirators in the 12 months prior to the establishment's completion of the survey. The survey was mailed to establishments in August 2001.

<sup>2</sup> Excludes farms with fewer than 11 employees.

<sup>3</sup> The total number of tight fitting respirators, which are respirators that form a complete seal with the face, was calculated from establishment responses to questions on respirator type. These respirator types include non-powered air-purifying (dust mask, half-mask, and full-facepiece); powered air-purifying (tight fitting half-facepiece and tight fitting full-facepiece); airline

(half-mask and full-facepiece), self-contained breathing apparatus (SCBA), and combination airline and SCBA.

NOTE: Because of rounding, data exclusion of nonclassifiable responses, and establishment reports of more than one type of respirator use, data do not sum to the totals. Dashes indicate data that do not meet publication guidelines. A measure of sampling variability for each estimate is available upon request.

SOURCE: Bureau of Labor Statistics, U.S. Department of Labor.

**Table 61. Number and percent of establishments using respirators during the 12 months<sup>1</sup> prior to the survey, by method of fit testing and industry division**

Respirator use practice	Private industry <sup>2</sup>	Goods producing				Service producing				
		Agriculture, forestry, and fishing <sup>2</sup>	Mining	Construction	Manufacturing	Transportation and public utilities	Wholesale trade	Retail trade	Finance, insurance, and real estate	Services
<b>Number of establishments</b>										
Total fit testing.....	154,410	5,460	2,739	31,801	33,819	7,121	18,494	8,160	3,212	43,604
<b>Fit testing method used at establishment</b>										
Saccharin.....	27,355	265	873	5,473	6,313	976	5,167	1,260	—	7,028
Bitrex.....	18,938	299	393	2,732	4,959	575	2,400	895	59	6,627
Irritant smoke.....	35,776	121	704	8,467	7,747	2,658	5,612	862	329	9,277
Isoamyl acetate.....	11,632	912	184	1,788	3,154	545	3,491	—	182	1,334
Generated aerosol.....	2,530	—	38	356	394	—	196	123	—	1,196
Ambient aerosol.....	7,453	—	206	1,241	2,300	1,014	1,673	—	—	983
Pressure (Controlled Negative Pressure CNP).....	25,448	1,137	834	8,257	4,856	1,336	3,877	1,793	—	3,231
Other.....	14,351	—	59	1,689	2,116	—	1,656	884	—	3,408
Don't know.....	28,692	678	403	7,489	3,895	323	1,229	1,825	—	12,696
Unfamiliar with language/terms used.....	8,100	740	39	973	2,469	—	133	893	—	2,553
<b>Percent of establishments</b>										
Total fit testing.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
<b>Fit testing method used at establishment</b>										
Saccharin.....	17.7	4.9	31.9	17.2	18.7	13.7	27.9	15.4	—	16.1
Bitrex.....	12.3	5.5	14.3	8.6	14.7	8.1	13.0	11.0	1.8	15.2
Irritant smoke.....	23.2	2.2	25.7	26.6	22.9	37.3	30.3	10.6	10.2	21.3
Isoamyl acetate.....	7.5	16.7	6.7	5.6	9.3	7.7	18.9	—	5.7	3.1
Generated aerosol.....	1.6	—	1.4	1.1	1.2	—	1.1	1.5	—	2.7
Ambient aerosol.....	4.8	—	7.5	3.9	6.8	14.2	9.0	—	—	2.3
Pressure (Controlled Negative Pressure CNP).....	16.5	20.8	30.4	26.0	14.4	18.8	21.0	22.0	—	7.4
Other.....	9.3	—	2.2	5.3	6.3	—	9.0	10.8	—	7.8
Don't know.....	18.6	12.4	14.7	23.5	11.5	4.5	6.6	22.4	—	29.1
Unfamiliar with language/terms used.....	5.2	13.6	1.4	3.1	7.3	—	.7	10.9	—	5.9

<sup>1</sup> The 12-month period represents required use of respirators in the 12 months prior to the establishment's completion of the survey. The survey was mailed to establishments in August 2001.

<sup>2</sup> Excludes farms with fewer than 11 employees.

NOTE: Because of rounding, data exclusion of nonclassifiable responses,

and establishment reports of more than one type of respirator use, data do not sum to the totals. Dashes indicate data that do not meet publication guidelines. A measure of sampling variability for each estimate is available upon request.

SOURCE: Bureau of Labor Statistics, U.S. Department of Labor.

**Table 62. Number and percent of establishments by fit testing method(s)<sup>1</sup> used during the 12 months<sup>2</sup> prior to the survey**

Respirator use practice	Total	Percent <sup>1</sup> of times fit testing method used					
		0-20	21-40	41-60	61-80	81-100	Don't know
<b>Number of establishments</b>							
<b>Fit testing method</b>							
Saccharin.....	27,355	2,036	1,682	3,206	368	17,478	2,185
Bitrex.....	18,938	1,432	1,089	1,507	258	12,683	1,846
Irritant smoke.....	35,776	4,088	680	2,260	520	25,326	2,095
Isoamyl acetate.....	11,632	1,378	1,249	2,235	42	5,920	622
Generated aerosol.....	2,530	—	137	1,210	—	698	295
Ambient aerosol.....	7,453	894	292	337	554	4,695	157
Pressure (Controlled Negative Pressure CNP).....	25,448	303	1,293	2,746	1,126	16,981	1,551
Other.....	14,351	65	225	5,258	195	10,047	394
<b>Percent of establishments</b>							
<b>Fit testing method</b>							
Saccharin.....	100.0	7.4	6.1	11.7	1.3	63.9	8.0
Bitrex.....	100.0	7.6	5.8	8.0	1.4	67.0	9.7
Irritant smoke.....	100.0	11.4	1.9	6.3	1.5	70.8	5.9
Isoamyl acetate.....	100.0	11.8	10.7	19.2	.4	50.9	5.3
Generated aerosol.....	100.0	—	5.4	47.8	—	27.6	11.7
Ambient aerosol.....	100.0	12.0	3.9	4.5	7.4	63.0	2.1
Pressure (Controlled Negative Pressure CNP).....	100.0	1.2	5.1	10.8	4.4	66.7	6.1
Other.....	100.0	.5	1.6	36.6	1.4	70.0	2.7

<sup>1</sup> Establishments were asked to indicate what percent of fit tests were done with each method.

<sup>2</sup> The 12-month period represents required use of respirators in the 12 months prior to the establishment's completion of the survey. The survey was mailed to establishments in August 2001.

NOTE: Because of rounding, data exclusion of nonclassifiable

responses, and establishment reports of more than one type of respirator use, data do not sum to the totals. Dashes indicate data that do not meet publication guidelines. A measure of sampling variability for each estimate is available upon request.

SOURCE: Bureau of Labor Statistics, U.S. Department of Labor.

**Table 63. Number and percent of establishments that fit test employees during the 12 months<sup>1</sup> prior to the survey, by fit testing method and locus of responsibility for the respirator program**

Respirator use practice	Establishment has one person responsible for directing and overseeing respirator program			
	Total	Yes	No	More than one person responsible
<b>Number of establishments</b>				
Total that fit test employees <sup>2</sup> .....	152,027	83,785	16,672	51,570
<b>Fit testing method used at establishment</b>				
Saccharin.....	27,355	13,478	1,323	12,554
Bitrex.....	18,938	13,129	233	5,576
Irritant smoke.....	35,776	23,084	2,596	10,097
Isoamyl acetate.....	11,632	9,036	—	2,499
Generated aerosol.....	2,530	1,086	214	1,230
Ambient aerosol.....	7,453	4,186	606	2,660
Pressure (Controlled Negative Pressure CNP).....	25,448	13,933	3,555	7,960
Other.....	14,351	7,856	3,551	2,944
Don't know.....	28,692	10,855	5,811	12,026
Unfamiliar with language/terms used.....	8,100	3,661	527	3,911
<b>Percent of establishments</b>				
Total that fit test employees.....	100.0	100.0	100.0	100.0
<b>Fit testing method used at establishment</b>				
Saccharin.....	18.0	16.1	7.9	24.3
Bitrex.....	12.5	15.7	1.4	10.8
Irritant smoke.....	23.5	27.6	15.6	19.6
Isoamyl acetate.....	7.7	10.8	—	4.8
Generated aerosol.....	1.7	1.3	1.3	2.4
Ambient aerosol.....	4.9	5.0	3.6	5.2
Pressure (Controlled Negative Pressure CNP).....	16.7	16.6	21.3	15.4
Other.....	9.4	9.4	21.3	5.7
Don't know.....	18.9	13.0	34.9	23.3
Unfamiliar with language/terms used.....	5.3	4.4	3.2	7.6

<sup>1</sup> The 12-month period represents required use of respirators in the 12 months prior to the establishment's completion of the survey. The survey was mailed to establishments in August 2001.

<sup>2</sup> The difference between the total establishments that fit test employees in table 63 and tables 59, 60, 61, 94, 95, and 96 can be accounted for by those establishments who did not answer question E of the survey questionnaire.

NOTE: Because of rounding, data exclusion of nonclassifiable

responses, and establishment reports of more than one type of respirator use, data do not sum to the totals. Dashes indicate data that do not meet publication guidelines. A measure of sampling variability for each estimate is available upon request.

SOURCE: Bureau of Labor Statistics, U.S. Department of Labor.

**Table 64. Number and percent of establishments and employees using respirators during the 12 months<sup>1</sup> prior to the survey, by employer evaluation of NIOSH approval labels and manufacturers' instructions and industry division**

Respirator use practice	Private industry <sup>2</sup>	Goods producing				Service producing				
		Agriculture, forestry, and fishing <sup>2</sup>	Mining	Construction	Manufacturing	Transportation and public utilities	Wholesale trade	Retail trade	Finance, insurance, and real estate	Services
<b>Number of establishments</b>										
Total use.....	281,776	13,186	3,493	64,172	48,556	10,351	31,238	16,948	4,202	89,629
<b>The respirator manufacturers' instructions and NIOSH approval labels are received with all respirators</b>										
Strongly agree.....	129,949	3,844	2,072	21,465	26,809	6,526	16,996	9,301	1,039	41,894
Agree.....	120,686	5,918	1,110	33,203	18,081	3,489	13,268	6,329	3,163	36,124
Uncertain.....	27,481	3,014	215	8,504	2,610	253	966	744	—	11,176
Disagree.....	1,466	—	77	—	246	82	—	—	—	—
Strongly disagree.....	1,337	—	—	—	560	—	—	—	—	269
<b>The NIOSH approval labels are clear and easily understood</b>										
Strongly agree.....	87,150	4,759	1,125	15,250	16,561	3,758	10,616	5,069	1,032	28,980
Agree.....	148,860	4,120	1,622	33,586	25,040	5,932	16,168	10,208	3,170	49,015
Uncertain.....	36,890	3,024	478	12,726	4,834	583	3,648	1,037	—	10,560
Disagree.....	6,612	956	240	1,626	1,669	78	789	354	—	900
Strongly disagree.....	1,406	—	27	985	202	—	—	—	—	175
<b>The NIOSH approval labels are beneficial in establishment's use of respirators</b>										
Strongly agree.....	85,528	4,621	982	15,153	13,112	3,539	9,867	4,934	993	32,327
Agree.....	139,679	5,338	2,005	31,914	26,140	5,292	14,616	6,989	3,168	44,218
Uncertain.....	49,291	2,536	443	14,428	7,422	1,199	5,994	4,710	—	12,518
Disagree.....	5,043	364	45	2,174	1,022	170	753	—	—	479
Strongly disagree.....	1,378	—	—	—	609	—	—	—	—	—
<b>The respirator manufacturers' instructions are clear and easily understood</b>										
Strongly agree.....	91,601	5,249	1,045	11,333	14,560	2,216	9,050	5,645	993	41,509
Agree.....	159,058	4,739	2,034	39,815	29,400	7,849	18,776	9,805	3,153	43,488
Uncertain.....	27,394	2,788	194	12,396	3,375	166	3,364	842	—	4,250
Disagree.....	2,021	—	212	146	843	90	—	377	—	231
Strongly disagree.....	808	—	—	—	128	—	—	—	—	—
<b>The respirator manufacturers' instructions are beneficial in use of respirators</b>										
Strongly agree.....	96,770	5,059	1,160	14,363	15,724	2,877	9,317	5,335	993	41,942
Agree.....	156,647	6,637	2,173	41,048	26,723	6,823	18,056	9,510	3,168	42,509
Uncertain.....	22,823	1,080	104	6,149	5,245	614	3,546	1,346	—	4,719
Disagree.....	4,272	—	47	2,612	470	—	310	—	—	213
Strongly disagree.....	407	—	—	—	144	—	—	—	—	246

See footnotes at end of table

**Table 64. Number and percent of establishments and employees using respirators during the 12 months<sup>1</sup> prior to the survey, by employer evaluation of NIOSH approval labels and manufacturers' instructions and industry division—Continued**

Respirator use practice	Private industry <sup>2</sup>	Goods producing				Service producing				
		Agriculture, forestry, and fishing <sup>2</sup>	Mining	Construction	Manufacturing	Transportation and public utilities	Wholesale trade	Retail trade	Finance, insurance, and real estate	Services
<b>Percent of establishments</b>										
Total use.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
<b>The respirator manufacturers' instructions and NIOSH approval labels are received with all respirators</b>										
Strongly agree.....	46.1	29.2	59.3	33.4	55.2	63.1	54.4	54.9	24.7	46.7
Agree.....	42.8	44.9	31.8	51.7	37.2	33.7	42.5	37.3	75.3	40.3
Uncertain.....	9.8	22.9	6.2	13.3	5.4	2.4	3.1	4.4	—	12.5
Disagree.....	0.5	—	2.2	—	0.5	0.8	—	—	—	—
Strongly disagree.....	0.5	—	—	—	1.2	—	—	—	—	0.3
<b>The NIOSH approval labels are clear and easily understood</b>										
Strongly agree.....	30.9	36.1	32.2	23.8	34.1	36.3	34.0	29.9	24.6	32.3
Agree.....	52.8	31.2	46.4	52.3	51.6	57.3	51.8	60.2	75.4	54.7
Uncertain.....	13.1	22.9	13.7	19.8	10.0	5.6	11.7	6.1	—	11.8
Disagree.....	2.3	7.2	6.9	2.5	3.4	0.8	2.5	2.1	—	1.0
Strongly disagree.....	0.5	—	0.8	1.5	0.4	—	—	—	—	0.2
<b>The NIOSH approval labels are beneficial in establishment's use of respirators</b>										
Strongly agree.....	30.4	35.0	28.1	23.6	27.0	34.2	31.6	29.1	23.6	36.1
Agree.....	49.6	40.5	57.4	49.7	53.8	51.1	46.8	41.2	75.4	49.3
Uncertain.....	17.5	19.2	12.7	22.5	15.3	11.6	19.2	27.8	—	14.0
Disagree.....	1.8	2.8	1.3	3.4	2.1	1.6	2.4	—	—	0.5
Strongly disagree.....	0.5	—	—	—	1.3	—	—	—	—	—
<b>The respirator manufacturers' instructions are clear and easily understood</b>										
Strongly agree.....	32.5	39.8	29.9	17.7	30.0	21.4	29.0	33.3	23.6	46.3
Agree.....	56.4	35.9	58.2	62.0	60.5	75.8	60.1	57.9	75.0	48.5
Uncertain.....	9.7	21.1	5.5	19.3	7.0	1.6	10.8	5.0	—	4.7
Disagree.....	0.7	—	6.1	0.2	1.7	0.9	—	2.2	—	0.3
Strongly disagree.....	0.3	—	—	—	0.3	—	—	—	—	—
<b>The respirator manufacturers' instructions are beneficial in use of respirators</b>										
Strongly agree.....	34.3	38.4	33.2	22.4	32.4	27.8	29.8	31.5	23.6	46.8
Agree.....	55.6	50.3	62.2	64.0	55.0	65.9	57.8	56.1	75.4	47.4
Uncertain.....	8.1	8.2	3.0	9.6	10.8	5.9	11.4	7.9	—	5.3
Disagree.....	1.5	—	1.3	4.1	1.0	—	1.0	—	—	0.2
Strongly disagree.....	0.1	—	—	—	0.3	—	—	—	—	0.3

See footnotes at end of table

**Table 64. Number and percent of establishments and employees using respirators during the 12 months<sup>1</sup> prior to the survey, by employer evaluation of NIOSH approval labels and manufacturers' instructions and industry division—Continued**

Respirator use practice	Private industry <sup>2</sup>	Goods producing				Service producing				
		Agriculture, forestry, and fishing <sup>2</sup>	Mining	Construction	Manufacturing	Transportation and public utilities	Wholesale trade	Retail trade	Finance, insurance, and real estate	Services
<b>Number of employees</b>										
Total use.....	3,303,414	101,778	53,984	590,987	882,475	189,867	182,922	118,200	22,911	1,160,289
<b>The respirator manufacturers' instructions and NIOSH approval labels are received with all respirators</b>										
Strongly agree.....	1,981,712	27,907	38,609	286,132	598,741	153,342	97,819	60,759	9,599	708,803
Agree.....	1,149,543	48,166	14,185	264,925	241,759	34,830	83,217	47,972	13,311	401,177
Uncertain.....	140,142	25,095	767	38,104	26,187	763	1,825	3,261	—	44,140
Disagree.....	16,503	423	351	1,452	6,472	932	—	—	—	—
Strongly disagree.....	13,644	—	—	—	8,001	—	61	—	—	5,136
<b>The NIOSH approval labels are clear and easily understood</b>										
Strongly agree.....	1,275,083	53,150	23,935	200,954	345,560	81,515	55,846	46,894	9,550	457,680
Agree.....	1,619,381	35,652	21,841	326,705	440,668	94,550	103,061	61,723	13,361	521,822
Uncertain.....	282,549	9,713	7,252	48,705	62,721	11,069	13,028	2,973	—	127,088
Disagree.....	114,016	3,076	829	13,545	27,863	2,734	10,864	—	—	—
Strongly disagree.....	10,515	—	128	1,079	4,351	—	123	—	—	—
<b>The NIOSH approval labels are beneficial in establishment's use of respirators</b>										
Strongly agree.....	1,163,426	56,834	19,549	226,807	275,111	48,627	51,910	46,467	7,389	430,733
Agree.....	1,589,314	33,133	28,672	282,682	449,051	114,581	94,174	58,143	12,557	516,321
Uncertain.....	422,303	9,510	5,519	59,999	120,721	16,084	29,964	13,153	2,965	164,388
Disagree.....	109,734	2,114	115	20,982	25,244	9,852	6,813	—	—	—
Strongly disagree.....	16,766	—	130	—	11,034	724	61	—	—	—
<b>The respirator manufacturers' instructions are clear and easily understood</b>										
Strongly agree.....	1,029,274	45,664	22,670	97,785	288,060	41,084	49,939	58,737	7,389	417,945
Agree.....	2,051,941	46,139	29,122	439,396	526,862	144,881	104,747	49,621	12,954	698,219
Uncertain.....	183,111	9,366	1,625	52,125	48,534	927	27,373	3,323	1,140	38,698
Disagree.....	26,600	423	511	—	14,076	1,947	—	—	—	1,387
Strongly disagree.....	9,189	—	56	—	3,631	1,028	61	—	—	—
<b>The respirator manufacturers' instructions are beneficial in use of respirators</b>										
Strongly agree.....	1,088,452	44,266	22,759	125,116	305,215	49,403	57,238	47,509	7,389	429,557
Agree.....	1,909,086	52,795	29,163	419,472	476,437	109,906	92,560	61,479	12,557	654,719
Uncertain.....	255,814	4,107	1,663	31,649	82,619	29,349	32,030	2,929	1,140	70,327
Disagree.....	39,206	423	343	14,751	12,663	—	1,034	—	1,825	1,046
Strongly disagree.....	8,986	—	56	—	4,228	—	61	—	—	—

See footnotes at end of table

**Table 64. Number and percent of establishments and employees using respirators during the 12 months<sup>1</sup> prior to the survey, by employer evaluation of NIOSH approval labels and manufacturers' instructions and industry division—Continued**

Respirator use practice	Private industry <sup>2</sup>	Goods producing				Service producing				
		Agriculture, forestry, and fishing <sup>2</sup>	Mining	Construction	Manufacturing	Transportation and public utilities	Wholesale trade	Retail trade	Finance, insurance, and real estate	Services
<b>Percent of employees</b>										
Total use.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
<b>The respirator manufacturers' instructions and NIOSH approval labels are received with all respirators</b>										
Strongly agree.....	60.0	27.4	71.5	48.4	67.8	80.8	53.5	51.4	41.9	61.1
Agree.....	34.8	47.3	26.3	44.8	27.4	18.3	45.5	40.6	58.1	34.6
Uncertain.....	4.2	24.7	1.4	6.4	3.0	.4	1.0	2.8	—	3.8
Disagree.....	.5	.4	.7	.2	.7	.5	—	—	—	—
Strongly disagree.....	.4	—	—	—	.9	—	—	—	—	.4
<b>The NIOSH approval labels are clear and easily understood</b>										
Strongly agree.....	38.6	52.2	44.3	34.0	39.2	42.9	30.5	39.7	41.7	39.4
Agree.....	49.0	35.0	40.5	55.3	49.9	49.8	56.3	52.2	58.3	45.0
Uncertain.....	8.6	9.5	13.4	8.2	7.1	5.8	7.1	2.5	—	11.0
Disagree.....	3.5	3.0	1.5	2.3	3.2	1.4	5.9	—	—	—
Strongly disagree.....	.3	—	.2	.2	.5	—	.1	—	—	—
<b>The NIOSH approval labels are beneficial in establishment's use of respirators</b>										
Strongly agree.....	35.2	55.8	36.2	38.4	31.2	25.6	28.4	39.3	32.3	37.1
Agree.....	48.1	32.6	53.1	47.8	50.9	60.3	51.5	49.2	54.8	44.5
Uncertain.....	12.8	9.3	10.2	10.2	13.7	8.5	16.4	11.1	12.9	14.2
Disagree.....	3.3	2.1	.2	3.6	2.9	5.2	3.7	—	—	—
Strongly disagree.....	.5	—	.2	—	1.3	.4	—	—	—	—
<b>The respirator manufacturers' instructions are clear and easily understood</b>										
Strongly agree.....	31.2	44.9	42.0	16.5	32.6	21.6	27.3	49.7	32.3	36.0
Agree.....	62.1	45.3	53.9	74.3	59.7	76.3	57.3	42.0	56.5	60.2
Uncertain.....	5.5	9.2	3.0	8.8	5.5	.5	15.0	2.8	5.0	3.3
Disagree.....	.8	.4	.9	—	1.6	1.0	—	—	—	.1
Strongly disagree.....	.3	—	.1	—	.4	.5	—	—	—	—

See footnotes at end of table

**Table 64. Number and percent of establishments and employees using respirators during the 12 months<sup>1</sup> prior to the survey, by employer evaluation of NIOSH approval labels and manufacturers' instructions and industry division—Continued**

Respirator use practice	Private industry <sup>2</sup>	Goods producing				Service producing				
		Agriculture, forestry, and fishing <sup>2</sup>	Mining	Construction	Manufacturing	Transportation and public utilities	Wholesale trade	Retail trade	Finance, insurance, and real estate	Services
<b>Percent of employees</b>										
<b>The respirator manufacturers' instructions are beneficial in use of respirators</b>										
Strongly agree.....	32.9	43.5	42.2	21.2	34.6	26.0	31.3	40.2	32.3	37.0
Agree.....	57.8	51.9	54.0	71.0	54.0	57.9	50.6	52.0	54.8	56.4
Uncertain.....	7.7	4.0	3.1	5.4	9.4	15.5	17.5	2.5	5.0	6.1
Disagree.....	1.2	.4	.6	2.5	1.4	—	.6	—	8.0	.1
Strongly disagree.....	.3	—	.1	—	.5	—	—	—	—	—

<sup>1</sup> The 12-month period represents required use of respirators in the 12 months prior to the establishment's completion of the survey. The survey was mailed to establishments in August 2001.

<sup>2</sup> Excludes farms with fewer than 11 employees.

NOTE: Because of rounding, data exclusion of nonclassifiable responses,

and establishment reports of more than one type of respirator use, data do not sum to the totals. Dashes indicate data that do not meet publication guidelines. A measure of sampling variability for each estimate is available upon request.

SOURCE: Bureau of Labor Statistics, U.S. Department of Labor.

**Table 65. Number of establishments that used air-purifying respirators and conducted air sampling/monitoring for selected substances and during the 12 months<sup>1</sup> prior to the survey, by industry division**

Air sampling/monitoring	Private industry <sup>2</sup>	Goods producing				Service producing				
		Agriculture, forestry, and fishing <sup>2</sup>	Mining	Construction	Manufacturing	Transportation and public utilities	Wholesale trade	Retail trade	Finance, insurance, and real estate	Services
<b>Number of establishments</b>										
Total use.....	281,776	13,186	3,493	64,172	48,556	10,351	31,238	16,948	4,202	89,629
Total air-purifying respirators.....	267,467	13,167	3,453	60,012	46,232	9,718	27,966	16,107	4,202	86,610
<b>Substance</b>										
Acid gas (such as sulfur dioxide).....	27,999	1,147	586	4,115	7,687	1,151	5,556	594	—	7,163
Yes <sup>3</sup> .....	17,002	—	159	3,416	3,932	606	3,975	94	—	4,803
No <sup>4</sup> .....	3,994	95	47	279	2,039	436	134	336	—	628
Other data sources <sup>5</sup> .....	6,061	994	352	414	1,425	140	1,344	—	—	1,309
Don't know <sup>6</sup> .....	1,365	—	39	—	326	—	—	—	—	422
Arsenic.....	10,193	1,242	199	2,921	2,502	883	758	123	—	1,566
Yes <sup>3</sup> .....	3,652	—	—	2,291	509	505	—	—	—	—
No <sup>4</sup> .....	2,397	201	—	208	1,088	114	—	280	—	449
Other data sources <sup>5</sup> .....	4,231	1,083	66	1,353	516	66	—	—	—	607
Don't know <sup>6</sup> .....	1,250	—	39	—	389	209	—	—	—	361
Asbestos.....	27,878	1,163	371	5,981	3,997	2,151	2,623	278	—	8,716
Yes <sup>3</sup> .....	19,727	—	256	4,408	1,919	1,547	2,372	—	—	6,598
No <sup>4</sup> .....	3,059	—	—	375	1,209	90	—	280	—	918
Other data sources <sup>5</sup> .....	4,578	994	66	1,232	610	614	—	131	—	831
Don't know <sup>6</sup> .....	1,026	—	39	—	268	—	111	110	—	369
Biologicals (i.e., TB & HIV).....	23,283	1,556	368	2,875	1,155	830	1,129	—	—	15,038
Yes <sup>3</sup> .....	7,179	—	42	1,786	74	92	—	—	—	4,766
No <sup>4</sup> .....	5,147	—	—	—	215	294	—	519	—	3,804
Other data sources <sup>5</sup> .....	9,575	994	268	1,379	533	243	915	—	—	5,225
Don't know <sup>6</sup> .....	2,625	—	48	—	333	202	—	—	—	1,243
Cadmium.....	10,744	1,159	201	2,560	2,658	560	1,840	230	—	1,535
Yes <sup>3</sup> .....	5,429	—	—	2,197	1,488	241	1,205	—	—	221
No <sup>4</sup> .....	296	—	—	—	137	61	—	—	—	—
Other data sources <sup>5</sup> .....	4,036	1,083	66	1,227	636	85	—	—	—	332
Don't know <sup>6</sup> .....	1,953	—	48	99	398	180	111	110	—	965
Carbon monoxide.....	24,497	1,070	436	5,747	5,302	713	2,897	840	—	7,366
Yes <sup>3</sup> .....	18,825	—	294	4,773	4,298	363	2,717	404	—	5,900
No <sup>4</sup> .....	811	—	—	193	40	83	—	—	—	315
Other data sources <sup>5</sup> .....	3,415	994	75	327	603	107	—	325	—	884
Don't know <sup>6</sup> .....	1,605	—	48	—	365	160	—	—	—	361
Chlorine.....	15,009	1,236	211	5,289	2,574	445	2,209	—	519	2,452
Yes <sup>3</sup> .....	7,350	90	76	3,114	1,421	205	1,854	—	—	198
No <sup>4</sup> .....	2,383	—	—	743	315	—	—	—	—	899
Other data sources <sup>5</sup> .....	3,661	1,027	66	884	621	131	133	—	—	798
Don't know <sup>6</sup> .....	1,663	—	48	—	251	—	111	—	—	558

See footnotes at end of table

**Table 65. Number of establishments that used air-purifying respirators and conducted air sampling/monitoring for selected substances and during the 12 months<sup>1</sup> prior to the survey, by industry division—Continued**

Air sampling/monitoring	Private industry <sup>2</sup>	Goods producing				Service producing				
		Agriculture, forestry, and fishing <sup>2</sup>	Mining	Construction	Manufacturing	Transportation and public utilities	Wholesale trade	Retail trade	Finance, insurance, and real estate	Services
<b>Substance - Continued</b>										
Chromium.....	11,824	1,112	206	2,625	3,721	602	1,708	329	—	1,521
Yes <sup>3</sup> .....	6,777	—	—	2,208	2,244	454	1,514	—	—	209
No <sup>4</sup> .....	531	—	—	—	329	61	—	—	—	—
Other data sources <sup>5</sup> .....	4,089	994	75	1,272	851	—	—	143	—	638
Don't know <sup>6</sup> .....	1,431	—	48	—	338	40	124	—	—	658
Coal mine dust.....	6,613	1,035	305	565	2,183	597	1,007	—	—	847
Yes <sup>3</sup> .....	944	—	164	295	173	306	—	—	—	—
No <sup>4</sup> .....	1,743	—	27	210	1,210	68	211	—	—	—
Other data sources <sup>5</sup> .....	3,016	994	66	—	549	290	759	—	—	332
Don't know <sup>6</sup> .....	1,017	—	48	—	251	40	—	—	—	498
Coal tar pitch volatiles.....	6,915	1,035	132	928	2,179	249	1,157	112	—	1,122
Yes <sup>3</sup> .....	1,005	—	—	94	296	106	—	—	—	—
No <sup>4</sup> .....	1,410	—	—	—	1,093	68	141	—	—	—
Other data sources <sup>5</sup> .....	2,936	994	66	243	501	—	—	—	—	600
Don't know <sup>6</sup> .....	1,565	—	48	—	289	35	—	—	—	498
Coke oven emissions.....	5,827	1,035	132	874	1,991	177	697	—	—	847
Yes <sup>3</sup> .....	775	—	—	—	213	—	—	—	—	—
No <sup>4</sup> .....	1,381	—	—	—	1,080	90	141	—	—	—
Other data sources <sup>5</sup> .....	3,107	994	66	724	451	—	—	—	—	332
Don't know <sup>6</sup> .....	1,063	—	48	—	264	40	—	—	—	498
Copper.....	11,377	1,742	153	1,142	3,604	230	1,247	—	—	3,184
Yes <sup>3</sup> .....	3,292	—	30	672	1,222	89	1,066	—	—	—
No <sup>4</sup> .....	1,714	308	—	—	1,291	68	—	—	—	—
Other data sources <sup>5</sup> .....	4,916	1,153	66	384	712	—	—	—	—	2,499
Don't know <sup>6</sup> .....	1,586	367	48	—	382	40	111	—	—	498
Cotton dust.....	7,201	2,480	124	812	1,385	163	1,056	133	—	1,048
Yes <sup>3</sup> .....	617	—	—	—	172	—	—	—	—	—
No <sup>4</sup> .....	1,060	—	—	—	331	90	—	—	—	—
Other data sources <sup>5</sup> .....	4,385	2,438	66	243	615	—	—	—	—	439
Don't know <sup>6</sup> .....	1,138	—	48	—	268	40	—	—	—	498
Hydrogen sulfide.....	18,898	1,035	563	6,010	2,498	1,356	1,908	94	—	5,357
Yes <sup>3</sup> .....	14,047	—	439	5,114	1,356	1,155	1,374	—	—	4,510
No <sup>4</sup> .....	372	—	—	—	210	97	—	—	—	—
Other data sources <sup>5</sup> .....	3,033	994	250	381	601	104	371	—	—	332
Don't know <sup>6</sup> .....	1,694	—	48	—	362	—	124	—	—	498
Iron oxide.....	11,324	1,437	202	1,030	3,280	417	1,152	112	—	3,694
Yes <sup>3</sup> .....	2,618	—	60	146	1,234	163	704	—	—	270
No <sup>4</sup> .....	1,193	—	—	61	454	—	—	—	—	543
Other data sources <sup>5</sup> .....	5,695	994	66	757	1,006	—	305	—	—	2,520
Don't know <sup>6</sup> .....	1,840	367	67	—	595	200	111	—	—	361

See footnotes at end of table

**Table 65. Number of establishments that used air-purifying respirators and conducted air sampling/monitoring for selected substances and during the 12 months<sup>1</sup> prior to the survey, by industry division—Continued**

Air sampling/monitoring	Private industry <sup>2</sup>	Goods producing				Service producing				
		Agriculture, forestry, and fishing <sup>2</sup>	Mining	Construction	Manufacturing	Transportation and public utilities	Wholesale trade	Retail trade	Finance, insurance, and real estate	Services
<b>Substance - Continued</b>										
Lead.....	31,290	1,124	311	7,879	5,510	1,367	3,694	614	—	10,783
Yes <sup>3</sup> .....	20,959	—	169	6,636	3,381	987	3,278	169	—	6,332
No <sup>4</sup> .....	2,701	—	—	819	1,076	—	—	—	—	737
Other data sources <sup>5</sup> .....	8,437	1,083	84	1,950	769	326	728	334	—	3,164
Don't know <sup>6</sup> .....	1,249	—	48	—	318	40	111	—	—	551
Manganese.....	8,083	1,616	186	837	2,203	300	1,638	112	—	1,140
Yes <sup>3</sup> .....	3,535	—	33	—	1,110	211	1,445	—	—	241
No <sup>4</sup> .....	456	166	—	—	146	—	—	—	—	—
Other data sources <sup>5</sup> .....	2,469	1,083	75	256	611	—	—	—	—	332
Don't know <sup>6</sup> .....	1,622	367	58	—	336	47	124	—	—	551
Paint vapors.....	111,768	3,577	1,209	28,028	21,812	2,508	10,965	9,405	880	33,385
Yes <sup>3</sup> .....	35,424	78	460	6,767	9,090	1,065	5,871	2,574	—	9,312
No <sup>4</sup> .....	47,576	1,949	425	14,014	5,966	704	2,484	4,512	323	17,199
Other data sources <sup>5</sup> .....	24,950	1,266	460	6,150	5,577	622	2,518	1,481	350	6,526
Don't know <sup>6</sup> .....	4,493	367	48	1,125	1,316	132	—	838	—	575
Silica dust.....	47,785	1,807	2,267	15,263	9,268	3,630	4,159	1,322	—	9,823
Yes <sup>3</sup> .....	19,766	—	1,679	7,478	5,470	514	2,750	613	—	1,197
No <sup>4</sup> .....	12,696	569	124	3,577	1,444	—	626	245	—	3,331
Other data sources <sup>5</sup> .....	13,808	1,133	518	4,152	1,880	389	751	205	—	4,780
Don't know <sup>6</sup> .....	2,610	—	—	938	614	192	—	259	—	514
Solvents.....	86,393	1,077	1,039	17,372	17,032	2,587	10,011	4,605	948	31,722
Yes <sup>3</sup> .....	39,296	—	427	6,090	8,569	1,460	7,021	2,047	598	13,042
No <sup>4</sup> .....	25,471	—	331	6,216	3,619	289	1,287	1,208	—	12,520
Other data sources <sup>5</sup> .....	20,275	994	418	5,437	4,179	830	1,662	1,163	350	5,242
Don't know <sup>6</sup> .....	2,930	—	48	—	805	129	—	187	—	1,068
Styrene.....	11,502	1,729	144	2,920	3,728	232	872	216	—	1,662
Yes <sup>3</sup> .....	4,957	—	—	2,476	1,758	—	608	—	—	—
No <sup>4</sup> .....	1,635	—	—	—	194	100	—	—	—	449
Other data sources <sup>5</sup> .....	4,490	994	66	1,260	1,378	—	—	—	—	562
Don't know <sup>6</sup> .....	1,395	—	48	—	410	47	124	—	—	612
Toluene.....	27,219	1,424	490	5,283	8,109	432	5,579	1,408	—	4,495
Yes <sup>3</sup> .....	14,725	—	—	2,559	5,025	195	4,965	665	—	1,160
No <sup>4</sup> .....	4,633	—	—	842	1,500	93	—	213	—	1,521
Other data sources <sup>5</sup> .....	6,223	994	268	1,331	1,238	125	466	410	—	1,392
Don't know <sup>6</sup> .....	1,694	—	57	—	401	—	—	121	—	422
Welding fumes.....	46,508	1,897	853	5,339	12,364	1,953	5,416	2,757	204	15,725
Yes <sup>3</sup> .....	16,175	—	360	2,739	6,449	1,108	3,986	333	—	1,199
No <sup>4</sup> .....	17,007	631	178	1,306	2,309	260	448	1,345	—	10,480
Other data sources <sup>5</sup> .....	11,906	1,224	267	1,270	2,876	569	950	808	—	3,787
Don't know <sup>6</sup> .....	1,667	—	48	—	798	37	—	270	—	407

See footnotes at end of table

**Table 65. Number of establishments that used air-purifying respirators and conducted air sampling/monitoring for selected substances and during the 12 months<sup>1</sup> prior to the survey, by industry division—Continued**

Air sampling/monitoring	Private industry <sup>2</sup>	Goods producing				Service producing				
		Agriculture, forestry, and fishing <sup>2</sup>	Mining	Construction	Manufacturing	Transportation and public utilities	Wholesale trade	Retail trade	Finance, insurance, and real estate	Services
<b>Substance - Continued</b>										
Zinc oxide.....	15,258	1,360	155	1,766	3,487	188	2,641	853	—	4,809
Yes <sup>3</sup> .....	5,030	—	31	321	1,969	54	1,838	502	—	316
No <sup>4</sup> .....	1,206	—	—	51	435	47	187	—	—	403
Other data sources <sup>5</sup> .....	6,844	994	66	847	681	—	—	192	—	3,532
Don't know <sup>6</sup> .....	2,196	367	48	—	420	47	124	85	—	558
Other dust.....	133,271	7,807	1,818	30,640	23,303	5,134	13,259	5,621	1,173	44,516
Yes <sup>3</sup> .....	41,035	773	1,224	7,149	9,097	1,087	7,179	1,197	676	12,653
No <sup>4</sup> .....	65,154	4,086	362	18,428	8,359	3,431	3,472	2,809	302	23,905
Other data sources <sup>5</sup> .....	27,476	2,581	398	4,804	4,720	404	2,448	1,092	—	10,833
Don't know <sup>6</sup> .....	4,265	367	59	820	1,401	212	160	522	—	724
Other vapors.....	40,183	4,117	834	5,600	8,468	1,792	7,823	1,939	323	9,287
Yes <sup>3</sup> .....	18,764	337	624	2,555	4,658	963	6,458	565	—	2,604
No <sup>4</sup> .....	9,617	2,308	57	831	1,637	75	212	1,116	—	3,255
Other data sources <sup>5</sup> .....	8,862	1,064	280	2,109	1,284	422	994	142	—	2,372
Don't know <sup>6</sup> .....	3,721	408	58	—	913	349	160	116	—	1,130
Selected other substances reported										
Acetone.....	828	—	—	—	149	—	—	—	—	—
Yes <sup>3</sup> .....	828	—	—	—	149	—	—	—	—	—
No <sup>4</sup> .....	—	—	—	—	—	—	—	—	—	—
Other data sources <sup>5</sup> .....	—	—	—	—	—	—	—	—	—	—
Don't know <sup>6</sup> .....	—	—	—	—	—	—	—	—	—	—
Ammonia.....	11,173	—	—	274	1,976	408	863	—	—	7,066
Yes <sup>3</sup> .....	6,852	—	—	—	1,583	393	249	—	—	—
No <sup>4</sup> .....	4,062	—	—	—	239	—	—	—	—	2,991
Other data sources <sup>5</sup> .....	278	—	—	—	173	—	25	—	—	—
Don't know <sup>6</sup> .....	—	—	—	—	—	—	—	—	—	—
Formaldehyde.....	5,388	—	—	—	643	—	—	—	—	4,574
Yes <sup>3</sup> .....	5,292	—	—	—	562	—	—	—	—	4,559
No <sup>4</sup> .....	—	—	—	—	—	—	—	—	—	—
Other data sources <sup>5</sup> .....	—	—	—	—	—	—	—	—	—	—
Don't know <sup>6</sup> .....	—	—	—	—	—	—	—	—	—	—
Isocyanate.....	1,810	—	—	—	836	—	—	—	—	—
Yes <sup>3</sup> .....	1,337	—	—	—	363	—	—	—	—	—
No <sup>4</sup> .....	—	—	—	—	—	—	—	—	—	—
Other data sources <sup>5</sup> .....	—	—	—	—	—	—	—	—	—	—
Don't know <sup>6</sup> .....	—	—	—	—	—	—	—	—	—	—

See footnotes at end of table

**Table 65. Number of establishments that used air-purifying respirators and conducted air sampling/monitoring for selected substances and during the 12 months<sup>1</sup> prior to the survey, by industry division—Continued**

Air sampling/monitoring	Private industry <sup>2</sup>	Goods producing				Service producing				
		Agriculture, forestry, and fishing <sup>2</sup>	Mining	Construction	Manufacturing	Transportation and public utilities	Wholesale trade	Retail trade	Finance, insurance, and real estate	Services
<b>Substance - Continued</b>										
Man-made fibers.....	2,003	—	—	1,017	404	—	—	—	—	—
Yes <sup>3</sup> .....	1,250	—	—	605	222	—	—	—	—	—
No <sup>4</sup> .....	363	—	—	266	42	—	—	—	—	—
Other data sources <sup>5</sup> .....	244	—	—	—	139	—	—	—	—	—
Don't know <sup>6</sup> .....	146	—	—	146	—	—	—	—	—	—
Pesticides.....	7,102	2,534	—	—	226	46	935	1,334	—	1,479
Yes <sup>3</sup> .....	190	—	—	—	95	—	—	—	—	—
No <sup>4</sup> .....	4,668	1,485	—	—	—	—	731	1,334	—	482
Other data sources <sup>5</sup> .....	1,971	713	—	—	—	32	—	—	—	—
Don't know <sup>6</sup> .....	—	—	—	—	—	—	—	—	—	—

<sup>1</sup> The 12-month period represents required use of respirators in the 12 months prior to the establishment's completion of the survey. The survey was mailed to establishments in August 2001.

<sup>2</sup> Excludes farms with fewer than 11 employees.

<sup>3</sup> Air sampling/monitoring was conducted at the establishment at any time in the past for the substance for job(s) that required respirator use.

<sup>4</sup> Air sampling/monitoring was not conducted at the establishment at any time in the past for the substance during job(s) that required respirator use.

<sup>5</sup> Air sampling/monitoring was not needed because historical and objective data were obtained from industry studies or trade associations that are similar

to the establishment's physical environment for the substance.

<sup>6</sup> Do not know if air sampling/monitoring was conducted for the substance.

NOTE: Because of rounding, data exclusion of nonclassifiable responses, and establishment reports of more than one type of respirator use, data do not sum to the totals. Dashes indicate data that do not meet publication guidelines. A measure of sampling variability for each estimate is available upon request.

SOURCE: Bureau of Labor Statistics, U.S. Department of Labor.

**Table 66. Percent of establishments that used air-purifying respirators and conducted air sampling/monitoring for selected substances and during the 12 months<sup>1</sup> prior to the survey, by industry division**

Air sampling/monitoring	Private industry <sup>2</sup>	Goods producing				Service producing				
		Agriculture, forestry, and fishing <sup>2</sup>	Mining	Construction	Manufacturing	Transportation and public utilities	Wholesale trade	Retail trade	Finance, insurance, and real estate	Services
<b>Percent of establishments</b>										
Total air-purifying respirators.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
<b>Substance</b>										
Acid gas (such as sulfur dioxide).....	10.5	8.7	17.0	6.9	16.6	11.8	19.9	3.7	—	8.3
Yes <sup>3</sup> .....	6.4	—	4.6	5.7	8.5	6.2	14.2	.6	—	5.5
No <sup>4</sup> .....	1.5	.7	1.4	.5	4.4	4.5	.5	2.1	—	.7
Other data sources <sup>5</sup> .....	2.3	7.5	10.2	.7	3.1	1.4	4.8	—	—	1.5
Don't know <sup>6</sup> .....	.5	—	1.1	—	.7	—	—	—	—	.5
Arsenic.....	3.8	9.4	5.8	4.9	5.4	9.1	2.7	.8	—	1.8
Yes <sup>3</sup> .....	1.4	—	—	3.8	1.1	5.2	—	—	—	—
No <sup>4</sup> .....	.9	1.5	—	.3	2.4	1.2	—	1.7	—	.5
Other data sources <sup>5</sup> .....	1.6	8.2	1.9	2.3	1.1	.7	—	—	—	.7
Don't know <sup>6</sup> .....	.5	—	1.1	—	.8	2.2	—	—	—	.4
Asbestos.....	10.4	8.8	10.7	10.0	8.6	22.1	9.4	1.7	—	10.1
Yes <sup>3</sup> .....	7.4	—	7.4	7.3	4.2	15.9	8.5	—	—	7.6
No <sup>4</sup> .....	1.1	—	—	.6	2.6	.9	—	1.7	—	1.1
Other data sources <sup>5</sup> .....	1.7	7.5	1.9	2.1	1.3	6.3	—	.8	—	1.0
Don't know <sup>6</sup> .....	.4	—	1.1	—	.6	—	.4	.7	—	.4
Biologicals (i.e., TB & HIV).....	8.7	11.8	10.7	4.8	2.5	8.5	4.0	—	—	17.4
Yes <sup>3</sup> .....	2.7	—	1.2	3.0	.2	.9	—	—	—	5.5
No <sup>4</sup> .....	1.9	—	—	—	.5	3.0	—	3.2	—	4.4
Other data sources <sup>5</sup> .....	3.6	7.5	7.8	2.3	1.2	2.5	3.3	—	—	6.0
Don't know <sup>6</sup> .....	1.0	—	1.4	—	.7	2.1	—	—	—	1.4
Cadmium.....	4.0	8.8	5.8	4.3	5.7	5.8	6.6	1.4	—	1.8
Yes <sup>3</sup> .....	2.0	—	—	3.7	3.2	2.5	4.3	—	—	.3
No <sup>4</sup> .....	.1	—	—	—	.3	.6	—	—	—	—
Other data sources <sup>5</sup> .....	1.5	8.2	1.9	2.0	1.4	.9	—	—	—	.4
Don't know <sup>6</sup> .....	.7	—	1.4	.2	.9	1.9	.4	.7	—	1.1
Carbon monoxide.....	9.2	8.1	12.6	9.6	11.5	7.3	10.4	5.2	—	8.5
Yes <sup>3</sup> .....	7.0	—	8.5	8.0	9.3	3.7	9.7	2.5	—	6.8
No <sup>4</sup> .....	.3	—	—	.3	.1	.9	—	—	—	.4
Other data sources <sup>5</sup> .....	1.3	7.5	2.2	.5	1.3	1.1	—	2.0	—	1.0
Don't know <sup>6</sup> .....	.6	—	1.4	—	.8	1.6	—	—	—	.4
Chlorine.....	5.6	9.4	6.1	8.8	5.6	4.6	7.9	—	12.4	2.8
Yes <sup>3</sup> .....	2.7	.7	2.2	5.2	3.1	2.1	6.6	—	—	.2
No <sup>4</sup> .....	.9	—	—	1.2	.7	—	—	—	—	1.0
Other data sources <sup>5</sup> .....	1.4	7.8	1.9	1.5	1.3	1.3	.5	—	—	.9
Don't know <sup>6</sup> .....	.6	—	1.4	—	.5	—	.4	—	—	.6

See footnotes at end of table

**Table 66. Percent of establishments that used air-purifying respirators and conducted air sampling/monitoring for selected substances and during the 12 months<sup>1</sup> prior to the survey, by industry division—Continued**

Air sampling/monitoring	Private industry <sup>2</sup>	Goods producing				Service producing				
		Agriculture, forestry, and fishing <sup>2</sup>	Mining	Construction	Manufacturing	Transportation and public utilities	Wholesale trade	Retail trade	Finance, insurance, and real estate	Services
<b>Substance - Continued</b>										
Chromium.....	4.4	8.4	6.0	4.4	8.0	6.2	6.1	2.0	—	1.8
Yes <sup>3</sup> .....	2.5	—	—	3.7	4.9	4.7	5.4	—	—	.2
No <sup>4</sup> .....	.2	—	—	—	.7	.6	—	—	—	—
Other data sources <sup>5</sup> .....	1.5	7.5	2.2	2.1	1.8	—	—	.9	—	.7
Don't know <sup>6</sup> .....	.5	—	1.4	—	.7	.4	.4	—	—	.8
Coal mine dust.....	2.5	7.9	8.8	.9	4.7	6.1	3.6	—	—	1.0
Yes <sup>3</sup> .....	.4	—	4.7	.5	.4	3.1	—	—	—	—
No <sup>4</sup> .....	.7	—	.8	.3	2.6	.7	.8	—	—	—
Other data sources <sup>5</sup> .....	1.1	7.5	1.9	—	1.2	3.0	2.7	—	—	.4
Don't know <sup>6</sup> .....	.4	—	1.4	—	.5	.4	—	—	—	.6
Coal tar pitch volatiles.....	2.6	7.9	3.8	1.5	4.7	2.6	4.1	.7	—	1.3
Yes <sup>3</sup> .....	.4	—	—	.2	.6	1.1	—	—	—	—
No <sup>4</sup> .....	.5	—	—	—	2.4	.7	.5	—	—	—
Other data sources <sup>5</sup> .....	1.1	7.5	1.9	.4	1.1	—	—	—	—	.7
Don't know <sup>6</sup> .....	.6	—	1.4	—	.6	.4	—	—	—	.6
Coke oven emissions.....	2.2	7.9	3.8	1.5	4.3	1.8	2.5	—	—	1.0
Yes <sup>3</sup> .....	.3	—	—	—	.5	—	—	—	—	—
No <sup>4</sup> .....	.5	—	—	—	2.3	.9	.5	—	—	—
Other data sources <sup>5</sup> .....	1.2	7.5	1.9	1.2	1.0	—	—	—	—	.4
Don't know <sup>6</sup> .....	.4	—	1.4	—	.6	.4	—	—	—	.6
Copper.....	4.3	13.2	4.4	1.9	7.8	2.4	4.5	—	—	3.7
Yes <sup>3</sup> .....	1.2	—	.9	1.1	2.6	.9	3.8	—	—	—
No <sup>4</sup> .....	.6	2.3	—	—	2.8	.7	—	—	—	—
Other data sources <sup>5</sup> .....	1.8	8.8	1.9	.6	1.5	—	—	—	—	2.9
Don't know <sup>6</sup> .....	.6	2.8	1.4	—	.8	.4	.4	—	—	.6
Cotton dust.....	2.7	18.8	3.6	1.4	3.0	1.7	3.8	.8	—	1.2
Yes <sup>3</sup> .....	.2	—	—	—	.4	—	—	—	—	—
No <sup>4</sup> .....	.4	—	—	—	.7	.9	—	—	—	—
Other data sources <sup>5</sup> .....	1.6	18.5	1.9	.4	1.3	—	—	—	—	.5
Don't know <sup>6</sup> .....	.4	—	1.4	—	.6	.4	—	—	—	.6
Hydrogen sulfide.....	7.1	7.9	16.3	10.0	5.4	14.0	6.8	.6	—	6.2
Yes <sup>3</sup> .....	5.3	—	12.7	8.5	2.9	11.9	4.9	—	—	5.2
No <sup>4</sup> .....	.1	—	—	—	.5	1.0	—	—	—	—
Other data sources <sup>5</sup> .....	1.1	7.5	7.2	.6	1.3	1.1	1.3	—	—	.4
Don't know <sup>6</sup> .....	.6	—	1.4	—	.8	—	.4	—	—	.6
Iron oxide.....	4.2	10.9	5.8	1.7	7.1	4.3	4.1	.7	—	4.3
Yes <sup>3</sup> .....	1.0	—	1.7	.2	2.7	1.7	2.5	—	—	.3
No <sup>4</sup> .....	.4	—	—	.1	1.0	—	—	—	—	.6
Other data sources <sup>5</sup> .....	2.1	7.5	1.9	1.3	2.2	—	1.1	—	—	2.9
Don't know <sup>6</sup> .....	.7	2.8	1.9	—	1.3	2.1	.4	—	—	.4

See footnotes at end of table

**Table 66. Percent of establishments that used air-purifying respirators and conducted air sampling/monitoring for selected substances and during the 12 months<sup>1</sup> prior to the survey, by industry division—Continued**

Air sampling/monitoring	Private industry <sup>2</sup>	Goods producing				Service producing				
		Agriculture, forestry, and fishing <sup>2</sup>	Mining	Construction	Manufacturing	Transportation and public utilities	Wholesale trade	Retail trade	Finance, insurance, and real estate	Services
<b>Substance - Continued</b>										
Lead.....	11.7	8.5	9.0	13.1	11.9	14.1	13.2	3.8	—	12.5
Yes <sup>3</sup> .....	7.8	—	4.9	11.1	7.3	10.2	11.7	1.0	—	7.3
No <sup>4</sup> .....	1.0	—	—	1.4	2.3	—	—	—	—	.9
Other data sources <sup>5</sup> .....	3.2	8.2	2.4	3.2	1.7	3.4	2.6	2.1	—	3.7
Don't know <sup>6</sup> .....	.5	—	1.4	—	.7	.4	.4	—	—	.6
Manganese.....	3.0	12.3	5.4	1.4	4.8	3.1	5.9	.7	—	1.3
Yes <sup>3</sup> .....	1.3	—	1.0	—	2.4	2.2	5.2	—	—	.3
No <sup>4</sup> .....	.2	1.3	—	—	.3	—	—	—	—	—
Other data sources <sup>5</sup> .....	.9	8.2	2.2	.4	1.3	—	—	—	—	.4
Don't know <sup>6</sup> .....	.6	2.8	1.7	—	.7	.5	.4	—	—	.6
Paint vapors.....	41.8	27.2	35.0	46.7	47.2	25.8	39.2	58.4	20.9	38.5
Yes <sup>3</sup> .....	13.2	.6	13.3	11.3	19.7	11.0	21.0	16.0	—	10.8
No <sup>4</sup> .....	17.8	14.8	12.3	23.4	12.9	7.2	8.9	28.0	7.7	19.9
Other data sources <sup>5</sup> .....	9.3	9.6	13.3	10.2	12.1	6.4	9.0	9.2	8.3	7.5
Don't know <sup>6</sup> .....	1.7	2.8	1.4	1.9	2.8	1.4	—	5.2	—	.7
Silica dust.....	17.9	13.7	65.7	25.4	20.0	37.4	14.9	8.2	—	11.3
Yes <sup>3</sup> .....	7.4	—	48.6	12.5	11.8	5.3	9.8	3.8	—	1.4
No <sup>4</sup> .....	4.7	4.3	3.6	6.0	3.1	—	2.2	1.5	—	3.8
Other data sources <sup>5</sup> .....	5.2	8.6	15.0	6.9	4.1	4.0	2.7	1.3	—	5.5
Don't know <sup>6</sup> .....	1.0	—	—	1.6	1.3	2.0	—	1.6	—	.6
Solvents.....	32.3	8.2	30.1	28.9	36.8	26.6	35.8	28.6	22.6	36.6
Yes <sup>3</sup> .....	14.7	—	12.4	10.1	18.5	15.0	25.1	12.7	14.2	15.1
No <sup>4</sup> .....	9.5	—	9.6	10.4	7.8	3.0	4.6	7.5	—	14.5
Other data sources <sup>5</sup> .....	7.6	7.5	12.1	9.1	9.0	8.5	5.9	7.2	8.3	6.1
Don't know <sup>6</sup> .....	1.1	—	1.4	—	1.7	1.3	—	1.2	—	1.2
Styrene.....	4.3	13.1	4.2	4.9	8.1	2.4	3.1	1.3	—	1.9
Yes <sup>3</sup> .....	1.9	—	—	4.1	3.8	—	2.2	—	—	—
No <sup>4</sup> .....	.6	—	—	—	.4	1.0	—	—	—	.5
Other data sources <sup>5</sup> .....	1.7	7.5	1.9	2.1	3.0	—	—	—	—	.6
Don't know <sup>6</sup> .....	.5	—	1.4	—	.9	.5	.4	—	—	.7
Toluene.....	10.2	10.8	14.2	8.8	17.5	4.4	19.9	8.7	—	5.2
Yes <sup>3</sup> .....	5.5	—	—	4.3	10.9	2.0	17.8	4.1	—	1.3
No <sup>4</sup> .....	1.7	—	—	1.4	3.2	1.0	—	1.3	—	1.8
Other data sources <sup>5</sup> .....	2.3	7.5	7.8	2.2	2.7	1.3	1.7	2.5	—	1.6
Don't know <sup>6</sup> .....	.6	—	1.7	—	.9	—	—	.8	—	.5
Welding fumes.....	17.4	14.4	24.7	8.9	26.7	20.1	19.4	17.1	4.9	18.2
Yes <sup>3</sup> .....	6.0	—	10.4	4.6	13.9	11.4	14.3	2.1	—	1.4
No <sup>4</sup> .....	6.4	4.8	5.2	2.2	5.0	2.7	1.6	8.4	—	12.1
Other data sources <sup>5</sup> .....	4.5	9.3	7.7	2.1	6.2	5.9	3.4	5.0	—	4.4
Don't know <sup>6</sup> .....	.6	—	1.4	—	1.7	.4	—	1.7	—	.5

See footnotes at end of table

**Table 66. Percent of establishments that used air-purifying respirators and conducted air sampling/monitoring for selected substances and during the 12 months<sup>1</sup> prior to the survey, by industry division—Continued**

Air sampling/monitoring	Private industry <sup>2</sup>	Goods producing				Service producing				
		Agriculture, forestry, and fishing <sup>2</sup>	Mining	Construction	Manufacturing	Transportation and public utilities	Wholesale trade	Retail trade	Finance, insurance, and real estate	Services
<b>Substance - Continued</b>										
Zinc oxide.....	5.7	10.3	4.5	2.9	7.5	1.9	9.4	5.3	—	5.6
Yes <sup>3</sup> .....	1.9	—	.9	.5	4.3	.6	6.6	3.1	—	.4
No <sup>4</sup> .....	.5	—	—	.1	.9	.5	.7	—	—	.5
Other data sources <sup>5</sup> .....	2.6	7.5	1.9	1.4	1.5	—	—	1.2	—	4.1
Don't know <sup>6</sup> .....	.8	2.8	1.4	—	.9	.5	.4	.5	—	.6
Other dust.....	49.8	59.3	52.6	51.1	50.4	52.8	47.4	34.9	27.9	51.4
Yes <sup>3</sup> .....	15.3	5.9	35.4	11.9	19.7	11.2	25.7	7.4	16.1	14.6
No <sup>4</sup> .....	24.4	31.0	10.5	30.7	18.1	35.3	12.4	17.4	7.2	27.6
Other data sources <sup>5</sup> .....	10.3	19.6	11.5	8.0	10.2	4.2	8.8	6.8	—	12.5
Don't know <sup>6</sup> .....	1.6	2.8	1.7	1.4	3.0	2.2	.6	3.2	—	.8
Other vapors.....	15.0	31.3	24.2	9.3	18.3	18.4	28.0	12.0	7.7	10.7
Yes <sup>3</sup> .....	7.0	2.6	18.1	4.3	10.1	9.9	23.1	3.5	—	3.0
No <sup>4</sup> .....	3.6	17.5	1.7	1.4	3.5	.8	.8	6.9	—	3.8
Other data sources <sup>5</sup> .....	3.3	8.1	8.1	3.5	2.8	4.3	3.6	.9	—	2.7
Don't know <sup>6</sup> .....	1.4	3.1	1.7	—	2.0	3.6	.6	.7	—	1.3
Selected other substances reported										
Acetone.....	.3	—	—	—	.3	—	—	—	—	—
Yes <sup>3</sup> .....	.3	—	—	—	.3	—	—	—	—	—
No <sup>4</sup> .....	—	—	—	—	—	—	—	—	—	—
Other data sources <sup>5</sup> .....	—	—	—	—	—	—	—	—	—	—
Don't know <sup>6</sup> .....	—	—	—	—	—	—	—	—	—	—
Ammonia.....	4.2	—	—	.5	4.3	4.2	3.1	—	—	8.2
Yes <sup>3</sup> .....	2.6	—	—	—	3.4	4.0	.9	—	—	—
No <sup>4</sup> .....	1.5	—	—	—	.5	—	—	—	—	3.5
Other data sources <sup>5</sup> .....	.1	—	—	—	.4	—	.1	—	—	—
Don't know <sup>6</sup> .....	—	—	—	—	—	—	—	—	—	—
Formaldehyde.....	2.0	—	—	—	1.4	—	—	—	—	5.3
Yes <sup>3</sup> .....	2.0	—	—	—	1.2	—	—	—	—	5.3
No <sup>4</sup> .....	—	—	—	—	—	—	—	—	—	—
Other data sources <sup>5</sup> .....	—	—	—	—	—	—	—	—	—	—
Don't know <sup>6</sup> .....	—	—	—	—	—	—	—	—	—	—
Isocyanate.....	.7	—	—	—	1.8	—	—	—	—	—
Yes <sup>3</sup> .....	.5	—	—	—	.8	—	—	—	—	—
No <sup>4</sup> .....	—	—	—	—	—	—	—	—	—	—
Other data sources <sup>5</sup> .....	—	—	—	—	—	—	—	—	—	—
Don't know <sup>6</sup> .....	—	—	—	—	—	—	—	—	—	—

See footnotes at end of table

**Table 66. Percent of establishments that used air-purifying respirators and conducted air sampling/monitoring for selected substances and during the 12 months<sup>1</sup> prior to the survey, by industry division—Continued**

Air sampling/monitoring	Private industry <sup>2</sup>	Goods producing				Service producing				
		Agriculture, forestry, and fishing <sup>2</sup>	Mining	Construction	Manufacturing	Transportation and public utilities	Wholesale trade	Retail trade	Finance, insurance, and real estate	Services
<b>Substance - Continued</b>										
Man-made fibers.....	0.7	—	—	1.7	0.9	—	—	—	—	—
Yes <sup>3</sup> .....	.5	—	—	1.0	.5	—	—	—	—	—
No <sup>4</sup> .....	.1	—	—	.4	.1	—	—	—	—	—
Other data sources <sup>5</sup> .....	.1	—	—	—	.3	—	—	—	—	—
Don't know <sup>6</sup> .....	.1	—	—	.2	—	—	—	—	—	—
Pesticides.....	2.7	19.2	—	—	.5	.5	3.3	8.3	—	1.7
Yes <sup>3</sup> .....	.1	—	—	—	.2	—	—	—	—	—
No <sup>4</sup> .....	1.7	11.3	—	—	—	—	2.6	8.3	—	.6
Other data sources <sup>5</sup> .....	.7	5.4	—	—	—	.3	—	—	—	—
Don't know <sup>6</sup> .....	—	—	—	—	—	—	—	—	—	—

<sup>1</sup> The 12-month period represents required use of respirators in the 12 months prior to the establishment's completion of the survey. The survey was mailed to establishments in August 2001.

<sup>2</sup> Excludes farms with fewer than 11 employees.

<sup>3</sup> Air sampling/monitoring was conducted at the establishment at any time in the past for the substance for job(s) that required respirator use.

<sup>4</sup> Air sampling/monitoring was not conducted at the establishment at any time in the past for the substance during job(s) that required respirator use.

<sup>5</sup> Air sampling/monitoring was not needed because historical and objective data were obtained from industry studies or trade associations that are

similar to the establishment's physical environment for the substance.

<sup>6</sup> Do not know if air sampling/monitoring was conducted for the substance.

NOTE: Because of rounding, data exclusion of nonclassifiable responses, and establishment reports of more than one type of respirator use, data do not sum to the totals. Dashes indicate data that do not meet publication guidelines. A measure of sampling variability for each estimate is available upon request.

SOURCE: Bureau of Labor Statistics, U.S. Department of Labor.

**Table 67. Number of establishments that used air-supplied respirators and conducted air sampling/monitoring for selected substances and during the 12 months<sup>1</sup> prior to the survey, by industry division**

Air sampling/monitoring	Private industry <sup>2</sup>	Goods producing				Service producing				
		Agriculture, forestry, and fishing <sup>2</sup>	Mining	Construction	Manufacturing	Transportation and public utilities	Wholesale trade	Retail trade	Finance, insurance, and real estate	Services
<b>Number of establishments</b>										
Total use.....	281,776	13,186	3,493	64,172	48,556	10,351	31,238	16,948	4,202	89,629
Total air-supplied respirators.....	47,290	479	592	10,546	12,702	3,786	6,816	2,879	—	9,490
<b>Substance</b>										
Acid gas (such as sulfur dioxide).....	7,045	—	251	2,790	1,830	489	1,536	—	—	76
Yes <sup>3</sup> .....	5,921	—	56	2,684	1,409	196	1,441	—	—	—
No <sup>4</sup> .....	504	—	—	—	150	—	—	—	—	—
Other data sources <sup>5</sup> .....	566	—	195	—	210	41	—	—	—	—
Don't know <sup>6</sup> .....	71	—	—	—	63	—	—	—	—	—
Arsenic.....	2,257	—	—	1,691	432	52	—	—	—	—
Yes <sup>3</sup> .....	1,961	—	—	1,669	243	32	—	—	—	—
No <sup>4</sup> .....	31	—	—	—	31	—	—	—	—	—
Other data sources <sup>5</sup> .....	1,136	—	—	984	78	—	—	—	—	—
Don't know <sup>6</sup> .....	92	—	—	—	80	—	—	—	—	—
Asbestos.....	3,104	—	—	993	604	998	—	—	—	—
Yes <sup>3</sup> .....	2,814	—	—	972	421	931	—	—	—	—
No <sup>4</sup> .....	31	—	—	—	31	—	—	—	—	—
Other data sources <sup>5</sup> .....	177	—	—	—	83	55	—	—	—	—
Don't know <sup>6</sup> .....	89	—	—	—	77	—	—	—	—	—
Biologicals (i.e., TB & HIV).....	1,492	—	—	1,083	251	—	—	—	—	104
Yes <sup>3</sup> .....	211	—	—	—	59	—	—	—	—	23
No <sup>4</sup> .....	75	—	—	—	38	—	—	—	—	23
Other data sources <sup>5</sup> .....	1,125	—	—	—	86	—	—	—	—	—
Don't know <sup>6</sup> .....	81	—	—	—	68	—	—	—	—	—
Cadmium.....	2,408	—	—	1,638	630	50	—	—	—	—
Yes <sup>3</sup> .....	2,008	—	—	1,617	301	38	—	—	—	—
No <sup>4</sup> .....	105	—	—	—	68	—	—	—	—	—
Other data sources <sup>5</sup> .....	1,086	—	—	984	102	—	—	—	—	—
Don't know <sup>6</sup> .....	171	—	—	—	159	—	—	—	—	—
Carbon monoxide.....	7,932	—	73	3,817	2,027	418	701	429	—	449
Yes <sup>3</sup> .....	7,365	—	73	3,763	1,853	322	669	259	—	426
No <sup>4</sup> .....	82	—	—	—	35	—	—	—	—	—
Other data sources <sup>5</sup> .....	353	—	—	—	42	55	—	170	—	—
Don't know <sup>6</sup> .....	144	—	—	—	108	—	—	—	—	23
Chlorine.....	5,051	—	—	2,841	740	777	612	—	—	—
Yes <sup>3</sup> .....	3,969	—	—	2,706	560	160	—	—	—	—
No <sup>4</sup> .....	691	—	—	—	26	551	—	—	—	—
Other data sources <sup>5</sup> .....	1,232	—	—	984	84	—	—	—	—	—
Don't know <sup>6</sup> .....	154	—	—	—	89	—	—	—	—	—

See footnotes at end of table

**Table 67. Number of establishments that used air-supplied respirators and conducted air sampling/monitoring for selected substances and during the 12 months<sup>1</sup> prior to the survey, by industry division—Continued**

Air sampling/monitoring	Private industry <sup>2</sup>	Goods producing				Service producing				
		Agriculture, forestry, and fishing <sup>2</sup>	Mining	Construction	Manufacturing	Transportation and public utilities	Wholesale trade	Retail trade	Finance, insurance, and real estate	Services
<b>Substance - Continued</b>										
Chromium.....	3,014	—	—	1,608	660	—	—	219	—	—
Yes <sup>3</sup> .....	2,479	—	—	1,608	399	—	—	—	—	—
No <sup>4</sup> .....	128	—	—	—	76	—	—	—	—	—
Other data sources <sup>5</sup> .....	1,233	—	—	—	125	—	—	145	—	—
Don't know <sup>6</sup> .....	143	—	—	—	65	—	—	—	—	—
Coal mine dust.....	401	—	—	—	198	41	—	—	—	—
Yes <sup>3</sup> .....	158	—	—	—	27	—	—	—	—	—
No <sup>4</sup> .....	34	—	—	—	—	—	—	—	—	—
Other data sources <sup>5</sup> .....	140	—	—	—	94	—	—	—	—	—
Don't know <sup>6</sup> .....	69	—	—	—	57	—	—	—	—	—
Coal tar pitch volatiles.....	508	—	—	173	249	86	—	—	—	—
Yes <sup>3</sup> .....	252	—	—	173	53	—	—	—	—	—
No <sup>4</sup> .....	34	—	—	—	—	—	—	—	—	—
Other data sources <sup>5</sup> .....	146	—	—	—	113	—	—	—	—	—
Don't know <sup>6</sup> .....	76	—	—	—	63	—	—	—	—	—
Coke oven emissions.....	320	—	—	—	159	41	—	—	—	—
Yes <sup>3</sup> .....	176	—	—	—	—	—	—	—	—	—
No <sup>4</sup> .....	—	—	—	—	—	—	—	—	—	—
Other data sources <sup>5</sup> .....	55	—	—	—	41	—	—	—	—	—
Don't know <sup>6</sup> .....	69	—	—	—	57	—	—	—	—	—
Copper.....	2,047	—	—	1,616	339	—	—	—	—	—
Yes <sup>3</sup> .....	1,768	—	—	1,616	140	—	—	—	—	—
No <sup>4</sup> .....	—	—	—	—	—	—	—	—	—	—
Other data sources <sup>5</sup> .....	1,055	—	—	—	92	—	—	—	—	—
Don't know <sup>6</sup> .....	175	—	—	—	110	—	—	—	—	—
Hydrogen sulfide.....	7,266	—	295	4,629	782	957	—	—	—	167
Yes <sup>3</sup> .....	6,875	—	295	4,527	565	898	—	—	—	167
No <sup>4</sup> .....	—	—	—	—	—	—	—	—	—	—
Other data sources <sup>5</sup> .....	346	—	184	—	93	—	—	—	—	—
Don't know <sup>6</sup> .....	140	—	—	—	115	—	—	—	—	—
Iron oxide.....	1,561	—	—	150	612	55	225	—	—	403
Yes <sup>3</sup> .....	773	—	—	131	391	—	193	—	—	—
No <sup>4</sup> .....	462	—	—	—	128	—	—	—	—	—
Other data sources <sup>5</sup> .....	268	—	—	—	34	—	—	—	—	115
Don't know <sup>6</sup> .....	73	—	—	—	60	—	—	—	—	—
Lead.....	5,195	—	39	2,404	1,111	274	706	229	—	432
Yes <sup>3</sup> .....	4,246	—	—	2,349	941	193	706	—	—	—
No <sup>4</sup> .....	302	—	—	—	—	—	—	—	—	—
Other data sources <sup>5</sup> .....	1,516	—	—	1,013	93	55	—	193	—	—
Don't know <sup>6</sup> .....	130	—	—	—	84	—	—	—	—	—

See footnotes at end of table

**Table 67. Number of establishments that used air-supplied respirators and conducted air sampling/monitoring for selected substances and during the 12 months<sup>1</sup> prior to the survey, by industry division—Continued**

Air sampling/monitoring	Private industry <sup>2</sup>	Goods producing				Service producing				
		Agriculture, forestry, and fishing <sup>2</sup>	Mining	Construction	Manufacturing	Transportation and public utilities	Wholesale trade	Retail trade	Finance, insurance, and real estate	Services
<b>Substance - Continued</b>										
Manganese.....	1,599	—	—	—	396	—	—	—	—	—
Yes <sup>3</sup> .....	1,306	—	—	—	218	—	—	—	—	—
No <sup>4</sup> .....	—	—	—	—	—	—	—	—	—	—
Other data sources <sup>5</sup> .....	126	—	—	—	89	—	—	—	—	—
Don't know <sup>6</sup> .....	167	—	—	—	89	—	—	—	—	—
Oxygen deficiency.....	7,279	—	268	2,275	1,396	1,063	1,163	—	—	—
Yes <sup>3</sup> .....	5,933	—	268	2,275	1,230	945	1,163	—	—	—
No <sup>4</sup> .....	—	—	—	—	—	43	—	—	—	—
Other data sources <sup>5</sup> .....	226	—	—	—	89	63	—	—	—	—
Don't know <sup>6</sup> .....	93	—	—	—	81	—	—	—	—	—
Paint vapors.....	21,593	—	187	4,491	5,023	795	1,875	2,337	—	6,719
Yes <sup>3</sup> .....	8,522	—	45	2,651	2,739	504	1,262	572	—	749
No <sup>4</sup> .....	6,552	—	—	545	1,058	117	127	460	—	4,069
Other data sources <sup>5</sup> .....	5,980	—	—	1,295	1,166	92	—	1,179	—	1,631
Don't know <sup>6</sup> .....	636	—	—	—	79	—	—	—	—	—
Silica dust.....	9,007	—	420	4,577	2,499	333	256	157	—	764
Yes <sup>3</sup> .....	5,134	—	270	3,023	1,481	156	193	—	—	—
No <sup>4</sup> .....	1,437	—	—	477	290	—	—	—	—	465
Other data sources <sup>5</sup> .....	2,960	—	325	1,557	744	—	—	—	—	—
Don't know <sup>6</sup> .....	286	—	—	—	130	—	—	—	—	—
Solvents.....	13,393	—	371	2,116	3,648	761	1,867	1,304	—	3,326
Yes <sup>3</sup> .....	7,283	—	—	1,757	2,360	448	1,772	273	—	665
No <sup>4</sup> .....	2,597	—	—	337	510	163	—	260	—	1,253
Other data sources <sup>5</sup> .....	4,289	—	351	984	727	67	—	727	—	1,401
Don't know <sup>6</sup> .....	209	—	—	—	75	—	—	—	—	—
Styrene.....	2,157	—	—	1,164	853	—	—	—	—	115
Yes <sup>3</sup> .....	1,715	—	—	1,083	632	—	—	—	—	—
No <sup>4</sup> .....	—	—	—	—	—	—	—	—	—	—
Other data sources <sup>5</sup> .....	191	—	—	—	76	—	—	—	—	115
Don't know <sup>6</sup> .....	133	—	—	—	108	—	—	—	—	—
Toluene.....	6,310	—	202	1,369	2,057	123	997	405	—	1,156
Yes <sup>3</sup> .....	4,072	—	184	1,235	1,415	—	997	—	—	115
No <sup>4</sup> .....	981	—	—	134	211	—	—	—	—	585
Other data sources <sup>5</sup> .....	1,272	—	202	—	326	—	—	293	—	403
Don't know <sup>6</sup> .....	173	—	—	—	108	—	—	—	—	—
Welding fumes.....	7,843	—	96	1,600	1,665	465	1,209	734	—	2,073
Yes <sup>3</sup> .....	4,131	—	69	1,483	1,042	192	1,114	116	—	115
No <sup>4</sup> .....	1,874	—	—	—	191	167	—	—	—	1,373
Other data sources <sup>5</sup> .....	1,668	—	—	84	350	101	—	498	—	585
Don't know <sup>6</sup> .....	191	—	—	—	96	—	—	—	—	—

See footnotes at end of table

**Table 67. Number of establishments that used air-supplied respirators and conducted air sampling/monitoring for selected substances and during the 12 months<sup>1</sup> prior to the survey, by industry division—Continued**

Air sampling/monitoring	Private industry <sup>2</sup>	Goods producing				Service producing				
		Agriculture, forestry, and fishing <sup>2</sup>	Mining	Construction	Manufacturing	Transportation and public utilities	Wholesale trade	Retail trade	Finance, insurance, and real estate	Services
<b>Substance - Continued</b>										
Zinc oxide.....	2,048	—	—	282	754	—	179	193	—	600
Yes <sup>3</sup> .....	901	—	—	282	426	—	167	—	—	—
No <sup>4</sup> .....	321	—	—	—	—	—	—	—	—	—
Other data sources <sup>5</sup> .....	624	—	—	—	172	—	—	193	—	259
Don't know <sup>6</sup> .....	215	—	—	—	137	—	—	—	—	—
Other dust.....	11,330	294	74	1,859	3,985	342	2,747	528	—	1,502
Yes <sup>3</sup> .....	5,177	—	45	837	2,212	276	1,531	189	—	—
No <sup>4</sup> .....	3,646	253	—	484	963	39	—	—	—	1,158
Other data sources <sup>5</sup> .....	2,799	—	29	1,020	718	—	—	219	—	297
Don't know <sup>6</sup> .....	282	—	—	—	173	—	—	—	—	—
Other vapors.....	6,495	—	46	676	2,329	637	1,848	580	—	328
Yes <sup>3</sup> .....	5,048	—	—	—	1,614	553	1,718	383	—	93
No <sup>4</sup> .....	580	—	—	—	363	39	—	—	—	—
Other data sources <sup>5</sup> .....	716	—	—	—	201	—	—	268	—	—
Don't know <sup>6</sup> .....	278	—	—	—	170	—	—	—	—	83
Selected other substances reported										
Acetone.....	659	—	—	—	27	—	—	—	—	—
Yes <sup>3</sup> .....	659	—	—	—	27	—	—	—	—	—
No <sup>4</sup> .....	—	—	—	—	—	—	—	—	—	—
Other data sources <sup>5</sup> .....	—	—	—	—	—	—	—	—	—	—
Don't know <sup>6</sup> .....	—	—	—	—	—	—	—	—	—	—
Ammonia.....	2,292	—	—	—	941	—	—	—	—	—
Yes <sup>3</sup> .....	1,885	—	—	—	643	—	—	—	—	—
No <sup>4</sup> .....	162	—	—	—	69	—	—	—	—	—
Other data sources <sup>5</sup> .....	—	—	—	—	—	—	—	—	—	—
Don't know <sup>6</sup> .....	—	—	—	—	—	—	—	—	—	—
Formaldehyde.....	201	—	—	—	103	—	—	—	—	23
Yes <sup>3</sup> .....	198	—	—	—	100	—	—	—	—	23
No <sup>4</sup> .....	—	—	—	—	—	—	—	—	—	—
Other data sources <sup>5</sup> .....	—	—	—	—	—	—	—	—	—	—
Don't know <sup>6</sup> .....	—	—	—	—	—	—	—	—	—	—

See footnotes at end of table

**Table 67. Number of establishments that used air-supplied respirators and conducted air sampling/monitoring for selected substances and during the 12 months<sup>1</sup> prior to the survey, by industry division—Continued**

Air sampling/monitoring	Private industry <sup>2</sup>	Goods producing				Service producing				
		Agriculture, forestry, and fishing <sup>2</sup>	Mining	Construction	Manufacturing	Transportation and public utilities	Wholesale trade	Retail trade	Finance, insurance, and real estate	Services
<b>Substance - Continued</b>										
Isocyanate.....	1,652	—	—	996	599	—	—	—	—	—
Yes <sup>3</sup> .....	1,233	—	—	—	270	—	—	—	—	—
No <sup>4</sup> .....	294	—	—	—	261	—	—	—	—	—
Other data sources <sup>5</sup> .....	146	—	—	—	88	—	—	—	—	—
Don't know <sup>6</sup> .....	—	—	—	—	—	—	—	—	—	—

<sup>1</sup> The 12-month period represents required use of respirators in the 12 months prior to the establishment's completion of the survey. The survey was mailed to establishments in August 2001.

<sup>2</sup> Excludes farms with fewer than 11 employees.

<sup>3</sup> Air sampling/monitoring was conducted at the establishment at any time in the past for the substance for job(s) that required respirator use.

<sup>4</sup> Air sampling/monitoring was not conducted at the establishment at any time in the past for the substance during job(s) that required respirator use.

<sup>5</sup> Air sampling/monitoring were not needed because historical and objective data were obtained from industry studies or trade associations that are

similar to the establishment's physical environment for the substance.

<sup>6</sup> Do not know if air sampling/monitoring was conducted for the substance.

NOTE: Because of rounding, data exclusion of nonclassifiable responses, and establishment reports of more than one type of respirator use, data do not sum to the totals. Dashes indicate data that do not meet publication guidelines. A measure of sampling variability for each estimate is available upon request.

SOURCE: Bureau of Labor Statistics, U.S. Department of Labor.

**Table 68. Percent of establishments that used air-supplied respirators and conducted air sampling/monitoring for selected substances and during the 12 months<sup>1</sup> prior to the survey, by industry division**

Air sampling/monitoring	Private industry <sup>2</sup>	Goods producing				Service producing				
		Agriculture, forestry, and fishing <sup>2</sup>	Mining	Construction	Manufacturing	Transportation and public utilities	Wholesale trade	Retail trade	Finance, insurance, and real estate	Services
<b>Percent of establishments</b>										
Total air-supplied respirators.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	—	100.0
<b>Substance</b>										
Acid gas (such as sulfur dioxide).....	14.9	—	42.4	26.5	14.4	12.9	22.5	—	—	.8
Yes <sup>3</sup> .....	12.5	—	9.5	25.5	11.1	5.2	21.1	—	—	—
No <sup>4</sup> .....	1.1	—	—	—	1.2	—	—	—	—	—
Other data sources <sup>5</sup> .....	1.2	—	32.9	—	1.7	1.1	—	—	—	—
Don't know <sup>6</sup> .....	.2	—	—	—	.5	—	—	—	—	—
Arsenic.....	4.8	—	—	16.0	3.4	1.4	—	—	—	—
Yes <sup>3</sup> .....	4.1	—	—	15.8	1.9	.8	—	—	—	—
No <sup>4</sup> .....	.1	—	—	—	.2	—	—	—	—	—
Other data sources <sup>5</sup> .....	2.4	—	—	9.3	.6	—	—	—	—	—
Don't know <sup>6</sup> .....	.2	—	—	—	.6	—	—	—	—	—
Asbestos.....	6.6	—	—	9.4	4.8	26.4	—	—	—	—
Yes <sup>3</sup> .....	6.0	—	—	9.2	3.3	24.6	—	—	—	—
No <sup>4</sup> .....	.1	—	—	—	.2	—	—	—	—	—
Other data sources <sup>5</sup> .....	.4	—	—	—	.7	1.5	—	—	—	—
Don't know <sup>6</sup> .....	.2	—	—	—	.6	—	—	—	—	—
Biologicals (i.e., TB & HIV).....	3.2	—	—	10.3	2.0	—	—	—	—	1.1
Yes <sup>3</sup> .....	.4	—	—	—	.5	—	—	—	—	.2
No <sup>4</sup> .....	.2	—	—	—	.3	—	—	—	—	.2
Other data sources <sup>5</sup> .....	2.4	—	—	—	.7	—	—	—	—	—
Don't know <sup>6</sup> .....	.2	—	—	—	.5	—	—	—	—	—
Cadmium.....	5.1	—	—	15.5	5.0	1.3	—	—	—	—
Yes <sup>3</sup> .....	4.2	—	—	15.3	2.4	1.0	—	—	—	—
No <sup>4</sup> .....	.2	—	—	—	.5	—	—	—	—	—
Other data sources <sup>5</sup> .....	2.3	—	—	9.3	.8	—	—	—	—	—
Don't know <sup>6</sup> .....	.4	—	—	—	1.3	—	—	—	—	—
Carbon monoxide.....	16.8	—	12.3	36.2	16.0	11.0	10.3	14.9	—	4.7
Yes <sup>3</sup> .....	15.6	—	12.3	35.7	14.6	8.5	9.8	9.0	—	4.5
No <sup>4</sup> .....	.2	—	—	—	.3	—	—	—	—	—
Other data sources <sup>5</sup> .....	.7	—	—	—	.3	1.5	—	5.9	—	—
Don't know <sup>6</sup> .....	.3	—	—	—	.9	—	—	—	—	.2
Chlorine.....	10.7	—	—	26.9	5.8	20.5	9.0	—	—	—
Yes <sup>3</sup> .....	8.4	—	—	25.7	4.4	4.2	—	—	—	—
No <sup>4</sup> .....	1.5	—	—	—	.2	14.6	—	—	—	—
Other data sources <sup>5</sup> .....	2.6	—	—	9.3	.7	—	—	—	—	—
Don't know <sup>6</sup> .....	.3	—	—	—	.7	—	—	—	—	—

See footnotes at end of table

**Table 68. Percent of establishments that used air-supplied respirators and conducted air sampling/monitoring for selected substances and during the 12 months<sup>1</sup> prior to the survey, by industry division—Continued**

Air sampling/monitoring	Private industry <sup>2</sup>	Goods producing				Service producing				
		Agriculture, forestry, and fishing <sup>2</sup>	Mining	Construction	Manufacturing	Transportation and public utilities	Wholesale trade	Retail trade	Finance, insurance, and real estate	Services
<b>Substance - Continued</b>										
Chromium.....	6.4	—	—	15.2	5.2	—	—	7.6	—	—
Yes <sup>3</sup> .....	5.2	—	—	15.2	3.1	—	—	—	—	—
No <sup>4</sup> .....	.3	—	—	—	.6	—	—	—	—	—
Other data sources <sup>5</sup> .....	2.6	—	—	—	1.0	—	—	5.0	—	—
Don't know <sup>6</sup> .....	.3	—	—	—	.5	—	—	—	—	—
Coal mine dust.....	.8	—	—	—	1.6	1.1	—	—	—	—
Yes <sup>3</sup> .....	.3	—	—	—	.2	—	—	—	—	—
No <sup>4</sup> .....	.1	—	—	—	—	—	—	—	—	—
Other data sources <sup>5</sup> .....	.3	—	—	—	.7	—	—	—	—	—
Don't know <sup>6</sup> .....	.1	—	—	—	.4	—	—	—	—	—
Coal tar pitch volatiles.....	1.1	—	—	1.6	2.0	2.3	—	—	—	—
Yes <sup>3</sup> .....	.5	—	—	1.6	.4	—	—	—	—	—
No <sup>4</sup> .....	.1	—	—	—	—	—	—	—	—	—
Other data sources <sup>5</sup> .....	.3	—	—	—	.9	—	—	—	—	—
Don't know <sup>6</sup> .....	.2	—	—	—	.5	—	—	—	—	—
Coke oven emissions.....	.7	—	—	—	1.3	1.1	—	—	—	—
Yes <sup>3</sup> .....	.4	—	—	—	—	—	—	—	—	—
No <sup>4</sup> .....	—	—	—	—	—	—	—	—	—	—
Other data sources <sup>5</sup> .....	.1	—	—	—	.3	—	—	—	—	—
Don't know <sup>6</sup> .....	.1	—	—	—	.4	—	—	—	—	—
Copper.....	4.3	—	—	15.3	2.7	—	—	—	—	—
Yes <sup>3</sup> .....	3.7	—	—	15.3	1.1	—	—	—	—	—
No <sup>4</sup> .....	—	—	—	—	—	—	—	—	—	—
Other data sources <sup>5</sup> .....	2.2	—	—	—	.7	—	—	—	—	—
Don't know <sup>6</sup> .....	.4	—	—	—	.9	—	—	—	—	—
Hydrogen sulfide.....	15.4	—	49.8	43.9	6.2	25.3	—	—	—	1.8
Yes <sup>3</sup> .....	14.5	—	49.8	42.9	4.4	23.7	—	—	—	1.8
No <sup>4</sup> .....	—	—	—	—	—	—	—	—	—	—
Other data sources <sup>5</sup> .....	.7	—	31.1	—	.7	—	—	—	—	—
Don't know <sup>6</sup> .....	.3	—	—	—	.9	—	—	—	—	—
Iron oxide.....	3.3	—	—	1.4	4.8	1.5	3.3	—	—	4.2
Yes <sup>3</sup> .....	1.6	—	—	1.2	3.1	—	2.8	—	—	—
No <sup>4</sup> .....	1.0	—	—	—	1.0	—	—	—	—	—
Other data sources <sup>5</sup> .....	.6	—	—	—	.3	—	—	—	—	1.2
Don't know <sup>6</sup> .....	.2	—	—	—	.5	—	—	—	—	—
Lead.....	11.0	—	6.6	22.8	8.7	7.2	10.4	8.0	—	4.6
Yes <sup>3</sup> .....	9.0	—	—	22.3	7.4	5.1	10.4	—	—	—
No <sup>4</sup> .....	.6	—	—	—	—	—	—	—	—	—
Other data sources <sup>5</sup> .....	3.2	—	—	9.6	.7	1.5	—	6.7	—	—
Don't know <sup>6</sup> .....	.3	—	—	—	.7	—	—	—	—	—

See footnotes at end of table

**Table 68. Percent of establishments that used air-supplied respirators and conducted air sampling/monitoring for selected substances and during the 12 months<sup>1</sup> prior to the survey, by industry division—Continued**

Air sampling/monitoring	Private industry <sup>2</sup>	Goods producing				Service producing				
		Agriculture, forestry, and fishing <sup>2</sup>	Mining	Construction	Manufacturing	Transportation and public utilities	Wholesale trade	Retail trade	Finance, insurance, and real estate	Services
<b>Substance - Continued</b>										
Manganese.....	3.4	—	—	—	3.1	—	—	—	—	—
Yes <sup>3</sup> .....	2.8	—	—	—	1.7	—	—	—	—	—
No <sup>4</sup> .....	—	—	—	—	—	—	—	—	—	—
Other data sources <sup>5</sup> .....	.3	—	—	—	.7	—	—	—	—	—
Don't know <sup>6</sup> .....	.4	—	—	—	.7	—	—	—	—	—
Oxygen deficiency.....	15.4	—	45.3	21.6	11.0	28.1	17.1	—	—	—
Yes <sup>3</sup> .....	12.5	—	45.3	21.6	9.7	25.0	17.1	—	—	—
No <sup>4</sup> .....	—	—	—	—	—	1.1	—	—	—	—
Other data sources <sup>5</sup> .....	.5	—	—	—	.7	1.7	—	—	—	—
Don't know <sup>6</sup> .....	.2	—	—	—	.6	—	—	—	—	—
Paint vapors.....	45.7	—	31.6	42.6	39.5	21.0	27.5	81.2	—	70.8
Yes <sup>3</sup> .....	18.0	—	7.6	25.1	21.6	13.3	18.5	19.9	—	7.9
No <sup>4</sup> .....	13.9	—	—	5.2	8.3	3.1	1.9	16.0	—	42.9
Other data sources <sup>5</sup> .....	12.6	—	—	12.3	9.2	2.4	—	41.0	—	17.2
Don't know <sup>6</sup> .....	1.3	—	—	—	.6	—	—	—	—	—
Silica dust.....	19.0	—	70.9	43.4	19.7	8.8	3.8	5.5	—	8.1
Yes <sup>3</sup> .....	10.9	—	45.6	28.7	11.7	4.1	2.8	—	—	—
No <sup>4</sup> .....	3.0	—	—	4.5	2.3	—	—	—	—	4.9
Other data sources <sup>5</sup> .....	6.3	—	54.9	14.8	5.9	—	—	—	—	—
Don't know <sup>6</sup> .....	.6	—	—	—	1.0	—	—	—	—	—
Solvents.....	28.3	—	62.7	20.1	28.7	20.1	27.4	45.3	—	35.0
Yes <sup>3</sup> .....	15.4	—	—	16.7	18.6	11.8	26.0	9.5	—	7.0
No <sup>4</sup> .....	5.5	—	—	3.2	4.0	4.3	—	9.0	—	13.2
Other data sources <sup>5</sup> .....	9.1	—	59.3	9.3	5.7	1.8	—	25.3	—	14.8
Don't know <sup>6</sup> .....	.4	—	—	—	.6	—	—	—	—	—
Styrene.....	4.6	—	—	11.0	6.7	—	—	—	—	1.2
Yes <sup>3</sup> .....	3.6	—	—	10.3	5.0	—	—	—	—	—
No <sup>4</sup> .....	—	—	—	—	—	—	—	—	—	—
Other data sources <sup>5</sup> .....	.4	—	—	—	.6	—	—	—	—	1.2
Don't know <sup>6</sup> .....	.3	—	—	—	.9	—	—	—	—	—
Toluene.....	13.3	—	34.1	13.0	16.2	3.2	14.6	14.1	—	12.2
Yes <sup>3</sup> .....	8.6	—	31.1	11.7	11.1	—	14.6	—	—	1.2
No <sup>4</sup> .....	2.1	—	—	1.3	1.7	—	—	—	—	6.2
Other data sources <sup>5</sup> .....	2.7	—	34.1	—	2.6	—	—	10.2	—	4.2
Don't know <sup>6</sup> .....	.4	—	—	—	.9	—	—	—	—	—
Welding fumes.....	16.6	—	16.2	15.2	13.1	12.3	17.7	25.5	—	21.8
Yes <sup>3</sup> .....	8.7	—	11.7	14.1	8.2	5.1	16.3	4.0	—	1.2
No <sup>4</sup> .....	4.0	—	—	—	1.5	4.4	—	—	—	14.5
Other data sources <sup>5</sup> .....	3.5	—	—	.8	2.8	2.7	—	17.3	—	6.2
Don't know <sup>6</sup> .....	.4	—	—	—	.8	—	—	—	—	—

See footnotes at end of table

**Table 68. Percent of establishments that used air-supplied respirators and conducted air sampling/monitoring for selected substances and during the 12 months<sup>1</sup> prior to the survey, by industry division—Continued**

Air sampling/monitoring	Private industry <sup>2</sup>	Goods producing				Service producing				
		Agriculture, forestry, and fishing <sup>2</sup>	Mining	Construction	Manufacturing	Transportation and public utilities	Wholesale trade	Retail trade	Finance, insurance, and real estate	Services
<b>Substance - Continued</b>										
Zinc oxide.....	4.3	—	—	2.7	5.9	—	2.6	6.7	—	6.3
Yes <sup>3</sup> .....	1.9	—	—	2.7	3.4	—	2.5	—	—	—
No <sup>4</sup> .....	.7	—	—	—	—	—	—	—	—	—
Other data sources <sup>5</sup> .....	1.3	—	—	—	1.4	—	—	6.7	—	2.7
Don't know <sup>6</sup> .....	.5	—	—	—	1.1	—	—	—	—	—
Other dust.....	24.0	61.4	12.5	17.6	31.4	9.0	40.3	18.3	—	15.8
Yes <sup>3</sup> .....	10.9	—	7.6	7.9	17.4	7.3	22.5	6.6	—	—
No <sup>4</sup> .....	7.7	52.8	—	4.6	7.6	1.0	—	—	—	12.2
Other data sources <sup>5</sup> .....	5.9	—	4.9	9.7	5.7	—	—	7.6	—	3.1
Don't know <sup>6</sup> .....	.6	—	—	—	1.4	—	—	—	—	—
Other vapors.....	13.7	—	7.8	6.4	18.3	16.8	27.1	20.1	—	3.5
Yes <sup>3</sup> .....	10.7	—	—	—	12.7	14.6	25.2	13.3	—	1.0
No <sup>4</sup> .....	1.2	—	—	—	2.9	1.0	—	—	—	—
Other data sources <sup>5</sup> .....	1.5	—	—	—	1.6	—	—	9.3	—	—
Don't know <sup>6</sup> .....	.6	—	—	—	1.3	—	—	—	—	.9
Selected other substances reported										
Acetone.....	1.4	—	—	—	.2	—	—	—	—	—
Yes <sup>3</sup> .....	1.4	—	—	—	.2	—	—	—	—	—
No <sup>4</sup> .....	—	—	—	—	—	—	—	—	—	—
Other data sources <sup>5</sup> .....	—	—	—	—	—	—	—	—	—	—
Don't know <sup>6</sup> .....	—	—	—	—	—	—	—	—	—	—
Ammonia.....	4.8	—	—	—	7.4	—	—	—	—	—
Yes <sup>3</sup> .....	4.0	—	—	—	5.1	—	—	—	—	—
No <sup>4</sup> .....	.3	—	—	—	.5	—	—	—	—	—
Other data sources <sup>5</sup> .....	—	—	—	—	—	—	—	—	—	—
Don't know <sup>6</sup> .....	—	—	—	—	—	—	—	—	—	—
Formaldehyde.....	.4	—	—	—	.8	—	—	—	—	.2
Yes <sup>3</sup> .....	.4	—	—	—	.8	—	—	—	—	.2
No <sup>4</sup> .....	—	—	—	—	—	—	—	—	—	—
Other data sources <sup>5</sup> .....	—	—	—	—	—	—	—	—	—	—
Don't know <sup>6</sup> .....	—	—	—	—	—	—	—	—	—	—

See footnotes at end of table

**Table 68. Percent of establishments that used air-supplied respirators and conducted air sampling/monitoring for selected substances and during the 12 months<sup>1</sup> prior to the survey, by industry division—Continued**

Air sampling/monitoring	Private industry <sup>2</sup>	Goods producing				Service producing				
		Agriculture, forestry, and fishing <sup>2</sup>	Mining	Construction	Manufacturing	Transportation and public utilities	Wholesale trade	Retail trade	Finance, insurance, and real estate	Services
<b>Substance - Continued</b>										
Isocyanate.....	3.5	—	—	9.4	4.7	—	—	—	—	—
Yes <sup>3</sup> .....	2.6	—	—	—	2.1	—	—	—	—	—
No <sup>4</sup> .....	.6	—	—	—	2.1	—	—	—	—	—
Other data sources <sup>5</sup> .....	.3	—	—	—	.7	—	—	—	—	—
Don't know <sup>6</sup> .....	—	—	—	—	—	—	—	—	—	—

<sup>1</sup> The 12-month period represents required use of respirators in the 12 months prior to the establishment's completion of the survey. The survey was mailed to establishments in August 2001.

<sup>2</sup> Excludes farms with fewer than 11 employees.

<sup>3</sup> Air sampling/monitoring was conducted at the establishment at any time in the past for the substance for job(s) that required respirator use.

<sup>4</sup> Air sampling/monitoring was not conducted at the establishment at any time in the past for the substance during job(s) that required respirator use.

<sup>5</sup> Air sampling/monitoring was not needed because historical and objective data were obtained from industry studies or trade associations that are

similar to the establishment's physical environment for the substance.

<sup>6</sup> Do not know if air sampling/monitoring was conducted for the substance.

NOTE: Because of rounding, data exclusion of nonclassifiable responses, and establishment reports of more than one type of respirator use, data do not sum to the totals. Dashes indicate data that do not meet publication guidelines. A measure of sampling variability for each estimate is available upon request.

SOURCE: Bureau of Labor Statistics, U.S. Department of Labor.

**Table 69. Number of establishments that used either air-purifying or air-supplied respirators and conducted air sampling/monitoring for selected substances during the 12 months<sup>1</sup> prior to the survey, by industry division**

Air sampling/monitoring	Private industry <sup>2</sup>	Goods producing				Service producing				
		Agriculture, forestry, and fishing <sup>2</sup>	Mining	Construction	Manufacturing	Transportation and public utilities	Wholesale trade	Retail trade	Finance, insurance, and real estate	Services
<b>Number of establishments</b>										
Total use.....	281,776	13,186	3,493	64,172	48,556	10,351	31,238	16,948	4,202	89,629
Total air-purifying respirators.....	267,467	13,167	3,453	60,012	46,232	9,718	27,966	16,107	4,202	86,610
Total air-supplied respirators.....	47,290	479	592	10,546	12,702	3,786	6,816	2,879	—	9,490
<b>Substance</b>										
Acid gas (such as sulfur dioxide).....	28,503	1,147	622	4,294	7,932	1,180	5,556	594	—	7,178
Yes <sup>3</sup> .....	17,418	—	194	3,595	4,118	613	3,975	94	—	4,811
No <sup>4</sup> .....	4,090	95	47	279	2,107	457	134	336	—	636
Other data sources <sup>5</sup> .....	6,125	994	352	414	1,489	140	1,344	—	—	1,309
Don't know <sup>6</sup> .....	1,398	—	39	—	351	—	—	—	—	429
Arsenic.....	10,460	1,242	217	3,041	2,631	883	758	123	—	1,566
Yes <sup>3</sup> .....	3,838	—	—	2,411	574	505	—	—	—	—
No <sup>4</sup> .....	2,419	201	—	208	1,110	114	—	280	—	449
Other data sources <sup>5</sup> .....	4,270	1,083	83	1,353	537	66	—	—	—	607
Don't know <sup>6</sup> .....	1,273	—	39	—	412	209	—	—	—	361
Asbestos.....	28,559	1,163	389	6,101	4,105	2,164	3,046	278	—	8,716
Yes <sup>3</sup> .....	20,354	—	256	4,528	1,970	1,581	2,795	—	—	6,598
No <sup>4</sup> .....	3,090	—	—	375	1,241	90	—	280	—	918
Other data sources <sup>5</sup> .....	4,654	994	84	1,253	639	621	—	131	—	831
Don't know <sup>6</sup> .....	1,058	—	39	—	300	—	111	110	—	369
Biologicals (i.e., TB & HIV).....	23,532	1,556	368	2,996	1,255	845	1,129	—	—	15,053
Yes <sup>3</sup> .....	7,332	—	42	1,906	107	92	—	—	—	4,766
No <sup>4</sup> .....	5,215	—	—	—	247	308	—	519	—	3,826
Other data sources <sup>5</sup> .....	9,607	994	268	1,379	558	243	915	—	—	5,232
Don't know <sup>6</sup> .....	2,645	—	48	—	353	202	—	—	—	1,243
Cadmium.....	11,032	1,159	201	2,680	2,826	560	1,840	230	—	1,535
Yes <sup>3</sup> .....	5,592	—	—	2,317	1,521	250	1,205	—	—	221
No <sup>4</sup> .....	355	—	—	—	196	61	—	—	—	—
Other data sources <sup>5</sup> .....	4,076	1,083	66	1,227	677	85	—	—	—	332
Don't know <sup>6</sup> .....	2,010	—	48	99	455	180	111	110	—	965
Carbon monoxide.....	27,114	1,089	449	6,466	6,096	928	3,351	876	—	7,732
Yes <sup>3</sup> .....	21,319	—	306	5,492	5,028	585	3,140	440	—	6,251
No <sup>4</sup> .....	872	—	—	193	68	97	—	—	—	315
Other data sources <sup>5</sup> .....	3,508	994	75	348	635	114	133	325	—	884
Don't know <sup>6</sup> .....	1,681	—	48	—	406	172	—	—	—	384

See footnotes at end of table

**Table 69. Number of establishments that used either air-purifying or air-supplied respirators and conducted air sampling/monitoring for selected substances during the 12 months<sup>1</sup> prior to the survey, by industry division—Continued**

Air sampling/monitoring	Private industry <sup>2</sup>	Goods producing				Service producing				
		Agriculture, forestry, and fishing <sup>2</sup>	Mining	Construction	Manufacturing	Transportation and public utilities	Wholesale trade	Retail trade	Finance, insurance, and real estate	Services
<b>Substance - Continued</b>										
Chlorine.....	16,185	1,236	229	5,457	2,777	1,153	2,287	—	519	2,452
Yes <sup>3</sup> .....	7,780	90	76	3,283	1,571	315	1,854	—	—	198
No <sup>4</sup> .....	2,935	—	—	743	322	637	—	—	—	899
Other data sources <sup>5</sup> .....	4,822	1,027	84	1,847	670	184	212	—	—	798
Don't know <sup>6</sup> .....	1,741	—	48	—	276	—	111	—	—	611
Chromium.....	12,216	1,112	206	2,745	3,955	602	1,708	366	—	1,521
Yes <sup>3</sup> .....	7,027	—	—	2,328	2,374	454	1,514	—	—	209
No <sup>4</sup> .....	607	—	—	—	405	61	—	—	—	—
Other data sources <sup>5</sup> .....	4,172	994	75	1,272	897	—	—	180	—	638
Don't know <sup>6</sup> .....	1,456	—	48	—	363	40	124	—	—	658
Coal mine dust.....	6,800	1,035	305	685	2,249	597	1,007	—	—	847
Yes <sup>3</sup> .....	1,066	—	164	415	175	306	—	—	—	—
No <sup>4</sup> .....	1,762	—	27	210	1,230	68	211	—	—	—
Other data sources <sup>5</sup> .....	3,038	994	66	—	570	290	759	—	—	332
Don't know <sup>6</sup> .....	1,040	—	48	—	274	40	—	—	—	498
Coal tar pitch volatiles.....	7,114	1,035	132	1,048	2,251	257	1,157	112	—	1,122
Yes <sup>3</sup> .....	1,139	—	—	214	303	113	—	—	—	—
No <sup>4</sup> .....	1,430	—	—	—	1,113	68	141	—	—	—
Other data sources <sup>5</sup> .....	2,960	994	66	243	525	—	—	—	—	600
Don't know <sup>6</sup> .....	1,588	—	48	—	313	35	—	—	—	498
Coke oven emissions.....	5,994	1,035	132	994	2,038	177	697	—	—	847
Yes <sup>3</sup> .....	896	—	—	—	215	—	—	—	—	—
No <sup>4</sup> .....	1,381	—	—	—	1,080	90	141	—	—	—
Other data sources <sup>5</sup> .....	3,128	994	66	724	473	—	—	—	—	332
Don't know <sup>6</sup> .....	1,087	—	48	—	288	40	—	—	—	498
Copper.....	12,650	1,742	153	2,225	3,742	230	1,247	—	—	3,237
Yes <sup>3</sup> .....	4,451	—	30	1,755	1,298	89	1,066	—	—	—
No <sup>4</sup> .....	1,714	308	—	—	1,291	68	—	—	—	—
Other data sources <sup>5</sup> .....	5,900	1,153	66	1,347	733	—	—	—	—	2,499
Don't know <sup>6</sup> .....	1,678	367	48	—	422	40	111	—	—	551
Cotton dust.....	7,201	2,480	124	812	1,385	163	1,056	133	—	1,048
Yes <sup>3</sup> .....	617	—	—	—	172	—	—	—	—	—
No <sup>4</sup> .....	1,060	—	—	—	331	90	—	—	—	—
Other data sources <sup>5</sup> .....	4,385	2,438	66	243	615	—	—	—	—	439
Don't know <sup>6</sup> .....	1,138	—	48	—	268	40	—	—	—	498
Hydrogen sulfide.....	20,999	1,035	635	7,026	2,790	1,539	2,331	94	—	5,471
Yes <sup>3</sup> .....	16,025	—	512	6,050	1,606	1,339	1,797	—	—	4,625
No <sup>4</sup> .....	460	—	—	—	219	97	—	—	—	—
Other data sources <sup>5</sup> .....	3,133	994	250	403	679	104	371	—	—	332
Don't know <sup>6</sup> .....	1,735	—	48	—	403	—	124	—	—	498

See footnotes at end of table

**Table 69. Number of establishments that used either air-purifying or air-supplied respirators and conducted air sampling/monitoring for selected substances during the 12 months<sup>1</sup> prior to the survey, by industry division—Continued**

Air sampling/monitoring	Private industry <sup>2</sup>	Goods producing				Service producing				
		Agriculture, forestry, and fishing <sup>2</sup>	Mining	Construction	Manufacturing	Transportation and public utilities	Wholesale trade	Retail trade	Finance, insurance, and real estate	Services
<b>Substance - Continued</b>										
Iron oxide.....	12,178	1,437	202	1,150	3,502	431	1,313	160	—	3,982
Yes <sup>3</sup> .....	3,092	—	60	266	1,412	177	865	—	—	270
No <sup>4</sup> .....	1,540	—	—	61	513	—	—	—	—	831
Other data sources <sup>5</sup> .....	5,820	994	66	757	1,031	62	305	—	—	2,520
Don't know <sup>6</sup> .....	1,877	367	67	—	631	200	111	—	—	361
Lead.....	31,975	1,124	311	8,160	5,671	1,381	3,887	650	—	10,783
Yes <sup>3</sup> .....	21,586	—	169	6,917	3,484	1,001	3,471	205	—	6,332
No <sup>4</sup> .....	2,701	—	—	819	1,076	—	—	—	—	737
Other data sources <sup>5</sup> .....	8,520	1,083	84	1,972	793	326	728	371	—	3,164
Don't know <sup>6</sup> .....	1,322	—	48	99	357	40	111	—	—	551
Manganese.....	8,747	1,616	186	957	2,325	300	2,061	112	—	1,140
Yes <sup>3</sup> .....	4,158	—	33	—	1,189	211	1,867	—	—	241
No <sup>4</sup> .....	456	166	—	—	146	—	—	—	—	—
Other data sources <sup>5</sup> .....	2,528	1,083	75	256	633	—	—	—	—	332
Don't know <sup>6</sup> .....	1,643	367	58	—	357	47	124	—	—	551
Oxygen deficiency.....	7,279	—	268	2,275	1,396	1,063	1,163	—	—	—
Yes <sup>3</sup> .....	5,933	—	268	2,275	1,230	945	1,163	—	—	—
No <sup>4</sup> .....	—	—	—	—	—	43	—	—	—	—
Other data sources <sup>5</sup> .....	226	—	—	—	89	63	—	—	—	—
Don't know <sup>6</sup> .....	93	—	—	—	81	—	—	—	—	—
Paint vapors.....	115,705	3,577	1,218	28,709	23,208	2,619	11,060	9,939	880	34,496
Yes <sup>3</sup> .....	37,793	78	469	7,529	9,979	1,391	5,902	2,728	—	9,510
No <sup>4</sup> .....	49,235	1,949	425	14,014	6,257	768	2,547	4,696	323	18,255
Other data sources <sup>5</sup> .....	26,151	1,266	460	6,150	6,125	622	2,518	2,134	350	6,526
Don't know <sup>6</sup> .....	4,862	367	48	1,125	1,338	132	—	838	—	921
Silica dust.....	48,741	1,807	2,277	15,438	9,881	3,687	4,190	1,359	—	9,856
Yes <sup>3</sup> .....	20,609	—	1,863	7,722	5,838	528	2,782	613	—	1,197
No <sup>4</sup> .....	13,014	569	133	3,577	1,592	2,625	626	282	—	3,364
Other data sources <sup>5</sup> .....	14,314	1,133	518	4,193	2,331	403	751	205	—	4,780
Don't know <sup>6</sup> .....	2,613	—	—	938	617	192	—	259	—	514
Solvents.....	88,468	1,077	1,057	17,835	17,796	2,683	10,172	4,798	948	32,102
Yes <sup>3</sup> .....	40,668	—	427	6,553	9,013	1,528	7,183	2,047	598	13,278
No <sup>4</sup> .....	25,969	—	331	6,216	3,863	317	1,287	1,282	—	12,672
Other data sources <sup>5</sup> .....	20,775	994	435	5,459	4,415	830	1,662	1,387	350	5,242
Don't know <sup>6</sup> .....	2,999	—	48	—	830	129	—	231	—	1,068
Styrene.....	11,750	1,729	144	3,040	3,856	232	872	216	—	1,662
Yes <sup>3</sup> .....	5,134	—	—	2,597	1,814	—	608	—	—	—
No <sup>4</sup> .....	1,635	—	—	—	194	100	—	—	—	449
Other data sources <sup>5</sup> .....	4,512	994	66	1,260	1,400	—	—	—	—	562
Don't know <sup>6</sup> .....	1,451	—	48	—	466	47	124	—	—	612

See footnotes at end of table

**Table 69. Number of establishments that used either air-purifying or air-supplied respirators and conducted air sampling/monitoring for selected substances during the 12 months<sup>1</sup> prior to the survey, by industry division—Continued**

Air sampling/monitoring	Private industry <sup>2</sup>	Goods producing				Service producing				
		Agriculture, forestry, and fishing <sup>2</sup>	Mining	Construction	Manufacturing	Transportation and public utilities	Wholesale trade	Retail trade	Finance, insurance, and real estate	Services
<b>Substance - Continued</b>										
Toluene.....	27,875	1,424	490	5,417	8,470	443	5,579	1,557	—	4,495
Yes <sup>3</sup> .....	15,202	—	340	2,694	5,172	206	4,965	665	—	1,160
No <sup>4</sup> .....	4,773	—	—	842	1,603	93	—	250	—	1,521
Other data sources <sup>5</sup> .....	6,414	994	268	1,331	1,317	125	466	521	—	1,392
Don't know <sup>6</sup> .....	1,760	—	57	—	454	—	—	121	—	422
Welding fumes.....	47,354	1,897	871	5,465	12,802	1,992	5,416	2,905	204	15,801
Yes <sup>3</sup> .....	16,545	—	360	2,869	6,662	1,129	3,986	339	—	1,199
No <sup>4</sup> .....	17,323	631	187	1,306	2,481	281	448	1,383	—	10,557
Other data sources <sup>5</sup> .....	12,404	1,224	285	1,335	3,079	594	950	995	—	3,787
Don't know <sup>6</sup> .....	1,699	—	48	—	817	49	—	270	—	407
Zinc oxide.....	15,694	1,360	155	1,886	3,642	188	2,802	853	—	4,809
Yes <sup>3</sup> .....	5,349	—	31	441	2,007	54	1,999	502	—	316
No <sup>4</sup> .....	1,206	—	—	51	435	47	187	—	—	403
Other data sources <sup>5</sup> .....	6,948	994	66	847	749	—	—	229	—	3,532
Don't know <sup>6</sup> .....	2,259	367	48	—	483	47	124	85	—	558
Other dust.....	137,381	7,807	1,835	31,527	24,739	5,163	14,767	5,732	1,173	44,639
Yes <sup>3</sup> .....	42,600	815	1,224	7,317	9,934	1,102	7,633	1,240	676	12,661
No <sup>4</sup> .....	66,764	4,086	373	18,609	8,953	3,431	4,173	2,809	302	24,028
Other data sources <sup>5</sup> .....	28,971	2,581	416	5,342	5,110	418	2,870	1,204	—	10,833
Don't know <sup>6</sup> .....	4,347	367	59	820	1,483	212	160	522	—	724
Other vapors.....	43,186	4,117	852	6,214	9,625	2,171	8,394	2,180	323	9,310
Yes <sup>3</sup> .....	21,102	337	624	3,165	5,362	1,349	6,959	695	—	2,612
No <sup>4</sup> .....	10,054	2,308	57	831	1,982	90	281	1,116	—	3,262
Other data sources <sup>5</sup> .....	9,229	1,064	297	2,113	1,411	422	994	361	—	2,372
Don't know <sup>6</sup> .....	3,861	408	58	—	978	349	160	116	—	1,205
Selected other substances reported										
Acetone.....	836	—	—	—	157	—	—	—	—	—
Yes <sup>3</sup> .....	836	—	—	—	157	—	—	—	—	—
No <sup>4</sup> .....	—	—	—	—	—	—	—	—	—	—
Other data sources <sup>5</sup> .....	—	—	—	—	—	—	—	—	—	—
Don't know <sup>6</sup> .....	—	—	—	—	—	—	—	—	—	—
Ammonia.....	12,336	—	—	1,237	2,088	408	950	—	—	7,066
Yes <sup>3</sup> .....	7,878	—	—	1,076	1,638	393	258	—	—	—
No <sup>4</sup> .....	4,174	—	—	—	272	—	—	—	—	2,991
Other data sources <sup>5</sup> .....	303	—	—	—	198	—	25	—	—	—
Don't know <sup>6</sup> .....	—	—	—	—	—	—	—	—	—	—

See footnotes at end of table

**Table 69. Number of establishments that used either air-purifying or air-supplied respirators and conducted air sampling/monitoring for selected substances during the 12 months<sup>1</sup> prior to the survey, by industry division—Continued**

Air sampling/monitoring	Private industry <sup>2</sup>	Goods producing				Service producing				
		Agriculture, forestry, and fishing <sup>2</sup>	Mining	Construction	Manufacturing	Transportation and public utilities	Wholesale trade	Retail trade	Finance, insurance, and real estate	Services
<b>Substance - Continued</b>										
Formaldehyde.....	5,403	—	—	—	650	—	—	—	—	4,582
Yes <sup>3</sup> .....	5,307	—	—	—	569	—	—	—	—	4,567
No <sup>4</sup> .....	—	—	—	—	—	—	—	—	—	—
Other data sources <sup>5</sup> .....	—	—	—	—	—	—	—	—	—	—
Don't know <sup>6</sup> .....	—	—	—	—	—	—	—	—	—	—
Isocyanate.....	2,763	—	—	996	1,258	—	—	—	—	—
Yes <sup>3</sup> .....	1,917	—	—	—	462	—	—	—	—	—
No <sup>4</sup> .....	294	—	—	—	261	—	—	—	—	—
Other data sources <sup>5</sup> .....	589	—	—	—	573	—	—	—	—	—
Don't know <sup>6</sup> .....	—	—	—	—	—	—	—	—	—	—
Man-made fibers.....	2,005	—	—	1,017	405	—	—	—	—	—
Yes <sup>3</sup> .....	1,252	—	—	605	224	—	—	—	—	—
No <sup>4</sup> .....	363	—	—	266	42	—	—	—	—	—
Other data sources <sup>5</sup> .....	244	—	—	—	139	—	—	—	—	—
Don't know <sup>6</sup> .....	146	—	—	146	—	—	—	—	—	—
Pesticides.....	7,110	2,534	—	—	233	46	935	1,334	—	1,479
Yes <sup>3</sup> .....	197	—	—	—	103	—	—	—	—	—
No <sup>4</sup> .....	4,668	1,485	—	—	—	—	731	1,334	—	482
Other data sources <sup>5</sup> .....	1,971	713	—	—	—	32	—	—	—	—
Don't know <sup>6</sup> .....	—	—	—	—	—	—	—	—	—	—

<sup>1</sup> The 12-month period represents required use of respirators in the 12 months prior to the establishment's completion of the survey. The survey was mailed to establishments in August 2001.

<sup>2</sup> Excludes farms with fewer than 11 employees.

<sup>3</sup> Air sampling/monitoring was conducted at the establishment at any time in the past for the substance for job(s) that required respirator use.

<sup>4</sup> Air sampling/monitoring was not conducted at the establishment at any time in the past for the substance during job(s) that required respirator use.

<sup>5</sup> Air sampling/monitoring was not needed because historical and objective

data were obtained from industry studies or trade associations that are similar to the establishment's physical environment for the substance.

<sup>6</sup> Do not know if air sampling/monitoring was conducted for the substance.

NOTE: Because of rounding, data exclusion of nonclassifiable responses, and establishment reports of more than one type of respirator use, data do not sum to the totals. Dashes indicate data that do not meet publication guidelines. A measure of sampling variability for each estimate is available upon request.

SOURCE: Bureau of Labor Statistics, U.S. Department of Labor.

**Table 70. Percent of establishments that used either air-purifying or air-supplied respirators and conducted air sampling/monitoring for selected substances during the 12 months<sup>1</sup> prior to the survey, by industry division**

Air sampling/monitoring	Private industry <sup>2</sup>	Goods producing				Service producing				
		Agriculture, forestry, and fishing <sup>2</sup>	Mining	Construction	Manufacturing	Transportation and public utilities	Wholesale trade	Retail trade	Finance, insurance, and real estate	Services
<b>Percent of establishments</b>										
Total use.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
<b>Substance</b>										
Acid gas (such as sulfur dioxide).....	10.1	8.7	17.8	6.7	16.3	11.4	17.8	3.5	—	8.0
Yes <sup>3</sup> .....	6.2	—	5.6	5.6	8.5	5.9	12.7	.6	—	5.4
No <sup>4</sup> .....	1.5	.7	1.3	.4	4.3	4.4	.4	2.0	—	.7
Other data sources <sup>5</sup> .....	2.2	7.5	10.1	.6	3.1	1.4	4.3	—	—	1.5
Don't know <sup>6</sup> .....	.5	—	1.1	—	.7	—	—	—	—	.5
Arsenic.....	3.7	9.4	6.2	4.7	5.4	8.5	2.4	.7	—	1.7
Yes <sup>3</sup> .....	1.4	—	—	3.8	1.2	4.9	—	—	—	—
No <sup>4</sup> .....	.9	1.5	—	.3	2.3	1.1	—	1.7	—	.5
Other data sources <sup>5</sup> .....	1.5	8.2	2.4	2.1	1.1	.6	—	—	—	.7
Don't know <sup>6</sup> .....	.5	—	1.1	—	.8	2.0	—	—	—	.4
Asbestos.....	10.1	8.8	11.1	9.5	8.5	20.9	9.8	1.6	—	9.7
Yes <sup>3</sup> .....	7.2	—	7.3	7.1	4.1	15.3	8.9	—	—	7.4
No <sup>4</sup> .....	1.1	—	—	.6	2.6	.9	—	1.7	—	1.0
Other data sources <sup>5</sup> .....	1.7	7.5	2.4	2.0	1.3	6.0	—	.8	—	.9
Don't know <sup>6</sup> .....	.4	—	1.1	—	.6	—	.4	.6	—	.4
Biologicals (i.e., TB & HIV).....	8.4	11.8	10.5	4.7	2.6	8.2	3.6	—	—	16.8
Yes <sup>3</sup> .....	2.6	—	1.2	3.0	.2	.9	—	—	—	5.3
No <sup>4</sup> .....	1.9	—	—	—	.5	3.0	—	3.1	—	4.3
Other data sources <sup>5</sup> .....	3.4	7.5	7.7	2.1	1.1	2.3	2.9	—	—	5.8
Don't know <sup>6</sup> .....	.9	—	1.4	—	.7	2.0	—	—	—	1.4
Cadmium.....	3.9	8.8	5.8	4.2	5.8	5.4	5.9	1.4	—	1.7
Yes <sup>3</sup> .....	2.0	—	—	3.6	3.1	2.4	3.9	—	—	.2
No <sup>4</sup> .....	.1	—	—	—	.4	.6	—	—	—	—
Other data sources <sup>5</sup> .....	1.4	8.2	1.9	1.9	1.4	.8	—	—	—	.4
Don't know <sup>6</sup> .....	.7	—	1.4	.2	.9	1.7	.4	.6	—	1.1
Carbon monoxide.....	9.6	8.3	12.9	10.1	12.6	9.0	10.7	5.2	—	8.6
Yes <sup>3</sup> .....	7.6	—	8.8	8.6	10.4	5.7	10.1	2.6	—	7.0
No <sup>4</sup> .....	.3	—	—	.3	.1	.9	—	—	—	.4
Other data sources <sup>5</sup> .....	1.2	7.5	2.1	.5	1.3	1.1	.4	1.9	—	1.0
Don't know <sup>6</sup> .....	.6	—	1.4	—	.8	1.7	—	—	—	.4
Chlorine.....	5.7	9.4	6.6	8.5	5.7	11.1	7.3	—	12.4	2.7
Yes <sup>3</sup> .....	2.8	.7	2.2	5.1	3.2	3.0	5.9	—	—	.2
No <sup>4</sup> .....	1.0	—	—	1.2	.7	6.2	—	—	—	1.0
Other data sources <sup>5</sup> .....	1.7	7.8	2.4	2.9	1.4	1.8	.7	—	—	.9
Don't know <sup>6</sup> .....	.6	—	1.4	—	.6	—	.4	—	—	.7

See footnotes at end of table

**Table 70. Percent of establishments that used either air-purifying or air-supplied respirators and conducted air sampling/monitoring for selected substances during the 12 months<sup>1</sup> prior to the survey, by industry division—Continued**

Air sampling/monitoring	Private industry <sup>2</sup>	Goods producing				Service producing				
		Agriculture, forestry, and fishing <sup>2</sup>	Mining	Construction	Manufacturing	Transportation and public utilities	Wholesale trade	Retail trade	Finance, insurance, and real estate	Services
<b>Substance - Continued</b>										
Chromium.....	4.3	8.4	5.9	4.3	8.1	5.8	5.5	2.2	—	1.7
Yes <sup>3</sup> .....	2.5	—	—	3.6	4.9	4.4	4.8	—	—	.2
No <sup>4</sup> .....	.2	—	—	—	.8	.6	—	—	—	—
Other data sources <sup>5</sup> .....	1.5	7.5	2.1	2.0	1.8	—	—	1.1	—	.7
Don't know <sup>6</sup> .....	.5	—	1.4	—	.7	.4	.4	—	—	.7
Coal mine dust.....	2.4	7.8	8.7	1.1	4.6	5.8	3.2	—	—	.9
Yes <sup>3</sup> .....	.4	—	4.7	.6	.4	3.0	—	—	—	—
No <sup>4</sup> .....	.6	—	.8	.3	2.5	.7	.7	—	—	—
Other data sources <sup>5</sup> .....	1.1	7.5	1.9	—	1.2	2.8	2.4	—	—	.4
Don't know <sup>6</sup> .....	.4	—	1.4	—	.6	.4	—	—	—	.6
Coal tar pitch volatiles.....	2.5	7.8	3.8	1.6	4.6	2.5	3.7	.7	—	1.3
Yes <sup>3</sup> .....	.4	—	—	.3	.6	1.1	—	—	—	—
No <sup>4</sup> .....	.5	—	—	—	2.3	.7	.5	—	—	—
Other data sources <sup>5</sup> .....	1.1	7.5	1.9	.4	1.1	—	—	—	—	.7
Don't know <sup>6</sup> .....	.6	—	1.4	—	.6	.3	—	—	—	.6
Coke oven emissions.....	2.1	7.8	3.8	1.5	4.2	1.7	2.2	—	—	.9
Yes <sup>3</sup> .....	.3	—	—	—	.4	—	—	—	—	—
No <sup>4</sup> .....	.5	—	—	—	2.2	.9	.5	—	—	—
Other data sources <sup>5</sup> .....	1.1	7.5	1.9	1.1	1.0	—	—	—	—	.4
Don't know <sup>6</sup> .....	.4	—	1.4	—	.6	.4	—	—	—	.6
Copper.....	4.5	13.2	4.4	3.5	7.7	2.2	4.0	—	—	3.6
Yes <sup>3</sup> .....	1.6	—	.9	2.7	2.7	.9	3.4	—	—	—
No <sup>4</sup> .....	.6	2.3	—	—	2.7	.7	—	—	—	—
Other data sources <sup>5</sup> .....	2.1	8.7	1.9	2.1	1.5	—	—	—	—	2.8
Don't know <sup>6</sup> .....	.6	2.8	1.4	—	.9	.4	.4	—	—	.6
Cotton dust.....	2.6	18.8	3.5	1.3	2.9	1.6	3.4	.8	—	1.2
Yes <sup>3</sup> .....	.2	—	—	—	.4	—	—	—	—	—
No <sup>4</sup> .....	.4	—	—	—	.7	.9	—	—	—	—
Other data sources <sup>5</sup> .....	1.6	18.5	1.9	.4	1.3	—	—	—	—	.5
Don't know <sup>6</sup> .....	.4	—	1.4	—	.6	.4	—	—	—	.6
Hydrogen sulfide.....	7.5	7.8	18.2	10.9	5.7	14.9	7.5	.6	—	6.1
Yes <sup>3</sup> .....	5.7	—	14.7	9.4	3.3	12.9	5.8	—	—	5.2
No <sup>4</sup> .....	.2	—	—	—	.5	.9	—	—	—	—
Other data sources <sup>5</sup> .....	1.1	7.5	7.2	.6	1.4	1.0	1.2	—	—	.4
Don't know <sup>6</sup> .....	.6	—	1.4	—	.8	—	.4	—	—	.6
Iron oxide.....	4.3	10.9	5.8	1.8	7.2	4.2	4.2	.9	—	4.4
Yes <sup>3</sup> .....	1.1	—	1.7	.4	2.9	1.7	2.8	—	—	.3
No <sup>4</sup> .....	.5	—	—	.1	1.1	—	—	—	—	.9
Other data sources <sup>5</sup> .....	2.1	7.5	1.9	1.2	2.1	.6	1.0	—	—	2.8
Don't know <sup>6</sup> .....	.7	2.8	1.9	—	1.3	1.9	.4	—	—	.4

See footnotes at end of table

**Table 70. Percent of establishments that used either air-purifying or air-supplied respirators and conducted air sampling/monitoring for selected substances during the 12 months<sup>1</sup> prior to the survey, by industry division—Continued**

Air sampling/monitoring	Private industry <sup>2</sup>	Goods producing				Service producing				
		Agriculture, forestry, and fishing <sup>2</sup>	Mining	Construction	Manufacturing	Transportation and public utilities	Wholesale trade	Retail trade	Finance, insurance, and real estate	Services
<b>Substance - Continued</b>										
Lead.....	11.3	8.5	8.9	12.7	11.7	13.3	12.4	3.8	—	12.0
Yes <sup>3</sup> .....	7.7	—	4.8	10.8	7.2	9.7	11.1	1.2	—	7.1
No <sup>4</sup> .....	1.0	—	—	1.3	2.2	—	—	—	—	.8
Other data sources <sup>5</sup> .....	3.0	8.2	2.4	3.1	1.6	3.1	2.3	2.2	—	3.5
Don't know <sup>6</sup> .....	.5	—	1.4	.2	.7	.4	.4	—	—	.6
Manganese.....	3.1	12.3	5.3	1.5	4.8	2.9	6.6	.7	—	1.3
Yes <sup>3</sup> .....	1.5	—	.9	—	2.4	2.0	6.0	—	—	.3
No <sup>4</sup> .....	.2	1.3	—	—	.3	—	—	—	—	—
Other data sources <sup>5</sup> .....	.9	8.2	2.1	.4	1.3	—	—	—	—	.4
Don't know <sup>6</sup> .....	.6	2.8	1.7	—	.7	.5	.4	—	—	.6
Oxygen deficiency.....	2.6	—	7.7	3.5	2.9	10.3	3.7	—	—	—
Yes <sup>3</sup> .....	2.1	—	7.7	3.5	2.5	9.1	3.7	—	—	—
No <sup>4</sup> .....	—	—	—	—	—	.4	—	—	—	—
Other data sources <sup>5</sup> .....	.1	—	—	—	.2	.6	—	—	—	—
Don't know <sup>6</sup> .....	.0	—	—	—	.2	—	—	—	—	—
Paint vapors.....	41.1	27.1	34.9	44.7	47.8	25.3	35.4	58.6	20.9	38.5
Yes <sup>3</sup> .....	13.4	.6	13.4	11.7	20.6	13.4	18.9	16.1	—	10.6
No <sup>4</sup> .....	17.5	14.8	12.2	21.8	12.9	7.4	8.2	27.7	7.7	20.4
Other data sources <sup>5</sup> .....	9.3	9.6	13.2	9.6	12.6	6.0	8.1	12.6	8.3	7.3
Don't know <sup>6</sup> .....	1.7	2.8	1.4	1.8	2.8	1.3	—	4.9	—	1.0
Silica dust.....	17.3	13.7	65.2	24.1	20.3	35.6	13.4	8.0	—	11.0
Yes <sup>3</sup> .....	7.3	—	53.3	12.0	12.0	5.1	8.9	3.6	—	1.3
No <sup>4</sup> .....	4.6	4.3	3.8	5.6	3.3	25.4	2.0	1.7	—	3.8
Other data sources <sup>5</sup> .....	5.1	8.6	14.8	6.5	4.8	3.9	2.4	1.2	—	5.3
Don't know <sup>6</sup> .....	.9	—	—	1.5	1.3	1.9	—	1.5	—	.6
Solvents.....	31.4	8.2	30.3	27.8	36.7	25.9	32.6	28.3	22.6	35.8
Yes <sup>3</sup> .....	14.4	—	12.2	10.2	18.6	14.8	23.0	12.1	14.2	14.8
No <sup>4</sup> .....	9.2	—	9.5	9.7	8.0	3.1	4.1	7.6	—	14.1
Other data sources <sup>5</sup> .....	7.4	7.5	12.5	8.5	9.1	8.0	5.3	8.2	8.3	5.8
Don't know <sup>6</sup> .....	1.1	—	1.4	—	1.7	1.2	—	1.4	—	1.2
Styrene.....	4.2	13.1	4.1	4.7	7.9	2.2	2.8	1.3	—	1.9
Yes <sup>3</sup> .....	1.8	—	—	4.0	3.7	—	1.9	—	—	—
No <sup>4</sup> .....	.6	—	—	—	.4	1.0	—	—	—	.5
Other data sources <sup>5</sup> .....	1.6	7.5	1.9	2.0	2.9	—	—	—	—	.6
Don't know <sup>6</sup> .....	.5	—	1.4	—	1.0	.5	.4	—	—	.7
Toluene.....	9.9	10.8	14.0	8.4	17.4	4.3	17.9	9.2	—	5.0
Yes <sup>3</sup> .....	5.4	—	9.7	4.2	10.7	2.0	15.9	3.9	—	1.3
No <sup>4</sup> .....	1.7	—	—	1.3	3.3	.9	—	1.5	—	1.7
Other data sources <sup>5</sup> .....	2.3	7.5	7.7	2.1	2.7	1.2	1.5	3.1	—	1.6
Don't know <sup>6</sup> .....	.6	—	1.6	—	.9	—	—	.7	—	.5

See footnotes at end of table

**Table 70. Percent of establishments that used either air-purifying or air-supplied respirators and conducted air sampling/monitoring for selected substances during the 12 months<sup>1</sup> prior to the survey, by industry division—Continued**

Air sampling <sup>5</sup> /monitoring	Private industry <sup>2</sup>	Goods producing				Service producing				
		Agriculture, forestry, and fishing <sup>2</sup>	Mining	Construction	Manufacturing	Transportation and public utilities	Wholesale trade	Retail trade	Finance, insurance, and real estate	Services
<b>Substance - Continued</b>										
Welding fumes.....	16.8	14.4	24.9	8.5	26.4	19.2	17.3	17.1	4.9	17.6
Yes <sup>3</sup> .....	5.9	—	10.3	4.5	13.7	10.9	12.8	2.0	—	1.3
No <sup>4</sup> .....	6.1	4.8	5.4	2.0	5.1	2.7	1.4	8.2	—	11.8
Other data sources <sup>5</sup> .....	4.4	9.3	8.2	2.1	6.3	5.7	3.0	5.9	—	4.2
Don't know <sup>6</sup> .....	.6	—	1.4	—	1.7	.5	—	1.6	—	.5
Zinc oxide.....	5.6	10.3	4.4	2.9	7.5	1.8	9.0	5.0	—	5.4
Yes <sup>3</sup> .....	1.9	—	.9	.7	4.1	.5	6.4	3.0	—	.4
No <sup>4</sup> .....	.4	—	—	.1	.9	.5	.6	—	—	.4
Other data sources <sup>5</sup> .....	2.5	7.5	1.9	1.3	1.5	—	—	1.4	—	3.9
Don't know <sup>6</sup> .....	.8	2.8	1.4	—	1.0	.5	.4	.5	—	.6
Other dust.....	48.8	59.2	52.5	49.1	50.9	49.9	47.3	33.8	27.9	49.8
Yes <sup>3</sup> .....	15.1	6.2	35.0	11.4	20.5	10.6	24.4	7.3	16.1	14.1
No <sup>4</sup> .....	23.7	31.0	10.7	29.0	18.4	33.1	13.4	16.6	7.2	26.8
Other data sources <sup>5</sup> .....	10.3	19.6	11.9	8.3	10.5	4.0	9.2	7.1	—	12.1
Don't know <sup>6</sup> .....	1.5	2.8	1.7	1.3	3.1	2.0	.5	3.1	—	.8
Other vapors.....	15.3	31.2	24.4	9.7	19.8	21.0	26.9	12.9	7.7	10.4
Yes <sup>3</sup> .....	7.5	2.6	17.9	4.9	11.0	13.0	22.3	4.1	—	2.9
No <sup>4</sup> .....	3.6	17.5	1.6	1.3	4.1	.9	.9	6.6	—	3.6
Other data sources <sup>5</sup> .....	3.3	8.1	8.5	3.3	2.9	4.1	3.2	2.1	—	2.6
Don't know <sup>6</sup> .....	1.4	3.1	1.7	—	2.0	3.4	.5	.7	—	1.3
Selected other substances reported										
Acetone.....	.3	—	—	—	.3	—	—	—	—	—
Yes <sup>3</sup> .....	.3	—	—	—	.3	—	—	—	—	—
No <sup>4</sup> .....	—	—	—	—	—	—	—	—	—	—
Other data sources <sup>5</sup> .....	—	—	—	—	—	—	—	—	—	—
Don't know <sup>6</sup> .....	—	—	—	—	—	—	—	—	—	—
Ammonia.....	4.4	—	—	1.9	4.3	3.9	3.0	—	—	7.9
Yes <sup>3</sup> .....	2.8	—	—	1.7	3.4	3.8	.8	—	—	—
No <sup>4</sup> .....	1.5	—	—	—	.6	—	—	—	—	3.3
Other data sources <sup>5</sup> .....	.1	—	—	—	.4	—	.1	—	—	—
Don't know <sup>6</sup> .....	—	—	—	—	—	—	—	—	—	—
Formaldehyde.....	1.9	—	—	—	1.3	—	—	—	—	5.1
Yes <sup>3</sup> .....	1.9	—	—	—	1.2	—	—	—	—	5.1
No <sup>4</sup> .....	—	—	—	—	—	—	—	—	—	—
Other data sources <sup>5</sup> .....	—	—	—	—	—	—	—	—	—	—
Don't know <sup>6</sup> .....	—	—	—	—	—	—	—	—	—	—

See footnotes at end of table

**Table 70. Percent of establishments that used either air-purifying or air-supplied respirators and conducted air sampling/monitoring for selected substances during the 12 months<sup>1</sup> prior to the survey, by industry division—Continued**

Air sampling/monitoring	Private industry <sup>2</sup>	Goods producing				Service producing				
		Agriculture, forestry, and fishing <sup>2</sup>	Mining	Construction	Manufacturing	Transportation and public utilities	Wholesale trade	Retail trade	Finance, insurance, and real estate	Services
<b>Substance - Continued</b>										
Isocyanate.....	1.0	—	—	1.6	2.6	—	—	—	—	—
Yes <sup>3</sup> .....	.7	—	—	—	1.0	—	—	—	—	—
No <sup>4</sup> .....	.1	—	—	—	.5	—	—	—	—	—
Other data sources <sup>5</sup> .....	.2	—	—	—	1.2	—	—	—	—	—
Don't know <sup>6</sup> .....	—	—	—	—	—	—	—	—	—	—
Man-made fibers.....	.7	—	—	1.6	.8	—	—	—	—	—
Yes <sup>3</sup> .....	.4	—	—	.9	.5	—	—	—	—	—
No <sup>4</sup> .....	.1	—	—	.4	.1	—	—	—	—	—
Other data sources <sup>5</sup> .....	.1	—	—	—	.3	—	—	—	—	—
Don't know <sup>6</sup> .....	.1	—	—	.2	—	—	—	—	—	—
Pesticides.....	2.5	19.2	—	—	.5	.4	3.0	7.9	—	1.7
Yes <sup>3</sup> .....	.1	—	—	—	.2	—	—	—	—	—
No <sup>4</sup> .....	1.7	11.3	—	—	—	—	2.3	7.9	—	.5
Other data sources <sup>5</sup> .....	.7	5.4	—	—	—	.3	—	—	—	—
Don't know <sup>6</sup> .....	—	—	—	—	—	—	—	—	—	—

<sup>1</sup> The 12-month period represents required use of respirators in the 12 months prior to the establishment's completion of the survey. The survey was mailed to establishments in August 2001.

<sup>2</sup> Excludes farms with fewer than 11 employees.

<sup>3</sup> Air sampling/monitoring was conducted at the establishment at any time in the past for the substance for job(s) that required respirator use.

<sup>4</sup> Air sampling/monitoring was not conducted at the establishment at any time in the past for the substance during job(s) that required respirator use.

<sup>5</sup> Air sampling/monitoring was not needed because historical and objective data were obtained from industry studies or trade associations that are

similar to the establishment's physical environment for the substance.

<sup>6</sup> Do not know if air sampling/monitoring was conducted for the substance.

NOTE: Because of rounding, data exclusion of nonclassifiable responses, and establishment reports of more than one type of respirator use, data do not sum to the totals. Dashes indicate data that do not meet publication guidelines. A measure of sampling variability for each estimate is available upon request.

SOURCE: Bureau of Labor Statistics, U.S. Department of Labor.

**Table 71. Number and percent of establishments and employees using respirators during the 12 months<sup>1</sup> prior to the survey, by characteristics of respirator program and employment size group**

Respirator use practice	Total	Employment size group				
		1–10 workers	11–49 workers	50–249 workers	250–999 workers	1000 workers or more
<b>Number of establishments</b>						
Total use.....	281,776	122,620	83,716	45,291	21,742	8,406
<b>Establishment has one person responsible for directing and overseeing respirator program</b>						
Yes.....	155,312	72,442	42,124	24,349	11,733	4,666
More than one person.....	87,916	28,708	29,449	17,557	8,789	3,413
No.....	38,547	21,471	12,144	3,385	1,221	327
<b>Training regarding respirator use provided to employees<sup>2</sup></b>						
No training required.....	24,291	14,141	6,203	3,853	—	—
Wearers follow manufacturers' instructions.....	90,786	50,951	28,840	8,859	1,987	148
Wearers trained to understand the use and limitations of respirators.....	166,699	57,528	48,674	32,578	19,660	8,258
<b>Establishment has written procedures and schedules for maintaining respirators</b>						
Yes.....	141,044	45,665	40,756	29,943	16,849	7,832
No.....	98,563	53,658	32,313	8,308	4,078	205
Not needed.....	35,263	18,824	9,194	6,281	607	357
Don't know.....	6,759	4,474	1,306	759	208	—
<b>Percent of establishments</b>						
Total use.....	100.0	100.0	100.0	100.0	100.0	100.0
<b>Establishment has one person responsible for directing and overseeing respirator program</b>						
Yes.....	55.1	59.1	50.3	53.8	54.0	55.5
More than one person.....	31.2	23.4	35.2	38.8	40.4	40.6
No.....	13.7	17.5	14.5	7.5	5.6	3.9
<b>Training regarding respirator use provided to employees<sup>2</sup></b>						
No training required.....	8.6	11.5	7.4	8.5	—	—
Wearers follow manufacturers' instructions.....	32.2	41.6	34.4	19.6	9.1	1.8
Wearers trained to understand the use and limitations of respirators.....	59.2	46.9	58.1	71.9	90.4	98.2
<b>Establishment has written procedures and schedules for maintaining respirators</b>						
Yes.....	50.1	37.2	48.7	66.1	77.5	93.2
No.....	35.0	43.8	38.6	18.3	18.8	2.4
Not needed.....	12.5	15.4	11.0	13.9	2.8	4.2
Don't know.....	2.4	3.6	1.6	1.7	1.0	—

See footnotes at end of table

**Table 71. Number and percent of establishments and employees using respirators during the 12 months<sup>1</sup> prior to the survey, by characteristics of respirator program and employment size group—Continued**

Respirator use practice	Total	Employment size group				
		1–10 workers	11–49 workers	50–249 workers	250–999 workers	1000 workers or more
<b>Number of employees</b>						
Total use.....	3,303,414	243,518	596,392	734,253	660,756	1,068,495
<b>Establishment has one person responsible for directing and overseeing respirator program</b>						
Yes.....	1,524,712	139,192	256,743	363,635	327,482	437,659
More than one person.....	1,507,151	62,485	264,089	296,047	288,839	595,691
No.....	271,550	41,841	75,559	74,570	44,435	—
<b>Training regarding respirator use provided to employees<sup>2</sup></b>						
No training required.....	143,934	22,005	51,965	54,810	—	—
Wearers follow manufacturers' instructions.....	432,109	91,937	140,533	100,258	38,036	61,346
Wearers trained to understand the use and limitations of respirators.....	2,727,371	129,576	403,895	579,185	607,566	1,007,149
<b>Establishment has written procedures and schedules for maintaining respirators</b>						
Yes.....	2,442,238	91,816	282,616	525,749	574,124	967,932
No.....	507,341	101,584	209,248	104,396	68,102	24,012
Not needed.....	296,213	33,945	76,925	93,896	15,597	75,851
Don't know.....	57,113	16,173	27,095	10,212	2,934	700
<b>Percent of employees</b>						
Total use.....	100.0	100.0	100.0	100.0	100.0	100.0
<b>Establishment has one person responsible for directing and overseeing respirator program</b>						
Yes.....	46.2	57.2	43.0	49.5	49.6	41.0
More than one person.....	45.6	25.7	44.3	40.3	43.7	55.8
No.....	8.2	17.2	12.7	10.2	6.7	—
<b>Training regarding respirator use provided to employees<sup>2</sup></b>						
No training required.....	4.4	9.0	8.7	7.5	—	—
Wearers follow manufacturers' instructions.....	13.1	37.8	23.6	13.7	5.8	5.7
Wearers trained to understand the use and limitations of respirators.....	82.6	53.2	67.7	78.9	92.0	94.3

See footnotes at end of table

**Table 71. Number and percent of establishments and employees using respirators during the 12 months<sup>1</sup> prior to the survey, by characteristics of respirator program and employment size group—Continued**

Respirator use practice	Total	Employment size group				
		1-10 workers	11-49 workers	50-249 workers	250-999 workers	1000 workers or more
<b>Percent of employees</b>						
<b>Establishment has written procedures and schedules for maintaining respirators</b>						
Yes.....	73.9	37.7	47.4	71.6	86.9	90.6
No.....	15.4	41.7	35.1	14.2	10.3	2.2
Not needed.....	9.0	13.9	12.9	12.8	2.4	7.1
Don't know.....	1.7	6.6	4.5	1.4	0.4	0.1

<sup>1</sup> The 12-month period represents required use of respirators in the 12 months prior to the establishment's completion of the survey. The survey was mailed to establishments in August 2001.

<sup>2</sup> Establishments were asked to select the best description of training provided to employees.

NOTE: Because of rounding, data exclusion of nonclassifiable

responses, and establishment reports of more than one type of respirator use, data do not sum to the totals. Dashes indicate data that do not meet publication guidelines. A measure of sampling variability for each estimate is available upon request.

SOURCE: Bureau of Labor Statistics, U.S. Department of Labor.

**Table 72. Number and percent of establishments using respirators during the 12 months<sup>1</sup> prior to the survey, by education or training of program administrator and employment size group**

Respirator use practice	Total	Employment size group				
		1–10 workers	11–49 workers	50–249 workers	250–999 workers	1000 workers or more
<b>Number of establishments</b>						
Total use.....	281,776	122,620	83,716	45,291	21,742	8,406
<b>Education, training, and/or job experience of respirator program administrator</b>						
No training.....	118,138	63,758	34,071	15,620	4,130	560
Trained Industrial Hygienist.....	6,555	121	1,053	1,779	2,061	1,541
Certified Industrial Hygienist (C.I.H.).....	2,640	—	205	940	666	811
Occupational Safety and Health Technician.....	13,671	9,616	1,005	1,847	836	367
Trained Safety Engineer/Safety Specialist.....	28,122	5,565	6,107	8,296	5,514	2,640
Certified Safety Professional (C.S.P.).....	8,891	1,459	3,494	1,468	1,259	1,211
Occupational Health Nurse.....	3,212	—	236	573	1,044	1,358
Physician.....	3,458	2,213	629	459	—	101
One-day respirator use training course.....	59,238	23,911	16,450	11,605	5,478	1,793
Multi-day respirator use training course.....	38,908	14,413	8,826	8,942	4,232	2,496
Other.....	74,238	27,138	27,127	10,864	7,365	1,745
<b>Percent of establishments</b>						
Total use.....	100.0	100.0	100.0	100.0	100.0	100.0
<b>Education, training, and/or job experience of respirator program administrator</b>						
No training.....	41.9	52.0	40.7	34.5	19.0	6.7
Trained Industrial Hygienist.....	2.3	.1	1.3	3.9	9.5	18.3
Certified Industrial Hygienist (C.I.H.).....	.9	—	.2	2.1	3.1	9.6
Occupational Safety and Health Technician.....	4.9	7.8	1.2	4.1	3.8	4.4
Trained Safety Engineer/Safety Specialist.....	10.0	4.5	7.3	18.3	25.4	31.4
Certified Safety Professional (C.S.P.).....	3.2	1.2	4.2	3.2	5.8	14.4
Occupational Health Nurse.....	1.1	—	.3	1.3	4.8	16.2
Physician.....	1.2	1.8	.8	1.0	—	1.2
One-day respirator use training course.....	21.0	19.5	19.6	25.6	25.2	21.3
Multi-day respirator use training course.....	13.8	11.8	10.5	19.7	19.5	29.7
Other.....	26.3	22.1	32.4	24.0	33.9	20.8

<sup>1</sup> The 12-month period represents required use of respirators in the 12 months prior to the establishment's completion of the survey. The survey was mailed to establishments in August 2001.

NOTE: Because of rounding, data exclusion of nonclassifiable responses, and establishment reports of more than one type of

respirator use, data do not sum to the totals. Dashes indicate data that do not meet publication guidelines. A measure of sampling variability for each estimate is available upon request.

SOURCE: Bureau of Labor Statistics, U.S. Department of Labor.

**Table 73. Number and percent of establishments using respirators during the 12 months<sup>1</sup> prior to the survey, by provider of employee training and employment size group**

Respirator use practice	Total	Employment size group				
		1-10 workers	11-49 workers	50-249 workers	250-999 workers	1000 workers or more
<b>Number of establishments</b>						
Total use.....	281,776	122,620	83,716	45,291	21,742	8,406
<b>Who provides training to employees regarding respirator use</b>						
No training is needed.....	59,276	36,468	16,510	5,941	349	—
Respirator program manager.....	50,865	14,273	12,027	13,585	6,245	4,736
Supervisor.....	95,142	38,355	34,314	14,702	6,104	1,666
Medical personnel.....	12,190	1,783	2,344	3,424	2,832	1,806
External consultant.....	29,461	4,735	11,567	6,974	4,602	1,583
Respirator manufacturer sales/ technical representative.....	49,414	22,696	13,476	9,381	2,868	993
Designated employee.....	38,365	11,352	8,380	8,283	7,073	3,277
Other.....	25,071	14,302	5,318	2,646	2,130	674
<b>Percent of establishments</b>						
Total use.....	100.0	100.0	100.0	100.0	100.0	100.0
<b>Who provides training to employees regarding respirator use</b>						
No training is needed.....	21.0	29.7	19.7	13.1	1.6	—
Respirator program manager.....	18.1	11.6	14.4	30.0	28.7	56.3
Supervisor.....	33.8	31.3	41.0	32.5	28.1	19.8
Medical personnel.....	4.3	1.5	2.8	7.6	13.0	21.5
External consultant.....	10.5	3.9	13.8	15.4	21.2	18.8
Respirator manufacturer sales/ technical representative.....	17.5	18.5	16.1	20.7	13.2	11.8
Designated employee.....	13.6	9.3	10.0	18.3	32.5	39.0
Other.....	8.9	11.7	6.4	5.8	9.8	8.0

<sup>1</sup> The 12-month period represents required use of respirators in the 12 months prior to the establishment's completion of the survey. The survey was mailed to establishments in August 2001.

NOTE: Because of rounding, data exclusion of nonclassifiable responses, and establishment reports of more than one type of

respirator use, data do not sum to the totals. Dashes indicate data that do not meet publication guidelines. A measure of sampling variability for each estimate is available upon request.

SOURCE: Bureau of Labor Statistics, U.S. Department of Labor.

**Table 74. Number and percent of establishments and employees using respirators during the 12 months<sup>1</sup> prior to the survey, by method of determining respirator use and employment size group**

Respirator use practice	Total	Employment size group				
		1–10 workers	11–49 workers	50–249 workers	250–999 workers	1000 workers or more
<b>Number of establishments</b>						
Total use.....	281,776	122,620	83,716	45,291	21,742	8,406
<b>How establishments determine respirator use<sup>2</sup></b>						
Supervisors decide based on employee input and job characteristics.....	64,132	26,402	21,277	10,978	4,817	657
Employees decide based on job characteristics.....	63,107	39,667	17,125	4,873	1,254	189
Written program adopted by management.....	96,207	27,814	23,271	23,642	14,264	7,216
Respirator manufacturers' written instructions.....	57,371	28,106	21,716	5,798	1,407	344
<b>Percent of establishments</b>						
Total use.....	100.0	100.0	100.0	100.0	100.0	100.0
<b>How establishments determine respirator use<sup>2</sup></b>						
Supervisors decide based on employee input and job characteristics.....	22.8	21.5	25.4	24.2	22.2	7.8
Employees decide based on job characteristics.....	22.4	32.3	20.5	10.8	5.8	2.3
Written program adopted by management.....	34.1	22.7	27.8	52.2	65.6	85.8
Respirator manufacturers' written instructions.....	20.4	22.9	25.9	12.8	6.5	4.1

See footnotes at end of table

**Table 74. Number and percent of establishments and employees using respirators during the 12 months<sup>1</sup> prior to the survey, by method of determining respirator use and employment size group—Continued**

Respirator use practice	Total	Employment size group				
		1–10 workers	11–49 workers	50–249 workers	250–999 workers	1000 workers or more
<b>Number of employees</b>						
Total use.....	3,303,414	243,518	596,392	734,253	660,756	1,068,495
<b>How establishments determine respirator use<sup>2</sup></b>						
Supervisors decide based on employee input and job characteristics.....	459,253	55,283	149,073	163,824	67,745	23,327
Employees decide based on job characteristics.....	370,994	73,428	108,902	53,070	40,450	95,145
Written program adopted by management.....	2,116,875	58,323	178,875	439,900	523,553	916,223
Respirator manufacturers' written instructions.....	355,425	55,804	159,355	77,458	29,009	33,799
<b>Percent of employees</b>						
Total use.....	100.0	100.0	100.0	100.0	100.0	100.0
<b>How establishments determine respirator use<sup>2</sup></b>						
Supervisors decide based on employee input and job characteristics.....	13.9	22.7	25.0	22.3	10.3	2.2
Employees decide based on job characteristics.....	11.2	30.2	18.3	7.2	6.1	8.9
Written program adopted by management.....	64.1	24.0	30.0	59.9	79.2	85.7
Respirator manufacturers' written instructions.....	10.8	22.9	26.7	10.5	4.4	3.2

<sup>1</sup> The 12-month period represents required use of respirators in the 12 months prior to the establishment's completion of the survey. The survey was mailed to establishments in August 2001.

<sup>2</sup> Establishments were asked to select the best description of how respirators are used.

NOTE: Because of rounding, data exclusion of nonclassifiable

responses, and establishment reports of more than one type of respirator use, data do not sum to the totals. Dashes indicate data that do not meet publication guidelines. A measure of sampling variability for each estimate is available upon request.

SOURCE: Bureau of Labor Statistics, U.S. Department of Labor.

**Table 75. Number and percent of establishments and employees using air-purifying respirators during the 12 months<sup>1</sup> prior to the survey, by method of determining respirator use and employment size group**

Respirator use practice	Total	Employment size group				
		1–10 workers	11–49 workers	50–249 workers	250–999 workers	1000 workers or more
<b>Number of establishments</b>						
Total use.....	281,776	122,620	83,716	45,291	21,742	8,406
Total air-purifying respirators.....	267,467	113,797	80,249	44,247	20,865	8,309
<b>How establishments determine respirator use<sup>2</sup></b>						
Supervisors decide based on employee input and job characteristics.....	62,751	25,503	20,824	10,949	4,817	657
Employees decide based on job characteristics.....	61,287	38,115	16,903	4,836	1,254	180
Written program adopted by management.....	88,938	23,073	21,733	23,132	13,871	7,129
Respirator manufacturers' written instructions.....	53,533	26,476	20,461	5,330	923	344
<b>Percent of establishments</b>						
Total air-purifying respirators.....	100.0	100.0	100.0	100.0	100.0	100.0
<b>How establishments determine respirator use<sup>2</sup></b>						
Supervisors decide based on employee input and job characteristics.....	23.5	22.4	25.9	24.7	23.1	7.9
Employees decide based on job characteristics.....	22.9	33.5	21.1	10.9	6.0	2.2
Written program adopted by management.....	33.3	20.3	27.1	52.3	66.5	85.8
Respirator manufacturers' written instructions.....	20.0	23.3	25.5	12.0	4.4	4.1

See footnotes at end of table

**Table 75. Number and percent of establishments and employees using air-purifying respirators during the 12 months<sup>1</sup> prior to the survey, by method of determining respirator use and employment size group—Continued**

Respirator use practice	Total	Employment size group				
		1–10 workers	11–49 workers	50–249 workers	250–999 workers	1000 workers or more
<b>Number of employees</b>						
Total use.....	3,303,414	243,518	596,392	734,253	660,756	1,068,495
Total air-purifying respirators.....	3,114,464	238,986	551,760	704,946	610,441	1,008,331
<b>How establishments determine respirator use<sup>2</sup></b>						
Supervisors decide based on employee input and job characteristics.....	450,768	54,914	144,969	162,400	65,695	22,791
Employees decide based on job characteristics.....	367,014	72,607	107,544	52,092	39,967	94,804
Written program adopted by management.....	1,985,454	57,230	173,511	418,966	477,864	857,883
Respirator manufacturers' written instructions.....	310,360	53,555	125,549	71,488	26,916	32,853
<b>Percent of employees</b>						
Total air-purifying respirators.....	100.0	100.0	100.0	100.0	100.0	100.0
<b>How establishments determine respirator use<sup>2</sup></b>						
Supervisors decide based on employee input and job characteristics.....	14.5	23.0	26.3	23.0	10.8	2.3
Employees decide based on job characteristics.....	11.8	30.4	19.5	7.4	6.5	9.4
Written program adopted by management.....	63.7	23.9	31.4	59.4	78.3	85.1
Respirator manufacturers' written instructions.....	10.0	22.4	22.8	10.1	4.4	3.3

<sup>1</sup> The 12-month period represents required use of respirators in the 12 months prior to the establishment's completion of the survey. The survey was mailed to establishments in August 2001.

<sup>2</sup> Establishments were asked to select the best description of how respirators are used.

NOTE: Because of rounding, data exclusion of nonclassifiable

responses, and establishment reports of more than one type of respirator use, data do not sum to the totals. Dashes indicate data that do not meet publication guidelines. A measure of sampling variability for each estimate is available upon request.

SOURCE: Bureau of Labor Statistics, U.S. Department of Labor.

**Table 76. Number and percent of establishments and employees using air-supplied respirators during the 12 months<sup>1</sup> prior to the survey, by method of determining respirator use and employment size group**

Respirator use practice	Total	Employment size group				
		1-10 workers	11-49 workers	50-249 workers	250-999 workers	1000 workers or more
<b>Number of establishments</b>						
Total use.....	281,776	122,620	83,716	45,291	21,742	8,406
Total air-supplied respirators.....	47,290	10,909	12,451	12,376	8,232	3,322
<b>How establishments determine respirator use<sup>2</sup></b>						
Supervisors decide based on employee input and job characteristics.....	7,112	1,404	2,575	1,665	930	538
Employees decide based on job characteristics.....	4,963	2,408	1,226	623	675	31
Written program adopted by management.....	27,458	3,959	6,261	8,603	5,931	2,704
Respirator manufacturers' written instructions.....	7,756	3,139	2,388	1,485	697	48
<b>Percent of establishments</b>						
Total air-supplied respirators.....	100.0	100.0	100.0	100.0	100.0	100.0
<b>How establishments determine respirator use<sup>2</sup></b>						
Supervisors decide based on employee input and job characteristics.....	15.0	12.9	20.7	13.5	11.3	16.2
Employees decide based on job characteristics.....	10.5	22.1	9.9	5.0	8.2	.9
Written program adopted by management.....	58.1	36.3	50.3	69.5	72.0	81.4
Respirator manufacturers' written instructions.....	16.4	28.8	19.2	12.0	8.5	1.4

See footnotes at end of table

**Table 76. Number and percent of establishments and employees using air-supplied respirators during the 12 months<sup>1</sup> prior to the survey, by method of determining respirator use and employment size group—Continued**

Respirator use practice	Total	Employment size group				
		1–10 workers	11–49 workers	50–249 workers	250–999 workers	1000 workers or more
<b>Number of employees</b>						
Total use.....	3,303,414	243,518	596,392	734,253	660,756	1,068,495
Total air-supplied respirators.....	415,964	17,313	75,633	120,002	116,296	86,721
<b>How establishments determine respirator use<sup>2</sup></b>						
Supervisors decide based on employee input and job characteristics.....	27,556	2,182	7,901	10,144	5,515	1,815
Employees decide based on job characteristics.....	18,068	4,532	3,583	5,346	3,166	1,442
Written program adopted by management.....	307,107	4,447	25,687	91,486	103,263	82,224
Respirator manufacturers' written instructions.....	63,233	6,152	38,462	13,026	4,352	1,241
<b>Percent of employees</b>						
Total air-supplied respirators.....	100.0	100.0	100.0	100.0	100.0	100.0
<b>How establishments determine respirator use<sup>2</sup></b>						
Supervisors decide based on employee input and job characteristics.....	6.6	12.6	10.4	8.5	4.7	2.1
Employees decide based on job characteristics.....	4.3	26.2	4.7	4.5	2.7	1.7
Written program adopted by management.....	73.8	25.7	34.0	76.2	88.8	94.8
Respirator manufacturers' written instructions.....	15.2	35.5	50.9	10.9	3.7	1.4

<sup>1</sup> The 12-month period represents required use of respirators in the 12 months prior to the establishment's completion of the survey. The survey was mailed to establishments in August 2001.

<sup>2</sup> Establishments were asked to select the best description of how respirators are used.

NOTE: Because of rounding, data exclusion of nonclassifiable

responses, and establishment reports of more than one type of respirator use, data do not sum to the totals. Dashes indicate data that do not meet publication guidelines. A measure of sampling variability for each estimate is available upon request.

SOURCE: Bureau of Labor Statistics, U.S. Department of Labor.

**Table 77. Number and percent of establishments using both air-purifying and air-supplied respirators during the 12 months<sup>1</sup> prior to the survey, by method of determining respirator use and employment size group**

Respirator use practice	Total	Employment size group				
		1-10 workers	11-49 workers	50-249 workers	250-999 workers	1000 workers or more
<b>Number of establishments</b>						
Total use.....	281,776	122,620	83,716	45,291	21,742	8,406
Both air-purifying and air-supplied respirators....	41,290	9,263	10,115	11,333	7,354	3,225
<b>How establishments determine respirator use<sup>2</sup></b>						
Supervisors decide based on employee input and job characteristics.....	6,508	1,282	2,122	1,636	930	538
Employees decide based on job characteristics.....	4,406	2,084	1,040	586	675	22
Written program adopted by management.....	25,511	3,469	5,793	8,094	5,538	2,617
Respirator manufacturers' written instructions.....	4,865	2,428	1,159	1,017	212	48
<b>Percent of establishments</b>						
Both air-purifying and air-supplied respirators....	100.0	100.0	100.0	100.0	100.0	100.0
<b>How establishments determine respirator use<sup>2</sup></b>						
Supervisors decide based on employee input and job characteristics.....	15.8	13.8	21.0	14.4	12.6	16.7
Employees decide based on job characteristics.....	10.7	22.5	10.3	5.2	9.2	.7
Written program adopted by management.....	61.8	37.5	57.3	71.4	75.3	81.2
Respirator manufacturers' written instructions.....	11.8	26.2	11.5	9.0	2.9	1.5

<sup>1</sup> The 12-month period represents required use of respirators in the 12 months prior to the establishment's completion of the survey. The survey was mailed to establishments in August 2001.

<sup>2</sup> Establishments were asked to select the best description of how respirators are used.

NOTE: Because of rounding, data exclusion of nonclassifiable

responses, and establishment reports of more than one type of respirator use, data do not sum to the totals. Dashes indicate data that do not meet publication guidelines. A measure of sampling variability for each estimate is available upon request.

SOURCE: Bureau of Labor Statistics, U.S. Department of Labor.

**Table 78. Number and percent of establishments and employees using respirators during the 12 months<sup>1</sup> prior to the survey, by method of assessing employees' medical fitness and employment size group**

Respirator use practice	Total	Employment size group				
		1-10 workers	11-49 workers	50-249 workers	250-999 workers	1000 workers or more
<b>Number of establishments</b>						
Total use.....	281,776	122,620	83,716	45,291	21,742	8,406
<b>Establishment assesses employees' medical fitness to wear respirators</b>						
Yes.....	132,346	42,580	33,551	29,203	19,007	8,004
<b>Method of assessment used by establishment</b>						
Questionnaire only.....	14,761	7,635	5,225	1,456	306	139
Questionnaire with follow-up exam, as needed.....	64,839	13,238	14,979	17,525	12,697	6,400
Physical exam only.....	40,950	19,702	10,284	6,759	3,025	1,180
Other.....	13,157	3,025	3,010	3,818	3,026	277
No.....	130,648	67,389	45,998	14,342	2,579	339
Don't know.....	13,598	9,094	3,437	927	85	—
<b>Percent of establishments</b>						
Total use.....	100.0	100.0	100.0	100.0	100.0	100.0
<b>Establishment assesses employees' medical fitness to wear respirators</b>						
Yes.....	47.0	34.7	40.1	64.5	87.4	95.2
<b>Method of assessment used by establishment</b>						
Questionnaire only.....	5.2	6.2	6.2	3.2	1.4	1.7
Questionnaire with follow-up exam, as needed.....	23.0	10.8	17.9	38.7	58.4	76.1
Physical exam only.....	14.5	16.1	12.3	14.9	13.9	14.0
Other.....	4.7	2.5	3.6	8.4	13.9	3.3
No.....	46.4	55.0	54.9	31.7	11.9	4.0
Don't know.....	4.8	7.4	4.1	2.0	.4	—

See footnotes at end of table

**Table 78. Number and percent of establishments and employees using respirators during the 12 months<sup>1</sup> prior to the survey, by method of assessing employees' medical fitness and employment size group—Continued**

Respirator use practice	Total	Employment size group				
		1–10 workers	11–49 workers	50–249 workers	250–999 workers	1000 workers or more
<b>Number of employees</b>						
Total use.....	3,303,414	243,518	596,392	734,253	660,756	1,068,495
<b>Establishment assesses employees' medical fitness to wear respirators</b>						
Yes.....	2,452,845	92,657	242,007	525,642	607,581	984,957
<b>Method of assessment used by establishment</b>						
Questionnaire only.....	229,446	20,573	43,640	23,510	40,306	101,418
Questionnaire with follow-up exam, as needed.....	1,676,084	19,291	110,561	341,283	404,505	800,444
Physical exam only.....	349,665	46,202	67,020	99,430	96,959	40,054
Other.....	209,353	6,547	20,881	71,681	67,336	42,909
No.....	695,176	123,386	305,229	176,958	48,417	41,186
Don't know.....	116,378	18,303	43,619	10,157	2,444	—
<b>Percent of employees</b>						
Total use.....	100.0	100.0	100.0	100.0	100.0	100.0
<b>Establishment assesses employees' medical fitness to wear respirators</b>						
Yes.....	74.3	38.0	40.6	71.6	92.0	92.2
<b>Method of assessment used by establishment</b>						
Questionnaire only.....	6.9	8.4	7.3	3.2	6.1	9.5
Questionnaire with follow-up exam, as needed.....	50.7	7.9	18.5	46.5	61.2	74.9
Physical exam only.....	10.6	19.0	11.2	13.5	14.7	3.7
Other.....	6.3	2.7	3.5	9.8	10.2	4.0
No.....	21.0	50.7	51.2	24.1	7.3	3.9
Don't know.....	3.5	7.5	7.3	1.4	.4	—

<sup>1</sup> The 12-month period represents required use of respirators in the 12 months prior to the establishment's completion of the survey. The survey was mailed to establishments in August 2001.  
NOTE: Because of rounding, data exclusion of nonclassifiable responses, and establishment reports of more than one type of

respirator use, data do not sum to the totals. Dashes indicate data that do not meet publication guidelines. A measure of sampling variability for each estimate is available upon request.

SOURCE: Bureau of Labor Statistics, U.S. Department of Labor.

**Table 79. Number and percent of establishments and employees using air-purifying respirators during the 12 months<sup>1</sup> prior to the survey, by method of assessing employees' medical fitness and employment size group**

Respirator use practice	Total	Employment size group				
		1–10 workers	11–49 workers	50–249 workers	250–999 workers	1000 workers or more
<b>Number of establishments</b>						
Total use.....	281,776	122,620	83,716	45,291	21,742	8,406
Total air-purifying respirators.....	267,467	113,797	80,249	44,247	20,865	8,309
<b>Establishment assesses employees' medical fitness to wear respirators</b>						
Yes.....	124,015	37,791	31,528	28,629	18,159	7,908
<b>Method of assessment used by establishment</b>						
Questionnaire only.....	14,664	7,543	5,225	1,456	300	139
Questionnaire with follow-up exam, as needed.....	57,649	8,733	13,329	17,185	12,082	6,321
Physical exam only.....	39,861	19,088	10,051	6,548	3,003	1,170
Other.....	12,777	2,965	2,927	3,795	2,821	270
No.....	126,152	64,837	44,554	13,873	2,550	339
Don't know.....	12,597	8,093	3,437	927	85	—
<b>Percent of establishments</b>						
Total air-purifying respirators.....	100.0	100.0	100.0	100.0	100.0	100.0
<b>Establishment assesses employees' medical fitness to wear respirators</b>						
Yes.....	46.4	33.2	39.3	64.7	87.0	95.2
<b>Method of assessment used by establishment</b>						
Questionnaire only.....	5.5	6.6	6.5	3.3	1.4	1.7
Questionnaire with follow-up exam, as needed.....	21.6	7.7	16.6	38.8	57.9	76.1
Physical exam only.....	14.9	16.8	12.5	14.8	14.4	14.1
Other.....	4.8	2.6	3.6	8.6	13.5	3.2
No.....	47.2	57.0	55.5	31.4	12.2	4.1
Don't know.....	4.7	7.1	4.3	2.1	.4	—

See footnotes at end of table

**Table 79. Number and percent of establishments and employees using air-purifying respirators during the 12 months<sup>1</sup> prior to the survey, by method of assessing employees' medical fitness and employment size group—Continued**

Respirator use practice	Total	Employment size group				
		1–10 workers	11–49 workers	50–249 workers	250–999 workers	1000 workers or more
<b>Number of employees</b>						
Total use.....	3,303,414	243,518	596,392	734,253	660,756	1,068,495
Total air-purifying respirators.....	3,114,464	238,986	551,760	704,946	610,441	1,008,331
<b>Establishment assesses employees' medical fitness to wear respirators</b>						
Yes.....	2,309,052	91,776	233,995	500,506	557,743	925,031
<b>Method of assessment used by establishment</b>						
Questionnaire only.....	227,822	20,507	43,640	23,461	39,223	100,991
Questionnaire with follow-up exam, as needed.....	1,569,536	18,960	105,824	322,239	374,437	748,076
Physical exam only.....	324,944	45,712	63,951	95,732	83,727	35,822
Other.....	197,863	6,538	20,687	68,850	61,776	40,011
No.....	651,470	120,285	268,792	173,272	48,132	40,988
Don't know.....	115,693	17,768	43,469	10,157	2,444	—
<b>Percent of employees</b>						
Total air-purifying respirators.....	100.0	100.0	100.0	100.0	100.0	100.0
<b>Establishment assesses employees' medical fitness to wear respirators</b>						
Yes.....	74.1	38.4	42.4	71.0	91.4	91.7
<b>Method of assessment used by establishment</b>						
Questionnaire only.....	7.3	8.6	7.9	3.3	6.4	10.0
Questionnaire with follow-up exam, as needed.....	50.4	7.9	19.2	45.7	61.3	74.2
Physical exam only.....	10.4	19.1	11.6	13.6	13.7	3.6
Other.....	6.4	2.7	3.7	9.8	10.1	4.0
No.....	20.9	50.3	48.7	24.6	7.9	4.1
Don't know.....	3.7	7.4	7.9	1.4	.4	—

<sup>1</sup> The 12-month period represents required use of respirators in the 12 months prior to the establishment's completion of the survey. The survey was mailed to establishments in August 2001.

NOTE: Because of rounding, data exclusion of nonclassifiable responses, and establishment reports of more than one type of

respirator use, data do not sum to the totals. Dashes indicate data that do not meet publication guidelines. A measure of sampling variability for each estimate is available upon request.

SOURCE: Bureau of Labor Statistics, U.S. Department of Labor.

**Table 80. Number and percent of establishments and employees using air-supplied respirators during the 12 months<sup>1</sup> prior to the survey, by method of assessing employees' medical fitness and employment size group**

Respirator use practice	Total	Employment size group				
		1-10 workers	11-49 workers	50-249 workers	250-999 workers	1000 workers or more
<b>Number of establishments</b>						
Total use.....	281,776	122,620	83,716	45,291	21,742	8,406
Total air-supplied respirators.....	47,290	10,909	12,451	12,376	8,232	3,322
<b>Establishment assesses employees' medical fitness to wear respirators</b>						
Yes.....	33,533	3,490	8,040	10,613	8,093	3,297
<b>Method of assessment used by establishment</b>						
Questionnaire only.....	1,370	168	1,028	103	61	—
Questionnaire with follow-up exam, as needed.....	21,047	1,888	4,281	6,518	5,787	2,572
Physical exam only.....	7,809	938	1,948	2,622	1,673	628
Other.....	3,385	—	688	1,506	587	88
No.....	12,383	6,833	3,974	1,455	104	—
Don't know.....	934	451	384	86	—	—
<b>Percent of establishments</b>						
Total air-supplied respirators.....	100.0	100.0	100.0	100.0	100.0	100.0
<b>Establishment assesses employees' medical fitness to wear respirators</b>						
Yes.....	70.9	32.0	64.6	85.8	98.3	99.3
<b>Method of assessment used by establishment</b>						
Questionnaire only.....	2.9	1.5	8.3	.8	.7	—
Questionnaire with follow-up exam, as needed.....	44.5	17.3	34.4	52.7	70.3	77.4
Physical exam only.....	16.5	8.6	15.6	21.2	20.3	18.9
Other.....	7.2	—	5.5	12.2	7.1	2.7
No.....	26.2	62.6	31.9	11.8	1.3	—
Don't know.....	2.0	4.1	3.1	.7	—	—

See footnotes at end of table

**Table 80. Number and percent of establishments and employees using air-supplied respirators during the 12 months<sup>1</sup> prior to the survey, by method of assessing employees' medical fitness and employment size group—Continued**

Respirator use practice	Total	Employment size group				
		1–10 workers	11–49 workers	50–249 workers	250–999 workers	1000 workers or more
<b>Number of employees</b>						
Total use.....	3,303,414	243,518	596,392	734,253	660,756	1,068,495
Total air-supplied respirators.....	415,964	17,313	75,633	120,002	116,296	86,721
<b>Establishment assesses employees' medical fitness to wear respirators</b>						
Yes.....	345,730	4,038	31,772	108,181	115,277	86,462
<b>Method of assessment used by establishment</b>						
Questionnaire only.....	8,955	262	—	265	1,082	—
Questionnaire with follow-up exam, as needed.....	231,980	2,110	17,702	60,124	77,094	74,950
Physical exam only.....	75,852	1,297	5,687	37,830	25,167	5,871
Other.....	29,535	—	1,682	10,597	11,981	4,889
No.....	64,016	12,355	42,021	8,605	816	220
Don't know.....	1,817	652	1,005	148	—	—
<b>Percent of employees</b>						
Total air-supplied respirators.....	100.0	100.0	100.0	100.0	100.0	100.0
<b>Establishment assesses employees' medical fitness to wear respirators</b>						
Yes.....	83.1	23.3	42.0	90.1	99.1	99.7
<b>Method of assessment used by establishment</b>						
Questionnaire only.....	2.2	1.5	—	.2	.9	—
Questionnaire with follow-up exam, as needed.....	55.8	12.2	23.4	50.1	66.3	86.4
Physical exam only.....	18.2	7.5	7.5	31.5	21.6	6.8
Other.....	7.1	—	2.2	8.8	10.3	5.6
No.....	15.4	71.4	55.6	7.2	.7	.3
Don't know.....	.4	3.8	1.3	.1	—	—

<sup>1</sup> The 12-month period represents required use of respirators in the 12 months prior to the establishment's completion of the survey. The survey was mailed to establishments in August 2001.

NOTE: Because of rounding, data exclusion of nonclassifiable responses, and establishment reports of more than one type of

respirator use, data do not sum to the totals. Dashes indicate data that do not meet publication guidelines. A measure of sampling variability for each estimate is available upon request.

SOURCE: Bureau of Labor Statistics, U.S. Department of Labor.

**Table 81. Number and percent of establishments using both air-purifying and air-supplied respirators during the 12 months<sup>1</sup> prior to the survey, by method of assessing employees' medical fitness and employment size group**

Respirator use practice	Total	Employment size group				
		1-10 workers	11-49 workers	50-249 workers	250-999 workers	1000 workers or more
<b>Number of establishments</b>						
Total use.....	281,776	122,620	83,716	45,291	21,742	8,406
Both air-purifying and air-supplied respirators....	41,290	9,263	10,115	11,333	7,354	3,225
<b>Establishment assesses employees' medical fitness to wear respirators</b>						
Yes.....	30,746	3,149	7,113	10,039	7,245	3,201
<b>Method of assessment used by establishment</b>						
Questionnaire only.....	1,273	—	1,028	103	56	—
Questionnaire with follow-up exam, as needed.....	19,305	1,735	3,727	6,178	5,172	2,493
Physical exam only.....	7,237	842	1,715	2,410	1,652	617
Other.....	3,065	—	605	1,483	382	81
No.....	9,545	5,904	2,565	985	75	—
Don't know.....	558	—	384	86	—	—
<b>Percent of establishments</b>						
Both air-purifying and air-supplied respirators....	100.0	100.0	100.0	100.0	100.0	100.0
<b>Establishment assesses employees' medical fitness to wear respirators</b>						
Yes.....	74.5	34.0	70.3	88.6	98.5	99.2
<b>Method of assessment used by establishment</b>						
Questionnaire only.....	3.1	—	10.2	.9	.8	—
Questionnaire with follow-up exam, as needed.....	46.8	18.7	36.8	54.5	70.3	77.3
Physical exam only.....	17.5	9.1	17.0	21.3	22.5	19.1
Other.....	7.4	—	6.0	13.1	5.2	2.5
No.....	23.1	63.7	25.4	8.7	1.0	—
Don't know.....	1.4	—	3.8	.8	—	—

<sup>1</sup> The 12-month period represents required use of respirators in the 12 months prior to the establishment's completion of the survey. The survey was mailed to establishments in August 2001.

NOTE: Because of rounding, data exclusion of nonclassifiable responses, and establishment reports of more than one type of

respirator use, data do not sum to the totals. Dashes indicate data that do not meet publication guidelines. A measure of sampling variability for each estimate is available upon request.

SOURCE: Bureau of Labor Statistics, U.S. Department of Labor.

**Table 82. Number and percent of establishments and employees using respirators during the 12 months<sup>1</sup> prior to the survey, by determiner of employees' medical fitness and employment size group**

Respirator use practice	Total	Employment size group				
		1–10 workers	11–49 workers	50–249 workers	250–999 workers	1000 workers or more
<b>Number of establishments</b>						
Total use.....	281,776	122,620	83,716	45,291	21,742	8,406
<b>Who determines employees' medical fitness for respirator use</b>						
Nurse(s) employed by contract, direct salary, or fee for service.....	10,124	713	1,521	1,968	2,688	3,234
Physician(s) employed by contract, direct salary, or fee for service.....	64,589	16,928	15,923	14,229	11,472	6,037
Individual employees' personal physicians..	22,891	13,930	3,418	1,751	3,184	608
Contract occupational health service.....	39,218	5,684	11,450	13,874	5,547	2,663
Other.....	15,132	7,370	2,671	2,066	2,566	458
Don't know.....	3,466	1,357	1,864	212	33	—
<b>Percent of establishments</b>						
Total use.....	100.0	100.0	100.0	100.0	100.0	100.0
<b>Who determines employees' medical fitness for respirator use</b>						
Nurse(s) employed by contract, direct salary, or fee for service.....	3.6	0.6	1.8	4.3	12.4	38.5
Physician(s) employed by contract, direct salary, or fee for service.....	22.9	13.8	19.0	31.4	52.8	71.8
Individual employees' personal physicians..	8.1	11.4	4.1	3.9	14.6	7.2
Contract occupational health service.....	13.9	4.6	13.7	30.6	25.5	31.7
Other.....	5.4	6.0	3.2	4.6	11.8	5.5
Don't know.....	1.2	1.1	2.2	0.5	0.2	—

See footnotes at end of table

**Table 82. Number and percent of establishments and employees using respirators during the 12 months<sup>1</sup> prior to the survey, by determiner of employees' medical fitness and employment size group—Continued**

Respirator use practice	Total	Employment size group				
		1–10 workers	11–49 workers	50–249 workers	250–999 workers	1000 workers or more
<b>Number of employees</b>						
Total use.....	3,303,414	243,518	596,392	734,253	660,756	1,068,495
<b>Who determines employees' medical fitness for respirator use</b>						
Nurse(s) employed by contract, direct salary, or fee for service.....	776,140	997	11,099	49,958	180,819	533,268
Physician(s) employed by contract, direct salary, or fee for service.....	1,430,407	34,571	121,414	300,977	387,428	586,017
Individual employees' personal physicians..	205,435	36,939	30,045	16,718	40,796	80,936
Contract occupational health service.....	589,523	7,728	71,241	245,376	128,707	136,471
Other.....	235,484	18,713	18,380	35,195	37,694	125,502
Don't know.....	19,761	3,207	12,964	2,687	903	—
<b>Percent of employees</b>						
Total use.....	100.0	100.0	100.0	100.0	100.0	100.0
<b>Who determines employees' medical fitness for respirator use</b>						
Nurse(s) employed by contract, direct salary, or fee for service.....	23.5	.4	1.9	6.8	27.4	49.9
Physician(s) employed by contract, direct salary, or fee for service.....	43.3	14.2	20.4	41.0	58.6	54.8
Individual employees' personal physicians..	6.2	15.2	5.0	2.3	6.2	7.6
Contract occupational health service.....	17.8	3.2	11.9	33.4	19.5	12.8
Other.....	7.1	7.7	3.1	4.8	5.7	11.7
Don't know.....	.6	1.3	2.2	.4	.1	—

<sup>1</sup> The 12-month period represents required use of respirators in the 12 months prior to the establishment's completion of the survey. The survey was mailed to establishments in August 2001.

NOTE: Because of rounding, data exclusion of nonclassifiable responses, establishment reports of more than one type of respirator use, and establishment omission of questionnaire response, data do

not sum to the totals. Dashes indicate data that do not meet publication guidelines. A measure of sampling variability for each estimate is available upon request.

SOURCE: Bureau of Labor Statistics, U.S. Department of Labor.

**Table 83. Number and percent of establishments and employees using air-purifying respirators during the 12 months<sup>1</sup> prior to the survey, by determiner of employees' medical fitness and employment size group**

Respirator use practice	Total	Employment size group				
		1-10 workers	11-49 workers	50-249 workers	250-999 workers	1000 workers or more
<b>Number of establishments</b>						
Total use.....	281,776	122,620	83,716	45,291	21,742	8,406
Total air-purifying respirators.....	267,467	113,797	80,249	44,247	20,865	8,309
<b>Who determines employees' medical fitness for respirator use</b>						
Nurse(s) employed by contract, direct salary, or fee for service.....	9,922	631	1,419	1,968	2,682	3,222
Physician(s) employed by contract, direct salary, or fee for service.....	60,416	14,785	14,866	13,879	10,899	5,987
Individual employees' personal physicians..	22,275	13,790	3,418	1,720	2,739	608
Contract occupational health service.....	35,279	3,329	10,804	13,662	4,872	2,612
Other.....	14,807	7,218	2,535	2,057	2,546	451
Don't know.....	3,193	1,268	1,680	212	33	—
<b>Percent of establishments</b>						
Total air-purifying respirators.....	100.0	100.0	100.0	100.0	100.0	100.0
<b>Who determines employees' medical fitness for respirator use</b>						
Nurse(s) employed by contract, direct salary, or fee for service.....	3.7	0.6	1.8	4.4	12.9	38.8
Physician(s) employed by contract, direct salary, or fee for service.....	22.6	13.0	18.5	31.4	52.2	72.0
Individual employees' personal physicians..	8.3	12.1	4.3	3.9	13.1	7.3
Contract occupational health service.....	13.2	2.9	13.5	30.9	23.3	31.4
Other.....	5.5	6.3	3.2	4.6	12.2	5.4
Don't know.....	1.2	1.1	2.1	0.5	0.2	—

See footnotes at end of table

**Table 83. Number and percent of establishments and employees using air-purifying respirators during the 12 months<sup>1</sup> prior to the survey, by determiner of employees' medical fitness and employment size group—Continued**

Respirator use practice	Total	Employment size group				
		1–10 workers	11–49 workers	50–249 workers	250–999 workers	1000 workers or more
<b>Number of employees</b>						
Total use.....	3,303,414	243,518	596,392	734,253	660,756	1,068,495
Total air-purifying respirators.....	3,114,464	238,986	551,760	704,946	610,441	1,008,331
<b>Who determines employees' medical fitness for respirator use</b>						
Nurse(s) employed by contract, direct salary, or fee for service.....	724,081	997	10,654	46,463	166,045	499,922
Physician(s) employed by contract, direct salary, or fee for service.....	1,326,782	34,375	116,456	286,165	346,937	542,849
Individual employees' personal physicians..	201,465	36,939	29,759	16,312	38,331	80,124
Contract occupational health service.....	557,689	7,434	69,617	235,497	119,206	125,935
Other.....	229,332	18,297	17,066	34,794	36,136	123,039
Don't know.....	19,611	3,191	12,916	2,670	834	—
<b>Percent of employees</b>						
Total air-purifying respirators.....	100.0	100.0	100.0	100.0	100.0	100.0
<b>Who determines employees' medical fitness for respirator use</b>						
Nurse(s) employed by contract, direct salary, or fee for service.....	23.2	.4	1.9	6.6	27.2	49.6
Physician(s) employed by contract, direct salary, or fee for service.....	42.6	14.4	21.1	40.6	56.8	53.8
Individual employees' personal physicians..	6.5	15.5	5.4	2.3	6.3	7.9
Contract occupational health service.....	17.9	3.1	12.6	33.4	19.5	12.5
Other.....	7.4	7.7	3.1	4.9	5.9	12.2
Don't know.....	.6	1.3	2.3	.4	.1	—

<sup>1</sup> The 12-month period represents required use of respirators in the 12 months prior to the establishment's completion of the survey. The survey was mailed to establishments in August 2001.

NOTE: Because of rounding, data exclusion of nonclassifiable responses, establishment reports of more than one type of respirator use, and establishment omission of questionnaire response, data do

not sum to the totals. Dashes indicate data that do not meet publication guidelines. A measure of sampling variability for each estimate is available upon request.

SOURCE: Bureau of Labor Statistics, U.S. Department of Labor.

**Table 84. Number and percent of establishments and employees using air-supplied respirators during the 12 months<sup>1</sup> prior to the survey, by determiner of employees' medical fitness and employment size group**

Respirator use practice	Total	Employment size group				
		1-10 workers	11-49 workers	50-249 workers	250-999 workers	1000 workers or more
<b>Number of establishments</b>						
Total use.....	281,776	122,620	83,716	45,291	21,742	8,406
Total air-supplied respirators.....	47,290	10,909	12,451	12,376	8,232	3,322
<b>Who determines employees' medical fitness for respirator use</b>						
Nurse(s) employed by contract, direct salary, or fee for service.....	4,352	—	763	750	1,387	1,452
Physician(s) employed by contract, direct salary, or fee for service.....	21,348	2,440	3,799	5,604	6,637	2,866
Individual employees' personal physicians..	3,224	846	1,151	150	1,037	40
Contract occupational health service.....	12,633	1,080	3,072	5,719	1,957	806
Other.....	1,448	235	456	416	245	96
Don't know.....	238	—	—	90	—	—
<b>Percent of establishments</b>						
Total air-supplied respirators.....	100.0	100.0	100.0	100.0	100.0	100.0
<b>Who determines employees' medical fitness for respirator use</b>						
Nurse(s) employed by contract, direct salary, or fee for service.....	9.2	—	6.1	6.1	16.8	43.7
Physician(s) employed by contract, direct salary, or fee for service.....	45.1	22.4	30.5	45.3	80.6	86.3
Individual employees' personal physicians..	6.8	7.8	9.2	1.2	12.6	1.2
Contract occupational health service.....	26.7	9.9	24.7	46.2	23.8	24.3
Other.....	3.1	2.2	3.7	3.4	3.0	2.9
Don't know.....	0.5	—	—	0.7	—	—

See footnotes at end of table

**Table 84. Number and percent of establishments and employees using air-supplied respirators during the 12 months<sup>1</sup> prior to the survey, by determiner of employees' medical fitness and employment size group—Continued**

Respirator use practice	Total	Employment size group				
		1–10 workers	11–49 workers	50–249 workers	250–999 workers	1000 workers or more
<b>Number of employees</b>						
Total use.....	3,303,414	243,518	596,392	734,253	660,756	1,068,495
Total air-supplied respirators.....	415,964	17,313	75,633	120,002	116,296	86,721
<b>Who determines employees' medical fitness for respirator use</b>						
Nurse(s) employed by contract, direct salary, or fee for service.....	84,535	—	4,666	8,952	26,022	44,896
Physician(s) employed by contract, direct salary, or fee for service.....	252,739	1,946	17,093	78,410	89,599	65,690
Individual employees' personal physicians..	15,067	815	6,985	721	4,616	1,930
Contract occupational health service.....	109,734	1,710	6,669	59,091	27,362	14,903
Other.....	12,978	557	3,172	1,821	3,303	4,125
Don't know.....	315	—	—	137	—	—
<b>Percent of employees</b>						
Total air-supplied respirators.....	100.0	100.0	100.0	100.0	100.0	100.0
<b>Who determines employees' medical fitness for respirator use</b>						
Nurse(s) employed by contract, direct salary, or fee for service.....	20.3	—	6.2	7.5	22.4	51.8
Physician(s) employed by contract, direct salary, or fee for service.....	60.8	11.2	22.6	65.3	77.0	75.7
Individual employees' personal physicians..	3.6	4.7	9.2	.6	4.0	2.2
Contract occupational health service.....	26.4	9.9	8.8	49.2	23.5	17.2
Other.....	3.1	3.2	4.2	1.5	2.8	4.8
Don't know.....	.1	—	—	.1	—	—

<sup>1</sup> The 12-month period represents required use of respirators in the 12 months prior to the establishment's completion of the survey. The survey was mailed to establishments in August 2001.

NOTE: Because of rounding, data exclusion of nonclassifiable responses, establishment reports of more than one type of respirator use, and establishment omission of questionnaire response, data do

not sum to the totals. Dashes indicate data that do not meet publication guidelines. A measure of sampling variability for each estimate is available upon request.

SOURCE: Bureau of Labor Statistics, U.S. Department of Labor.

**Table 85. Number and percent of establishments using both air-purifying and air-supplied respirators during the 12 months<sup>1</sup> prior to the survey, by determiner of employees' medical fitness and employment size group**

Respirator use practice	Total	Employment size group				
		1-10 workers	11-49 workers	50-249 workers	250-999 workers	1000 workers or more
<b>Number of establishments</b>						
Total use.....	281,776	122,620	83,716	45,291	21,742	8,406
Both air-purifying and air-supplied respirators....	41,290	9,263	10,115	11,333	7,354	3,225
<b>Who determines employees' medical fitness for respirator use</b>						
Nurse(s) employed by contract, direct salary, or fee for service.....	4,301	—	731	750	1,380	1,440
Physician(s) employed by contract, direct salary, or fee for service.....	19,644	2,287	3,223	5,254	6,064	2,816
Individual employees' personal physicians..	2,747	846	1,151	119	591	40
Contract occupational health service.....	11,509	1,044	2,923	5,507	1,281	754
Other.....	1,124	—	319	408	225	88
Don't know.....	182	—	—	90	—	—
<b>Percent of establishments</b>						
Both air-purifying and air-supplied respirators....	100.0	100.0	100.0	100.0	100.0	100.0
<b>Who determines employees' medical fitness for respirator use</b>						
Nurse(s) employed by contract, direct salary, or fee for service.....	10.4	—	7.2	6.6	18.8	44.6
Physician(s) employed by contract, direct salary, or fee for service.....	47.6	24.7	31.9	46.4	82.5	87.3
Individual employees' personal physicians..	6.7	9.1	11.4	1.0	8.0	1.2
Contract occupational health service.....	27.9	11.3	28.9	48.6	17.4	23.4
Other.....	2.7	—	3.2	3.6	3.1	2.7
Don't know.....	.4	—	—	.8	—	—

<sup>1</sup> The 12-month period represents required use of respirators in the 12 months prior to the establishment's completion of the survey. The survey was mailed to establishments in August 2001.

NOTE: Because of rounding, data exclusion of nonclassifiable responses, establishment reports of more than one type of respirator use, and establishment omission of questionnaire response, data do

not sum to the totals. Dashes indicate data that do not meet publication guidelines. A measure of sampling variability for each estimate is available upon request.

SOURCE: Bureau of Labor Statistics, U.S. Department of Labor.

**Table 86. Number and percent of establishments and employees using respirators during the 12 months<sup>1</sup> prior to the survey, by method of determining appropriate respirators and employment size group**

Respirator use practice	Total	Employment size group				
		1–10 workers	11–49 workers	50–249 workers	250–999 workers	1000 workers or more
<b>Number of establishments</b>						
Total use.....	281,776	122,620	83,716	45,291	21,742	8,406
<b>How establishments determine which respirator is appropriate for the substance(s) faced by employees</b>						
Employees suggestion.....	48,480	25,028	14,186	5,897	3,024	346
Local store products/salesperson.....	37,683	21,335	11,312	3,615	1,248	174
Air sampling (air monitoring) conducted at your facility.....	66,251	15,282	16,474	17,178	11,408	5,908
Air sampling (air monitoring) conducted at facilities with operations similar to your own.....	16,342	5,619	3,316	4,272	2,078	1,057
Respirator manufacturers' representative.....	58,423	22,242	15,119	12,855	5,527	2,680
Respirator manufacturers' literature.....	126,473	57,392	35,224	18,953	11,331	3,573
Assigned Protection Factor (APF).....	39,067	14,795	8,352	7,524	5,621	2,775
Hazard Ratio.....	15,442	4,255	5,484	2,631	1,933	1,139
Material Safety Data Sheets.....	161,097	63,665	48,029	27,700	16,234	5,468
Other.....	32,282	14,259	9,334	5,160	2,050	1,478
<b>Percent of establishments</b>						
Total use.....	100.0	100.0	100.0	100.0	100.0	100.0
<b>How establishments determine which respirator is appropriate for the substance(s) faced by employees</b>						
Employees suggestion.....	17.2	20.4	16.9	13.0	13.9	4.1
Local store products/salesperson.....	13.4	17.4	13.5	8.0	5.7	2.1
Air sampling (air monitoring) conducted at your facility.....	23.5	12.5	19.7	37.9	52.5	70.3
Air sampling (air monitoring) conducted at facilities with operations similar to your own.....	5.8	4.6	4.0	9.4	9.6	12.6
Respirator manufacturers' representative.....	20.7	18.1	18.1	28.4	25.4	31.9
Respirator manufacturers' literature.....	44.9	46.8	42.1	41.8	52.1	42.5
Assigned Protection Factor (APF).....	13.9	12.1	10.0	16.6	25.9	33.0
Hazard Ratio.....	5.5	3.5	6.6	5.8	8.9	13.5
Material Safety Data Sheets.....	57.2	51.9	57.4	61.2	74.7	65.1
Other.....	11.5	11.6	11.2	11.4	9.4	17.6

See footnotes at end of table

**Table 86. Number and percent of establishments and employees using respirators during the 12 months<sup>1</sup> prior to the survey, by method of determining appropriate respirators and employment size group—Continued**

Respirator use practice	Total	Employment size group				
		1–10 workers	11–49 workers	50–249 workers	250–999 workers	1000 workers or more
<b>Number of employees</b>						
Total use.....	3,303,414	243,518	596,392	734,253	660,756	1,068,495
<b>How establishments determine which respirator is appropriate for the substance(s) faced by employees</b>						
Employees suggestion.....	333,716	44,217	97,773	68,962	66,258	56,506
Local store products/salesperson.....	274,658	37,745	62,137	57,418	59,048	—
Air sampling (air monitoring) conducted at your facility.....	1,522,121	19,927	99,152	339,000	426,562	637,480
Air sampling (air monitoring) conducted at facilities with operations similar to your own.....	376,226	7,616	20,475	115,017	96,829	136,290
Respirator manufacturers' representative.....	785,596	51,892	93,635	201,360	193,248	245,460
Respirator manufacturers' literature.....	1,479,221	132,402	198,507	298,505	320,309	529,498
Assigned Protection Factor (APF).....	885,602	21,225	70,275	155,840	236,833	401,430
Hazard Ratio.....	259,101	8,076	35,000	45,401	93,458	77,166
Material Safety Data Sheets.....	1,937,308	139,528	305,200	463,022	467,913	561,645
Other.....	560,508	26,726	86,070	96,433	87,158	264,122
<b>Percent of employees</b>						
Total use.....	100.0	100.0	100.0	100.0	100.0	100.0
<b>How establishments determine which respirator is appropriate for the substance(s) faced by employees</b>						
Employees suggestion.....	10.1	18.2	16.4	9.4	10.0	5.3
Local store products/salesperson.....	8.3	15.5	10.4	7.8	8.9	—
Air sampling (air monitoring) conducted at your facility.....	46.1	8.2	16.6	46.2	64.6	59.7
Air sampling (air monitoring) conducted at facilities with operations similar to your own.....	11.4	3.1	3.4	15.7	14.7	12.8
Respirator manufacturers' representative.....	23.8	21.3	15.7	27.4	29.2	23.0
Respirator manufacturers' literature.....	44.8	54.4	33.3	40.7	48.5	49.6
Assigned Protection Factor (APF).....	26.8	8.7	11.8	21.2	35.8	37.6
Hazard Ratio.....	7.8	3.3	5.9	6.2	14.1	7.2
Material Safety Data Sheets.....	58.6	57.3	51.2	63.1	70.8	52.6
Other.....	17.0	11.0	14.4	13.1	13.2	24.7

<sup>1</sup> The 12-month period represents required use of respirators in the 12 months prior to the establishment's completion of the survey. The survey was mailed to establishments in August 2001.

NOTE: Because of rounding, data exclusion of nonclassifiable responses, and establishment reports of more than one type of

respirator use, data do not sum to the totals. Dashes indicate data that do not meet publication guidelines. A measure of sampling variability for each estimate is available upon request.

SOURCE: Bureau of Labor Statistics, U.S. Department of Labor.

**Table 87. Number and percent of establishments and employees using air-purifying respirators during the 12 months<sup>1</sup> prior to the survey, by method of determining appropriate respirators and employment size group**

Respirator use practice	Total	Employment size group				
		1–10 workers	11–49 workers	50–249 workers	250–999 workers	1000 workers or more
<b>Number of establishments</b>						
Total use.....	281,776	122,620	83,716	45,291	21,742	8,406
Total air-purifying respirators.....	267,467	113,797	80,249	44,247	20,865	8,309
<b>How establishments determine which respirator is appropriate for the substance(s) faced by employees</b>						
Employees suggestion.....	46,919	23,987	13,902	5,707	2,986	338
Local store products/salesperson.....	37,201	20,903	11,312	3,596	1,232	159
Air sampling (air monitoring) conducted at your facility.....	62,246	13,292	15,666	16,822	10,610	5,855
Air sampling (air monitoring) conducted at facilities with operations similar to your own.....	15,656	5,581	2,743	4,216	2,072	1,044
Respirator manufacturers' representative.....	53,844	19,262	14,570	12,356	4,995	2,662
Respirator manufacturers' literature.....	121,595	54,430	34,147	18,629	10,849	3,540
Assigned Protection Factor (APF).....	36,594	13,301	8,141	7,454	4,956	2,742
Hazard Ratio.....	14,191	3,328	5,367	2,617	1,741	1,139
Material Safety Data Sheets.....	153,946	58,956	46,668	27,248	15,652	5,423
Other.....	31,246	13,736	8,970	5,075	2,003	1,461
<b>Percent of establishments</b>						
Total air-purifying respirators.....	100.0	100.0	100.0	100.0	100.0	100.0
<b>How establishments determine which respirator is appropriate for the substance(s) faced by employees</b>						
Employees suggestion.....	17.5	21.1	17.3	12.9	14.3	4.1
Local store products/salesperson.....	13.9	18.4	14.1	8.1	5.9	1.9
Air sampling (air monitoring) conducted at your facility.....	23.3	11.7	19.5	38.0	50.9	70.5
Air sampling (air monitoring) conducted at facilities with operations similar to your own.....	5.9	4.9	3.4	9.5	9.9	12.6
Respirator manufacturers' representative.....	20.1	16.9	18.2	27.9	23.9	32.0
Respirator manufacturers' literature.....	45.5	47.8	42.6	42.1	52.0	42.6
Assigned Protection Factor (APF).....	13.7	11.7	10.1	16.8	23.8	33.0
Hazard Ratio.....	5.3	2.9	6.7	5.9	8.3	13.7
Material Safety Data Sheets.....	57.6	51.8	58.2	61.6	75.0	65.3
Other.....	11.7	12.1	11.2	11.5	9.6	17.6

See footnotes at end of table

**Table 87. Number and percent of establishments and employees using air-purifying respirators during the 12 months<sup>1</sup> prior to the survey, by method of determining appropriate respirators and employment size group—Continued**

Respirator use practice	Total	Employment size group				
		1–10 workers	11–49 workers	50–249 workers	250–999 workers	1000 workers or more
<b>Number of employees</b>						
Total use.....	3,303,414	243,518	596,392	734,253	660,756	1,068,495
Total air-purifying respirators.....	3,114,464	238,986	551,760	704,946	610,441	1,008,331
<b>How establishments determine which respirator is appropriate for the substance(s) faced by employees</b>						
Employees suggestion.....	317,061	43,363	94,590	64,349	61,915	52,844
Local store products/salesperson.....	267,923	35,826	61,354	56,612	56,547	—
Air sampling (air monitoring) conducted at your facility.....	1,407,167	19,796	94,548	322,932	383,297	586,594
Air sampling (air monitoring) conducted at facilities with operations similar to your own.....	341,661	7,616	20,388	111,552	83,789	118,317
Respirator manufacturers' representative.....	745,113	49,658	90,666	190,820	180,285	233,683
Respirator manufacturers' literature.....	1,409,735	129,619	196,268	284,965	290,280	508,604
Assigned Protection Factor (APF).....	824,939	21,200	68,450	149,309	208,370	377,610
Hazard Ratio.....	235,224	7,757	34,034	43,774	79,411	70,248
Material Safety Data Sheets.....	1,831,240	136,925	297,643	443,453	427,406	525,814
Other.....	536,010	26,717	82,944	90,080	81,414	254,854
<b>Percent of employees</b>						
Total air-purifying respirators.....	100.0	100.0	100.0	100.0	100.0	100.0
<b>How establishments determine which respirator is appropriate for the substance(s) faced by employees</b>						
Employees suggestion.....	10.2	18.1	17.1	9.1	10.1	5.2
Local store products/salesperson.....	8.6	15.0	11.1	8.0	9.3	—
Air sampling (air monitoring) conducted at your facility.....	45.2	8.3	17.1	45.8	62.8	58.2
Air sampling (air monitoring) conducted at facilities with operations similar to your own.....	11.0	3.2	3.7	15.8	13.7	11.7
Respirator manufacturers' representative.....	23.9	20.8	16.4	27.1	29.5	23.2
Respirator manufacturers' literature.....	45.3	54.2	35.6	40.4	47.6	50.4
Assigned Protection Factor (APF).....	26.5	8.9	12.4	21.2	34.1	37.4
Hazard Ratio.....	7.6	3.2	6.2	6.2	13.0	7.0
Material Safety Data Sheets.....	58.8	57.3	53.9	62.9	70.0	52.1
Other.....	17.2	11.2	15.0	12.8	13.3	25.3

<sup>1</sup> The 12-month period represents required use of respirators in the 12 months prior to the establishment's completion of the survey. The survey was mailed to establishments in August 2001.

NOTE: Because of rounding, data exclusion of nonclassifiable responses, and establishment reports of more than one type of

respirator use, data do not sum to the totals. Dashes indicate data that do not meet publication guidelines. A measure of sampling variability for each estimate is available upon request.

SOURCE: Bureau of Labor Statistics, U.S. Department of Labor.

**Table 88. Number and percent of establishments and employees using air-supplied respirators during the 12 months<sup>1</sup> prior to the survey, by method of determining appropriate respirators and employment size group**

Respirator use practice	Total	Employment size group				
		1–10 workers	11–49 workers	50–249 workers	250–999 workers	1000 workers or more
<b>Number of establishments</b>						
Total use.....	281,776	122,620	83,716	45,291	21,742	8,406
Total air-supplied respirators.....	47,290	10,909	12,451	12,376	8,232	3,322
<b>How establishments determine which respirator is appropriate for the substance(s) faced by employees</b>						
Employees suggestion.....	5,232	1,858	1,712	1,159	342	161
Local store products/salesperson.....	5,095	2,545	924	883	679	63
Air sampling (air monitoring) conducted at your facility.....	22,121	1,640	4,988	6,697	5,788	3,008
Air sampling (air monitoring) conducted at facilities with operations similar to your own.....	6,117	1,221	806	2,407	907	774
Respirator manufacturers' representative.....	15,999	3,892	3,183	4,632	3,002	1,290
Respirator manufacturers' literature.....	20,595	4,849	5,054	5,270	3,766	1,656
Assigned Protection Factor (APF).....	11,616	708	3,290	2,878	3,539	1,201
Hazard Ratio.....	4,534	863	1,715	904	897	154
Material Safety Data Sheets.....	33,741	6,620	8,830	8,961	6,822	2,508
Other.....	4,904	465	1,543	1,507	689	698
<b>Percent of establishments</b>						
Total air-supplied respirators.....	100.0	100.0	100.0	100.0	100.0	100.0
<b>How establishments determine which respirator is appropriate for the substance(s) faced by employees</b>						
Employees suggestion.....	11.1	17.0	13.8	9.4	4.2	4.8
Local store products/salesperson.....	10.8	23.3	7.4	7.1	8.2	1.9
Air sampling (air monitoring) conducted at your facility.....	46.8	15.0	40.1	54.1	70.3	90.5
Air sampling (air monitoring) conducted at facilities with operations similar to your own.....	12.9	11.2	6.5	19.5	11.0	23.3
Respirator manufacturers' representative.....	33.8	35.7	25.6	37.4	36.5	38.8
Respirator manufacturers' literature.....	43.6	44.5	40.6	42.6	45.8	49.8
Assigned Protection Factor (APF).....	24.6	6.5	26.4	23.3	43.0	36.2
Hazard Ratio.....	9.6	7.9	13.8	7.3	10.9	4.6
Material Safety Data Sheets.....	71.3	60.7	70.9	72.4	82.9	75.5
Other.....	10.4	4.3	12.4	12.2	8.4	21.0

See footnotes at end of table

**Table 88. Number and percent of establishments and employees using air-supplied respirators during the 12 months<sup>1</sup> prior to the survey, by method of determining appropriate respirators and employment size group—Continued**

Respirator use practice	Total	Employment size group				
		1–10 workers	11–49 workers	50–249 workers	250–999 workers	1000 workers or more
<b>Number of employees</b>						
Total use.....	3,303,414	243,518	596,392	734,253	660,756	1,068,495
Total air-supplied respirators.....	415,964	17,313	75,633	120,002	116,296	86,721
<b>How establishments determine which respirator is appropriate for the substance(s) faced by employees</b>						
Employees suggestion.....	32,298	2,751	6,172	7,516	9,759	6,100
Local store products/salesperson.....	20,141	5,111	2,151	5,929	5,765	1,185
Air sampling (air monitoring) conducted at your facility.....	242,644	1,396	16,663	50,786	99,687	74,112
Air sampling (air monitoring) conducted at facilities with operations similar to your own.....	98,845	1,311	2,685	44,189	27,804	22,855
Respirator manufacturers' representative.....	101,801	8,178	9,299	36,043	28,256	20,025
Respirator manufacturers' literature.....	160,378	8,658	13,320	39,579	62,057	36,764
Assigned Protection Factor (APF).....	149,796	449	11,750	28,794	65,704	43,098
Hazard Ratio.....	54,789	665	5,554	8,459	26,749	13,362
Material Safety Data Sheets.....	288,952	11,144	32,726	92,492	96,737	55,853
Other.....	53,370	748	5,167	16,419	17,846	13,190
<b>Percent of employees</b>						
Total air-supplied respirators.....	100.0	100.0	100.0	100.0	100.0	100.0
<b>How establishments determine which respirator is appropriate for the substance(s) faced by employees</b>						
Employees suggestion.....	7.8	15.9	8.2	6.3	8.4	7.0
Local store products/salesperson.....	4.8	29.5	2.8	4.9	5.0	1.4
Air sampling (air monitoring) conducted at your facility.....	58.3	8.1	22.0	42.3	85.7	85.5
Air sampling (air monitoring) conducted at facilities with operations similar to your own.....	23.8	7.6	3.6	36.8	23.9	26.4
Respirator manufacturers' representative.....	24.5	47.2	12.3	30.0	24.3	23.1
Respirator manufacturers' literature.....	38.6	50.0	17.6	33.0	53.4	42.4
Assigned Protection Factor (APF).....	36.0	2.6	15.5	24.0	56.5	49.7
Hazard Ratio.....	13.2	3.8	7.3	7.0	23.0	15.4
Material Safety Data Sheets.....	69.5	64.4	43.3	77.1	83.2	64.4
Other.....	12.8	4.3	6.8	13.7	15.3	15.2

<sup>1</sup> The 12-month period represents required use of respirators in the 12 months prior to the establishment's completion of the survey. The survey was mailed to establishments in August 2001.

NOTE: Because of rounding, data exclusion of nonclassifiable responses, and establishment reports of more than one type of

respirator use, data do not sum to the totals. Dashes indicate data that do not meet publication guidelines. A measure of sampling variability for each estimate is available upon request.

SOURCE: Bureau of Labor Statistics, U.S. Department of Labor.

**Table 89. Number and percent of establishments using both air-purifying and air-supplied respirators during the 12 months<sup>1</sup> prior to the survey, by method of determining appropriate respirators and employment size group**

Respirator use practice	Total	Employment size group				
		1–10 workers	11–49 workers	50–249 workers	250–999 workers	1000 workers or more
<b>Number of establishments</b>						
Total use.....	281,776	122,620	83,716	45,291	21,742	8,406
Both air-purifying and air-supplied respirators....	41,290	9,263	10,115	11,333	7,354	3,225
<b>How establishments determine which respirator is appropriate for the substance(s) faced by employees</b>						
Employees suggestion.....	4,426	1,442	1,557	969	304	154
Local store products/salesperson.....	4,757	2,257	924	863	663	49
Air sampling (air monitoring) conducted at your facility.....	20,526	1,563	4,676	6,342	4,990	2,955
Air sampling (air monitoring) conducted at facilities with operations similar to your own.....	5,988	1,221	753	2,351	901	762
Respirator manufacturers' representative.....	13,905	3,328	2,703	4,133	2,469	1,272
Respirator manufacturers' literature.....	18,926	4,191	4,882	4,946	3,285	1,622
Assigned Protection Factor (APF).....	10,811	708	3,253	2,809	2,874	1,168
Hazard Ratio.....	4,157	809	1,598	890	705	154
Material Safety Data Sheets.....	31,599	6,225	8,163	8,509	6,240	2,462
Other.....	4,390	465	1,178	1,423	642	681
<b>Percent of establishments</b>						
Both air-purifying and air-supplied respirators....	100.0	100.0	100.0	100.0	100.0	100.0
<b>How establishments determine which respirator is appropriate for the substance(s) faced by employees</b>						
Employees suggestion.....	10.7	15.6	15.4	8.6	4.1	4.8
Local store products/salesperson.....	11.5	24.4	9.1	7.6	9.0	1.5
Air sampling (air monitoring) conducted at your facility.....	49.7	16.9	46.2	56.0	67.9	91.6
Air sampling (air monitoring) conducted at facilities with operations similar to your own.....	14.5	13.2	7.4	20.7	12.3	23.6
Respirator manufacturers' representative.....	33.7	35.9	26.7	36.5	33.6	39.4
Respirator manufacturers' literature.....	45.8	45.2	48.3	43.6	44.7	50.3
Assigned Protection Factor (APF).....	26.2	7.6	32.2	24.8	39.1	36.2
Hazard Ratio.....	10.1	8.7	15.8	7.9	9.6	4.8
Material Safety Data Sheets.....	76.5	67.2	80.7	75.1	84.9	76.4
Other.....	10.6	5.0	11.6	12.6	8.7	21.1

<sup>1</sup> The 12-month period represents required use of respirators in the 12 months prior to the establishment's completion of the survey. The survey was mailed to establishments in August 2001.

NOTE: Because of rounding, data exclusion of nonclassifiable responses, and establishment reports of more than one type of

respirator use, data do not sum to the totals. Dashes indicate data that do not meet publication guidelines. A measure of sampling variability for each estimate is available upon request.

SOURCE: Bureau of Labor Statistics, U.S. Department of Labor.

**Table 90. Number and percent of establishments using respirators during the 12 months<sup>1</sup> prior to the survey, by time since last evaluation of respirator use and employment size group**

Respirator use practice	Total	Employment size group				
		1-10 workers	11-49 workers	50-249 workers	250-999 workers	1000 workers or more
<b>Number of establishments</b>						
Total use.....	281,776	122,620	83,716	45,291	21,742	8,406
<b>Last evaluation of the effectiveness of respirator use at establishment</b>						
Within the last 3 months.....	66,550	30,482	20,371	8,620	4,908	2,168
Within the last 3-6 months.....	35,201	14,368	9,093	8,187	2,159	1,394
Within the last 6-12 months.....	61,864	23,620	16,499	12,107	6,676	2,962
More than 12 months ago.....	14,048	2,782	3,700	4,141	2,619	806
No evaluation.....	84,513	42,711	28,177	9,366	3,912	347
Don't know.....	19,601	8,658	5,876	2,870	1,468	729
<b>Percent of establishments</b>						
Total use.....	100.0	100.0	100.0	100.0	100.0	100.0
<b>Last evaluation of the effectiveness of respirator use at establishment</b>						
Within the last 3 months.....	23.6	24.9	24.3	19.0	22.6	25.8
Within the last 3-6 months.....	12.5	11.7	10.9	18.1	9.9	16.6
Within the last 6-12 months.....	22.0	19.3	19.7	26.7	30.7	35.2
More than 12 months ago.....	5.0	2.3	4.4	9.1	12.0	9.6
No evaluation.....	30.0	34.8	33.7	20.7	18.0	4.1
Don't know.....	7.0	7.1	7.0	6.3	6.7	8.7

<sup>1</sup> The 12-month period represents required use of respirators in the 12 months prior to the establishment's completion of the survey. The survey was mailed to establishments in August 2001.

NOTE: Because of rounding, data exclusion of nonclassifiable responses, and establishment reports of more than one type of

respirator use, data do not sum to the totals. Dashes indicate data that do not meet publication guidelines. A measure of sampling variability for each estimate is available upon request.

SOURCE: Bureau of Labor Statistics, U.S. Department of Labor.

**Table 91. Number and percent of establishments using air-purifying respirators during the 12 months<sup>1</sup> prior to the survey, by filter replacement policy and employment size group**

Respirator use practice	Total	Employment size group				
		1 - 10 workers	11 - 49 workers	50 - 249 workers	250 - 999 workers	1000 workers or more
<b>Number of establishments</b>						
Total use.....	281,776	122,620	83,716	45,291	21,742	8,406
Total air-purifying respirators.....	267,467	113,797	80,249	44,247	20,865	8,309
<b>Establishment's policy regarding when to replace particulate filters for air-purifying respirators</b>						
Don't use particulate filters.....	33,592	16,537	7,743	6,127	2,084	1,101
Respirator manufacturers' instructions.....	125,550	46,349	40,153	22,371	12,896	3,781
Establishment's own testing.....	16,809	8,111	4,090	2,726	1,611	271
Written change out schedule.....	32,694	11,808	7,164	8,308	3,671	1,743
Employees decide.....	95,727	41,287	30,443	15,915	6,577	1,505
Other.....	23,180	7,346	6,777	4,901	1,918	2,238
Don't know.....	18,181	12,519	3,740	1,489	295	138
<b>Establishment's policy regarding when to replace gas/vapor filters for air-purifying respirators</b>						
Don't use gas/vapor filters.....	100,408	43,806	33,585	15,007	6,841	1,168
Respirator manufacturers' instructions.....	97,765	37,397	28,465	18,330	9,363	4,210
Establishment's own testing.....	12,857	7,155	2,275	1,978	1,228	221
Written change out schedule.....	30,447	6,819	7,995	8,851	4,063	2,719
Employees decide.....	53,846	23,543	16,339	8,607	4,191	1,167
Other.....	16,599	4,040	3,889	3,588	2,041	3,041
Don't know.....	17,421	12,660	2,952	1,490	250	69

See footnotes at end of table

**Table 91. Number and percent of establishments using air-purifying respirators during the 12 months<sup>1</sup> prior to the survey, by filter replacement policy and employment size group—Continued**

Respirator use practice	Total	Employment size group				
		1–10 workers	11–49 workers	50–249 workers	250–999 workers	1000 workers or more
<b>Percent of establishments</b>						
Total air-purifying respirators.....	100.0	100.0	100.0	100.0	100.0	100.0
<b>Establishment's policy regarding when to replace particulate filters for air-purifying respirators</b>						
Don't use particulate filters.....	12.6	14.5	9.6	13.8	10.0	13.2
Respirator manufacturers' instructions.....	46.9	40.7	50.0	50.6	61.8	45.5
Establishment's own testing.....	6.3	7.1	5.1	6.2	7.7	3.3
Written change out schedule.....	12.2	10.4	8.9	18.8	17.6	21.0
Employees decide.....	35.8	36.3	37.9	36.0	31.5	18.1
Other.....	8.7	6.5	8.4	11.1	9.2	26.9
Don't know.....	6.8	11.0	4.7	3.4	1.4	1.7
<b>Establishment's policy regarding when to replace gas/vapor filters for air-purifying respirators</b>						
Don't use gas/vapor filters.....	37.5	38.5	41.9	33.9	32.8	14.1
Respirator manufacturers' instructions.....	36.6	32.9	35.5	41.4	44.9	50.7
Establishment's own testing.....	4.8	6.3	2.8	4.5	5.9	2.7
Written change out schedule.....	11.4	6.0	10.0	20.0	19.5	32.7
Employees decide.....	20.1	20.7	20.4	19.5	20.1	14.0
Other.....	6.2	3.5	4.8	8.1	9.8	36.6
Don't know.....	6.5	11.1	3.7	3.4	1.2	.8

<sup>1</sup> The 12-month period represents required use of respirators in the 12 months prior to the establishment's completion of the survey. The survey was mailed to establishments in August 2001.  
NOTE: Because of rounding, data exclusion of nonclassifiable responses, and establishment reports of more than one type of

respirator use, data do not sum to the totals. Dashes indicate data that do not meet publication guidelines. A measure of sampling variability for each estimate is available upon request.

SOURCE: Bureau of Labor Statistics, U.S. Department of Labor.

**Table 92. Number and percent of establishments using airline respirators during the 12 months<sup>1</sup> prior to the survey, by compatibility of hose couplings and employment size group**

Respirator use practice	Total	Employment size group				
		1-10 workers	11-49 workers	50-249 workers	250-999 workers	1000 workers or more
<b>Number of establishments</b>						
Total use.....	281,776	122,620	83,716	45,291	21,742	8,406
Total airline and combination airline/SCBA <sup>2</sup> respirators.....	41,562	10,329	10,907	10,770	7,017	2,540
<b>Are the hose couplings compatible with couplings for other air or gas supply lines in the work place?</b>						
Yes.....	7,360	2,505	1,987	1,542	1,264	62
No.....	29,534	7,224	7,752	7,815	4,526	2,217
Don't know.....	2,486	600	301	726	715	144
<b>Percent of establishments</b>						
Total airline and combination airline/SCBA <sup>2</sup> respirators.....	100.0	100.0	100.0	100.0	100.0	100.0
<b>Are the hose couplings compatible with couplings for other air or gas supply lines in the work place?</b>						
Yes.....	17.7	24.3	18.2	14.3	18.0	2.4
No.....	71.1	69.9	71.1	72.6	64.5	87.3
Don't know.....	6.0	5.8	2.8	6.7	10.2	5.7

<sup>1</sup> The 12-month period represents required use of respirators in the 12 months prior to the establishment's completion of the survey. The survey was mailed to establishments in August 2001.

<sup>2</sup> Self-contained breathing apparatus.

NOTE: Because of rounding, data exclusion of nonclassifiable responses, and establishment reports of more than one type of

respirator use, data do not sum to the totals. Dashes indicate data that do not meet publication guidelines. A measure of sampling variability for each estimate is available upon request.

SOURCE: Bureau of Labor Statistics, U.S. Department of Labor.

**Table 93. Number and percent of establishments using airline respirators during the 12 months<sup>1</sup> prior to the survey, by the method used to adjust airflow and employment size group**

Respirator use practice	Total	Employment size group				
		1–10 workers	11–49 workers	50–249 workers	250–999 workers	1000 workers or more
<b>Number of establishments</b>						
Total use.....	281,776	122,620	83,716	45,291	21,742	8,406
Total airline and combination airline/SCBA <sup>2</sup> respirators.....	41,562	10,329	10,907	10,770	7,017	2,540
<b>Method used by employees to adjust the airflow of airline respirators<sup>3</sup></b>						
Employees adjust airflow to the maximum comfort level.....	9,453	2,625	2,197	2,982	1,101	547
Airflow is set at 4 or 6 cubic feet per minute.....	1,873	—	178	299	726	526
Airflow is only controlled where the air hose connects with compressed air source and is set according to pressure given on certification label or in user's instructions.....	6,172	1,951	1,163	2,028	676	354
Airflow rate is set according to the flow rate recommendations of the respirator manufacturer.....	17,469	3,966	5,917	4,004	2,762	821
Don't know.....	3,310	1,585	459	520	675	70

See footnotes at end of table

**Table 93. Number and percent of establishments using airline respirators during the 12 months<sup>1</sup> prior to the survey, by the method used to adjust airflow and employment size group—Continued**

Respirator use practice	Total	Employment size group				
		1–10 workers	11–49 workers	50–249 workers	250–999 workers	1000 workers or more
<b>Percent of establishments</b>						
Total airline and combination airline/SCBA <sup>2</sup> respirators.....	100.0	100.0	100.0	100.0	100.0	100.0
<b>Method used by employees to adjust the airflow of airline respirators<sup>3</sup></b>						
Employees adjust airflow to the maximum comfort level.....	22.7	25.4	20.1	27.7	15.7	21.5
Airflow is set at 4 or 6 cubic feet per minute.....	4.5	—	1.6	2.8	10.3	20.7
Airflow is only controlled where the air hose connects with compressed air source and is set according to pressure given on certification label or in user's source and is set according to pressure..	14.9	18.9	10.7	18.8	9.6	13.9
Airflow rate is set according to the flow rate recommendations of the respirator manufacturer.....	42.0	38.4	54.2	37.2	39.4	32.3
Don't know.....	8.0	15.3	4.2	4.8	9.6	2.8

<sup>1</sup> The 12-month period represents required use of respirators in the 12 months prior to the establishment's completion of the survey. The survey was mailed to establishments in August 2001.

<sup>2</sup> Self-contained breathing apparatus.

<sup>3</sup> Establishments were asked to select the best description of how respirators are used.

NOTE: Because of rounding, data exclusion of nonclassifiable

responses, and establishment reports of more than one type of respirator use, data do not sum to the totals. Dashes indicate data that do not meet publication guidelines. A measure of sampling variability for each estimate is available upon request.

SOURCE: Bureau of Labor Statistics, U.S. Department of Labor.

**Table 94. Number and percent of establishments using tight-fitting respirators during the 12 months<sup>1</sup> prior to the survey, by existence of employee fit testing and employment size group**

Respirator use practices	Total	Employment size group				
		1–10 workers	11–49 workers	50–249 workers	250–999 workers	1000 workers or more
<b>Number of establishments</b>						
Total tight-fitting respirators <sup>2</sup> .....	269,389	114,412	80,363	44,752	21,493	8,368
<b>Fit testing for employees who wear tight-fitting respirators</b>						
Yes.....	154,410	53,038	43,904	32,320	17,112	8,037
No.....	52,817	27,856	17,349	4,915	2,635	62
Not needed.....	12,520	5,089	3,415	3,566	—	—
Don't know.....	5,665	1,949	2,702	899	84	30
Employer responded did not use tight fitting respirators.....	34,484	19,883	11,401	2,286	881	34
Employer responded did not know if tight fitting respirators were used.....	9,492	6,597	1,592	767	—	—
<b>Percent of establishments</b>						
Total tight fitting respirators <sup>2</sup> .....	100.0	100.0	100.0	100.0	100.0	100.0
<b>Fit testing for employees who wear tight-fitting respirators</b>						
Yes.....	57.3	46.4	54.6	72.2	79.6	96.0
No.....	19.6	24.3	21.6	11.0	12.3	.7
Not needed.....	4.6	4.4	4.2	8.0	—	—
Don't know.....	2.1	1.7	3.4	2.0	.4	.4
Employer responded did not use tight fitting respirators.....	12.8	17.4	14.2	5.1	4.1	.4
Employer responded did not know if tight fitting respirators were used.....	3.5	5.8	2.0	1.7	—	—

<sup>1</sup> The 12-month period represents required use of respirators in the 12 months prior to the establishment's completion of the survey. The survey was mailed to establishments in August 2001.

<sup>2</sup> The total number of tight fitting respirators, which are respirators that form a complete seal with the face, was calculated from establishment responses to questions on respirator type. These respirator types include non-powered air-purifying (dust mask, half-mask, and full-facepiece); powered air-purifying (tight fitting half-facepiece and tight fitting full-facepiece); airline (half-mask and

full-facepiece), self-contained breathing apparatus (SCBA), and combination airline and SCBA.

NOTE: Because of rounding, data exclusion of nonclassifiable responses, and establishment reports of more than one type of respirator use, data do not sum to the totals. Dashes indicate data that do not meet publication guidelines. A measure of sampling variability for each estimate is available upon request.

SOURCE: Bureau of Labor Statistics, U.S. Department of Labor.

**Table 95. Number and percent of establishments using tight-fitting respirators during the 12 months<sup>1</sup> prior to the survey, by conductor of fit testing and employment size group**

Respirator use practice	Total	Employment size group				
		1–10 workers	11–49 workers	50–249 workers	250–999 workers	1000 workers or more
<b>Number of establishments</b>						
Total tight-fitting respirators <sup>2</sup> .....	269,389	114,412	80,363	44,752	21,493	8,368
<b>Fit testing for employees who wear tight-fitting respirators</b>						
Yes.....	154,410	53,038	43,904	32,320	17,112	8,037
<b>Who conducts fit testing</b>						
In-house staff.....	85,557	25,772	20,883	21,082	11,667	6,153
Employees fit test themselves.....	45,385	20,221	16,918	6,369	1,707	170
Respirator manufacturers' sales/ technical representatives.....	27,658	7,371	9,817	6,830	2,784	857
Other outside party.....	39,073	8,591	12,160	8,837	6,505	2,980
Don't know.....	373	—	—	—	—	—
No.....	52,817	27,856	17,349	4,915	2,635	62
Not needed.....	12,520	5,089	3,415	3,566	—	—
Don't know.....	5,665	1,949	2,702	899	84	30
Employer responded did not use tight fitting respirators.....	34,484	19,883	11,401	2,286	881	34
Employer responded did not know if tight fitting respirators were used.....	9,492	6,597	1,592	767	—	—

See footnotes at end of table

**Table 95. Number and percent of establishments using tight-fitting respirators during the 12 months<sup>1</sup> prior to the survey, by conductor of fit testing and employment size group—Continued**

Respirator use practice	Total	Employment size group				
		1–10 workers	11–49 workers	50–249 workers	250–999 workers	1000 workers or more
<b>Percent of establishments</b>						
Total tight-fitting respirators <sup>2</sup> .....	100.0	100.0	100.0	100.0	100.0	100.0
<b>Fit testing for employees who wear tight-fitting respirators</b>						
Yes.....	57.3	46.4	54.6	72.2	79.6	96.0
<b>Who conducts fit testing</b>						
In-house staff.....	31.8	22.5	26.0	47.1	54.3	73.5
Employees fit test themselves.....	16.8	17.7	21.1	14.2	7.9	2.0
Respirator manufacturers' sales/technical representatives.....	10.3	6.4	12.2	15.3	13.0	10.2
Other outside party.....	14.5	7.5	15.1	19.7	30.3	35.6
Don't know.....	.1	—	—	—	—	—
No.....	19.6	24.3	21.6	11.0	12.3	.7
Not needed.....	4.6	4.4	4.2	8.0	—	—
Don't know.....	2.1	1.7	3.4	2.0	.4	.4
Employer responded did not use tight fitting respirators.....	12.8	17.4	14.2	5.1	4.1	.4
Employer responded did not know if tight fitting respirators were used.....	3.5	5.8	2.0	1.7	—	—

<sup>1</sup> The 12-month period represents required use of respirators in the 12 months prior to the establishment's completion of the survey. The survey was mailed to establishments in August 2001.

<sup>2</sup> The total number of tight fitting respirators, which are respirators that form a complete seal with the face, was calculated from establishment responses to questions on respirator type. These respirator types include non-powered air-purifying (dust mask, half-mask, and full-facepiece); powered air-purifying (tight fitting half-facepiece and tight fitting full-facepiece); airline (half-mask and

full-facepiece), self-contained breathing apparatus (SCBA), and combination airline and SCBA.

NOTE: Because of rounding, data exclusion of nonclassifiable responses, and establishment reports of more than one type of respirator use, data do not sum to the totals. Dashes indicate data that do not meet publication guidelines. A measure of sampling variability for each estimate is available upon request.

SOURCE: Bureau of Labor Statistics, U.S. Department of Labor.

**Table 96. Number and percent of establishments using respirators during the 12 months<sup>1</sup> prior to the survey, by method of fit testing and employment size group**

Respirator use practice	Total	Employment size group				
		1–10 workers	11–49 workers	50–249 workers	250–999 workers	1000 workers or more
<b>Number of establishments</b>						
Total fit testing.....	154,410	53,038	43,904	32,320	17,112	8,037
<b>Fit testing method used at establishment</b>						
Saccharin.....	27,355	3,509	7,546	7,336	6,038	2,926
Bitrex.....	18,938	5,208	2,560	4,917	4,478	1,775
Irritant smoke.....	35,776	10,262	8,009	9,526	5,705	2,274
Isoamyl acetate.....	11,632	553	2,776	2,759	2,826	2,719
Generated aerosol.....	2,530	495	1,556	397	71	12
Ambient aerosol.....	7,453	232	1,159	1,617	2,602	1,843
Pressure (Controlled Negative Pressure CNP).....	25,448	7,324	9,719	4,575	2,710	1,119
Other.....	14,351	6,872	4,816	1,972	384	—
Don't know.....	28,692	15,393	8,321	4,038	855	85
Unfamiliar with language/terms used.....	8,100	5,210	2,277	609	—	—
<b>Percent of establishments</b>						
Total fit testing.....	100.0	100.0	100.0	100.0	100.0	100.0
<b>Fit testing method used at establishment</b>						
Saccharin.....	17.7	6.6	17.2	22.7	35.3	36.4
Bitrex.....	12.3	9.8	5.8	15.2	26.2	22.1
Irritant smoke.....	23.2	19.3	18.2	29.5	33.3	28.3
Isoamyl acetate.....	7.5	1.0	6.3	8.5	16.5	33.8
Generated aerosol.....	1.6	.9	3.5	1.2	.4	.1
Ambient aerosol.....	4.8	.4	2.6	5.0	15.2	22.9
Pressure (Controlled Negative Pressure CNP).....	16.5	13.8	22.1	14.2	15.8	13.9
Other.....	9.3	13.0	11.0	6.1	2.2	—
Don't know.....	18.6	29.0	19.0	12.5	5.0	1.1
Unfamiliar with language/terms used.....	5.2	9.8	5.2	1.9	—	—

<sup>1</sup> The 12-month period represents required use of respirators in the 12 months prior to the establishment's completion of the survey. The survey was mailed to establishments in August 2001.

NOTE: Because of rounding, data exclusion of nonclassifiable responses, and establishment reports of more than one type of

respirator use, data do not sum to the totals. Dashes indicate data that do not meet publication guidelines. A measure of sampling variability for each estimate is available upon request.

SOURCE: Bureau of Labor Statistics, U.S. Department of Labor.

**Table 97. Number and percent of establishments and employees using respirators in the 12 months<sup>1</sup> prior to the survey, by employer evaluation of NIOSH approval labels and manufacturers' instructions and employment size group**

Respirator use practice	Total	Employment size group				
		1 - 10 workers	11 - 49 workers	50 - 249 workers	250 - 999 workers	1000 workers or more
<b>Number of establishments</b>						
Total use.....	281,776	122,620	83,716	45,291	21,742	8,406
<b>The respirator manufacturers' instructions and NIOSH approval labels are received with all respirators</b>						
Strongly agree.....	129,949	47,747	37,180	28,055	11,622	5,345
Agree.....	120,686	59,610	36,668	14,717	6,823	2,869
Uncertain.....	27,481	13,864	8,759	2,133	2,570	154
Disagree.....	1,466	769	251	129	296	—
Strongly disagree.....	1,337	—	228	163	422	16
<b>The NIOSH approval labels are clear and easily understood</b>						
Strongly agree.....	87,150	33,343	25,603	18,230	6,779	3,195
Agree.....	148,860	69,638	43,116	22,129	10,113	3,864
Uncertain.....	36,890	16,117	12,134	3,712	3,815	1,112
Disagree.....	6,612	2,410	2,090	918	974	220
Strongly disagree.....	1,406	989	143	209	51	15
<b>The NIOSH approval labels are beneficial in establishment's use of respirators</b>						
Strongly agree.....	85,528	35,172	23,513	17,485	6,313	3,045
Agree.....	139,679	65,335	42,510	18,585	10,440	2,809
Uncertain.....	49,291	19,631	15,553	7,997	4,243	1,868
Disagree.....	5,043	1,718	1,420	932	320	653
Strongly disagree.....	1,378	—	89	198	417	32
<b>The respirator manufacturers' instructions are clear and easily understood</b>						
Strongly agree.....	91,601	40,533	26,245	16,333	6,049	2,441
Agree.....	159,058	68,119	48,136	25,567	12,058	5,178
Uncertain.....	27,394	12,521	8,101	2,888	3,201	684
Disagree.....	2,021	683	564	321	361	93
Strongly disagree.....	808	—	—	88	29	—
<b>The respirator manufacturers' instructions are beneficial in use of respirators</b>						
Strongly agree.....	96,770	42,848	26,912	17,025	7,483	2,501
Agree.....	156,647	69,664	48,224	23,906	11,170	3,682
Uncertain.....	22,823	7,294	6,727	3,949	2,721	2,132
Disagree.....	4,272	2,530	1,062	275	328	76
Strongly disagree.....	407	—	160	—	30	15

See footnotes at end of table

**Table 97. Number and percent of establishments and employees using respirators in the 12 months<sup>1</sup> prior to the survey, by employer evaluation of NIOSH approval labels and manufacturers' instructions and employment size group—Continued**

Respirator use practice	Total	Employment size group				
		1 - 10 workers	11 - 49 workers	50 - 249 workers	250 - 999 workers	1000 workers or more
<b>Percent of establishments</b>						
Total use.....	100.0	100.0	100.0	100.0	100.0	100.0
<b>The respirator manufacturers' instructions and NIOSH approval labels are received with all respirators</b>						
Strongly agree.....	46.1	38.9	44.4	61.9	53.5	63.6
Agree.....	42.8	48.6	43.8	32.5	31.4	34.1
Uncertain.....	9.8	11.3	10.5	4.7	11.8	1.8
Disagree.....	.5	.6	.3	.3	1.4	—
Strongly disagree.....	.5	—	.3	.4	1.9	.2
<b>The NIOSH approval labels are clear and easily understood</b>						
Strongly agree.....	30.9	27.2	30.6	40.3	31.2	38.0
Agree.....	52.8	56.8	51.5	48.9	46.5	46.0
Uncertain.....	13.1	13.1	14.5	8.2	17.5	13.2
Disagree.....	2.3	2.0	2.5	2.0	4.5	2.6
Strongly disagree.....	.5	.8	.2	.5	.2	.2
<b>The NIOSH approval labels are beneficial in establishment's use of respirators</b>						
Strongly agree.....	30.4	28.7	28.1	38.6	29.0	36.2
Agree.....	49.6	53.3	50.8	41.0	48.0	33.4
Uncertain.....	17.5	16.0	18.6	17.7	19.5	22.2
Disagree.....	1.8	1.4	1.7	2.1	1.5	7.8
Strongly disagree.....	.5	—	.1	.4	1.9	.4
<b>The respirator manufacturers' instructions are clear and easily understood</b>						
Strongly agree.....	32.5	33.1	31.3	36.1	27.8	29.0
Agree.....	56.4	55.6	57.5	56.5	55.5	61.6
Uncertain.....	9.7	10.2	9.7	6.4	14.7	8.1
Disagree.....	.7	.6	.7	.7	1.7	1.1
Strongly disagree.....	.3	—	—	.2	.1	—
<b>The respirator manufacturers' instructions are beneficial in use of respirators</b>						
Strongly agree.....	34.3	34.9	32.1	37.6	34.4	29.8
Agree.....	55.6	56.8	57.6	52.8	51.4	43.8
Uncertain.....	8.1	5.9	8.0	8.7	12.5	25.4
Disagree.....	1.5	2.1	1.3	.6	1.5	.9
Strongly disagree.....	.1	—	.2	—	.1	.2

See footnotes at end of table

**Table 97. Number and percent of establishments and employees using respirators in the 12 months<sup>1</sup> prior to the survey, by employer evaluation of NIOSH approval labels and manufacturers' instructions and employment size group—Continued**

Respirator use practice	Total	Employment size group				
		1 - 10 workers	11 - 49 workers	50 - 249 workers	250 - 999 workers	1000 workers or more
<b>Number of employees</b>						
Total use.....	3,303,414	243,518	596,392	734,253	660,756	1,068,495
<b>The respirator manufacturers' instructions and NIOSH approval labels are received with all respirators</b>						
Strongly agree.....	1,981,712	108,015	306,464	456,831	432,539	677,863
Agree.....	1,149,543	109,004	236,637	244,555	186,018	373,329
Uncertain.....	140,142	24,413	48,226	26,681	28,432	12,391
Disagree.....	16,503	1,576	2,895	1,588	10,147	297
Strongly disagree.....	13,644	—	1,182	3,873	3,542	—
<b>The NIOSH approval labels are clear and easily understood</b>						
Strongly agree.....	1,275,083	63,594	200,500	306,882	255,350	448,756
Agree.....	1,619,381	150,322	323,222	361,948	313,817	470,072
Uncertain.....	282,549	24,579	62,261	46,119	63,870	85,719
Disagree.....	114,016	3,953	8,481	14,406	27,170	60,006
Strongly disagree.....	10,515	993	937	4,173	470	—
<b>The NIOSH approval labels are beneficial in establishment's use of respirators</b>						
Strongly agree.....	1,163,426	64,225	180,362	300,847	242,757	375,235
Agree.....	1,589,314	150,793	317,272	308,326	328,607	484,317
Uncertain.....	422,303	25,274	86,669	101,751	56,839	151,771
Disagree.....	109,734	2,557	10,548	18,056	26,319	52,254
Strongly disagree.....	16,766	592	552	4,549	6,154	4,918
<b>The respirator manufacturers' instructions are clear and easily understood</b>						
Strongly agree.....	1,029,274	94,961	199,950	262,844	201,898	269,622
Agree.....	2,051,941	129,617	343,018	424,845	409,582	744,879
Uncertain.....	183,111	16,783	49,111	37,286	33,975	45,956
Disagree.....	26,600	927	3,044	4,859	13,500	4,271
Strongly disagree.....	9,189	—	—	3,694	295	—
<b>The respirator manufacturers' instructions are beneficial in use of respirators</b>						
Strongly agree.....	1,088,452	96,906	198,392	278,458	226,764	287,932
Agree.....	1,909,086	133,921	348,770	388,453	384,161	653,780
Uncertain.....	255,814	8,349	34,770	58,990	36,127	117,578
Disagree.....	39,206	3,485	12,516	5,035	12,769	5,401
Strongly disagree.....	8,986	—	954	2,593	—	—

See footnotes at end of table

**Table 97. Number and percent of establishments and employees using respirators in the 12 months<sup>1</sup> prior to the survey, by employer evaluation of NIOSH approval labels and manufacturers' instructions and employment size group—Continued**

Respirator use practice	Total	Employment size group				
		1 - 10 workers	11 - 49 workers	50 - 249 workers	250 - 999 workers	1000 workers or more
<b>Percent of employees</b>						
Total use.....	100.0	100.0	100.0	100.0	100.0	100.0
<b>The respirator manufacturers' instructions and NIOSH approval labels are received with all respirators</b>						
Strongly agree.....	60.0	44.4	51.4	62.2	65.5	63.4
Agree.....	34.8	44.8	39.7	33.3	28.2	34.9
Uncertain.....	4.2	10.0	8.1	3.6	4.3	1.2
Disagree.....	.5	.6	.5	.2	1.5	—
Strongly disagree.....	.4	—	.2	.5	.5	—
<b>The NIOSH approval labels are clear and easily understood</b>						
Strongly agree.....	38.6	26.1	33.6	41.8	38.6	42.0
Agree.....	49.0	61.7	54.2	49.3	47.5	44.0
Uncertain.....	8.6	10.1	10.4	6.3	9.7	8.0
Disagree.....	3.5	1.6	1.4	2.0	4.1	5.6
Strongly disagree.....	.3	.4	.2	.6	.1	—
<b>The NIOSH approval labels are beneficial in establishment's use of respirators</b>						
Strongly agree.....	35.2	26.4	30.2	41.0	36.7	35.1
Agree.....	48.1	61.9	53.2	42.0	49.7	45.3
Uncertain.....	12.8	10.4	14.5	13.9	8.6	14.2
Disagree.....	3.3	1.1	1.8	2.5	4.0	4.9
Strongly disagree.....	.5	.2	.1	.6	.9	.5
<b>The respirator manufacturers' instructions are clear and easily understood</b>						
Strongly agree.....	31.2	39.0	33.5	35.8	30.6	25.2
Agree.....	62.1	53.2	57.5	57.9	62.0	69.7
Uncertain.....	5.5	6.9	8.2	5.1	5.1	4.3
Disagree.....	.8	.4	.5	.7	2.0	.4
Strongly disagree.....	.3	—	—	.5	.0	—

See footnotes at end of table

**Table 97. Number and percent of establishments and employees using respirators in the 12 months<sup>1</sup> prior to the survey, by employer evaluation of NIOSH approval labels and manufacturers' instructions and employment size group—Continued**

Respirator use practice	Total	Employment size group				
		1 - 10 workers	11 - 49 workers	50 - 249 workers	250 - 999 workers	1000 workers or more
<b>Percent of employees</b>						
<b>The respirator manufacturers' instructions are beneficial in use of respirators</b>						
Strongly agree.....	32.9	39.8	33.3	37.9	34.3	26.9
Agree.....	57.8	55.0	58.5	52.9	58.1	61.2
Uncertain.....	7.7	3.4	5.8	8.0	5.5	11.0
Disagree.....	1.2	1.4	2.1	.7	1.9	.5
Strongly disagree.....	.3	—	.2	.4	—	—

<sup>1</sup> The 12-month period represents required use of respirators in the 12 months prior to the establishment's completion of the survey. The survey was mailed to establishments in August 2001.

NOTE: Because of rounding, data exclusion of nonclassifiable responses, and establishment reports of more than one type of

respirator use, data do not sum to the totals. Dashes indicate data that do not meet publication guidelines. A measure of sampling variability for each estimate is available upon request.

SOURCE: Bureau of Labor Statistics, U.S. Department of Labor.

**Table 98. Number of establishments that used air-purifying respirators and conducted air sampling/monitoring for selected substances during the 12 months<sup>1</sup> prior to the survey, by employment size group**

Air sampling/monitoring	Total	Employment size group				
		1–10 workers	11–49 workers	50–249 workers	250–999 workers	1000 workers or more
<b>Number of establishments</b>						
Total use.....	281,776	122,620	83,716	45,291	21,742	8,406
Total air-purifying respirators.....	267,467	113,797	80,249	44,247	20,865	8,309
<b>Substance</b>						
Acid gas (such as sulfur dioxide).....	27,999	9,464	5,334	7,324	2,983	2,894
Yes <sup>2</sup> .....	17,002	5,885	1,592	4,923	2,258	2,345
No <sup>3</sup> .....	3,994	1,539	1,241	767	386	60
Other data sources <sup>4</sup> .....	6,061	1,836	2,482	1,226	300	217
Don't know <sup>5</sup> .....	1,365	328	182	507	50	—
Arsenic.....	10,193	3,924	1,510	3,097	887	776
Yes <sup>2</sup> .....	3,652	—	153	1,780	393	698
No <sup>3</sup> .....	2,397	1,565	373	347	93	18
Other data sources <sup>4</sup> .....	4,231	2,092	817	972	—	42
Don't know <sup>5</sup> .....	1,250	328	323	485	93	20
Asbestos.....	27,878	14,282	4,345	3,787	3,631	1,834
Yes <sup>2</sup> .....	19,727	10,628	2,177	2,410	2,844	1,667
No <sup>3</sup> .....	3,059	1,620	467	366	544	62
Other data sources <sup>4</sup> .....	4,578	1,847	1,766	682	195	89
Don't know <sup>5</sup> .....	1,026	364	165	416	59	22
Biologicals (i.e., TB & HIV).....	23,283	11,139	4,278	3,681	1,662	2,521
Yes <sup>2</sup> .....	7,179	3,762	1,211	1,472	345	389
No <sup>3</sup> .....	5,147	1,792	1,044	1,013	738	560
Other data sources <sup>4</sup> .....	9,575	5,551	1,481	1,118	434	991
Don't know <sup>5</sup> .....	2,625	639	699	560	145	582
Cadmium.....	10,744	2,602	2,717	3,146	912	1,367
Yes <sup>2</sup> .....	5,429	—	840	2,102	725	858
No <sup>3</sup> .....	296	—	69	170	38	—
Other data sources <sup>4</sup> .....	4,036	1,669	973	867	37	—
Don't know <sup>5</sup> .....	1,953	500	835	496	113	—
Carbon monoxide.....	24,497	8,973	5,350	5,193	3,364	1,617
Yes <sup>2</sup> .....	18,825	6,703	3,463	4,132	3,041	1,485
No <sup>3</sup> .....	811	—	297	202	97	51
Other data sources <sup>4</sup> .....	3,415	1,296	1,306	491	251	72
Don't know <sup>5</sup> .....	1,605	809	344	368	74	—
Chlorine.....	15,009	3,793	3,295	4,456	2,210	1,255
Yes <sup>2</sup> .....	7,350	1,439	1,052	2,225	1,512	1,123
No <sup>3</sup> .....	2,383	—	727	1,235	134	13
Other data sources <sup>4</sup> .....	3,661	1,134	1,331	600	489	107
Don't know <sup>5</sup> .....	1,663	946	186	429	86	—

See footnotes at end of table

**Table 98. Number of establishments that used air-purifying respirators and conducted air sampling/monitoring for selected substances during the 12 months<sup>1</sup> prior to the survey, by employment size group—Continued**

Air sampling/monitoring	Total	Employment size group				
		1–10 workers	11–49 workers	50–249 workers	250–999 workers	1000 workers or more
<b>Substance - Continued</b>						
Chromium.....	11,824	2,642	1,791	4,411	1,644	1,336
Yes <sup>2</sup> .....	6,777	—	391	3,164	1,033	1,286
No <sup>3</sup> .....	531	—	251	152	68	—
Other data sources <sup>4</sup> .....	4,089	1,708	963	1,021	375	—
Don't know <sup>5</sup> .....	1,431	464	186	579	186	—
Coal mine dust.....	6,613	3,245	1,357	1,525	338	149
Yes <sup>2</sup> .....	944	—	395	311	124	38
No <sup>3</sup> .....	1,743	1,015	165	401	128	34
Other data sources <sup>4</sup> .....	3,016	1,742	657	523	28	—
Don't know <sup>5</sup> .....	1,017	464	194	290	59	—
Coal tar pitch volatiles.....	6,915	3,482	1,047	1,248	594	544
Yes <sup>2</sup> .....	1,005	—	—	245	132	498
No <sup>3</sup> .....	1,410	965	58	317	59	—
Other data sources <sup>4</sup> .....	2,936	1,538	684	349	339	—
Don't know <sup>5</sup> .....	1,565	946	208	336	65	—
Coke oven emissions.....	5,827	3,000	1,005	1,588	170	64
Yes <sup>2</sup> .....	775	—	—	649	11	20
No <sup>3</sup> .....	1,381	965	58	271	73	15
Other data sources <sup>4</sup> .....	3,107	1,518	679	863	28	—
Don't know <sup>5</sup> .....	1,063	464	227	304	59	—
Copper.....	11,377	5,772	2,427	1,868	1,117	193
Yes <sup>2</sup> .....	3,292	999	405	871	867	150
No <sup>3</sup> .....	1,714	1,012	446	189	34	33
Other data sources <sup>4</sup> .....	4,916	3,383	999	397	138	—
Don't know <sup>5</sup> .....	1,586	464	619	411	81	—
Cotton dust.....	7,201	2,566	2,703	1,549	322	60
Yes <sup>2</sup> .....	617	—	—	535	47	—
No <sup>3</sup> .....	1,060	—	267	111	177	15
Other data sources <sup>4</sup> .....	4,385	1,611	2,177	520	45	34
Don't know <sup>5</sup> .....	1,138	464	227	384	54	—
Hydrogen sulfide.....	18,898	8,598	2,771	4,148	2,217	1,165
Yes <sup>2</sup> .....	14,047	6,541	1,521	2,998	1,877	1,110
No <sup>3</sup> .....	372	—	—	221	77	—
Other data sources <sup>4</sup> .....	3,033	1,101	1,027	706	166	33
Don't know <sup>5</sup> .....	1,694	946	186	449	97	—
Iron oxide.....	11,324	5,682	2,604	2,103	729	206
Yes <sup>2</sup> .....	2,618	624	551	873	414	157
No <sup>3</sup> .....	1,193	503	249	292	—	—
Other data sources <sup>4</sup> .....	5,695	4,052	1,044	497	93	—
Don't know <sup>5</sup> .....	1,840	504	760	454	104	18

See footnotes at end of table

**Table 98. Number of establishments that used air-purifying respirators and conducted air sampling/monitoring for selected substances during the 12 months<sup>1</sup> prior to the survey, by employment size group—Continued**

Air sampling/monitoring	Total	Employment size group				
		1–10 workers	11–49 workers	50–249 workers	250–999 workers	1000 workers or more
<b>Substance - Continued</b>						
Lead.....	31,290	14,183	4,708	6,157	3,585	2,657
Yes <sup>2</sup> .....	20,959	7,844	2,546	4,996	3,047	2,527
No <sup>3</sup> .....	2,701	2,190	332	102	28	—
Other data sources <sup>4</sup> .....	8,437	4,166	1,618	1,731	408	514
Don't know <sup>5</sup> .....	1,249	464	212	433	137	—
Manganese.....	8,083	2,149	2,269	2,367	1,058	239
Yes <sup>2</sup> .....	3,535	—	734	1,303	825	196
No <sup>3</sup> .....	456	—	191	218	—	—
Other data sources <sup>4</sup> .....	2,469	1,188	833	401	41	—
Don't know <sup>5</sup> .....	1,622	474	511	445	176	—
Paint vapors.....	111,768	51,929	31,781	17,670	6,507	3,882
Yes <sup>2</sup> .....	35,424	13,242	8,678	6,819	3,485	3,201
No <sup>3</sup> .....	47,576	27,031	13,489	6,159	729	168
Other data sources <sup>4</sup> .....	24,950	10,273	7,934	4,240	2,268	235
Don't know <sup>5</sup> .....	4,493	1,505	1,794	802	83	—
Silica dust.....	47,785	15,766	13,968	10,331	6,034	1,687
Yes <sup>2</sup> .....	19,766	3,163	4,656	6,194	4,165	1,589
No <sup>3</sup> .....	12,696	5,554	4,535	1,984	605	19
Other data sources <sup>4</sup> .....	13,808	6,152	4,019	1,992	1,533	111
Don't know <sup>5</sup> .....	2,610	917	887	654	131	21
Solvents.....	86,393	41,700	20,352	14,304	7,049	2,989
Yes <sup>2</sup> .....	39,296	15,309	7,776	8,563	5,075	2,572
No <sup>3</sup> .....	25,471	16,082	5,885	2,849	469	185
Other data sources <sup>4</sup> .....	20,275	9,558	5,983	3,079	1,442	214
Don't know <sup>5</sup> .....	2,930	1,324	819	626	139	21
Styrene.....	11,502	4,239	3,102	2,940	613	607
Yes <sup>2</sup> .....	4,957	1,439	912	1,691	370	545
No <sup>3</sup> .....	1,635	469	906	172	76	—
Other data sources <sup>4</sup> .....	4,490	2,313	1,089	1,010	52	—
Don't know <sup>5</sup> .....	1,395	500	195	562	115	23
Toluene.....	27,219	7,711	8,174	6,432	2,706	2,198
Yes <sup>2</sup> .....	14,725	2,597	3,577	4,502	1,989	2,059
No <sup>3</sup> .....	4,633	2,147	1,874	421	166	26
Other data sources <sup>4</sup> .....	6,223	2,122	2,445	1,117	448	90
Don't know <sup>5</sup> .....	1,694	845	277	408	137	27
Welding fumes.....	46,508	17,447	12,408	9,541	4,997	2,115
Yes <sup>2</sup> .....	16,175	2,225	3,965	4,656	3,447	1,882
No <sup>3</sup> .....	17,007	11,209	3,228	1,899	584	88
Other data sources <sup>4</sup> .....	11,906	3,389	4,817	2,636	929	134
Don't know <sup>5</sup> .....	1,667	662	437	481	68	19

See footnotes at end of table

**Table 98. Number of establishments that used air-purifying respirators and conducted air sampling/monitoring for selected substances during the 12 months<sup>1</sup> prior to the survey, by employment size group—Continued**

Air sampling/monitoring	Total	Employment size group				
		1–10 workers	11–49 workers	50–249 workers	250–999 workers	1000 workers or more
<b>Substance - Continued</b>						
Zinc oxide.....	15,258	7,642	3,103	2,587	1,152	773
Yes <sup>2</sup> .....	5,030	1,423	1,300	1,338	757	211
No <sup>3</sup> .....	1,206	629	136	185	148	108
Other data sources <sup>4</sup> .....	6,844	4,644	1,124	553	94	—
Don't know <sup>5</sup> .....	2,196	946	543	511	172	25
Other dust.....	133,271	55,808	43,449	22,074	9,039	2,901
Yes <sup>2</sup> .....	41,035	11,336	14,366	8,199	5,046	2,088
No <sup>3</sup> .....	65,154	31,797	21,001	9,459	2,664	233
Other data sources <sup>4</sup> .....	27,476	11,909	9,945	4,269	1,153	200
Don't know <sup>5</sup> .....	4,265	929	1,840	919	194	383
Other vapors.....	40,183	9,485	14,987	8,873	3,725	3,113
Yes <sup>2</sup> .....	18,764	1,860	6,157	5,571	2,306	2,871
No <sup>3</sup> .....	9,617	3,708	4,044	1,465	296	104
Other data sources <sup>4</sup> .....	8,862	2,263	3,708	1,882	945	64
Don't know <sup>5</sup> .....	3,721	1,655	1,096	700	196	74
Selected other substances reported						
Acetone.....	828	—	—	193	50	—
Yes <sup>2</sup> .....	828	—	—	193	50	—
No <sup>3</sup> .....	—	—	—	—	—	—
Other data sources <sup>4</sup> .....	—	—	—	—	—	—
Don't know <sup>5</sup> .....	—	—	—	—	—	—
Ammonia.....	11,173	5,017	3,851	1,549	598	158
Yes <sup>2</sup> .....	6,852	—	531	1,247	558	140
No <sup>3</sup> .....	4,062	—	3,240	163	—	14
Other data sources <sup>4</sup> .....	278	—	—	159	35	—
Don't know <sup>5</sup> .....	—	—	—	—	—	—
Formaldehyde.....	5,388	3,349	983	365	277	413
Yes <sup>2</sup> .....	5,292	3,349	927	347	265	403
No <sup>3</sup> .....	—	—	—	—	—	—
Other data sources <sup>4</sup> .....	—	—	—	—	—	—
Don't know <sup>5</sup> .....	—	—	—	—	—	—
Isocyanate.....	1,810	887	128	317	46	—
Yes <sup>2</sup> .....	1,337	—	128	191	46	—
No <sup>3</sup> .....	—	—	—	—	—	—
Other data sources <sup>4</sup> .....	—	—	—	—	—	—
Don't know <sup>5</sup> .....	—	—	—	—	—	—

See footnotes at end of table

**Table 98. Number of establishments that used air-purifying respirators and conducted air sampling/monitoring for selected substances during the 12 months<sup>1</sup> prior to the survey, by employment size group—Continued**

Air sampling/monitoring	Total	Employment size group				
		1–10 workers	11–49 workers	50–249 workers	250–999 workers	1000 workers or more
<b>Substance - Continued</b>						
Man-made fibers. ....	2,003	178	1,392	256	155	22
Yes <sup>2</sup> .....	1,250	—	991	115	122	22
No <sup>3</sup> .....	363	—	200	75	—	—
Other data sources <sup>4</sup> .....	244	—	—	—	—	—
Don't know <sup>5</sup> .....	146	—	—	—	—	—
Pesticides. ....	7,102	1,440	3,943	937	204	—
Yes <sup>2</sup> .....	190	—	94	62	34	—
No <sup>3</sup> .....	4,668	1,231	2,253	499	140	—
Other data sources <sup>4</sup> .....	1,971	—	1,503	196	30	—
Don't know <sup>5</sup> .....	—	—	—	—	—	—

<sup>1</sup> The 12-month period represents required use of respirators in the 12 months prior to the establishment's completion of the survey. The survey was mailed to establishments in August 2001.

<sup>2</sup> Air sampling/monitoring was conducted at the establishment at any time in the past for the substance for job(s) that required respirator use.

<sup>3</sup> Air sampling/monitoring was not conducted at the establishment at any time in the past for the substance for job(s) that required respirator use.

<sup>4</sup> Air sampling/monitoring was not needed because historical and objective data were obtained from industry studies or trade

associations that are similar to the establishment's physical environment for the substance.

<sup>5</sup> Do not know if air sampling/monitoring was conducted for the substance.

NOTE: Because of rounding, data exclusion of nonclassifiable responses, and establishment reports of more than one type of respirator use, data do not sum to the totals. Dashes indicate data that do not meet publication guidelines. A measure of sampling variability for each estimate is available upon request.

SOURCE: Bureau of Labor Statistics, U.S. Department of Labor.

**Table 99. Percent of establishments that used air-purifying respirators and conducted air sampling/monitoring for selected substances during the 12 months<sup>1</sup> prior to the survey, by employment size group**

Air sampling/monitoring	Total	Employment size group				
		1–10 workers	11–49 workers	50–249 workers	250–999 workers	1000 workers or more
<b>Percent of establishments</b>						
Total air-purifying respirators.....	100.0	100.0	100.0	100.0	100.0	100.0
<b>Substance</b>						
Acid gas (such as sulfur dioxide).....	10.5	8.3	6.6	16.6	14.3	34.8
Yes <sup>2</sup> .....	6.4	5.2	2.0	11.1	10.8	28.2
No <sup>3</sup> .....	1.5	1.4	1.5	1.7	1.8	.7
Other data sources <sup>4</sup> .....	2.3	1.6	3.1	2.8	1.4	2.6
Don't know <sup>5</sup> .....	.5	.3	.2	1.1	.2	—
Arsenic.....	3.8	3.4	1.9	7.0	4.3	9.3
Yes <sup>2</sup> .....	1.4	—	.2	4.0	1.9	8.4
No <sup>3</sup> .....	.9	1.4	.5	.8	.4	.2
Other data sources <sup>4</sup> .....	1.6	1.8	1.0	2.2	—	.5
Don't know <sup>5</sup> .....	.5	.3	.4	1.1	.4	.2
Asbestos.....	10.4	12.6	5.4	8.6	17.4	22.1
Yes <sup>2</sup> .....	7.4	9.3	2.7	5.4	13.6	20.1
No <sup>3</sup> .....	1.1	1.4	.6	.8	2.6	.7
Other data sources <sup>4</sup> .....	1.7	1.6	2.2	1.5	.9	1.1
Don't know <sup>5</sup> .....	.4	.3	.2	.9	.3	.3
Biologicals (i.e., TB & HIV).....	8.7	9.8	5.3	8.3	8.0	30.3
Yes <sup>2</sup> .....	2.7	3.3	1.5	3.3	1.7	4.7
No <sup>3</sup> .....	1.9	1.6	1.3	2.3	3.5	6.7
Other data sources <sup>4</sup> .....	3.6	4.9	1.8	2.5	2.1	11.9
Don't know <sup>5</sup> .....	1.0	.6	.9	1.3	.7	7.0
Cadmium.....	4.0	2.3	3.4	7.1	4.4	16.5
Yes <sup>2</sup> .....	2.0	—	1.0	4.8	3.5	10.3
No <sup>3</sup> .....	.1	—	.1	.4	.2	—
Other data sources <sup>4</sup> .....	1.5	1.5	1.2	2.0	.2	—
Don't know <sup>5</sup> .....	.7	.4	1.0	1.1	.5	—
Carbon monoxide.....	9.2	7.9	6.7	11.7	16.1	19.5
Yes <sup>2</sup> .....	7.0	5.9	4.3	9.3	14.6	17.9
No <sup>3</sup> .....	.3	—	.4	.5	.5	.6
Other data sources <sup>4</sup> .....	1.3	1.1	1.6	1.1	1.2	.9
Don't know <sup>5</sup> .....	.6	.7	.4	.8	.4	—
Chlorine.....	5.6	3.3	4.1	10.1	10.6	15.1
Yes <sup>2</sup> .....	2.7	1.3	1.3	5.0	7.2	13.5
No <sup>3</sup> .....	.9	—	.9	2.8	.6	.2
Other data sources <sup>4</sup> .....	1.4	1.0	1.7	1.4	2.3	1.3
Don't know <sup>5</sup> .....	.6	.8	.2	1.0	.4	—

See footnotes at end of table

**Table 99. Percent of establishments that used air-purifying respirators and conducted air sampling/monitoring for selected substances during the 12 months<sup>1</sup> prior to the survey, by employment size group—Continued**

Air sampling/monitoring	Total	Employment size group				
		1–10 workers	11–49 workers	50–249 workers	250–999 workers	1000 workers or more
<b>Substance - Continued</b>						
Chromium.....	4.4	2.3	2.2	10.0	7.9	16.1
Yes <sup>2</sup> .....	2.5	—	.5	7.2	5.0	15.5
No <sup>3</sup> .....	.2	—	.3	.3	.3	—
Other data sources <sup>4</sup> .....	1.5	1.5	1.2	2.3	1.8	—
Don't know <sup>5</sup> .....	.5	.4	.2	1.3	.9	—
Coal mine dust.....	2.5	2.9	1.7	3.4	1.6	1.8
Yes <sup>2</sup> .....	.4	—	.5	.7	.6	.5
No <sup>3</sup> .....	.7	.9	.2	.9	.6	.4
Other data sources <sup>4</sup> .....	1.1	1.5	.8	1.2	.1	—
Don't know <sup>5</sup> .....	.4	.4	.2	.7	.3	—
Coal tar pitch volatiles.....	2.6	3.1	1.3	2.8	2.8	6.5
Yes <sup>2</sup> .....	.4	—	—	.6	.6	6.0
No <sup>3</sup> .....	.5	.8	.1	.7	.3	—
Other data sources <sup>4</sup> .....	1.1	1.4	.9	.8	1.6	—
Don't know <sup>5</sup> .....	.6	.8	.3	.8	.3	—
Coke oven emissions.....	2.2	2.6	1.3	3.6	.8	.8
Yes <sup>2</sup> .....	.3	—	—	1.5	.1	.2
No <sup>3</sup> .....	.5	.8	.1	.6	.3	.2
Other data sources <sup>4</sup> .....	1.2	1.3	.8	2.0	.1	—
Don't know <sup>5</sup> .....	.4	.4	.3	.7	.3	—
Copper.....	4.3	5.1	3.0	4.2	5.4	2.3
Yes <sup>2</sup> .....	1.2	.9	.5	2.0	4.2	1.8
No <sup>3</sup> .....	.6	.9	.6	.4	.2	.4
Other data sources <sup>4</sup> .....	1.8	3.0	1.2	.9	.7	—
Don't know <sup>5</sup> .....	.6	.4	.8	.9	.4	—
Cotton dust.....	2.7	2.3	3.4	3.5	1.5	.7
Yes <sup>2</sup> .....	.2	—	—	1.2	.2	—
No <sup>3</sup> .....	.4	—	.3	.3	.8	.2
Other data sources <sup>4</sup> .....	1.6	1.4	2.7	1.2	.2	.4
Don't know <sup>5</sup> .....	.4	.4	.3	.9	.3	—
Hydrogen sulfide.....	7.1	7.6	3.5	9.4	10.6	14.0
Yes <sup>2</sup> .....	5.3	5.7	1.9	6.8	9.0	13.4
No <sup>3</sup> .....	.1	—	—	.5	.4	—
Other data sources <sup>4</sup> .....	1.1	1.0	1.3	1.6	.8	.4
Don't know <sup>5</sup> .....	.6	.8	.2	1.0	.5	—
Iron oxide.....	4.2	5.0	3.2	4.8	3.5	2.5
Yes <sup>2</sup> .....	1.0	.5	.7	2.0	2.0	1.9
No <sup>3</sup> .....	.4	.4	.3	.7	—	—
Other data sources <sup>4</sup> .....	2.1	3.6	1.3	1.1	.4	—
Don't know <sup>5</sup> .....	.7	.4	.9	1.0	.5	.2

See footnotes at end of table

**Table 99. Percent of establishments that used air-purifying respirators and conducted air sampling/monitoring for selected substances during the 12 months<sup>1</sup> prior to the survey, by employment size group—Continued**

Air sampling/monitoring	Total	Employment size group				
		1–10 workers	11–49 workers	50–249 workers	250–999 workers	1000 workers or more
<b>Substance - Continued</b>						
Lead.....	11.7	12.5	5.9	13.9	17.2	32.0
Yes <sup>2</sup> .....	7.8	6.9	3.2	11.3	14.6	30.4
No <sup>3</sup> .....	1.0	1.9	.4	.2	.1	—
Other data sources <sup>4</sup> .....	3.2	3.7	2.0	3.9	2.0	6.2
Don't know <sup>5</sup> .....	.5	.4	.3	1.0	.7	—
Manganese.....	3.0	1.9	2.8	5.3	5.1	2.9
Yes <sup>2</sup> .....	1.3	—	.9	2.9	4.0	2.4
No <sup>3</sup> .....	.2	—	.2	.5	—	—
Other data sources <sup>4</sup> .....	.9	1.0	1.0	.9	.2	—
Don't know <sup>5</sup> .....	.6	.4	.6	1.0	.8	—
Paint vapors.....	41.8	45.6	39.6	39.9	31.2	46.7
Yes <sup>2</sup> .....	13.2	11.6	10.8	15.4	16.7	38.5
No <sup>3</sup> .....	17.8	23.8	16.8	13.9	3.5	2.0
Other data sources <sup>4</sup> .....	9.3	9.0	9.9	9.6	10.9	2.8
Don't know <sup>5</sup> .....	1.7	1.3	2.2	1.8	.4	—
Silica dust.....	17.9	13.9	17.4	23.3	28.9	20.3
Yes <sup>2</sup> .....	7.4	2.8	5.8	14.0	20.0	19.1
No <sup>3</sup> .....	4.7	4.9	5.7	4.5	2.9	.2
Other data sources <sup>4</sup> .....	5.2	5.4	5.0	4.5	7.3	1.3
Don't know <sup>5</sup> .....	1.0	.8	1.1	1.5	.6	.3
Solvents.....	32.3	36.6	25.4	32.3	33.8	36.0
Yes <sup>2</sup> .....	14.7	13.5	9.7	19.4	24.3	31.0
No <sup>3</sup> .....	9.5	14.1	7.3	6.4	2.2	2.2
Other data sources <sup>4</sup> .....	7.6	8.4	7.5	7.0	6.9	2.6
Don't know <sup>5</sup> .....	1.1	1.2	1.0	1.4	.7	.3
Styrene.....	4.3	3.7	3.9	6.6	2.9	7.3
Yes <sup>2</sup> .....	1.9	1.3	1.1	3.8	1.8	6.6
No <sup>3</sup> .....	.6	.4	1.1	.4	.4	—
Other data sources <sup>4</sup> .....	1.7	2.0	1.4	2.3	.2	—
Don't know <sup>5</sup> .....	.5	.4	.2	1.3	.6	.3
Toluene.....	10.2	6.8	10.2	14.5	13.0	26.5
Yes <sup>2</sup> .....	5.5	2.3	4.5	10.2	9.5	24.8
No <sup>3</sup> .....	1.7	1.9	2.3	1.0	.8	.3
Other data sources <sup>4</sup> .....	2.3	1.9	3.0	2.5	2.1	1.1
Don't know <sup>5</sup> .....	.6	.7	.3	.9	.7	.3
Welding fumes.....	17.4	15.3	15.5	21.6	23.9	25.5
Yes <sup>2</sup> .....	6.0	2.0	4.9	10.5	16.5	22.7
No <sup>3</sup> .....	6.4	9.8	4.0	4.3	2.8	1.1
Other data sources <sup>4</sup> .....	4.5	3.0	6.0	6.0	4.5	1.6
Don't know <sup>5</sup> .....	.6	.6	.5	1.1	.3	.2

See footnotes at end of table

**Table 99. Percent of establishments that used air-purifying respirators and conducted air sampling/monitoring for selected substances during the 12 months<sup>1</sup> prior to the survey, by employment size group—Continued**

Air sampling/monitoring	Total	Employment size group				
		1–10 workers	11–49 workers	50–249 workers	250–999 workers	1000 workers or more
<b>Substance - Continued</b>						
Zinc oxide.....	5.7	6.7	3.9	5.8	5.5	9.3
Yes <sup>2</sup> .....	1.9	1.3	1.6	3.0	3.6	2.5
No <sup>3</sup> .....	.5	.6	.2	.4	.7	1.3
Other data sources <sup>4</sup> .....	2.6	4.1	1.4	1.2	.5	—
Don't know <sup>5</sup> .....	.8	.8	.7	1.2	.8	.3
Other dust.....	49.8	49.0	54.1	49.9	43.3	34.9
Yes <sup>2</sup> .....	15.3	10.0	17.9	18.5	24.2	25.1
No <sup>3</sup> .....	24.4	27.9	26.2	21.4	12.8	2.8
Other data sources <sup>4</sup> .....	10.3	10.5	12.4	9.6	5.5	2.4
Don't know <sup>5</sup> .....	1.6	.8	2.3	2.1	.9	4.6
Other vapors.....	15.0	8.3	18.7	20.1	17.9	37.5
Yes <sup>2</sup> .....	7.0	1.6	7.7	12.6	11.1	34.6
No <sup>3</sup> .....	3.6	3.3	5.0	3.3	1.4	1.3
Other data sources <sup>4</sup> .....	3.3	2.0	4.6	4.3	4.5	.8
Don't know <sup>5</sup> .....	1.4	1.5	1.4	1.6	.9	.9
Selected other substances reported						
Acetone.....	.3	—	—	.4	.2	—
Yes <sup>2</sup> .....	.3	—	—	.4	.2	—
No <sup>3</sup> .....	—	—	—	—	—	—
Other data sources <sup>4</sup> .....	—	—	—	—	—	—
Don't know <sup>5</sup> .....	—	—	—	—	—	—
Ammonia.....	4.2	4.4	4.8	3.5	2.9	1.9
Yes <sup>2</sup> .....	2.6	—	.7	2.8	2.7	1.7
No <sup>3</sup> .....	1.5	—	4.0	.4	—	.2
Other data sources <sup>4</sup> .....	.1	—	—	.4	.2	—
Don't know <sup>5</sup> .....	—	—	—	—	—	—
Formaldehyde.....	2.0	2.9	1.2	.8	1.3	5.0
Yes <sup>2</sup> .....	2.0	2.9	1.2	.8	1.3	4.9
No <sup>3</sup> .....	—	—	—	—	—	—
Other data sources <sup>4</sup> .....	—	—	—	—	—	—
Don't know <sup>5</sup> .....	—	—	—	—	—	—
Isocyanate.....	.7	.8	.2	.7	.2	—
Yes <sup>2</sup> .....	.5	—	.2	.4	.2	—
No <sup>3</sup> .....	—	—	—	—	—	—
Other data sources <sup>4</sup> .....	—	—	—	—	—	—
Don't know <sup>5</sup> .....	—	—	—	—	—	—

See footnotes at end of table

**Table 99. Percent of establishments that used air-purifying respirators and conducted air sampling/monitoring for selected substances during the 12 months<sup>1</sup> prior to the survey, by employment size group—Continued**

Air sampling/monitoring	Total	Employment size group				
		1–10 workers	11–49 workers	50–249 workers	250–999 workers	1000 workers or more
<b>Substance - Continued</b>						
Man-made fibers. ....	.7	.2	1.7	.6	.7	.3
Yes <sup>2</sup> .....	.5	—	1.2	.3	.6	.3
No <sup>3</sup> .....	.1	—	.2	.2	—	—
Other data sources <sup>4</sup> .....	.1	—	—	—	—	—
Don't know <sup>5</sup> .....	.1	—	—	—	—	—
Pesticides. ....	2.7	1.3	4.9	2.1	1.0	—
Yes <sup>2</sup> .....	.1	—	.1	.1	.2	—
No <sup>3</sup> .....	1.7	1.1	2.8	1.1	.7	—
Other data sources <sup>4</sup> .....	.7	—	1.9	.4	.1	—
Don't know <sup>5</sup> .....	—	—	—	—	—	—

<sup>1</sup> The 12-month period represents required use of respirators in the 12 months prior to the establishment's completion of the survey. The survey was mailed to establishments in August 2001.

<sup>2</sup> Air sampling/monitoring was conducted at the establishment at any time in the past for the substance for job(s) that required respirator use.

<sup>3</sup> Air sampling/monitoring was not conducted at the establishment at any time in the past for the substance during job(s) that required respirator use.

<sup>4</sup> Air sampling/monitoring was not needed because historical and objective data were obtained from industry studies or trade

associations that are similar to the establishment's physical environment for the substance.

<sup>5</sup> Do not know if air sampling/monitoring was conducted for the substance.

NOTE: Because of rounding, data exclusion of nonclassifiable responses, and establishment reports of more than one type of respirator use, data do not sum to the totals. Dashes indicate data that do not meet publication guidelines. A measure of sampling variability for each estimate is available upon request.

SOURCE: Bureau of Labor Statistics, U.S. Department of Labor.

**Table 100. Number of establishments that used air-supplied respirators and conducted air sampling/monitoring for selected substances during the 12 months<sup>1</sup> prior to the survey, by employment size group**

Air sampling/monitoring	Total	Employment size group				
		1–10 workers	11–49 workers	50–249 workers	250–999 workers	1000 workers or more
<b>Number of establishments</b>						
Total use.....	281,776	122,620	83,716	45,291	21,742	8,406
Total air-supplied respirators.....	47,290	10,909	12,451	12,376	8,232	3,322
<b>Substance</b>						
Acid gas (such as sulfur dioxide).....	7,045	1,255	630	3,316	1,180	664
Yes <sup>2</sup> .....	5,921	1,255	194	2,823	1,029	619
No <sup>3</sup> .....	504	—	—	97	67	15
Other data sources <sup>4</sup> .....	566	—	—	354	84	18
Don't know <sup>5</sup> .....	71	—	—	56	—	12
Arsenic.....	2,257	—	159	1,212	220	72
Yes <sup>2</sup> .....	1,961	—	—	1,122	145	60
No <sup>3</sup> .....	31	—	—	—	—	—
Other data sources <sup>4</sup> .....	1,136	—	—	—	—	—
Don't know <sup>5</sup> .....	92	—	—	63	29	—
Asbestos.....	3,104	1,156	365	380	663	540
Yes <sup>2</sup> .....	2,814	1,103	365	306	536	504
No <sup>3</sup> .....	31	—	—	—	—	—
Other data sources <sup>4</sup> .....	177	—	—	—	86	—
Don't know <sup>5</sup> .....	89	—	—	58	29	—
Biologicals (i.e., TB & HIV).....	1,492	—	—	599	140	66
Yes <sup>2</sup> .....	211	—	—	26	—	23
No <sup>3</sup> .....	75	—	—	—	26	35
Other data sources <sup>4</sup> .....	1,125	—	—	—	82	—
Don't know <sup>5</sup> .....	81	—	—	58	22	—
Cadmium.....	2,408	—	193	1,351	214	55
Yes <sup>2</sup> .....	2,008	—	161	1,128	123	55
No <sup>3</sup> .....	105	—	—	96	—	—
Other data sources <sup>4</sup> .....	1,086	—	—	—	51	—
Don't know <sup>5</sup> .....	171	—	—	108	31	—
Carbon monoxide.....	7,932	1,491	1,619	2,518	1,638	666
Yes <sup>2</sup> .....	7,365	1,444	1,484	2,327	1,533	576
No <sup>3</sup> .....	82	—	—	42	—	—
Other data sources <sup>4</sup> .....	353	—	119	79	67	—
Don't know <sup>5</sup> .....	144	—	—	—	22	24
Chlorine.....	5,051	1,430	651	1,442	985	543
Yes <sup>2</sup> .....	3,969	1,130	194	1,299	818	529
No <sup>3</sup> .....	691	—	—	—	15	—
Other data sources <sup>4</sup> .....	1,232	—	—	—	89	18
Don't know <sup>5</sup> .....	154	—	—	77	—	—

See footnotes at end of table

**Table 100. Number of establishments that used air-supplied respirators and conducted air sampling/monitoring for selected substances during the 12 months<sup>1</sup> prior to the survey, by employment size group—Continued**

Air sampling/monitoring	Total	Employment size group				
		1–10 workers	11–49 workers	50–249 workers	250–999 workers	1000 workers or more
<b>Substance - Continued</b>						
Chromium.....	3,014	—	216	1,406	272	524
Yes <sup>2</sup> .....	2,479	—	108	1,174	132	524
No <sup>3</sup> .....	128	—	—	128	—	—
Other data sources <sup>4</sup> .....	1,233	—	109	—	47	—
Don't know <sup>5</sup> .....	143	—	—	47	96	—
Coal mine dust.....	401	—	—	149	67	—
Yes <sup>2</sup> .....	158	—	—	—	20	—
No <sup>3</sup> .....	34	—	—	—	—	—
Other data sources <sup>4</sup> .....	140	—	—	72	—	—
Don't know <sup>5</sup> .....	69	—	—	47	22	—
Coal tar pitch volatiles.....	508	—	95	162	107	30
Yes <sup>2</sup> .....	252	—	—	75	20	18
No <sup>3</sup> .....	34	—	—	—	—	—
Other data sources <sup>4</sup> .....	146	—	—	—	—	—
Don't know <sup>5</sup> .....	76	—	—	47	29	—
Coke oven emissions.....	320	—	—	101	44	—
Yes <sup>2</sup> .....	176	—	—	—	—	—
No <sup>3</sup> .....	—	—	—	—	—	—
Other data sources <sup>4</sup> .....	55	—	—	40	—	—
Don't know <sup>5</sup> .....	69	—	—	47	22	—
Copper.....	2,047	—	108	619	683	42
Yes <sup>2</sup> .....	1,768	—	—	—	581	42
No <sup>3</sup> .....	—	—	—	—	—	—
Other data sources <sup>4</sup> .....	1,055	—	—	—	23	—
Don't know <sup>5</sup> .....	175	—	—	77	82	—
Hydrogen sulfide.....	7,266	1,724	579	2,459	1,953	551
Yes <sup>2</sup> .....	6,875	1,671	579	2,229	1,847	549
No <sup>3</sup> .....	—	—	—	—	—	—
Other data sources <sup>4</sup> .....	346	—	—	223	70	—
Don't know <sup>5</sup> .....	140	—	—	103	35	—
Iron oxide.....	1,561	402	614	376	127	42
Yes <sup>2</sup> .....	773	—	366	188	64	42
No <sup>3</sup> .....	462	—	—	105	—	—
Other data sources <sup>4</sup> .....	268	—	163	70	34	—
Don't know <sup>5</sup> .....	73	—	—	—	29	—
Lead.....	5,195	1,063	1,129	1,715	696	592
Yes <sup>2</sup> .....	4,246	—	979	1,561	546	583
No <sup>3</sup> .....	302	—	—	—	—	—
Other data sources <sup>4</sup> .....	1,516	—	134	—	112	20
Don't know <sup>5</sup> .....	130	—	—	51	62	—

See footnotes at end of table

**Table 100. Number of establishments that used air-supplied respirators and conducted air sampling/monitoring for selected substances during the 12 months<sup>1</sup> prior to the survey, by employment size group—Continued**

Air sampling/monitoring	Total	Employment size group				
		1–10 workers	11–49 workers	50–249 workers	250–999 workers	1000 workers or more
<b>Substance - Continued</b>						
Manganese.....	1,599	—	—	744	177	472
Yes <sup>2</sup> .....	1,306	—	—	618	63	472
No <sup>3</sup> .....	—	—	—	—	—	—
Other data sources <sup>4</sup> .....	126	—	—	—	20	—
Don't know <sup>5</sup> .....	167	—	—	73	95	—
Oxygen deficiency.....	7,279	1,302	2,231	2,197	980	569
Yes <sup>2</sup> .....	5,933	1,248	1,156	2,074	896	560
No <sup>3</sup> .....	—	—	—	36	—	—
Other data sources <sup>4</sup> .....	226	—	—	41	60	—
Don't know <sup>5</sup> .....	93	—	—	47	29	—
Paint vapors.....	21,593	7,347	6,473	4,517	2,085	1,171
Yes <sup>2</sup> .....	8,522	1,598	2,142	2,363	1,338	1,081
No <sup>3</sup> .....	6,552	3,804	1,487	1,147	99	—
Other data sources <sup>4</sup> .....	5,980	1,554	2,839	886	626	75
Don't know <sup>5</sup> .....	636	429	—	121	39	—
Silica dust.....	9,007	1,828	1,838	3,711	1,537	93
Yes <sup>2</sup> .....	5,134	—	903	2,703	843	91
No <sup>3</sup> .....	1,437	810	139	401	—	—
Other data sources <sup>4</sup> .....	2,960	342	872	1,149	598	—
Don't know <sup>5</sup> .....	286	—	—	174	29	—
Solvents.....	13,393	2,929	4,147	3,488	1,698	1,130
Yes <sup>2</sup> .....	7,283	970	1,920	2,009	1,286	1,098
No <sup>3</sup> .....	2,597	1,130	728	601	125	14
Other data sources <sup>4</sup> .....	4,289	1,310	1,455	1,235	268	20
Don't know <sup>5</sup> .....	209	—	—	124	—	—
Styrene.....	2,157	—	671	749	119	23
Yes <sup>2</sup> .....	1,715	—	405	622	69	23
No <sup>3</sup> .....	—	—	—	—	—	—
Other data sources <sup>4</sup> .....	191	—	115	—	—	—
Don't know <sup>5</sup> .....	133	—	—	66	35	—
Toluene.....	6,310	1,538	1,213	2,061	529	970
Yes <sup>2</sup> .....	4,072	696	642	1,419	347	968
No <sup>3</sup> .....	981	554	211	184	31	—
Other data sources <sup>4</sup> .....	1,272	—	327	577	79	—
Don't know <sup>5</sup> .....	173	—	—	66	—	—
Welding fumes.....	7,843	2,228	1,938	1,887	1,174	616
Yes <sup>2</sup> .....	4,131	172	1,111	1,270	1,007	570
No <sup>3</sup> .....	1,874	1,316	341	162	43	—
Other data sources <sup>4</sup> .....	1,668	657	470	386	122	34
Don't know <sup>5</sup> .....	191	—	—	—	—	—

See footnotes at end of table

**Table 100. Number of establishments that used air-supplied respirators and conducted air sampling/monitoring for selected substances during the 12 months<sup>1</sup> prior to the survey, by employment size group—Continued**

Air sampling/monitoring	Total	Employment size group				
		1–10 workers	11–49 workers	50–249 workers	250–999 workers	1000 workers or more
<b>Substance - Continued</b>						
Zinc oxide.....	2,048	579	817	462	149	41
Yes <sup>2</sup> .....	901	—	501	231	35	41
No <sup>3</sup> .....	321	—	—	—	—	—
Other data sources <sup>4</sup> .....	624	—	283	129	—	—
Don't know <sup>5</sup> .....	215	—	—	83	100	—
Other dust.....	11,330	1,807	3,665	3,384	1,258	1,216
Yes <sup>2</sup> .....	5,177	188	1,279	1,679	996	1,035
No <sup>3</sup> .....	3,646	1,255	1,342	746	165	137
Other data sources <sup>4</sup> .....	2,799	281	1,076	1,323	72	47
Don't know <sup>5</sup> .....	282	—	—	148	33	—
Other vapors.....	6,495	347	1,313	1,774	878	2,184
Yes <sup>2</sup> .....	5,048	149	962	1,195	635	2,106
No <sup>3</sup> .....	580	—	—	238	52	37
Other data sources <sup>4</sup> .....	716	—	190	214	100	14
Don't know <sup>5</sup> .....	278	—	—	133	96	34
Selected other substances reported						
Acetone.....	659	—	—	—	11	—
Yes <sup>2</sup> .....	659	—	—	—	11	—
No <sup>3</sup> .....	—	—	—	—	—	—
Other data sources <sup>4</sup> .....	—	—	—	—	—	—
Don't know <sup>5</sup> .....	—	—	—	—	—	—
Ammonia.....	2292	—	47	876	766	121
Yes <sup>2</sup> .....	1885	—	—	814	444	112
No <sup>3</sup> .....	162	—	—	—	113	—
Other data sources <sup>4</sup> .....	—	—	—	—	—	—
Don't know <sup>5</sup> .....	—	—	—	—	—	—
Formaldehyde.....	201	—	—	93	—	28
Yes <sup>2</sup> .....	198	—	—	93	—	25
No <sup>3</sup> .....	—	—	—	—	—	—
Other data sources <sup>4</sup> .....	—	—	—	—	—	—
Don't know <sup>5</sup> .....	—	—	—	—	—	—

See footnotes at end of table

**Table 100. Number of establishments that used air-supplied respirators and conducted air sampling/monitoring for selected substances during the 12 months<sup>1</sup> prior to the survey, by employment size group—Continued**

Air sampling/monitoring	Total	Employment size group				
		1–10 workers	11–49 workers	50–249 workers	250–999 workers	1000 workers or more
<b>Substance - Continued</b>						
Isocyanate.....	1652	—	281	172	102	515
Yes <sup>2</sup> .....	1233	—	—	82	88	510
No <sup>3</sup> .....	294	—	—	—	—	—
Other data sources <sup>4</sup> .....	146	—	—	57	—	10
Don't know <sup>5</sup> .....	—	—	—	—	—	—

<sup>1</sup> The 12-month period represents required use of respirators in the 12 months prior to the establishment's completion of the survey. The survey was mailed to establishments in August 2001.

<sup>2</sup> Air sampling/monitoring was conducted at the establishment at any time in the past for the substance for job(s) that required respirator use.

<sup>3</sup> Air sampling/monitoring was not conducted at the establishment at any time in the past for the substance during job(s) that required respirator use.

<sup>4</sup> Air sampling/monitoring was not needed because historical and objective data were obtained from industry studies or trade

associations that are similar to the establishment's physical environment for the substance.

<sup>5</sup> Do not know if air sampling/monitoring was conducted for the substance.

NOTE: Because of rounding, data exclusion of nonclassifiable responses, and establishment reports of more than one type of respirator use, data do not sum to the totals. Dashes indicate data that do not meet publication guidelines. A measure of sampling variability for each estimate is available upon request.

SOURCE: Bureau of Labor Statistics, U.S. Department of Labor.

**Table 101. Percent of establishments that used air-supplied respirators and conducted air sampling/monitoring for selected substances during the 12 months<sup>1</sup> prior to the survey, by employment size group**

Air sampling/monitoring	Total	Employment size group				
		1–10 workers	11–49 workers	50–249 workers	250–999 workers	1000 workers or more
<b>Percent of establishments</b>						
Total air-supplied respirators.....	100.0	100.0	100.0	100.0	100.0	100.0
<b>Substance</b>						
Acid gas (such as sulfur dioxide).....	14.9	11.5	5.1	26.8	14.3	20.0
Yes <sup>2</sup> .....	12.5	11.5	1.6	22.8	12.5	18.6
No <sup>3</sup> .....	1.1	—	—	.8	.8	.5
Other data sources <sup>4</sup> .....	1.2	—	—	2.9	1.0	.5
Don't know <sup>5</sup> .....	.2	—	—	.5	—	.4
Arsenic.....	4.8	—	1.3	9.8	2.7	2.2
Yes <sup>2</sup> .....	4.1	—	—	9.1	1.8	1.8
No <sup>3</sup> .....	.1	—	—	—	—	—
Other data sources <sup>4</sup> .....	2.4	—	—	—	—	—
Don't know <sup>5</sup> .....	.2	—	—	.5	.4	—
Asbestos.....	6.6	10.6	2.9	3.1	8.1	16.3
Yes <sup>2</sup> .....	6.0	10.1	2.9	2.5	6.5	15.2
No <sup>3</sup> .....	.1	—	—	—	—	—
Other data sources <sup>4</sup> .....	.4	—	—	—	1.0	—
Don't know <sup>5</sup> .....	.2	—	—	.5	.4	—
Biologicals (i.e., TB & HIV).....	3.2	—	—	4.8	1.7	2.0
Yes <sup>2</sup> .....	.4	—	—	.2	—	.7
No <sup>3</sup> .....	.2	—	—	—	.3	1.1
Other data sources <sup>4</sup> .....	2.4	—	—	—	1.0	—
Don't know <sup>5</sup> .....	.2	—	—	.5	.3	—
Cadmium.....	5.1	—	1.6	10.9	2.6	1.7
Yes <sup>2</sup> .....	4.2	—	1.3	9.1	1.5	1.7
No <sup>3</sup> .....	.2	—	—	.8	—	—
Other data sources <sup>4</sup> .....	2.3	—	—	—	.6	—
Don't know <sup>5</sup> .....	.4	—	—	.9	.4	—
Carbon monoxide.....	16.8	13.7	13.0	20.3	19.9	20.0
Yes <sup>2</sup> .....	15.6	13.2	11.9	18.8	18.6	17.3
No <sup>3</sup> .....	.2	—	—	.3	—	—
Other data sources <sup>4</sup> .....	.7	—	1.0	.6	.8	—
Don't know <sup>5</sup> .....	.3	—	—	—	.3	.7
Chlorine.....	10.7	13.1	5.2	11.7	12.0	16.3
Yes <sup>2</sup> .....	8.4	10.4	1.6	10.5	9.9	15.9
No <sup>3</sup> .....	1.5	—	—	—	.2	—
Other data sources <sup>4</sup> .....	2.6	—	—	—	1.1	.5
Don't know <sup>5</sup> .....	.3	—	—	.6	—	—

See footnotes at end of table

**Table 101. Percent of establishments that used air-supplied respirators and conducted air sampling/monitoring for selected substances during the 12 months<sup>1</sup> prior to the survey, by employment size group—Continued**

Air sampling/monitoring	Total	Employment size group				
		1–10 workers	11–49 workers	50–249 workers	250–999 workers	1000 workers or more
<b>Substance - Continued</b>						
Chromium.....	6.4	—	1.7	11.4	3.3	15.8
Yes <sup>2</sup> .....	5.2	—	.9	9.5	1.6	15.8
No <sup>3</sup> .....	.3	—	—	1.0	—	—
Other data sources <sup>4</sup> .....	2.6	—	.9	—	.6	—
Don't know <sup>5</sup> .....	.3	—	—	.4	1.2	—
Coal mine dust.....	.8	—	—	1.2	.8	—
Yes <sup>2</sup> .....	.3	—	—	—	.2	—
No <sup>3</sup> .....	.1	—	—	—	—	—
Other data sources <sup>4</sup> .....	.3	—	—	.6	—	—
Don't know <sup>5</sup> .....	.1	—	—	.4	.3	—
Coal tar pitch volatiles.....	1.1	—	.8	1.3	1.3	.9
Yes <sup>2</sup> .....	.5	—	—	.6	.2	.5
No <sup>3</sup> .....	.1	—	—	—	—	—
Other data sources <sup>4</sup> .....	.3	—	—	—	—	—
Don't know <sup>5</sup> .....	.2	—	—	.4	.4	—
Coke oven emissions.....	.7	—	—	.8	.5	—
Yes <sup>2</sup> .....	.4	—	—	—	—	—
No <sup>3</sup> .....	—	—	—	—	—	—
Other data sources <sup>4</sup> .....	.1	—	—	.3	—	—
Don't know <sup>5</sup> .....	.1	—	—	.4	.3	—
Copper.....	4.3	—	.9	5.0	8.3	1.3
Yes <sup>2</sup> .....	3.7	—	—	—	7.1	1.3
No <sup>3</sup> .....	—	—	—	—	—	—
Other data sources <sup>4</sup> .....	2.2	—	—	—	.3	—
Don't know <sup>5</sup> .....	.4	—	—	.6	1.0	—
Hydrogen sulfide.....	15.4	15.8	4.7	19.9	23.7	16.6
Yes <sup>2</sup> .....	14.5	15.3	4.7	18.0	22.4	16.5
No <sup>3</sup> .....	—	—	—	—	—	—
Other data sources <sup>4</sup> .....	.7	—	—	1.8	.9	—
Don't know <sup>5</sup> .....	.3	—	—	.8	.4	—
Iron oxide.....	3.3	3.7	4.9	3.0	1.5	1.3
Yes <sup>2</sup> .....	1.6	—	2.9	1.5	.8	1.3
No <sup>3</sup> .....	1.0	—	—	.8	—	—
Other data sources <sup>4</sup> .....	.6	—	1.3	.6	.4	—
Don't know <sup>5</sup> .....	.2	—	—	—	.4	—
Lead.....	11.0	9.7	9.1	13.9	8.5	17.8
Yes <sup>2</sup> .....	9.0	—	7.9	12.6	6.6	17.5
No <sup>3</sup> .....	.6	—	—	—	—	—
Other data sources <sup>4</sup> .....	3.2	—	1.1	—	1.4	.6
Don't know <sup>5</sup> .....	.3	—	—	.4	.8	—

See footnotes at end of table

**Table 101. Percent of establishments that used air-supplied respirators and conducted air sampling/monitoring for selected substances during the 12 months<sup>1</sup> prior to the survey, by employment size group—Continued**

Air sampling/monitoring	Total	Employment size group				
		1–10 workers	11–49 workers	50–249 workers	250–999 workers	1000 workers or more
<b>Substance - Continued</b>						
Manganese.....	3.4	—	—	6.0	2.2	14.2
Yes <sup>2</sup> .....	2.8	—	—	5.0	.8	14.2
No <sup>3</sup> .....	—	—	—	—	—	—
Other data sources <sup>4</sup> .....	.3	—	—	—	.2	—
Don't know <sup>5</sup> .....	.4	—	—	.6	1.2	—
Oxygen deficiency.....	15.4	11.9	17.9	17.8	11.9	17.1
Yes <sup>2</sup> .....	12.5	11.4	9.3	16.8	10.9	16.9
No <sup>3</sup> .....	—	—	—	.3	—	—
Other data sources <sup>4</sup> .....	.5	—	—	.3	.7	—
Don't know <sup>5</sup> .....	.2	—	—	.4	.4	—
Paint vapors.....	45.7	67.3	52.0	36.5	25.3	35.2
Yes <sup>2</sup> .....	18.0	14.6	17.2	19.1	16.3	32.5
No <sup>3</sup> .....	13.9	34.9	11.9	9.3	1.2	—
Other data sources <sup>4</sup> .....	12.6	14.2	22.8	7.2	7.6	2.3
Don't know <sup>5</sup> .....	1.3	3.9	—	1.0	.5	—
Silica dust.....	19.0	16.8	14.8	30.0	18.7	2.8
Yes <sup>2</sup> .....	10.9	—	7.3	21.8	10.2	2.7
No <sup>3</sup> .....	3.0	7.4	1.1	3.2	—	—
Other data sources <sup>4</sup> .....	6.3	3.1	7.0	9.3	7.3	—
Don't know <sup>5</sup> .....	.6	—	—	1.4	.4	—
Solvents.....	28.3	26.8	33.3	28.2	20.6	34.0
Yes <sup>2</sup> .....	15.4	8.9	15.4	16.2	15.6	33.1
No <sup>3</sup> .....	5.5	10.4	5.8	4.9	1.5	.4
Other data sources <sup>4</sup> .....	9.1	12.0	11.7	10.0	3.3	.6
Don't know <sup>5</sup> .....	.4	—	—	1.0	—	—
Styrene.....	4.6	—	5.4	6.1	1.4	.7
Yes <sup>2</sup> .....	3.6	—	3.3	5.0	.8	.7
No <sup>3</sup> .....	—	—	—	—	—	—
Other data sources <sup>4</sup> .....	.4	—	.9	—	—	—
Don't know <sup>5</sup> .....	.3	—	—	.5	.4	—
Toluene.....	13.3	14.1	9.7	16.7	6.4	29.2
Yes <sup>2</sup> .....	8.6	6.4	5.2	11.5	4.2	29.1
No <sup>3</sup> .....	2.1	5.1	1.7	1.5	.4	—
Other data sources <sup>4</sup> .....	2.7	—	2.6	4.7	1.0	—
Don't know <sup>5</sup> .....	.4	—	—	.5	—	—
Welding fumes.....	16.6	20.4	15.6	15.2	14.3	18.5
Yes <sup>2</sup> .....	8.7	1.6	8.9	10.3	12.2	17.2
No <sup>3</sup> .....	4.0	12.1	2.7	1.3	.5	—
Other data sources <sup>4</sup> .....	3.5	6.0	3.8	3.1	1.5	1.0
Don't know <sup>5</sup> .....	.4	—	—	—	—	—

See footnotes at end of table

**Table 101. Percent of establishments that used air-supplied respirators and conducted air sampling/monitoring for selected substances during the 12 months<sup>1</sup> prior to the survey, by employment size group—Continued**

Air sampling/monitoring	Total	Employment size group				
		1–10 workers	11–49 workers	50–249 workers	250–999 workers	1000 workers or more
<b>Substance - Continued</b>						
Zinc oxide.....	4.3	5.3	6.6	3.7	1.8	1.2
Yes <sup>2</sup> .....	1.9	—	4.0	1.9	.4	1.2
No <sup>3</sup> .....	.7	—	—	—	—	—
Other data sources <sup>4</sup> .....	1.3	—	2.3	1.0	—	—
Don't know <sup>5</sup> .....	.5	—	—	.7	1.2	—
Other dust.....	24.0	16.6	29.4	27.3	15.3	36.6
Yes <sup>2</sup> .....	10.9	1.7	10.3	13.6	12.1	31.2
No <sup>3</sup> .....	7.7	11.5	10.8	6.0	2.0	4.1
Other data sources <sup>4</sup> .....	5.9	2.6	8.6	10.7	.9	1.4
Don't know <sup>5</sup> .....	.6	—	—	1.2	.4	—
Other vapors.....	13.7	3.2	10.5	14.3	10.7	65.7
Yes <sup>2</sup> .....	10.7	1.4	7.7	9.7	7.7	63.4
No <sup>3</sup> .....	1.2	—	—	1.9	.6	1.1
Other data sources <sup>4</sup> .....	1.5	—	1.5	1.7	1.2	.4
Don't know <sup>5</sup> .....	.6	—	—	1.1	1.2	1.0
Selected other substances reported						
Acetone.....	1.4	—	—	—	.1	—
Yes <sup>2</sup> .....	1.4	—	—	—	.1	—
No <sup>3</sup> .....	—	—	—	—	—	—
Other data sources <sup>4</sup> .....	—	—	—	—	—	—
Don't know <sup>5</sup> .....	—	—	—	—	—	—
Ammonia.....	4.8	—	.4	7.1	9.3	3.6
Yes <sup>2</sup> .....	4.0	—	—	6.6	5.4	3.4
No <sup>3</sup> .....	.3	—	—	—	1.4	—
Other data sources <sup>4</sup> .....	—	—	—	—	—	—
Don't know <sup>5</sup> .....	—	—	—	—	—	—
Formaldehyde.....	.4	—	—	.8	—	.8
Yes <sup>2</sup> .....	.4	—	—	.8	—	.8
No <sup>3</sup> .....	—	—	—	—	—	—
Other data sources <sup>4</sup> .....	—	—	—	—	—	—
Don't know <sup>5</sup> .....	—	—	—	—	—	—

See footnotes at end of table

**Table 101. Percent of establishments that used air-supplied respirators and conducted air sampling/monitoring for selected substances during the 12 months<sup>1</sup> prior to the survey, by employment size group—Continued**

Air sampling/monitoring	Total	Employment size group				
		1–10 workers	11–49 workers	50–249 workers	250–999 workers	1000 workers or more
<b>Substance - Continued</b>						
Isocyanate.....	3.5	—	2.3	1.4	1.2	15.5
Yes <sup>2</sup> .....	2.6	—	—	.7	1.1	15.4
No <sup>3</sup> .....	.6	—	—	—	—	—
Other data sources <sup>4</sup> .....	.3	—	—	.5	—	.3
Don't know <sup>5</sup> .....	—	—	—	—	—	—

<sup>1</sup> The 12-month period represents required use of respirators in the 12 months prior to the establishment's completion of the survey. The survey was mailed to establishments in August 2001.

<sup>2</sup> Air sampling/monitoring was conducted at the establishment at any time in the past for the substance for job(s) that required respirator use.

<sup>3</sup> Air sampling/monitoring was not conducted at the establishment at any time in the past for the substance during job(s) that required respirator use.

<sup>4</sup> Air sampling/monitoring was not needed because historical and objective data were obtained from industry studies or trade

associations that are similar to the establishment's physical environment for the substance.

<sup>5</sup> Do not know if air sampling/monitoring was conducted for the substance.

NOTE: Because of rounding, data exclusion of nonclassifiable responses, and establishment reports of more than one type of respirator use, data do not sum to the totals. Dashes indicate data that do not meet publication guidelines. A measure of sampling variability for each estimate is available upon request.

SOURCE: Bureau of Labor Statistics, U.S. Department of Labor.

**Table 102. Number of establishments that used either air-purifying or air-supplied respirators and conducted air sampling/monitoring for selected substances during the 12 months<sup>1</sup> prior to the survey, by establishment size group**

Air sampling/monitoring	Total	Employment size group				
		1–10 workers	11–49 workers	50–249 workers	250–999 workers	1000 workers or more
<b>Number of establishments</b>						
Total use.....	281,776	122,620	83,716	45,291	21,742	8,406
Total air-purifying.....	267,467	113,797	80,249	44,247	20,865	8,309
Total air-supplied respirators.....	47,290	10,909	12,451	12,376	8,232	3,322
<b>Substance</b>						
Acid gas (such as sulfur dioxide).....	28,503	9,524	5,427	7,488	3,111	2,953
Yes <sup>2</sup> .....	17,418	5,945	1,684	5,060	2,337	2,392
No <sup>3</sup> .....	4,090	1,539	1,241	815	419	76
Other data sources <sup>4</sup> .....	6,125	1,836	2,482	1,258	321	227
Don't know <sup>5</sup> .....	1,398	328	182	527	53	—
Arsenic.....	10,460	3,984	1,620	3,145	914	797
Yes <sup>2</sup> .....	3,838	—	246	1,792	406	707
No <sup>3</sup> .....	2,419	1,565	373	347	103	31
Other data sources <sup>4</sup> .....	4,270	2,092	834	988	313	42
Don't know <sup>5</sup> .....	1,273	328	323	506	96	20
Asbestos.....	28,559	14,342	4,437	3,829	3,667	2,285
Yes <sup>2</sup> .....	20,354	10,688	2,269	2,430	2,866	2,101
No <sup>3</sup> .....	3,090	1,620	467	366	563	74
Other data sources <sup>4</sup> .....	4,654	1,847	1,766	698	247	96
Don't know <sup>5</sup> .....	1,058	364	165	436	69	23
Biologicals (i.e., TB & HIV).....	23,532	11,199	4,371	3,732	1,681	2,549
Yes <sup>2</sup> .....	7,332	3,822	1,304	1,472	345	389
No <sup>3</sup> .....	5,215	1,792	1,044	1,027	757	595
Other data sources <sup>4</sup> .....	9,607	5,551	1,481	1,134	443	998
Don't know <sup>5</sup> .....	2,645	639	699	580	145	582
Cadmium.....	11,032	2,662	2,810	3,253	937	1,371
Yes <sup>2</sup> .....	5,592	964	900	2,114	742	872
No <sup>3</sup> .....	355	—	69	229	38	—
Other data sources <sup>4</sup> .....	4,076	1,669	973	883	61	—
Don't know <sup>5</sup> .....	2,010	500	867	516	117	—
Carbon monoxide.....	27,114	9,400	6,058	5,586	3,894	2,175
Yes <sup>2</sup> .....	21,319	7,131	4,155	4,496	3,567	1,970
No <sup>3</sup> .....	872	—	297	223	113	75
Other data sources <sup>4</sup> .....	3,508	1,296	1,306	519	274	113
Don't know <sup>5</sup> .....	1,681	809	360	389	89	34
Chlorine.....	16,185	4,207	3,785	4,565	2,339	1,290
Yes <sup>2</sup> .....	7,780	1,552	1,165	2,297	1,607	1,159
No <sup>3</sup> .....	2,935	574	971	1,235	142	13
Other data sources <sup>4</sup> .....	4,822	1,616	1,462	1,097	527	119
Don't know <sup>5</sup> .....	1,741	946	186	450	142	17

See footnotes at end of table

**Table 102. Number of establishments that used either air-purifying or air-supplied respirators and conducted air sampling/monitoring for selected substances during the 12 months<sup>1</sup> prior to the survey, by establishment size group—Continued**

Air sampling/monitoring	Total	Employment size group				
		1–10 workers	11–49 workers	50–249 workers	250–999 workers	1000 workers or more
<b>Substance - Continued</b>						
Chromium.....	12,216	2,702	1,936	4,535	1,685	1,357
Yes <sup>2</sup> .....	7,027	964	498	3,193	1,064	1,307
No <sup>3</sup> .....	607	—	251	229	68	—
Other data sources <sup>4</sup> .....	4,172	1,708	1,000	1,040	399	—
Don't know <sup>5</sup> .....	1,456	464	186	600	190	—
Coal mine dust.....	6,800	3,305	1,417	1,561	357	161
Yes <sup>2</sup> .....	1,066	137	455	311	124	40
No <sup>3</sup> .....	1,762	1,015	165	401	138	44
Other data sources <sup>4</sup> .....	3,038	1,742	657	539	33	—
Don't know <sup>5</sup> .....	1,040	464	194	311	62	—
Coal tar pitch volatiles.....	7,114	3,542	1,107	1,284	613	568
Yes <sup>2</sup> .....	1,139	—	158	245	132	511
No <sup>3</sup> .....	1,430	965	58	317	69	21
Other data sources <sup>4</sup> .....	2,960	1,538	684	365	344	—
Don't know <sup>5</sup> .....	1,588	946	208	357	68	—
Coke oven emissions.....	5,994	3,061	1,065	1,624	179	66
Yes <sup>2</sup> .....	896	—	101	649	11	22
No <sup>3</sup> .....	1,381	965	58	271	73	15
Other data sources <sup>4</sup> .....	3,128	1,518	679	879	33	—
Don't know <sup>5</sup> .....	1,087	464	227	325	62	—
Copper.....	12,650	6,314	2,536	2,398	1,199	204
Yes <sup>2</sup> .....	4,451	1,541	498	1,364	888	160
No <sup>3</sup> .....	1,714	1,012	446	189	34	33
Other data sources <sup>4</sup> .....	5,900	3,864	999	894	143	—
Don't know <sup>5</sup> .....	1,678	464	635	432	137	—
Cotton dust.....	7,201	2,566	2,703	1,549	322	60
Yes <sup>2</sup> .....	617	—	—	535	47	—
No <sup>3</sup> .....	1,060	—	267	111	177	15
Other data sources <sup>4</sup> .....	4,385	1,611	2,177	520	45	34
Don't know <sup>5</sup> .....	1,138	464	227	384	54	—
Hydrogen sulfide.....	20,999	8,711	3,006	4,439	3,184	1,659
Yes <sup>2</sup> .....	16,025	6,655	1,757	3,172	2,839	1,602
No <sup>3</sup> .....	460	—	—	310	77	—
Other data sources <sup>4</sup> .....	3,133	1,155	1,027	722	196	33
Don't know <sup>5</sup> .....	1,735	946	186	489	97	17
Iron oxide.....	12,178	6,030	2,948	2,212	771	216
Yes <sup>2</sup> .....	3,092	737	830	907	450	167
No <sup>3</sup> .....	1,540	791	249	351	—	—
Other data sources <sup>4</sup> .....	5,820	4,052	1,092	567	99	—
Don't know <sup>5</sup> .....	1,877	504	776	475	104	18

See footnotes at end of table

**Table 102. Number of establishments that used either air-purifying or air-supplied respirators and conducted air sampling/monitoring for selected substances during the 12 months<sup>1</sup> prior to the survey, by establishment size group—Continued**

Air sampling/monitoring	Total	Employment size group				
		1–10 workers	11–49 workers	50–249 workers	250–999 workers	1000 workers or more
<b>Substance - Continued</b>						
Lead.....	31,975	14,278	5,078	6,317	3,614	2,688
Yes <sup>2</sup> .....	21,586	7,939	2,900	5,119	3,070	2,558
No <sup>3</sup> .....	2,701	2,190	332	102	28	—
Other data sources <sup>4</sup> .....	8,520	4,166	1,618	1,785	435	516
Don't know <sup>5</sup> .....	1,322	464	228	453	173	—
Manganese.....	8,747	2,209	2,361	2,430	1,076	670
Yes <sup>2</sup> .....	4,158	—	826	1,330	837	627
No <sup>3</sup> .....	456	—	191	218	—	—
Other data sources <sup>4</sup> .....	2,528	1,188	833	454	46	—
Don't know <sup>5</sup> .....	1,643	474	511	466	176	—
Oxygen deficiency.....	7,279	1,302	2,231	2,197	980	569
Yes <sup>2</sup> .....	5,933	1,248	1,156	2,074	896	560
No <sup>3</sup> .....	—	—	—	36	—	—
Other data sources <sup>4</sup> .....	226	—	—	41	60	—
Don't know <sup>5</sup> .....	93	—	—	47	29	—
Paint vapors.....	115,705	53,041	32,958	18,678	7,128	3,900
Yes <sup>2</sup> .....	37,793	13,512	9,638	7,308	4,114	3,221
No <sup>3</sup> .....	49,235	28,007	13,800	6,471	789	168
Other data sources <sup>4</sup> .....	26,151	10,586	8,384	4,633	2,307	239
Don't know <sup>5</sup> .....	4,862	1,851	1,794	822	83	—
Silica dust.....	48,741	15,904	14,185	10,810	6,126	1,716
Yes <sup>2</sup> .....	20,609	3,223	4,918	6,626	4,226	1,616
No <sup>3</sup> .....	13,014	5,633	4,593	2,079	688	21
Other data sources <sup>4</sup> .....	14,314	6,152	4,250	2,201	1,599	111
Don't know <sup>5</sup> .....	2,613	917	887	654	134	21
Solvents.....	88,468	42,118	21,218	14,888	7,198	3,046
Yes <sup>2</sup> .....	40,668	15,537	8,415	8,872	5,214	2,630
No <sup>3</sup> .....	25,969	16,309	5,999	2,941	525	196
Other data sources <sup>4</sup> .....	20,775	9,598	6,114	3,334	1,505	224
Don't know <sup>5</sup> .....	2,999	1,324	863	650	139	22
Styrene.....	11,750	4,299	3,209	3,010	622	611
Yes <sup>2</sup> .....	5,134	1,499	986	1,724	376	549
No <sup>3</sup> .....	1,635	469	906	172	76	—
Other data sources <sup>4</sup> .....	4,512	2,313	1,089	1,026	57	—
Don't know <sup>5</sup> .....	1,451	500	228	583	118	23
Toluene.....	27,875	7,816	8,299	6,737	2,797	2,226
Yes <sup>2</sup> .....	15,202	2,657	3,637	4,755	2,065	2,087
No <sup>3</sup> .....	4,773	2,192	1,874	510	171	26
Other data sources <sup>4</sup> .....	6,414	2,122	2,478	1,257	467	90
Don't know <sup>5</sup> .....	1,760	845	310	429	149	27

See footnotes at end of table

**Table 102. Number of establishments that used either air-purifying or air-supplied respirators and conducted air sampling/monitoring for selected substances during the 12 months<sup>1</sup> prior to the survey, by establishment size group—Continued**

Air sampling/monitoring	Total	Employment size group				
		1–10 workers	11–49 workers	50–249 workers	250–999 workers	1000 workers or more
<b>Substance - Continued</b>						
Welding fumes.....	47,354	17,507	12,753	9,828	5,115	2,150
Yes <sup>2</sup> .....	16,545	2,285	4,057	4,777	3,518	1,907
No <sup>3</sup> .....	17,323	11,209	3,462	1,950	614	88
Other data sources <sup>4</sup> .....	12,404	3,474	4,968	2,836	981	144
Don't know <sup>5</sup> .....	1,699	662	453	481	83	19
Zinc oxide.....	15,694	7,702	3,389	2,659	1,165	779
Yes <sup>2</sup> .....	5,349	1,483	1,521	1,363	764	218
No <sup>3</sup> .....	1,206	629	136	185	148	108
Other data sources <sup>4</sup> .....	6,948	4,644	1,156	620	99	—
Don't know <sup>5</sup> .....	2,259	946	575	542	172	25
Other dust.....	137,381	56,039	45,215	23,477	9,284	3,367
Yes <sup>2</sup> .....	42,600	11,488	14,631	8,719	5,210	2,552
No <sup>3</sup> .....	66,764	31,876	21,920	9,873	2,763	332
Other data sources <sup>4</sup> .....	28,971	11,954	10,641	4,971	1,192	212
Don't know <sup>5</sup> .....	4,347	929	1,856	978	198	385
Other vapors.....	43,186	9,599	15,806	9,688	3,922	4,171
Yes <sup>2</sup> .....	21,102	1,973	6,690	6,072	2,461	3,906
No <sup>3</sup> .....	10,054	3,708	4,296	1,626	298	126
Other data sources <sup>4</sup> .....	9,229	2,263	3,833	2,051	1,007	76
Don't know <sup>5</sup> .....	3,861	1,655	1,112	731	263	100
Selected other substances reported						
Acetone.....	836	—	—	193	58	—
Yes <sup>2</sup> .....	836	—	—	193	58	—
No <sup>3</sup> .....	—	—	—	—	—	—
Other data sources <sup>4</sup> .....	—	—	—	—	—	—
Don't know <sup>5</sup> .....	—	—	—	—	—	—
Ammonia.....	12336	5499	3851	2076	745	165
Yes <sup>2</sup> .....	7878	4857	531	1731	613	147
No <sup>3</sup> .....	4174	—	3240	188	—	14
Other data sources <sup>4</sup> .....	303	—	—	176	43	—
Don't know <sup>5</sup> .....	—	—	—	—	—	—
Formaldehyde.....	5403	3349	983	365	282	423
Yes <sup>2</sup> .....	5307	3349	927	347	270	413
No <sup>3</sup> .....	—	—	—	—	—	—
Other data sources <sup>4</sup> .....	—	—	—	—	—	—
Don't know <sup>5</sup> .....	—	—	—	—	—	—

See footnotes at end of table

**Table 102. Number of establishments that used either air-purifying or air-supplied respirators and conducted air sampling/monitoring for selected substances during the 12 months<sup>1</sup> prior to the survey, by establishment size group—Continued**

Air sampling/monitoring	Total	Employment size group				
		1–10 workers	11–49 workers	50–249 workers	250–999 workers	1000 workers or more
<b>Substance - Continued</b>						
Isocyanate.....	2763	887	409	423	107	936
Yes <sup>2</sup> .....	1917	—	141	207	93	936
No <sup>3</sup> .....	294	—	—	—	—	—
Other data sources <sup>4</sup> .....	589	—	—	189	31	—
Don't know <sup>5</sup> .....	—	—	—	—	—	—
Man-made fibers.....	2005	178	1392	256	155	24
Yes <sup>2</sup> .....	1252	—	991	115	122	24
No <sup>3</sup> .....	363	—	200	75	—	—
Other data sources <sup>4</sup> .....	244	—	—	—	—	—
Don't know <sup>5</sup> .....	146	—	—	—	—	—
Pesticides.....	7110	1440	3943	937	211	—
Yes <sup>2</sup> .....	197	—	94	62	41	—
No <sup>3</sup> .....	4668	1231	2253	499	140	—
Other data sources <sup>4</sup> .....	1971	—	1503	196	30	—
Don't know <sup>5</sup> .....	—	—	—	—	—	—

<sup>1</sup> The 12-month period represents required use of respirators in the 12 months prior to the establishment's completion of the survey. The survey was mailed to establishments in August 2001.

<sup>2</sup> Air sampling/monitoring was conducted at the establishment at any time in the past for the substance for job(s) that required respirator use.

<sup>3</sup> Air sampling/monitoring was not conducted at the establishment at any time in the past for the substance during job(s) that required respirator use.

<sup>4</sup> Air sampling/monitoring was not needed because historical and objective data were obtained from industry studies or trade

associations that are similar to the establishment's physical environment for the substance.

<sup>5</sup> Do not know if air sampling/monitoring was conducted for the substance.

NOTE: Because of rounding, data exclusion of nonclassifiable responses, and establishment reports of more than one type of respirator use, data do not sum to the totals. Dashes indicate data that do not meet publication guidelines. A measure of sampling variability for each estimate is available upon request.

SOURCE: Bureau of Labor Statistics, U.S. Department of Labor.

**Table 103. Percent of establishments that used either air-purifying or air-supplied respirators and conducted air sampling/monitoring for selected substances during the 12 months<sup>1</sup> prior to the survey, by establishment size group**

Air sampling/monitoring	Total	Employment size group				
		1–10 workers	11–49 workers	50–249 workers	250–999 workers	1000 workers or more
<b>Percent of establishments</b>						
Total use.....	100.0	100.0	100.0	100.0	100.0	100.0
<b>Substance</b>						
Acid gas (such as sulfur dioxide).....	10.1	7.8	6.5	16.5	14.3	35.1
Yes <sup>2</sup> .....	6.2	4.8	2.0	11.2	10.7	28.5
No <sup>3</sup> .....	1.5	1.3	1.5	1.8	1.9	.9
Other data sources <sup>4</sup> .....	2.2	1.5	3.0	2.8	1.5	2.7
Don't know <sup>5</sup> .....	.5	.3	.2	1.2	.2	—
Arsenic.....	3.7	3.2	1.9	6.9	4.2	9.5
Yes <sup>2</sup> .....	1.4	—	.3	4.0	1.9	8.4
No <sup>3</sup> .....	.9	1.3	.4	.8	.5	.4
Other data sources <sup>4</sup> .....	1.5	1.7	1.0	2.2	1.4	.5
Don't know <sup>5</sup> .....	.5	.3	.4	1.1	.4	.2
Asbestos.....	10.1	11.7	5.3	8.5	16.9	27.2
Yes <sup>2</sup> .....	7.2	8.7	2.7	5.4	13.2	25.0
No <sup>3</sup> .....	1.1	1.3	.6	.8	2.6	.9
Other data sources <sup>4</sup> .....	1.7	1.5	2.1	1.5	1.1	1.1
Don't know <sup>5</sup> .....	.4	.3	.2	1.0	.3	.3
Biologicals (i.e., TB & HIV).....	8.4	9.1	5.2	8.2	7.7	30.3
Yes <sup>2</sup> .....	2.6	3.1	1.6	3.3	1.6	4.6
No <sup>3</sup> .....	1.9	1.5	1.2	2.3	3.5	7.1
Other data sources <sup>4</sup> .....	3.4	4.5	1.8	2.5	2.0	11.9
Don't know <sup>5</sup> .....	.9	.5	.8	1.3	.7	6.9
Cadmium.....	3.9	2.2	3.4	7.2	4.3	16.3
Yes <sup>2</sup> .....	2.0	.8	1.1	4.7	3.4	10.4
No <sup>3</sup> .....	.1	—	.1	.5	.2	—
Other data sources <sup>4</sup> .....	1.4	1.4	1.2	1.9	.3	—
Don't know <sup>5</sup> .....	.7	.4	1.0	1.1	.5	—
Carbon monoxide.....	9.6	7.7	7.2	12.3	17.9	25.9
Yes <sup>2</sup> .....	7.6	5.8	5.0	9.9	16.4	23.4
No <sup>3</sup> .....	.3	—	.4	.5	.5	.9
Other data sources <sup>4</sup> .....	1.2	1.1	1.6	1.1	1.3	1.3
Don't know <sup>5</sup> .....	.6	.7	.4	.9	.4	.4
Chlorine.....	5.7	3.4	4.5	10.1	10.8	15.3
Yes <sup>2</sup> .....	2.8	1.3	1.4	5.1	7.4	13.8
No <sup>3</sup> .....	1.0	.5	1.2	2.7	.7	.2
Other data sources <sup>4</sup> .....	1.7	1.3	1.7	2.4	2.4	1.4
Don't know <sup>5</sup> .....	.6	.8	.2	1.0	.7	.2

See footnotes at end of table

**Table 103. Percent of establishments that used either air-purifying or air-supplied respirators and conducted air sampling/monitoring for selected substances during the 12 months<sup>1</sup> prior to the survey, by establishment size group—Continued**

Air sampling/monitoring	Total	Employment size group				
		1–10 workers	11–49 workers	50–249 workers	250–999 workers	1000 workers or more
<b>Substance - Continued</b>						
Chromium.....	4.3	2.2	2.3	10.0	7.7	16.1
Yes <sup>2</sup> .....	2.5	.8	.6	7.0	4.9	15.5
No <sup>3</sup> .....	.2	—	.3	.5	.3	—
Other data sources <sup>4</sup> .....	1.5	1.4	1.2	2.3	1.8	—
Don't know <sup>5</sup> .....	.5	.4	.2	1.3	.9	—
Coal mine dust.....	2.4	2.7	1.7	3.4	1.6	1.9
Yes <sup>2</sup> .....	.4	.1	.5	.7	.6	.5
No <sup>3</sup> .....	.6	.8	.2	.9	.6	.5
Other data sources <sup>4</sup> .....	1.1	1.4	.8	1.2	.2	—
Don't know <sup>5</sup> .....	.4	.4	.2	.7	.3	—
Coal tar pitch volatiles.....	2.5	2.9	1.3	2.8	2.8	6.8
Yes <sup>2</sup> .....	.4	—	.2	.5	.6	6.1
No <sup>3</sup> .....	.5	.8	.1	.7	.3	.2
Other data sources <sup>4</sup> .....	1.1	1.3	.8	.8	1.6	—
Don't know <sup>5</sup> .....	.6	.8	.2	.8	.3	—
Coke oven emissions.....	2.1	2.5	1.3	3.6	.8	.8
Yes <sup>2</sup> .....	.3	—	.1	1.4	.1	.3
No <sup>3</sup> .....	.5	.8	.1	.6	.3	.2
Other data sources <sup>4</sup> .....	1.1	1.2	.8	1.9	.2	—
Don't know <sup>5</sup> .....	.4	.4	.3	.7	.3	—
Copper.....	4.5	5.1	3.0	5.3	5.5	2.4
Yes <sup>2</sup> .....	1.6	1.3	.6	3.0	4.1	1.9
No <sup>3</sup> .....	.6	.8	.5	.4	.2	.4
Other data sources <sup>4</sup> .....	2.1	3.2	1.2	2.0	.7	—
Don't know <sup>5</sup> .....	.6	.4	.8	1.0	.6	—
Cotton dust.....	2.6	2.1	3.2	3.4	1.5	.7
Yes <sup>2</sup> .....	.2	—	—	1.2	.2	—
No <sup>3</sup> .....	.4	—	.3	.2	.8	.2
Other data sources <sup>4</sup> .....	1.6	1.3	2.6	1.1	.2	.4
Don't know <sup>5</sup> .....	.4	.4	.3	.8	.2	—
Hydrogen sulfide.....	7.5	7.1	3.6	9.8	14.6	19.7
Yes <sup>2</sup> .....	5.7	5.4	2.1	7.0	13.1	19.1
No <sup>3</sup> .....	.2	—	—	.7	.4	—
Other data sources <sup>4</sup> .....	1.1	.9	1.2	1.6	.9	.4
Don't know <sup>5</sup> .....	.6	.8	.2	1.1	.4	.2
Iron oxide.....	4.3	4.9	3.5	4.9	3.5	2.6
Yes <sup>2</sup> .....	1.1	.6	1.0	2.0	2.1	2.0
No <sup>3</sup> .....	.5	.6	.3	.8	—	—
Other data sources <sup>4</sup> .....	2.1	3.3	1.3	1.3	.5	—
Don't know <sup>5</sup> .....	.7	.4	.9	1.0	.5	.2

See footnotes at end of table

**Table 103. Percent of establishments that used either air-purifying or air-supplied respirators and conducted air sampling/monitoring for selected substances during the 12 months<sup>1</sup> prior to the survey, by establishment size group—Continued**

Air sampling/monitoring	Total	Employment size group				
		1–10 workers	11–49 workers	50–249 workers	250–999 workers	1000 workers or more
<b>Substance - Continued</b>						
Lead.....	11.3	11.6	6.1	13.9	16.6	32.0
Yes <sup>2</sup> .....	7.7	6.5	3.5	11.3	14.1	30.4
No <sup>3</sup> .....	1.0	1.8	.4	.2	.1	—
Other data sources <sup>4</sup> .....	3.0	3.4	1.9	3.9	2.0	6.1
Don't know <sup>5</sup> .....	.5	.4	.3	1.0	.8	—
Manganese.....	3.1	1.8	2.8	5.4	4.9	8.0
Yes <sup>2</sup> .....	1.5	—	1.0	2.9	3.8	7.5
No <sup>3</sup> .....	.2	—	.2	.5	—	—
Other data sources <sup>4</sup> .....	.9	1.0	1.0	1.0	.2	—
Don't know <sup>5</sup> .....	.6	.4	.6	1.0	.8	—
Oxygen deficiency.....	2.6	1.1	2.7	4.9	4.5	6.8
Yes <sup>2</sup> .....	2.1	1.0	1.4	4.6	4.1	6.7
No <sup>3</sup> .....	—	—	—	.1	—	—
Other data sources <sup>4</sup> .....	.1	—	—	.1	.3	—
Don't know <sup>5</sup> .....	.0	—	—	.1	.1	—
Paint vapors.....	41.1	43.3	39.4	41.2	32.8	46.4
Yes <sup>2</sup> .....	13.4	11.0	11.5	16.1	18.9	38.3
No <sup>3</sup> .....	17.5	22.8	16.5	14.3	3.6	2.0
Other data sources <sup>4</sup> .....	9.3	8.6	10.0	10.2	10.6	2.8
Don't know <sup>5</sup> .....	1.7	1.5	2.1	1.8	.4	—
Silica dust.....	17.3	13.0	16.9	23.9	28.2	20.4
Yes <sup>2</sup> .....	7.3	2.6	5.9	14.6	19.4	19.2
No <sup>3</sup> .....	4.6	4.6	5.5	4.6	3.2	.2
Other data sources <sup>4</sup> .....	5.1	5.0	5.1	4.9	7.4	1.3
Don't know <sup>5</sup> .....	.9	.7	1.1	1.4	.6	.2
Solvents.....	31.4	34.3	25.3	32.9	33.1	36.2
Yes <sup>2</sup> .....	14.4	12.7	10.1	19.6	24.0	31.3
No <sup>3</sup> .....	9.2	13.3	7.2	6.5	2.4	2.3
Other data sources <sup>4</sup> .....	7.4	7.8	7.3	7.4	6.9	2.7
Don't know <sup>5</sup> .....	1.1	1.1	1.0	1.4	.6	.3
Styrene.....	4.2	3.5	3.8	6.6	2.9	7.3
Yes <sup>2</sup> .....	1.8	1.2	1.2	3.8	1.7	6.5
No <sup>3</sup> .....	.6	.4	1.1	.4	.3	—
Other data sources <sup>4</sup> .....	1.6	1.9	1.3	2.3	.3	—
Don't know <sup>5</sup> .....	.5	.4	.3	1.3	.5	.3
Toluene.....	9.9	6.4	9.9	14.9	12.9	26.5
Yes <sup>2</sup> .....	5.4	2.2	4.3	10.5	9.5	24.8
No <sup>3</sup> .....	1.7	1.8	2.2	1.1	.8	.3
Other data sources <sup>4</sup> .....	2.3	1.7	3.0	2.8	2.1	1.1
Don't know <sup>5</sup> .....	.6	.7	.4	.9	.7	.3

See footnotes at end of table

**Table 103. Percent of establishments that used either air-purifying or air-supplied respirators and conducted air sampling/monitoring for selected substances during the 12 months<sup>1</sup> prior to the survey, by establishment size group—Continued**

Air sampling/monitoring	Total	Employment size group				
		1–10 workers	11–49 workers	50–249 workers	250–999 workers	1000 workers or more
<b>Substance - Continued</b>						
Welding fumes.....	16.8	14.3	15.2	21.7	23.5	25.6
Yes <sup>2</sup> .....	5.9	1.9	4.8	10.5	16.2	22.7
No <sup>3</sup> .....	6.1	9.1	4.1	4.3	2.8	1.0
Other data sources <sup>4</sup> .....	4.4	2.8	5.9	6.3	4.5	1.7
Don't know <sup>5</sup> .....	.6	.5	.5	1.1	.4	.2
Zinc oxide.....	5.6	6.3	4.0	5.9	5.4	9.3
Yes <sup>2</sup> .....	1.9	1.2	1.8	3.0	3.5	2.6
No <sup>3</sup> .....	.4	.5	.2	.4	.7	1.3
Other data sources <sup>4</sup> .....	2.5	3.8	1.4	1.4	.5	—
Don't know <sup>5</sup> .....	.8	.8	.7	1.2	.8	.3
Other dust.....	48.8	45.7	54.0	51.8	42.7	40.1
Yes <sup>2</sup> .....	15.1	9.4	17.5	19.3	24.0	30.4
No <sup>3</sup> .....	23.7	26.0	26.2	21.8	12.7	3.9
Other data sources <sup>4</sup> .....	10.3	9.7	12.7	11.0	5.5	2.5
Don't know <sup>5</sup> .....	1.5	.8	2.2	2.2	.9	4.6
Other vapors.....	15.3	7.8	18.9	21.4	18.0	49.6
Yes <sup>2</sup> .....	7.5	1.6	8.0	13.4	11.3	46.5
No <sup>3</sup> .....	3.6	3.0	5.1	3.6	1.4	1.5
Other data sources <sup>4</sup> .....	3.3	1.8	4.6	4.5	4.6	.9
Don't know <sup>5</sup> .....	1.4	1.3	1.3	1.6	1.2	1.2
Selected other substances reported						
Acetone.....	.3	—	—	.4	.3	—
Yes <sup>2</sup> .....	.3	—	—	.4	.3	—
No <sup>3</sup> .....	—	—	—	—	—	—
Other data sources <sup>4</sup> .....	—	—	—	—	—	—
Don't know <sup>5</sup> .....	—	—	—	—	—	—
Ammonia.....	4.4	4.5	4.6	4.6	3.4	2.0
Yes <sup>2</sup> .....	2.8	4.0	.6	3.8	2.8	1.7
No <sup>3</sup> .....	1.5	—	3.9	.4	—	.2
Other data sources <sup>4</sup> .....	.1	—	—	.4	.2	—
Don't know <sup>5</sup> .....	—	—	—	—	—	—
Formaldehyde.....	1.9	2.7	1.2	.8	1.3	5.0
Yes <sup>2</sup> .....	1.9	2.7	1.1	.8	1.2	4.9
No <sup>3</sup> .....	—	—	—	—	—	—
Other data sources <sup>4</sup> .....	—	—	—	—	—	—
Don't know <sup>5</sup> .....	—	—	—	—	—	—

See footnotes at end of table

**Table 103. Percent of establishments that used either air-purifying or air-supplied respirators and conducted air sampling/monitoring for selected substances during the 12 months<sup>1</sup> prior to the survey, by establishment size group—Continued**

Air sampling/monitoring	Total	Employment size group				
		1–10 workers	11–49 workers	50–249 workers	250–999 workers	1000 workers or more
<b>Substance - Continued</b>						
Isocyanate.....	1.0	0.7	0.5	0.9	0.5	11.1
Yes <sup>2</sup> .....	.7	—	.2	.5	.4	11.1
No <sup>3</sup> .....	.1	—	—	—	—	—
Other data sources <sup>4</sup> .....	.2	—	—	.4	.1	—
Don't know <sup>5</sup> .....	—	—	—	—	—	—
Man-made fibers.....	.7	.1	1.7	.6	.7	.3
Yes <sup>2</sup> .....	.4	—	1.2	.3	.6	.3
No <sup>3</sup> .....	.1	—	.2	.2	—	—
Other data sources <sup>4</sup> .....	.1	—	—	—	—	—
Don't know <sup>5</sup> .....	.1	—	—	—	—	—
Pesticides.....	2.5	1.2	4.7	2.1	1.0	—
Yes <sup>2</sup> .....	.1	—	.1	.1	.2	—
No <sup>3</sup> .....	1.7	1.0	2.7	1.1	.6	—
Other data sources <sup>4</sup> .....	.7	—	1.8	.4	.1	—
Don't know <sup>5</sup> .....	—	—	—	—	—	—

<sup>1</sup> The 12-month period represents required use of respirators in the 12 months prior to the establishment's completion of the survey. The survey was mailed to establishments in August 2001.

<sup>2</sup> Air sampling/monitoring was conducted at the establishment at any time in the past for the substance for job(s) that required respirator use.

<sup>3</sup> Air sampling/monitoring was not conducted at the establishment at any time in the past for the substance during job(s) that required respirator use.

<sup>4</sup> Air sampling/monitoring was not needed because historical and objective data were obtained from industry studies or trade

associations that are similar to the establishment's physical environment for the substance.

<sup>5</sup> Do not know if air sampling/monitoring was conducted for the substance.

NOTE: Because of rounding, data exclusion of nonclassifiable responses, and establishment reports of more than one type of respirator use, data do not sum to the totals. Dashes indicate data that do not meet publication guidelines. A measure of sampling variability for each estimate is available upon request.

SOURCE: Bureau of Labor Statistics, U.S. Department of Labor.

# Appendix A. Scope and Method of Survey

## Scope

The Survey of Respirator Use and Practices provides estimates of the numbers of establishments and employees using respirators, by type of respirator, during the 12-month period prior to completing the survey. Types of respirators are defined as non-powered air-purifying respirators, powered air-purifying respirators, and air-supplied respirators. The survey collected data on more detailed classifications under these three types of respirators. The survey also provides estimates of the number of establishments that use respirators by type of use, defined as voluntary use, required non-emergency use, and required emergency use.

This voluntary survey collected data on the characteristics of the respirator program at the establishment; characteristics of the respirator training program at the establishment; assessment of medical fitness to wear respirators; fit-testing methods used for respirators; usefulness of National Institute for Occupational Safety and Health (NIOSH) approval labels and respirator manufacturers' instructions; and substances protected against by the use of respirators.

The survey included *all* private sector establishments in the United States except self-employed individuals and farms with fewer than 11 employees. Excluded were all public sector establishments, that is, Federal, State, and local government agencies. Included were the following industries: Agri-culture, forestry, and fishing, Standard Industrial Classification (SIC) 01–09; metal mining, SIC 10; coal mining, SIC 12; oil and gas extraction, SIC 13; nonmetal mining, SIC 14; construction, SIC 15–17; manufacturing, SIC 20–39; railroad transportation, SIC 40; transportation and public utilities, SIC 41–42 and 44–49; wholesale and retail trade, SIC 50–59; finance, insurance, and real estate SIC 60–67; and services, SIC 70–87 and 89. Establishments were classified in the above industry categories based on the *Standard Industrial Classification Manual 1987*, published by the U.S. Office of Management and Budget.

## Sample

Most of the establishments in the sample for the Survey of Respirator Use and Practices were selected from the Longitudinal Establishment Database, which is an output of the Bureau of Labor Statistics (BLS) Covered Employment and Wages (ES-202) program. The ES-202 program is a Federal/State statistical program managed by BLS and the State Employment Security Agencies (SESAs) in the 50 States, the District of Columbia, Puerto Rico, and the Virgin Islands. It produces a comprehensive tabulation of employment and wage information for workers covered by

unemployment insurance (UI) laws. The samples for SIC 10, 12, 14, and 40 are provided to BLS by the Mine Safety and Health Administration (MSHA), U.S. Department of Labor, and the Federal Railroad Administration, U.S. Department of Transportation.

The sampling frame of 174,305 establishments from which the sample for the Survey of Respirator Use and Practices was drawn consisted of establishments that were coded usable for estimation in the BLS Survey of Occupational Injuries and Illnesses (SOII) in 1999. The sample for that survey was originally drawn from the BLS Longitudinal Establishment Database. All establishments in the sampling frame for the Survey of Respirator Use and Practices were located in the 50 States plus the District of Columbia. The final sample size was 40,002 private industry establishments.

SIC and employment size were used to assign the establishments to sampling strata. Each establishment was placed in 1 of 5 employment size groups: 1 to 10 employees; 11 to 49 employees; 50 to 249 employees; 250 to 999 employees; and 1,000 employees or more. The sample was then allocated using probability proportional to the expected number of establishments that used respirators in each stratum. These expected numbers were based on estimates from the Occupational Safety and Health Administration (OSHA) Personal Protective Equipment (PPE) Cost Survey, conducted in 1998-99.

## Questionnaire design

NIOSH participated in the development of the survey questionnaire by providing BLS with direction on technical subjects such as regulations associated with respirators, respirator types and uses, and specific substances that require respirator use. In addition, NIOSH developed the original questions for the survey. Although BLS modified the questionnaire prior to pretests, it remained substantively the same in terms of language, item structure, and content. Pretesting was undertaken to test the semantic and linguistic features of the questionnaire, and to obtain respondent reaction.

*Cognitive interviews.* Twelve cognitive interviews were conducted with eleven establishments during two rounds of pretesting. Nine establishments participated in the first round of interviews, which focused on development of a satisfactory field test instrument. The final three interviews were completed during a second round of testing, after the field test results had been analyzed. Interviews averaged 90 minutes. The respondents were not compensated for their participation.

A protocol was designed to assess respondent comprehension and ease of response. The pretest protocol queried respondents concerning the following items:

- Survey title, introduction, routing of survey throughout the establishment; survey completion time; initial respondent reactions;
- Definition of major terms;
- Availability of relevant documentation at the establishment;
- Use of air-purifying respirators and air-supplied respirators;
- Establishment's respirator program content and administration;
- Procedures and requirements for respirator fit testing.

*Field testing.* A field test was conducted with 120 establishments to further examine cognitive, linguistic, and measurement issues surrounding the collection of respirator use data. Data collected from the field test were used to develop the final version of the survey questionnaire. Again, the field test respondents were not compensated for their participation.

Field test results indicated that an establishment that used respirators took an average of 90 minutes to complete the form; establishments that did not use respirators took about 15 minutes to complete the form.

### **Data collection**

The survey was mailed to sampled establishments in August 2001. In October 2001, a subsequent mailing was sent to establishments that had not responded. Telephone callbacks to remaining nonrespondents were performed from December 2001 through February 2002. The final response rate for the survey was 75.5 percent.

The data collected were keyed and edited for inconsistent and invalid responses. Inconsistent data could result if a respondent gave more than one answer for questions that required only one response. Other inconsistencies could result from interquestion responses. Establishments were recontacted to correct these inconsistent and invalid responses.

### **Estimating procedures**

*Sample unit weighting.* By means of a weighting procedure, sample units together represent all units in their employment size group for a particular industry. The weight assigned to an establishment is determined by the inverse of the sampling ratio for the industry/employment size group from which the unit was selected. Because not all of the survey

forms were returned, weights of responding employers in a sampling cell were adjusted to account for the nonrespondents.

*Nonresponse adjustment.* There were two levels of nonresponse adjustment conducted for the survey estimates. The first level was unit nonresponse adjustment. For each sampling stratum—two-digit industry and employment size group—a nonresponse adjustment factor was computed as the number of viable units in the stratum divided by the number of usable units in the stratum. Sample units that were out of business or for which the Post Office returned an unopened package of survey materials were not considered viable. Usable units were defined as those whose responses passed data editing criteria. If a sampling stratum contained no usable units, the stratum was combined with all other size groups in the two-digit industry category, and nonresponse adjustment was computed for the stratum at the two-digit industry level. The second level of nonresponse adjustment was item nonresponse. For usable units providing incomplete responses, certain missing answers were imputed based on the responses from other usable units in the same sampling stratum. These data were randomly selected based on the prevalence of response rates for the item in the stratum.

*Industry benchmarking.* Because the sample frame was not current to the reference year of the survey, it was necessary to adjust the data before publication to reflect current employment levels. This required the use of employment data series that included observations for the period covered by the survey in a procedure known as “benchmarking.” Benchmark factors are computed for both establishments and employees in the survey. All survey totals are adjusted by the appropriate benchmark factor at the estimating cell level. The benchmarking procedure requires a source of accurate employment data that can be converted into annual average employment figures for each cell level for which separate estimates are desired. Because industry/employment-size data are required for national estimates, benchmark factors are applied to the employment size group estimates.

*Final weights.* The final weight used to develop estimates of numbers of establishments from the respirator survey was the final sample-unit weight, times the nonresponse adjustment factor, times the benchmark factor for establishments. The final weight used for estimates of the numbers of employees was the final sample-unit weight, times the nonresponse adjustment factor, times the benchmark factor for employment.

### **Reliability of estimates**

The survey estimates were based on a scientifically selected probability sample, rather than a census of the entire population. Because the data were based on a sample

survey, the estimates probably differ from the figures that would be obtained if data for all units covered by the survey were collected. To determine the precision of each estimate, a standard error was calculated. The standard error defines a range (confidence interval) around the estimate.

The 95-percent confidence interval is the interval centered at the sample estimate and includes all values within 2 times the estimate's standard error. The standard error also can be expressed as a percent of the estimate, or the relative standard error. For example, the 95-percent confidence interval for an estimate of 50,000 establishments using respirators with a relative standard error of 1 percent would be 50,000 plus or minus 2 percent (2 times 1 percent) or 49,000 to 51,000. One can be 95 percent confident that the "true" estimate falls within the confidence interval. The total estimate that 281,776 establishments had used respirators within the preceding 12 months has an estimated relative standard error of less than 1 percent. A standard error was calculated for each estimate from this survey.

### **Nonsampling error**

The data also were subject to nonsampling error. Mistakes in recording or coding the data, employer misunderstanding of questions, and definitional difficulties are general

examples of nonsampling error in the survey. Although not measured, nonsampling errors will always occur when statistics are gathered. However, BLS has implemented quality assurance procedures to reduce nonsampling error in the survey, including double-keying of survey responses, detailed training of personnel involved in the nonresponse callbacks, and initiation of callbacks resulting from editing of the data.

### **Publication guidelines**

The estimating procedure generated respirator use and practices estimates for all industries coded at the two-digit SIC level, major industry division level, and for employment size groups. This publication excludes estimates if one of the following situations occurred:

- The industry had fewer than six employees or the industry estimates were based on reports from fewer than three companies.
- The relative standard error for an estimate exceeded a specified limit.
- Publication might disclose confidential information.

## Appendix B. Definitions

The following definitions were used to collect and analyze data for the Survey of Respirator Use and Practices:

**Respirator:** A device designed to protect the wearer from the inhalation of a hazardous atmosphere.

**Voluntary use:** Employee decides to use a respirator (with the employer's approval) for personal reasons (for example, allergy or desire to reduce exposure beyond that required by regulation).

**Required non-emergency use:** Respirator use for exposure to known substances that is required by regulation or by the employer.

**Required emergency use:** Respirator use as a result of an unplanned situation, including escape from or entry into a potentially hazardous environment.

**Air-purifying respirators:** These devices filter the air entering the respirator (includes dust masks with two head-straps). Air-purifying respirators are either non-powered or powered.

**Type of filtration:** Air-purifying respirators are grouped into three general types: *particulate removing*, *vapor and gas removing*, and *combination*.

**Non-powered air-purifying respirators** (also called **negative-pressure respirators**): Respirators that require

the wearer to draw air through particulate filters and/or gas/vapor filters (sometimes called chemical cartridges) by breathing. Non-powered air-purifying respirators are grouped into the following types: *dust mask (disposable)*, *half-mask (other than disposable dust mask)*, *full-facepiece*, and *mouth-piece*.

**Powered air-purifying respirators** (also called **PAPRs**): Respirators that require the wearer to use a blower to draw air through particulate filters and/or gas/vapor filters (sometimes called chemical cartridges). Powered air-purifying respirators are grouped into the following types: *loose-fitting facepiece*, *hood/helmet without neck seal*, *hood/helmet with neck seal*, *tight-fitting half facepiece*, and *tight-fitting full facepiece*.

**Air-supplied respirators:** Respirators that supply a separate source of breathing air from either compressed air by an airline (termed airline respirators) and/or air or oxygen by a tank or cylinder (called self-contained breathing apparatus (SCBA)).

**Tight-fitting respirators:** Respirators whose proper function depends on making a tight seal with the face.

**Loose-fitting respirators:** Respirators that use either a hood, helmet, or loose-fitting face shield.

# Appendix C. Survey Report Form and Instructions



U.S. Department of Labor  
Bureau of Labor Statistics

**PLEASE READ OUR LETTER ON THE NEXT PAGE FOR IMPORTANT INFORMATION**

US DEPARTMENT OF LABOR

BUREAU OF LABOR STATISTICS  
C/O DATA SERVICE SOLUTIONS INC  
23839 WEST INDUSTRIAL DRIVE NORTH  
PLAINFIELD ILLINOIS 60544

### **Address for Return Envelope:**

US DEPARTMENT OF LABOR  
  
BUREAU OF LABOR STATISTICS  
C/O DATA SERVICE SOLUTIONS INC  
23839 WEST INDUSTRIAL DRIVE NORTH  
PLAINFIELD ILLINOIS 60544

**Please correct your Company Address**

**Note:** The Bureau of Labor Statistics will use the information you provide for statistical purposes only. To the full extent permitted by law, this information will be held in confidence and will not be disclosed without the written consent of your establishment.

We estimate it will take an average of 30 minutes to complete this survey (ranging from 15 minutes to 1½ hours per package), including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing this information. If you have any comments regarding these estimates or any other aspect of this survey, including suggestions for reducing this burden, please send them to the Bureau of Labor Statistics, Occupational Safety and Health Statistics, 2 Massachusetts Avenue, N.E., Washington, D.C. 20212. You are not required to respond to the collection of information unless it displays a currently valid OMB control number.

OMB No. 1220-0171  
Approval expires 07-31-02  
BLS-2000 RU

## Dear Employer:

The U.S. Department of Labor, Bureau of Labor Statistics is working with the National Institute for Occupational Safety and Health (NIOSH) to survey employers about their use of respirators. The *Survey of Respirator Use and Practices* includes questions about your establishment's use of respirators, the number of your employees who used different types of respirators, and how they used respirators during the past 12 months. Other questions are included about your establishment's respirator practices and procedures.

You have been selected to participate in this survey. Your participation in this survey is voluntary. However, we are relying on your assistance to help us meet our need for this important information. We recognize that responding to our questions may be time consuming for some employers. Therefore, we have made every effort to reduce the amount of time required to complete questions wherever possible on the survey.

The Bureau of Labor Statistics will use the information you provide for statistical purposes only. To the full extent permitted by law, this information will be held in confidence and will not be disclosed without written consent of your establishment. You will NOT be visited by any regulatory agency as a result of your participation in this survey.

Thank you for helping us collect accurate information and for participating in the effort to make America's workplaces safer and healthier.

Bureau of Labor Statistics  
U.S. Department of Labor

## What do you need to do?

- Please forward this survey to the person who is **most informed** about the use of respirators throughout your establishment.
- Complete this survey only for the establishment(s) noted on the cover under ***Reporting Site***.
- Verify the information printed on the cover under ***Your Company Address*** and make corrections where necessary.
- On Page 1, fill in the **Contact Information (name, title, and telephone numbers)** of the person whom we should call with questions.
- Return the entire package – everything that we sent you – in the enclosed envelope within **30 days** of the date your establishment received it.

If you need help in completing our survey form or if you have questions, please call Area Code <b>202-691-6170</b> .
--

# Survey of Respirator Use and Practices

**SURVEY INTRODUCTION:** This survey addresses respirator use in establishments around the nation. The survey is organized as follows:

- All establishments that have respirators complete **Section I: Respirator Use**.
- Only establishments using air-purifying respirators complete **Section II: Air-Purifying Respirators**.
- Only establishments using air-supplied respirators complete **Section III: Air-Supplied Respirators**.
- All establishments using any type of respirator complete **Section IV: Fit Testing of Respirators**.

**IMPORTANT:**

- Only report information about the **Reporting Site** identified on the address label.
- Some questions will **not** apply to you. Please complete only those that pertain to you.

**A** How many employees are currently employed by your establishment:

**PLEASE NOTE THE FOLLOWING WHEN ANSWERING THIS QUESTION:**

- Include your own direct employees (full-time and part-time).
- Include your employees who work away from your establishment premises under a contract or sub-contract with another company.
- Do **NOT** include contract or sub-contract employees.

NUMBER OF CURRENT EMPLOYEES: \_\_\_\_\_

**B** Are you the person responsible for directing

and overseeing the use of respirators at your establishment? [Check only ONE.]

- Yes
- No, we do **NOT** have respirators (including dust masks with two headstraps) at this establishment.

**STOP HERE. PLEASE COMPLETE "CONTACT INFORMATION" BELOW AND RETURN SURVEY IN THE ENVELOPE PROVIDED.**

- No, but we **DO** have respirators
- Don't know

*Please route this survey to the person most familiar with the use of respirators at the Reporting Site*

**C** CONTACT INFORMATION:

Name of person completing the survey: \_\_\_\_\_

Job title: \_\_\_\_\_

Phone number: ( \_\_\_\_\_ ) \_\_\_\_\_ -- \_\_\_\_\_  
Ext. \_\_\_\_\_

Fax number: ( \_\_\_\_\_ ) \_\_\_\_\_ -- \_\_\_\_\_

**D** Describe your education, training, and/or job experience to oversee and administer the respirator use program. [Check ALL that apply.]

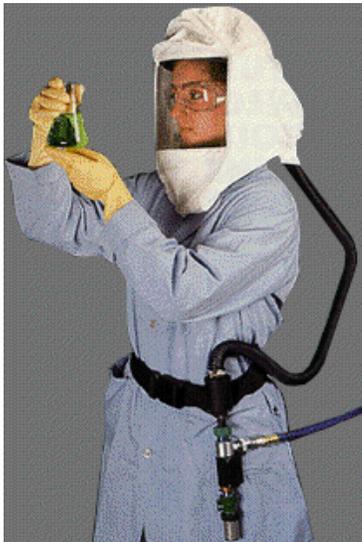
- No specific respirator training
- Trained Industrial Hygienist
- Certified Industrial Hygienist (C.I.H.)
- Occupational Safety and Health Technician
- Trained Safety Engineer/Safety Specialist
- Certified Safety Professional (C.S.P.)
- Occupational Health Nurse
- Physician
- One-day respirator use training course
- Multi-day respirator use training course
- Other \_\_\_\_\_

**E** Is there **ONE** person responsible for directing and overseeing the use of respirators at your establishment? [Check only ONE.]

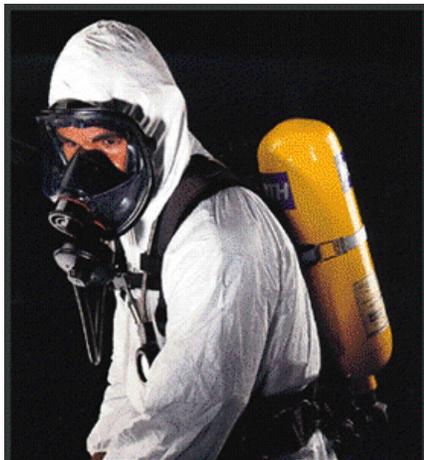
- Yes
- No
- No, but we do have MORE than one person responsible



Used by BLS with permission from 3M.



Used by BLS with permission from North Safety.



Used by BLS with permission from North Safety.

## Section I: Respirator Use

**NOTE →** *All establishments who have respirators, please complete Section I*

Please use the following definitions to answer Questions (1) and (2):

### Required Use:

- (a) **Required Non-Emergency Use:** *Respirator use for exposure to known substances which is required by regulation or by the employer.*
- (b) **Required Emergency Use:** *Respirator use as a result of an unplanned situation, including escape from or entry into a potentially hazardous environment.*

### Voluntary Use:

*Employee decides to use respirator (with the employer's approval) for personal reasons (e.g., allergy, desire to reduce exposure beyond that required by regulation, etc.).*

**1** Do employees at this establishment use respirators (including dust masks with two headstraps)? [Check ALL that apply.]

- Yes, we ONLY have Voluntary Use of respirators. → **STOP HERE. PLEASE RETURN SURVEY IN THE ENVELOPE PROVIDED.**
- Yes, for Required Non-Emergency use
- Yes, for Required Emergency use
- Yes, for Voluntary use
- No, we do NOT use respirators at this establishment → **STOP HERE. PLEASE RETURN SURVEY IN THE ENVELOPE PROVIDED.**

**IMPORTANT:**

- The remaining questions on this survey are for Required Non-Emergency Use and/or Required Emergency Use in the past 12 months.
- Do **NOT** include any Voluntary Use for the remaining questions in this survey.

**2** During the past 12 months, have your employees used respirators at your establishment?  
[Check All that apply.]

- Yes, for Required Non-Emergency use
- Yes, for Required Emergency use
- No → **STOP HERE.  
PLEASE RETURN SURVEY  
IN THE ENVELOPE PROVIDED.**

**3** During the past 12 months, how many of your current employees used a respirator?

- Include **ALL** respirator types, ranging from simple dust masks with two headstraps to more complex breathing apparatus.
- Do **NOT** include employees who are required to carry emergency escape respirators but who did **NOT** use them within the past 12 months.
- Do **NOT** include employees who voluntarily chose to use a respirator in situations where respirator use was **NOT** required, as described in the definition provided on Page 2.
- If you do **NOT** know the exact number, please provide your **BEST** estimate of the total number of employees who used respirators.



← Number of employees who used respirators in the past 12 months

**4** How accurate is this number?

- Highly
- Somewhat, please explain: \_\_\_\_\_  
\_\_\_\_\_
- Not very, please explain: \_\_\_\_\_  
\_\_\_\_\_
- Don't know, please explain: \_\_\_\_\_  
\_\_\_\_\_

**5** Which **ONE** of the following **BEST** describes how respirators are used at your company?  
[Check only ONE.]

- Supervisors decide how to use respirators based on employee input and the characteristics of each job.
- Employees decide how to use respirators based on the characteristics of each job.
- Written program adopted by establishment management.
- Written instructions provided by the respirator manufacturer determine how respirators are to be used.

**6** Does your establishment assess your employees' medical fitness to wear respirators?

- Yes → **Go to Question 7**
- No, our employees are **NOT** assessed. → **Go to Question 9**
- Don't know → **Go to Question 9**

**7** Which method does your establishment use to assess your employees' medical fitness to wear respirators? [Check only ONE.]

- Questionnaire only
- Questionnaire with follow-up exam, as needed
- Physical exam only
- Other - please list: \_\_\_\_\_
- Don't know

**8** Which of the following typically determine(s) your employees' medical fitness for respirator use? [Check ALL that apply.]

- Nurse(s) employed by contract, direct salary, or fee for service
- Physician(s) employed by contract, direct salary, or fee for service
- Individual employees' personal physicians
- Contract Occupational Health Service
- Other - please list: \_\_\_\_\_
- Don't know

**9** Which ONE of the following BEST describes the training provided to your employees about respirator use? [Check only ONE.]

- This establishment does not require training about respirator use because it is not needed.
- Respirator wearers follow respirator manufacturer instructions.
- Employees are trained to understand the substance(s) for which respirators are used, use of respirators, and limitations of respirators.

**10** Who provides the training to your employees about respirator use? [Check ALL that apply.]

- No special training is needed
- The respirator program manager
- A supervisor
- Medical personnel
- An external consultant
- Respirator manufacturer sales/technical representative
- Designated employee other than those listed above [Please specify job title for this employee]:  
\_\_\_\_\_
- Other - please list: \_\_\_\_\_

**11** Do you have written procedures and schedules for maintaining respirators at your establishment (cleaning, disinfecting, discarding, replacing)?

- Yes
- No
- Not needed
- Don't know

**12** Do you have a written procedure to periodically evaluate the effectiveness of respirator use at your establishment?

- Yes
- No
- Not needed
- Don't know

**13** When did you last evaluate the effectiveness of respirator use at your establishment?

- Within the last 3 months
- Within the last 3-6 months
- Within the last 6-12 months
- More than 12 months ago
- We do not evaluate respirator use
- Don't know

**14** How do you decide which respirator is appropriate for the substance(s) faced by your employees? [Check ALL that apply.]

- Employee's suggestion
- Local store products/salesperson
- Air sampling (air monitoring) conducted at your facility
- Air sampling (air monitoring) conducted at facilities with operations very similar to yours
- Respirator manufacturer's representative
- Respirator manufacturer's literature
- Assigned Protection Factor (APF)
- Hazard ratio
- Material Safety Data Sheets
- Other - please list: \_\_\_\_\_
- Don't know
- Unfamiliar with language/terms used

**15** Respirator manufacturers provide user instructions and a NIOSH approval label(s) with all respirators. Based on your experience, circle your answer for each statement below:

(a) The respirator <u>manufacturer's instructions</u> and the <u>NIOSH approval labels</u> are received with all our respirators.	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center;"><b>Strongly Agree</b></td> <td style="text-align: center;"><b>Agree</b></td> <td style="text-align: center;"><b>Uncertain</b></td> <td style="text-align: center;"><b>Disagree</b></td> <td style="text-align: center;"><b>Strongly Disagree</b></td> </tr> <tr> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> <td style="text-align: center;">3</td> <td style="text-align: center;">4</td> <td style="text-align: center;">5</td> </tr> </table>	<b>Strongly Agree</b>	<b>Agree</b>	<b>Uncertain</b>	<b>Disagree</b>	<b>Strongly Disagree</b>	1	2	3	4	5
<b>Strongly Agree</b>	<b>Agree</b>	<b>Uncertain</b>	<b>Disagree</b>	<b>Strongly Disagree</b>							
1	2	3	4	5							
(b) The <u>NIOSH approval labels</u> are clear and easily understood.	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center;"><b>Strongly Agree</b></td> <td style="text-align: center;"><b>Agree</b></td> <td style="text-align: center;"><b>Uncertain</b></td> <td style="text-align: center;"><b>Disagree</b></td> <td style="text-align: center;"><b>Strongly Disagree</b></td> </tr> <tr> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> <td style="text-align: center;">3</td> <td style="text-align: center;">4</td> <td style="text-align: center;">5</td> </tr> </table>	<b>Strongly Agree</b>	<b>Agree</b>	<b>Uncertain</b>	<b>Disagree</b>	<b>Strongly Disagree</b>	1	2	3	4	5
<b>Strongly Agree</b>	<b>Agree</b>	<b>Uncertain</b>	<b>Disagree</b>	<b>Strongly Disagree</b>							
1	2	3	4	5							
(c) The <u>NIOSH approval labels</u> are beneficial in our use of respirators.	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center;"><b>Strongly Agree</b></td> <td style="text-align: center;"><b>Agree</b></td> <td style="text-align: center;"><b>Uncertain</b></td> <td style="text-align: center;"><b>Disagree</b></td> <td style="text-align: center;"><b>Strongly Disagree</b></td> </tr> <tr> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> <td style="text-align: center;">3</td> <td style="text-align: center;">4</td> <td style="text-align: center;">5</td> </tr> </table>	<b>Strongly Agree</b>	<b>Agree</b>	<b>Uncertain</b>	<b>Disagree</b>	<b>Strongly Disagree</b>	1	2	3	4	5
<b>Strongly Agree</b>	<b>Agree</b>	<b>Uncertain</b>	<b>Disagree</b>	<b>Strongly Disagree</b>							
1	2	3	4	5							
(d) The respirator <u>manufacturer's instructions</u> are clear and easily understood.	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center;"><b>Strongly Agree</b></td> <td style="text-align: center;"><b>Agree</b></td> <td style="text-align: center;"><b>Uncertain</b></td> <td style="text-align: center;"><b>Disagree</b></td> <td style="text-align: center;"><b>Strongly Disagree</b></td> </tr> <tr> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> <td style="text-align: center;">3</td> <td style="text-align: center;">4</td> <td style="text-align: center;">5</td> </tr> </table>	<b>Strongly Agree</b>	<b>Agree</b>	<b>Uncertain</b>	<b>Disagree</b>	<b>Strongly Disagree</b>	1	2	3	4	5
<b>Strongly Agree</b>	<b>Agree</b>	<b>Uncertain</b>	<b>Disagree</b>	<b>Strongly Disagree</b>							
1	2	3	4	5							
(e) The respirator <u>manufacturer's instructions</u> are beneficial in our use of respirators.	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center;"><b>Strongly Agree</b></td> <td style="text-align: center;"><b>Agree</b></td> <td style="text-align: center;"><b>Uncertain</b></td> <td style="text-align: center;"><b>Disagree</b></td> <td style="text-align: center;"><b>Strongly Disagree</b></td> </tr> <tr> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> <td style="text-align: center;">3</td> <td style="text-align: center;">4</td> <td style="text-align: center;">5</td> </tr> </table>	<b>Strongly Agree</b>	<b>Agree</b>	<b>Uncertain</b>	<b>Disagree</b>	<b>Strongly Disagree</b>	1	2	3	4	5
<b>Strongly Agree</b>	<b>Agree</b>	<b>Uncertain</b>	<b>Disagree</b>	<b>Strongly Disagree</b>							
1	2	3	4	5							

There are two basic types of respirators:

(1) **Air-purifying respirators**  
(including dust masks with two headstraps): filter the air entering the respirator.

(2) **Air-supplied respirators:** supply  
– compressed air by an airline (i.e., airline respirators)  
– air or oxygen by a tank or cylinder (i.e., self-contained breathing apparatus [SCBA]).

**16** During the past 12 months, how many of your current employees who used respirators have used either of these two basic types?

- Indicate the **TOTAL** number of employees, **NOT** a percentage, using each type of respirator.
- If an employee has used **BOTH** types of respirators, please include the employee in both counts.
- The sum of both boxes cannot be less than the count you reported for Question 3.

← Number of employees who used **air-purifying respirators**

← Number of employees who used **air-supplied respirators**

- Don't know
- Unfamiliar with language/terms used

**NOTE** → If “air-purifying respirators” were **NOT** used, go to Section III.

## Section II: Air-Purifying Respirators

There are two types of air-purifying respirators:

(1) **Non-powered air-purifying respirators (also called negative-pressure respirators), including dustmasks:** the wearer draws air through particulate filters or gas/vapor filters (sometimes called chemical cartridges) by breathing.

(2) **Powered air-purifying respirators (also called PAPRs):** the wearer uses a blower to draw air through particulate filters or gas/vapor filters (sometimes called chemical cartridges).

**17** During the past 12 months, how many of your current employees have used **non-powered air-purifying respirators**?

- Your answer below should **NOT** be larger than the number you provided for Question 16 for the “Number of employees who used air-purifying respirators”
- Indicate the **TOTAL** number of employees, **NOT** a percentage, in the box provided.
- If an employee has used **BOTH** powered and non-powered types in the past year, include the employee in the counts for this question and in Question 19.

Number of employees who used **non-powered air-purifying respirators**

— If your answer is “ZERO,”  
Go to Question 19

- Don't know
- Unfamiliar with language/terms used

**18** How many of the employees you reported in Question 17 have used any of the following types of non-powered air-purifying respirators during the past 12 months for each of the types of hazards listed below?

- Indicate the TOTAL number of employees, NOT a percentage, using each type of respirator.
- If an employee has used more than one type, include the employee in the counts for all types they have used.

TYPES OF RESPIRATORS	TYPES OF HAZARDS			
	Particulate	Gas/Vapor	Combination Particulate + Gas/Vapor	Don't Know <input checked="" type="checkbox"/>
Dust mask (disposable)				
Half-mask (other than disposable dust mask)				
Full-facepiece				
Mouth-piece				
<input type="checkbox"/> Unfamiliar with language/terms used				

**19** During the past 12 months, how many of your current employees have used powered air-purifying respirators?

- Your answer below should NOT be larger than the number you provided for Question 16 for the "Number of employees who used air-purifying respirators"
- Indicate the TOTAL number of employees, NOT a percentage, in the box provided.
- If an employee has used BOTH powered and non-powered types in the past year, include the employee in the counts for this question and in Question 17.

Number of employees who used **powered air-purifying respirators**

**If your answer is "ZERO,"  
Go to Question 21**

- Don't know
- Unfamiliar with language/terms used

**20** How many of the employees you reported in Question 19 have used any of the following types of powered air-purifying respirators during the past 12 months for each of the types of hazards listed below?

- Indicate the TOTAL number of employees, NOT a percentage, using each type of respirator.
- If an employee has used more than one type, include the employee in the counts for all types they have used.

TYPE OF RESPIRATORS	TYPES OF HAZARDS			
	Particulate	Gas/Vapor	Combination Particulate + Gas/Vapor	Don't Know <input checked="" type="checkbox"/>
Loose-fitting facepiece				
Hood/helmet Without neck seal				
Hood/helmet With neck seal				
Tight-fitting Half facepiece				
Tight-fitting Full facepiece				
<input type="checkbox"/> Unfamiliar with language/terms used				

**21** Use the following definitions to complete Table 1 in the next column: 

- **YES** = Air sampling/monitoring was conducted at this establishment at any time in the past for that substance during job(s) requiring respirator use.
- **NO** = Air sampling/monitoring was NOT conducted at this establishment at any time in the past for that substance during job(s) requiring respirator use.
- **OTHER DATA SOURCES** = Air sampling/monitoring was not needed because of historical and objective data obtained from industry studies or trade associations that are similar to this company's physical environment.
- **DON'T KNOW** = Don't know if any air sampling/monitoring has been conducted for this substance.

**21** [CONTINUED]

- (a) Check **ONLY** those substance(s) in Table 1 below for which your employees used air-purifying respirators as protection during the past 12 months.
- (b) List any additional substances under "Other."
- (c) Then for each substance you checked, tell us whether air sampling/monitoring was ever conducted using the definitions provided in the left column.

<b>TABLE 1</b>				
<b>Substance</b>	<b>Was Air Sampling Conducted?</b>			
	<u>YES</u>	<u>NO</u>	<u>OTHER DATA SOURCES</u>	<u>DON'T KNOW</u>
<input type="checkbox"/> Acid gas (such as sulfur dioxide)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Arsenic	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Asbestos	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Biologicals (i.e., TB & HIV)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Cadmium	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Carbon monoxide	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Chlorine	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Chromium	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Coal mine dust	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Coal tar pitch volatiles	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Coke oven emissions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Copper	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Cotton dust	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Hydrogen sulfide	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Iron oxide	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Lead	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Manganese	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Paint vapors	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Silica dust	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Solvents	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Styrene	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Toluene	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Welding fumes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Zinc oxide	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Other dust	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Other vapors	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Other – please list in spaces below:				
_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Unfamiliar with substances or language/terms used

**22** What is your establishment's policy regarding when to replace the particulate filters?  
[Check ALL that apply.]

- We don't use particulate filters
- Respirator manufacturer's instructions
- Our own testing
- Written change out schedule
- Employees decide
- Other – Please List: \_\_\_\_\_
- Don't know

**23** What is your establishment's policy regarding when to replace the gas/vapor filters?  
[Check ALL that apply.]

- We don't use gas/vapor filters
- Respirator manufacturer's instructions
- Our own testing
- Written change out schedule
- Employees decide
- Other – Please List: \_\_\_\_\_
- Don't know

**NOTE** → If "air-supplied respirators" were NOT used, go to Section IV.

## Section III: Air-Supplied Respirators

**24** During the past 12 months, how many of your current employees used self-contained breathing apparatus (SCBA) with carried air tank or oxygen source?

- Indicate the TOTAL number of employees, NOT a percentage, in the box provided.
- If none of your employees used this type of respirator – enter "ZERO" in the box below.

← Number of employees who used SCBA respirators

**25** During the past 12 months, how many of your current employees used any of the following types of air-supplied respirators?

- Indicate the TOTAL number of employees, NOT a percentage, in the box provided.
- If none of your employees used this type of respirator – enter "ZERO" in the box provided for each type of respirator.

← Number of employees who used airline respirator (air is supplied by air hose) with a half-mask

← Number of employees who used airline respirator with a full-facepiece

← Number of employees who used airline respirator with an integral helmet or hood

← Number of employees who used combination airline respirator and SCBA (escape bottle)

← If NONE of your employees used any of these respirators, enter "ZERO" in this box. Go to Question 28.

- Don't know
- Unfamiliar with language/terms used

**26** If your employees have used airline respirators (air supplied by air hose): Are the hose couplings compatible with couplings for other air or gas supply lines in your workplace?

- Yes
- No
- Don't know

**27** If your employees have used airline respirators (air supplied by air hose): Which ONE of the following BEST describes how employees adjust the airflow to these respirators? [Check only ONE.]

- Employees adjust airflow to the maximum comfortable level.
- Airflow is set at 4 or 6 cubic feet per minute.
- Airflow is only controlled where the air hose connects with compressed air source and is set according to pressures given on certification label or in user's instructions.
- Airflow rate is set according to the flow rate recommendations of the respirator manufacturer.
- Don't know

**28** Use the following definitions to complete Table 2 in the next column: 

- **YES** = Air sampling/monitoring was conducted at this establishment at any time in the past for that substance during job(s) requiring respirator use.
- **NO** = Air sampling/monitoring was NOT conducted at this establishment at any time in the past for that substance during job(s) requiring respirator use.
- **OTHER DATA SOURCES** = Air sampling/monitoring was not needed because of historical and objective data obtained from industry studies or trade associations that are similar to this company's physical environment.
- **DON'T KNOW** = Don't know if any air sampling/monitoring has been conducted for this substance.

**28** [CONTINUED]

- (a) Check ONLY those substance(s) in Table 2 below for which your employees used air-supplied respirators as protection during the past 12 months.
- (b) List any additional substances under "Other."
- (c) Then for each substance you checked, tell us whether air sampling/monitoring was ever conducted using the definitions provided in the left column.

TABLE 2				
Substance	Was Air Sampling Conducted?			
	YES	NO	OTHER DATA SOURCES	DON'T KNOW
<input type="checkbox"/> Acid gas (such as sulfur dioxide)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Arsenic	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Asbestos	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Biologicals (i.e., TB & HIV)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Cadmium	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Carbon monoxide	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Chlorine	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Chromium	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Coal mine dust	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Coal tar pitch volatiles	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Coke oven emissions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Copper	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Hydrogen sulfide	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Iron oxide	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Lead	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Manganese	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Oxygen deficiency	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Paint vapors	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Silica dust	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Solvents	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Styrene	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Toluene	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Welding fumes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Zinc oxide	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Other dust	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Other vapors	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Other – please list in spaces below:				
_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Unfamiliar with substances or language/terms used

## Section IV: Fit Testing of Respirators

**NOTE →** *All establishments using any type of respirator, please complete Section IV.*

Respirators are either (1) tight-fitting or (2) loose-fitting:

(1) **Tight-fitting:** *rely on the respirator making a tight seal with the face.*

(2) **Loose-fitting:** *use either a hood, helmet, or loose-fitting face shield.*

**29** Do your employees use tight-fitting respirators?

- Yes  
 No  
 Don't know
- } **STOP HERE. PLEASE RETURN SURVEY IN THE ENVELOPE PROVIDED**

**30** Is each employee who wears tight-fitting respirators fit tested?

- Yes  
 No  
 Not needed  
 Don't know
- } **STOP HERE. PLEASE RETURN SURVEY IN THE ENVELOPE PROVIDED**

**31** Who conducts the fit testing?  
[Check ALL that apply]

- In-house staff  
 Employees fit test themselves  
 Respirator manufacturer's sales/technical representative  
 Other outside party who provides a respirator fit testing service  
 Don't know

**32** During the past 12 months, which of the following fit testing methods were used at your establishment?

- If only ONE fit testing method was used, enter 100% in the percentage column.
- If more than one fit testing method was used, indicate the percentage of times each method was used.
- The percentage column should total up to 100%.

Fit Testing Method	Percentage	Check <input checked="" type="checkbox"/> Here if You Don't Know the Percentage
<input type="checkbox"/> Saccharin	%	
<input type="checkbox"/> Bitrex	%	
<input type="checkbox"/> Irritant smoke	%	
<input type="checkbox"/> Isoamyl acetate	%	
<input type="checkbox"/> Generated-aerosol (corn oil, salt, etc.)	%	
<input type="checkbox"/> Ambient aerosol (PORTACOUNT®)	%	
<input type="checkbox"/> Pressure (Controlled Negative Pressure – CNP)	%	
<input type="checkbox"/> Other: _____	_____ %	
_____	_____ %	
_____	_____ %	
<input type="checkbox"/> Don't know		
<input type="checkbox"/> Unfamiliar with language/terms used		

**If you need help in completing our survey form or if you have questions, please call Area Code 202-691-6170.**

**Please return the completed survey in the envelope provided.**

**Thank you very much for your help. Your cooperation is appreciated.**

# Appendix D. Cross-index of Survey Questionnaire Items with Table Numbers

The cross-index below is an aid to locating tabulated data for specific questionnaire items.

<i>Questionnaire item</i>	<i>Table number(s)</i>	<i>Questionnaire item</i>	<i>Table number(s)</i>
A	Not tabulated	15	64, 97
B	Not tabulated	16	8, 15, 20, 22
C	Not tabulated	17	13–14, 22, 29
D	36–37, 72	18	9–10, 23–24, 30–31
E	35, 63, 71	19	13–14, 22, 29
1	1–4	20	11–12, 25–26, 32–33
2	5–6, 21, 28	21	65–66, 69–70, 98–99, 102–103
3	7	22	56, 91
4	Not tabulated	23	56, 91
5	39, 40–42, 74–77	24	16–19, 22, 27, 29, 34
6	43–46, 78–81	25	16–19, 22, 27, 29, 34, 57–58, 92–93
7	43–46, 78–81	26	57, 92
8	47–50, 82–85	27	58, 93
9	35, 71	28	67–70, 100–103
10	38, 73	30	59–60, 63, 94–95
11	35, 71	31	60, 95
12	Not tabulated	32	61–63, 96
13	55, 90		
14	51–54, 86–89		