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# Respiratory Protection: Highlights of OSHA's Revised Standard

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# Respiratory Protection

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Highlights of OSHA's Revised Standard

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MAINE DEPARTMENT OF LABOR

JUL 06 2000

# Respiratory Protection



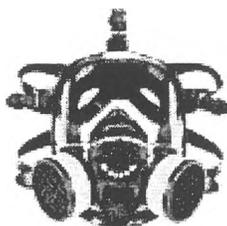
**NOTE:** In Maine, OSHA's revised Respiratory Standard does not apply in Public-Sector workplaces.

OSHA's revised Respiratory Protection Standard is effective April 8, 1998. The final standard replaces the respiratory protection standards adopted by OSHA in 1971 (29 CFR 1910.134 and 29 CFR 1926.103), and it applies to general industry, construction, shipyard, long shoring, and marine terminal workplaces. The standard requires employers to establish or maintain a respiratory protection program to protect their respirator-wearing employees. The final standard also simplifies respirator requirements for employers by deleting respiratory provisions in other OSHA health standards that duplicate those in the final standard and by revising other respirator-related provisions to make them consistent.

The entire previous respirator standard, 29 CFR 1910.134, is redesignated as 29 CFR 1926.139 Respirator protection for *M. tuberculosis*, and will continue to apply to respirator use for protection against exposure to TB until OSHA finalizes its TB standard.

The provisions of OSHA's previous respirator standards (29 CFR 1910.134 and 29 CFR 1926.103) remain in effect and will be enforced until the start-up date of the revised standard on October 5, 1998.

The final respiratory protection standard covers an estimated 5 million respirator wearers working in an estimated 1.3 million workplaces in the covered sectors. OSHA estimates that compliance with this standard will avert hundreds of deaths and thousands of illnesses annually.



Find more information on the OSHA Web page.  
[www.osha.gov](http://www.osha.gov)

# **OSHA National News Release**

## **U.S. Department of Labor**

### **Office of Public Affairs**

January 8, 1998

## **Respirator Facts and Highlights**

### **Respirator Use**

A respirator is a safety device covering at least the nose and mouth that protects the wearer against hazardous atmospheres containing particulates/dusts (e.g., silica); vapors and gases (e.g., carbon monoxide); atmospheres that are Immediately Dangerous to Life or Health (IDLH)(e.g., oxygen deficiency); physical agents (e.g., radioactive particles); or biological agents (e.g., mold spores).

About 5 million employees in 1.3 million establishments use respirators at one time or another.

Improper use of respirators can result in overexposure to hazardous contaminants, oxygen deficiency (suffocation) or acute and chronic health effects.

OSHA, the National Institute for Occupational Safety and Health (NIOSH) and the Mine Safety and Health Administration (MSHA) all regard effective respirator programs as essential to workers' health.

### **Benefits of the Revised OSHA Respirator Standard**

Compared to the existing standard, OSHA estimates the new standard will reduce exposure of workers to toxic substances by an average of approximately 27 percent, due to annual fit testing and training requirements. Currently, 75 percent of respirator-wearing employees work in establishments that do not have those elements of an effective respirator program in place.

OSHA estimates that more than 900 and possibly as many as 1,625 deaths will be averted annually among respirator wearers because of reduced exposure to toxic substances that cause cancer and cardiovascular disease. Many other deaths related to acute overexposure will also be avoided by proper respirator use.

In total, OSHA estimates that more than 4,000 injuries and illnesses will likely be prevented annually.

Savings of up to \$94 million annually in injury and illness-related costs are anticipated. Costs will amount to about \$22 per employee per year, on average, and the average annual expense per establishment is estimated to be \$87.

## **Impact on Small Businesses**

A number of changes from the proposal have been made in the final standard to reduce the impact on small businesses:

- Supersedes existing standards that require semi-annual fit testing and requires only annual fit testing;
- Use of portable quantitative fit testing devices is permitted;
- The employer can simply provide enough respirator choices to obtain an acceptable fit among the employees (instead of being required to have at least three different sizes of facepieces from two different manufacturers);
- Disposable respirators can be reused if they will continue to protect employees;
- Requirement for an annual review of the employee's medical status is eliminated;
- A medical questionnaire rather than a hands-on physical examination can be used to evaluate an employee's ability to wear a respirator;
- Accepts previous training in lieu of full initial training; and
- The compliance deadlines have been extended to 150 and 180 days after the effective date.

## **Other Important Aspects**

- A revised table of Assigned Protection Factors (APFs), which are numerical ratings given to different types of respirators to tell users how much protection the respirator can provide, will be added to the final rule at a later date.
- OSHA's original respiratory protection standard will continue to apply to respirator use for occupational exposure to tuberculosis until the TB standard (proposed standard published in November 1997) is made final. With regard to filter efficiency, any respirators certified by NIOSH under 42 CFR Part 84 and HEPA respirators certified under 30 CFR Part 11 will be acceptable to OSHA, in the interim, for protection against occupational exposure to TB.
- The OSHA respirator standard and the NIOSH certification standard work together. The OSHA standard requires selection of NIOSH-certified respirators and use as specified by the conditions of NIOSH-certification. The OSHA standard is being published during the transition from respirators certified under the old NIOSH 30 CFR Part 11 certification procedures to those certified under the new NIOSH 42 Part 84 procedures. The OSHA standard accommodates respirator selection under either NIOSH standard.

- The OSHA standard requires at least one standby person when work is conducted in most Immediately Dangerous to Life or Health (IDLH) atmospheres. This was required by the previous OSHA standard.
- IDLH atmospheres resulting from interior structural fires trigger additional provisions. At least two firefighters must enter the burning building and remain in visual and voice contact with each other at all times. In addition, at least two standby persons are required when two persons are engaged in interior structural firefighting in a burning building (this protective practice is known as "two-in / two-out").

# Major Requirements of OSHA's Respiratory Protection Standard

29 CFR 1910.134

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OSHA Office of Training and Education  
March 1998

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This document discusses the major requirements of OSHA's Respiratory Protection Standard, 29 CFR 1910.134.

No attempt has been made to discuss every detail of the standard. Readers are encouraged to consult the *Federal Register* (63 FR 1152, January 8, 1998) for the complete text. The corresponding page numbers of major paragraphs as they appear in Section VII (Summary and Explanation of the Standard) are provided throughout this document to facilitate further reading.

## Major Requirements of OSHA's Respiratory Protection Standard

29 CFR 1910.134

### Major Requirements of 29 CFR 1910.134

#### Introduction

- This standard, which replaces the respiratory protection standards adopted by OSHA in 1971 (29 CFR 1910.134 and 29 CFR 1926.103), applies to General Industry (Part 1910), Shipyards (Part 1915), Marine Terminals (Part 1917), Longshoring (Part 1918), and Construction (Part 1926).
- Respirator-related provisions of OSHA's existing standards are revised to conform to each other and to revised 29 CFR 1910.134.

- All provisions addressing respirator use, selection, and fit testing are deleted from OSHA's substance-specific standards.
- The entire previous respirator standard, 29 CFR 1910.134, is redesignated as 29 CFR 1910.139 *Respirator protection for M. tuberculosis, and will continue to apply to respirator use for protection against exposure to TB until the TB standard is finalized (proposal 62 FR 54160, Oct. 17, 1997).*

**(a) Permissible Practice (p. 1179)**

- Paragraphs (a)(1) and (a)(2) are essentially unchanged from the corresponding paragraphs of the prior standard. Paragraph (a)(1) establishes the hierarchy of controls by requiring the use of respirators when "effective engineering controls are not feasible, or while they are being instituted."
- Paragraph (a)(2) requires employers to provide employees with respirators that are "applicable and suitable" for the purpose intended "when such equipment is necessary to protect the health of the employee."

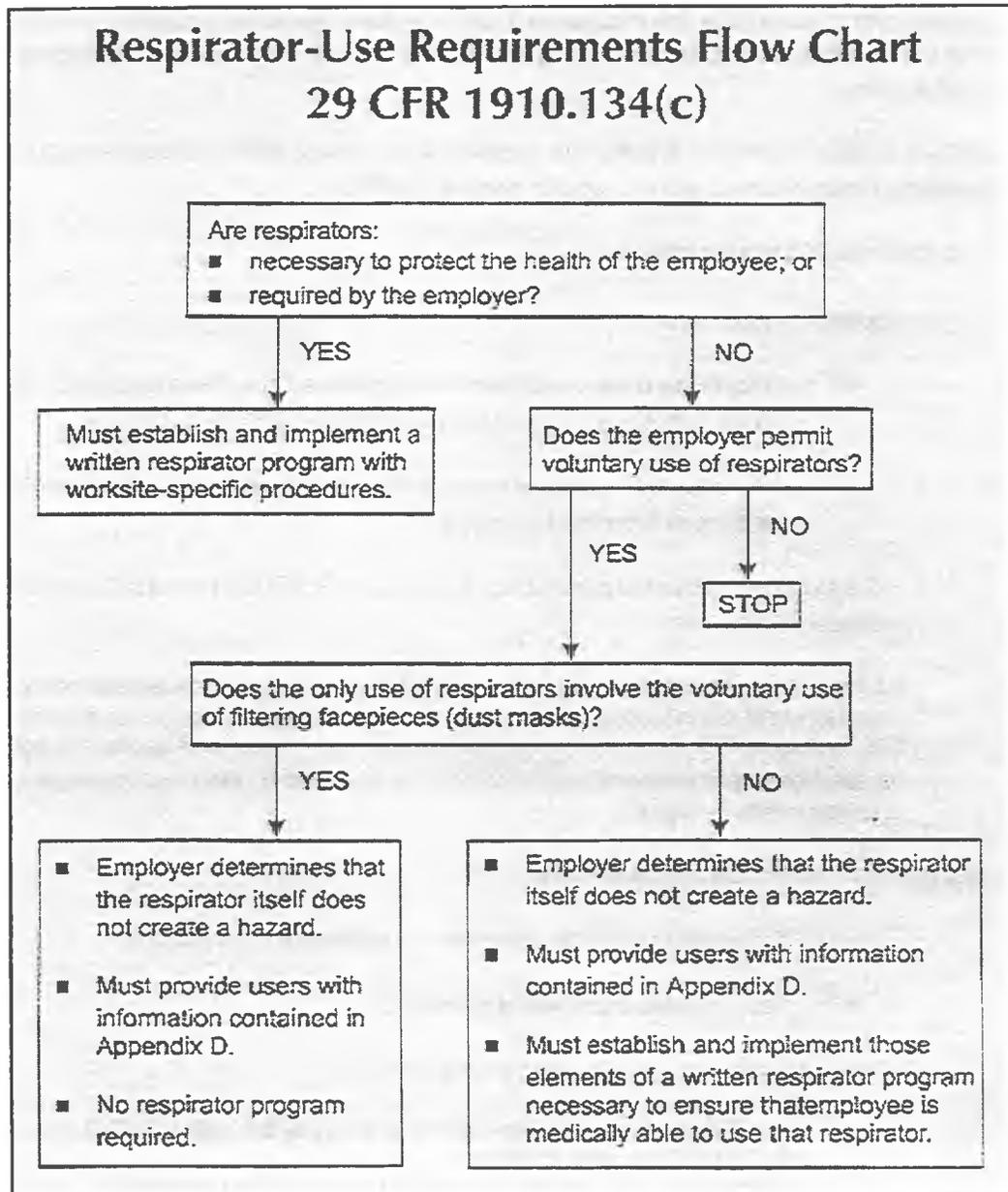
**(b) Definitions (p. 1181)**

**This paragraph contains definitions of important terms used in the regulatory text. The previous respiratory protection standard contained no definitions.**

**(c) Respiratory Protection Program (p. 1187)**

- Must designate a qualified program administrator to oversee the program.
- Must provide respirators, training, and medical evaluations at no cost to the employee.
- OSHA has prepared a *Small Entity Compliance Guide that contains criteria for selection of a program administrator and a sample program.*

# Respirator-Use Requirements Flow Chart



## (d) Selection of

### Respirators (p. 1195)

- Must select a respirator certified by the National Institute for Occupational Safety and Health (NIOSH) which must be used in compliance with the conditions of its certification.
- Must identify and evaluate the respiratory hazards in the workplace, including a reasonable estimate of employee exposures and identification of the contaminant's chemical state and physical form.
- Where exposure cannot be identified or reasonably estimated, the atmosphere shall be considered immediately dangerous to life or health (IDLH).
- Respirators for IDLH atmospheres:
  - Approved respirators:
    - full facepiece pressure demand self-contained breathing apparatus (SCBA) certified by NIOSH for a minimum service life of thirty minutes, or
    - combination full facepiece pressure demand supplied-air respirator (SAR) with auxiliary self-contained air supply.
  - All oxygen-deficient atmospheres (less than 19.5% O<sub>2</sub> by volume) shall be considered IDLH.

Exception: If the employer can demonstrate that, under all foreseeable conditions, oxygen levels in the work area can be maintained within the ranges specified in Table II (i.e., between 19.5% and a lower value that corresponds to an altitude-adjusted oxygen partial pressure equivalent to 16% oxygen at sea level), then *any atmosphere-supplying respirator may be used*.

- Respirators for non-IDLH atmospheres:
  - For protection against gases and vapors, the employer shall provide:
    - an atmosphere-supplying respirator, or
    - an air-purifying respirator, provided that:
      - respirator is equipped with an end-of-service-life indicator (ESLI) certified by NIOSH for the contaminant; or
      - if there is no ESLI appropriate for conditions of the employer's workplace, the employer implements a change schedule for canisters and cartridges that will ensure that they are changed before the end of their service life and describes in the respirator program the information and data relied upon and basis for the change schedule and reliance on the data.

- For protection against particulates, the employer shall provide:
  - an atmosphere-supplying respirator; or
  - an air-purifying respirator equipped with high efficiency particulate air (HEPA) filters certified by NIOSH under 30 CFR Part 11 or with filters certified for particulates under 42 CFR Part 84; or
  - an air-purifying respirator equipped with any filter certified for particulates by NIOSH for contaminants consisting primarily of particles with mass median aerodynamic diameters of at least 2 micrometers.

**(e) Medical Evaluation (p. 1207)**

- Must provide a medical evaluation to determine employee's ability to use a respirator, before fit testing and use.
- Must identify a physician or other licensed health care professional (PLHCP) to perform medical evaluations using a medical questionnaire or an initial medical examination that obtains the same information as the medical questionnaire (information required is contained in mandatory Appendix C).
- Must obtain a written recommendation regarding the employee's ability to use the respirator from the PLHCP.
- Additional medical evaluations are required under certain circumstances, e.g.:
  - employee reports medical signs or symptoms related to ability to use respirator;
  - PLHCP, program administrator, or supervisor recommends reevaluation;
  - information from the respirator program, including observations made during fit testing and program evaluation, indicates a need; or
  - change occurs in workplace conditions that may substantially increase the physiological burden on an employee.
  - Annual review of medical status is not required.

**(f) Fit Testing (p. 1221)**

- All employees using a negative or positive pressure tight-fitting facepiece respirator must pass an appropriate qualitative fit test (QLFT) or quantitative fit test (QNFT).
- Fit testing is required prior to initial use, whenever a different respirator facepiece is used, and at least annually thereafter. An additional fit test is required whenever the employee reports, or the employer or PLHCP makes visual observations of, changes in the employee's physical condition that could affect respirator fit (e.g., facial scarring, dental changes, cosmetic surgery, or an obvious change in body weight).

- The fit test shall be administered using an OSHA-accepted QLFT or QNFT protocol, as contained in mandatory Appendix A.
  - QLFT Protocols:
    - Isoamyl acetate
    - Saccharin
    - Bitrex
    - Irritant smoke
  - QNFT Protocols:
    - Generated Aerosol (corn oil, salt, DEHP)
    - Condensation Nuclei Counter (PortaCount)
    - Controlled Negative Pressure (Dynatech FitTester 3000)
- QLFT may only be used to fit-test negative pressure air-purifying respirators (APRs) that must achieve a fit factor of 100 or less.
- If the fit factor determined through QNFT is 100 for tight-fitting half facepieces, or 500 for tight-fitting full facepieces, the QNFT has been passed with that respirator.

Note: If a particular OSHA standard (e.g., 29 CFR 1910.1001 Asbestos) requires the use of a full facepiece APR capable of providing protection in concentrations up to 50 times the Permissible Exposure Limit (PEL), this respirator must be QNFT. This is because a protection factor of 50 (50 X PEL) multiplied by a standard safety factor of 10 is equivalent to a fit factor of 500.

The safety factor of 10 is used because protection factors in the workplace tend to be much lower than the fit factors achieved during fit testing. The use of a safety factor is a standard practice supported by most experts to offset this limitation. This is discussed in the record at 63 FR 1225.

**g) Use of Respirators (p. 1236)**

- Tight-fitting respirators shall not be worn by employees who have facial hair or any condition that interferes with the face-to-facepiece seal or valve function.
- Personal protective equipment shall be worn in such a manner that does not interfere with the seal of the facepiece to the face of the user.
- Employees shall perform a user seal check each time they put on a tight-fitting respirator using the procedures in mandatory Appendix B-1 or equally effective manufacturer's procedures.
- Procedures for respirator use in IDLH atmospheres are stated. In addition to these requirements, interior structural firefighting requires the use of SCBAs and a protective practice known as "2-in/2-out" – at least two employees must enter and remain in visual or voice contact with one another at all times, and at least two employees must be located outside. (Note that this is not meant to preclude firefighters from performing emergency rescue activities before an entire team has assembled.)

**(h) Maintenance and Care of Respirators (p. 1248)**

**Must clean and disinfect respirators using the procedures in Appendix B-2, or equally effective manufacturer's procedures at the following intervals:**

- as often as necessary to maintain a sanitary condition for exclusive-use respirators,
- before being worn by different individuals when issued to more than one employee, and
- after each use for emergency use respirators and those used in fit testing and training.

**(i) Breathing Air Quality and Use (p. 1252)**

**Compressed breathing air shall meet the requirements for Type 1-Grade D breathing air as described in ANSI/CGA Commodity Specification for Air, G-7.1-1989.**

**(j) Identification of Filters, Cartridges, and Canisters (p. 1257)**

- All filters, cartridges, and canisters used in the workplace must be labeled and color coded with the NIOSH approval label.
- The label must not be removed and must remain legible.

**(k) Training and Information (p. 1258)**

- Must provide effective training to respirator users, including:
  - why the respirator is necessary and how improper fit, use, or maintenance can compromise the protective effect of the respirator
  - limitations and capabilities of the respirator

- use in emergency situations
  - how to inspect, put on and remove, use and check the seals
  - procedures for maintenance and storage
  - recognition of medical signs and symptoms that may limit or prevent effective use
  - general requirements of this standard
- Training required prior to initial use, unless acceptable training has been provided by another employer within the past 12 months.
  - Retraining required annually and when:
    - workplace conditions change,
    - new types of respirator are used, or
    - inadequacies in the employee's knowledge or use indicates need.
    - The basic advisory information in Appendix D shall be provided to employees who wear respirators when their use is not required.

**(l) Program Evaluation (p. 1262)**

**Employer must conduct evaluations of the workplace as necessary to ensure proper implementation of the program, and consult with employees to ensure proper use.**

**(m) Recordkeeping (p. 1264)**

- Records of medical evaluations must be retained and made available per 29 CFR 1910.1020.
- A record of fit tests must be established and retained until the next fit test.
- A written copy of the current program must be retained.

**(n) Dates (p. 1264)**

- Determination that respirator use is required [paragraph (a)] shall be completed no later than 9/8/98.
- Compliance with all other provisions of this standard shall be completed no later than 10/5/98.

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