

Respiratory Protection Programs

MNOSHA Construction Seminar

September 18, 2018

Permissible Practice

- The primary means to control occupational diseases caused by breathing contaminated air is through the use of feasible engineering controls, such as enclosures, confinement of operations, ventilation, or substitution of less toxic materials.
- When controls are not feasible, or while being instituted appropriate respirators shall be used.
- The employer shall establish and maintain a respirator program which includes the elements of paragraph (c).

Employee Exposure

- Exposure to a concentration of an airborne contaminant that would occur if the employee were not using respiratory protection.

Facts About PELs

- PELs, or Permissible Exposure Limits, are regulations that establish the acceptable amount or concentration of a substance in the air in the workplace. They are intended to protect workers from adverse health effects related to hazardous chemical exposure.
- Of the thousands of chemicals used in workplaces, OSHA has PELs for less than 500.
- Many of the PELs have not been updated since 1971, and current scientific data suggests that, in many instances, the outdated PELs are not sufficiently protective of worker health.
- In 1989, OSHA attempted to update or set new PELs for more than 350 chemicals in a single rulemaking. Although OSHA presented analyses of the risks associated with these chemicals, as well as the feasibility and economic impacts, the analyses were not as detailed as those for individual rulemakings. The entire rulemaking was ultimately vacated by the Court.
- Workers are essentially covered by the same PELs as they were 40 years ago and, while OSHA has been given no new tools to control workplace exposures, it has had to conduct increasingly resource-intensive analyses that have slowed the PEL rulemaking process to a crawl. Since 1971, OSHA has been successful in establishing or updating PELs for only about 30 chemicals.

Voluntary Use of Respirators

- Employer may provide respirators at employee's request (voluntary) if the employer determines that such use in itself will not create a hazard.
- Employers must provide users with the information contained in Appendix D.
- Must establish and implement those elements of a written program necessary to ensure that the employee is medically able to use the respirator and that it is cleaned, stored and maintained so it does not present a health hazard to the user.

Respirator Program

- Must develop a written program with worksite-specific procedures when respirator use is required.
- Must update program as necessary.
- Must designate a Program Administrator to oversee the program.
- Must provide respirators, training, and medical evaluations at no cost to the employee.



Program Elements

- Selection
- Medical evaluation
- Fit testing
- Use
- Maintenance and care
- Breathing air quality and use
- Training
- Program evaluation

CHECKLIST FOR RESPIRATORY PROTECTION PROGRAMS

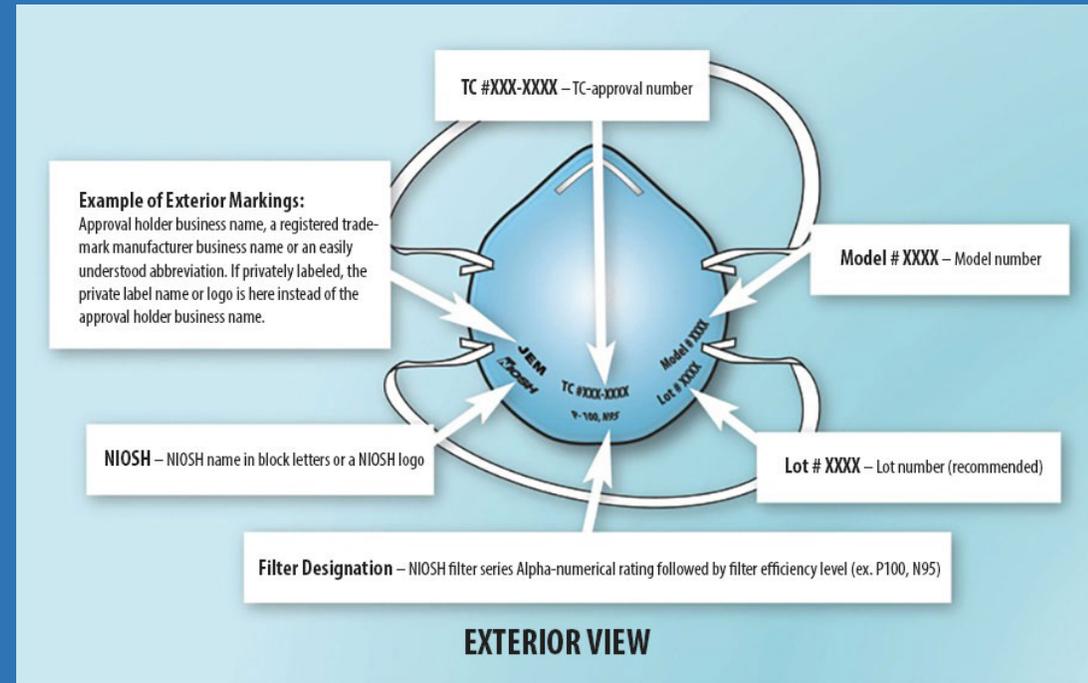
√ Does your program contain written procedures for (check all that apply):

- Your specific workplace
- Selecting respirators
- Medical evaluations of employees required to wear respirators
- Fit testing
- Routine and emergency respirator use
- Schedules for cleaning, disinfecting, storing, inspecting, repairing, discarding, and maintaining respirators
- Ensuring adequate air quality for supplied-air respirators
- Training in respiratory hazards
- Training in proper use and maintenance of respirators
- Program evaluation
- Ensuring that employees who voluntarily wear respirators (excluding filtering facepieces) comply with the medical evaluation and cleaning, storing and maintenance requirements of the standard
- A designated program administrator who is qualified to administer the program
- Updating the written program as necessary to account for changes in the workplace affecting respirator use
- Providing equipment, training and medical evaluations at no cost to employees

If you did not check all of the boxes above, your respiratory protection program **does not** meet OSHA standards.

Selection of Respirators

- Select a NIOSH-certified respirator
- Identify and evaluate the respiratory hazards in the workplace, including an estimate of the employee's exposures.
- Select a sufficient number of respirator models and sizes so that the respirator is acceptable to, and correctly fits, the user.
- Must use the assigned protection factors (APF's) in Table 1 to select a respirator that meets or exceeds the required level of protection.



Types of Respirators

- Negative Pressure Respirators
 - Filtering Facepiece
 - Air Purifying Respirators (half face, full face)
- Positive Pressure Respirators
 - Powered air purifying respirator (PAPR)
 - Atmosphere supplying
 - Supplied air
 - Self contained breathing apparatus (SCBA)



TABLE 1 – ASSIGNED PROTECTION FACTORS⁵

Respirator Type ^{1,2}	Quarter Mask	Half Mask	Full Face	Helmet/Hood	Loose-Fitting
Air Purifying	5	³ 10	50	-----	-----
PAPR	-----	50	1,000	⁴ 25/1,000	25
SAR					
✓ Demand	-----	10	50	-----	-----
✓ Continuous Flow	-----	50	1,000	⁴ 25/1,000	25
✓ Pressure Demand/ other (+) pressure	-----	50	1,000	-----	-----
SCBA					
✓ Demand	-----	10	50	50	-----
✓ Pressure Demand/ other (+) pressure	-----	-----	10,000	10,000	-----

¹May use respirators assigned for higher concentrations in lower concentrations or when required use is independent of concentration.

²These APF's are only effective when employer has a continuing, effective respirator program per 1910.134.

³This APF category includes filtering facepieces and elastomeric facepieces.

⁴Must have manufacturer test evidence to support an APF of 1,000 or else these respirators receive an APF of 25.

⁵These APFs do not apply to escape-only respirators. Escape respirators must conform to 1910.134(d)(2)(ii) or OSHA's substance specific standards, if used with those substances.

Air Purifying Particulate Filters

- Nine Classes: Three levels of filter efficiency, each with three categories of resistance to filter efficiency degradation due to the presence of oil aerosols. (NIOSH 42 CFR 84)

- N for Not resistant to oil
- R for Resistant to Oil
- P for Oil Proof

N	R	P
100	100	100
99	99	99
95	95	95

Selection and Use

- If no oil particles are present, use any series (N, R, or P)
- If oil particles are present, use only R or P series
- Follow manufacturers service time limit recommendations

High Efficiency Filters

- Filter that is at least 99.97% efficient in removing particles of 0.3 microns in diameter. (HEPA filter per NIOSH 30 CFR 11).
- Equivalent NIOSH 42 CFR 84 particulate filters are the N100, R100 and P100.

Medical Evaluation

- Must provide a medical evaluation, before fit testing and use, to determine employee's ability to use a respirator.
- Must identify a PLHCP to perform medical evaluation.
- Follow up medical examination possible.
- <https://www.osha.gov/Publications/OSHA3789info.pdf>

OSHA INFOSHEET

Respirator Medical Evaluation Questionnaire

Respirators must be used in workplaces in which employees are exposed to hazardous airborne contaminants. When respiratory protection is required employers must have a respirator protection program as specified in OSHA's Respiratory Protection standard (29 CFR 1910.134). Before wearing a respirator, workers must first be medically evaluated using the mandatory medical questionnaire or an equivalent method. To facilitate these medical evaluations, this INFOSHEET includes the mandatory medical questionnaire to be used for these evaluations.

Medical Evaluation and Questionnaire Requirements

The requirements of the medical evaluation and for using the questionnaire are provided below:

- The employer must identify a physician or other licensed health care professional (PLHCP) to perform all medical evaluations using the medical questionnaire in Appendix C of the Respiratory Protection standard or a medical examination that obtains the same information. (See Paragraph (e)(2)(i).)
- The medical evaluation must obtain the information requested in Sections 1 and 2, Part A of Appendix C. The questions in Part B of Appendix C may be added at the discretion of the health care professional. (See Paragraph (e)(2)(ii).)
- The employer must ensure that a follow-up medical examination is provided for any employee who gives a positive response to any question among questions 1 through 8 in Part A Section 2, of Appendix C, or whose initial medical examination demonstrates the need for a follow-up medical examination. The employer must provide the employee with an opportunity to discuss the questionnaire and examination results with the PLHCP. (See Paragraph (e)(3)(i).)
- The medical questionnaire and examinations must be administered confidentially during the employee's normal working hours or at a time and place convenient to the employee and in a manner that ensures that he or she understands its content. The employer must not review the employee's responses, and the questionnaire must be provided directly to the PLHCP. (See Paragraph (e)(4)(i).)

Additional Medical Evaluations

- Not required annually.
- At a minimum must be provided if:
 - Employee reports medical signs or symptoms from wearing the respirator.
 - PLHCP, supervisor or program administrator states that an employee needs to be reevaluated.
 - Change occurs that may substantially increase the physiological burden on an employee.

Fit Testing

- Before an employee uses an respirator with a negative or positive pressure tight-fitting facepiece, the employee must be fit tested with the same make, model, style and size of respirator that will be used.
 - Qualitative Fit Test (QLFT)
 - Quantitative Fit Test (QNFT)
- Employees using tight-fitting facepiece respirators must pass an appropriate fit test:
 - Prior to initial use,
 - Whenever a different facepiece (style, size, model or make) is to be used, and
 - At least annually thereafter.

Fit Test Protocols

- The fit test must be administered using an OSHA-accepted protocol contained in Appendix A.
- QLFT Protocols:
 - Isoamyl acetate (banana oil)
 - Saccharin
 - Bitrex
 - Irritant smoke
- QNFT Protocols:
 - Generated Aerosol (corn oil, salt, DEHP)
 - Condensation Nuclei Counter (Portacount)
 - Controlled Negative Pressure (Dynatech FitTester 3000)
 - Controlled Negative Pressure (CNP) REDON



Use of Respirators



- Tight fitting respirators must not be worn by employees who have facial hair that interferes with the seal or valve function of the respirator.
- Corrective glasses or goggles or other PPE must be worn in a manner that does not interfere with the facepiece seal.
- Employees wearing tight-fitting respirators must perform a user seal check each time they put on the respirator.

Maintenance and Care

- Provide each use with a respirator that is clean, sanitary and in good working order.
- Clean and disinfect as often as necessary when issued for exclusive use.
- Before being worn by different individuals when issued to more than one employee.
- After each use for emergency respirators and those used in fit testing and training.



Training and Information

- Employers must provide effective training to employees who are required to use respirators. Employees should demonstrate knowledge of at least:
 - Why the respirator is necessary and how improper fit, use or maintenance can compromise protection.
 - Limitations and capabilities of the respirator
 - Emergency situations
 - How to inspect, put on and remove, use and check the seals
 - Maintenance and storage
 - Recognition of medical signs and symptoms that may limit use
 - General requirements of this standard

Training and Information

- Training must be provided prior to use, unless acceptable training has been provided by another employer within the past 12 months.
- Retraining is required annually, and when:
 - Changes in the workplace or type of respirator
 - Inadequacies in the employee's knowledge or use
- Appendix D must be provided to employees who wear respirators when use is not required by this standard or by the employer.

Program Evaluation

- Must conduct evaluations as necessary to ensure effective implementation of the program.
- Must regularly consult employees to assess their views on program effectiveness and identify and correct any problems.
- Factors to be assessed include:
 - Respirator fit
 - Appropriate selection
 - Proper use
 - Proper maintenance

Recordkeeping

- 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 is administered.
- A written copy of the program must be retained.

This material can be provided to you in a different format (audio, Braille or large print) if you call the MNOSHA Training/Outreach Office at 651-284-5050 or 877-470-6742 .

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