RESPIRATORY PROTECTION

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This guide will help you develop a training program that will support a safe and productive workplace environment for your employees. It will help you to:

- Prepare and organize your training session
- Assemble training materials
- Present the PowerPoint® slide show
- Conduct training exercises
- Stimulate discussion that applies to the topic presented in the presentation and to your organization's work environment
- Document the training and training feedback for continuous improvement

Training Objectives
When the training is completed, trainees who are required to wear respirators will be able to:

- Identify the hazards of airborne contaminants
- Identify and use appropriate respiratory protection
- Recognize the limitations and capabilities of respirators in our workplace
- Inspect, maintain, and store respirators
- Use respirators under dangerous or emergency conditions
- Understand procedures for medical evaluations and recognize the medical signs and symptoms that may prevent effective respirator use

Rationale for Training
According to the federal Occupational Safety and Health Administration (OSHA), approximately 5 million workers are required to wear respirators in 1.3 million workplaces throughout the nation. Respirators protect workers against insufficient oxygen environments, harmful dusts, fogs, smokes, mists, gases, vapors, and sprays. These hazards may cause cancer, lung impairment, other diseases, or death. The use of respirators may avert hundreds of deaths and thousands of illnesses annually.

According to the federal Bureau of Labor Statistics (BLS), in a recent year only 59% of establishments that required employees to use respirators actually provided respirator training.

Regulatory Overview
29 CFR 1910.134
Some occupational illnesses and diseases can be caused by breathing contaminated air in the workplace. To control such contamination, employers must first use accepted engineering control measures. Where these effective engineering controls are not in place or are not feasible, appropriate respirators must be provided to and used by employees.

Engineering control measures. Engineering control measures include processes such as:

- Enclosure or confinement of the operation
- General and local ventilation
- Substitution of less toxic materials

Written respiratory protection program. In any workplace in which respirators are required, the employer must establish a written respiratory protection program with specific procedures for all sites covered by it. That program must be updated as necessary to reflect changes in conditions and must be administered by a trained administrator.

The program must ensure that:

- Respirators are provided to all employees who need protection in the workplace
- All respirators are considered "applicable and suitable" for the intended purposes
- Training in the use of the respiratory equipment is provided
- Medical evaluations of employees required to use respirators are conducted
- Fit-testing procedures for tight-fitting respirators are defined
- Each employee understands how to use, and uses, the applicable respiratory protection

Respirator selection. The employer must evaluate respiratory hazards in the workplace, identify relevant workplace and user factors, and base respirator selection on these factors. The regulation also specifies appropriately protective respirators for use in immediately dangerous to life and health (IDLH) atmospheres, and limits the selection and use of air-purifying respirators.

The employer must select and provide an appropriate National Institute of Occupational Safety and Health (NIOSH) NIOSH-certified respirator on the basis of the respiratory hazards to which the worker is exposed, and workplace and user factors that affect respirator performance and reliability.

Respirator equipment requirements. All respirators used must be applicable for the individual hazards to which an employee is exposed. Respirators must be cleaned, inspected, and disinfected in the proper manner. If respiratory equipment is shared by more than one employee, the equipment must be disinfected before each use.

Respirator equipment must comply with the requirements of NIOSH (42 CFR Part 84) and the "American National Standards Institute (ANSI)/Compressed Gas Association Commodity Specification for Air, G-7.1-1989," for compressed breathing air.
**Voluntary use of respirators.** If respirator use is not required in a workplace, the employer must still provide respirators to employees who want them or permit those workers to use their own.

**Repairs to respirators.** Only trained persons may make repairs or adjustments to respirators. Repairs or adjustments to respirators are to be made only by persons appropriately trained to perform such operations and must use only the respirator manufacturer’s NIOSH-approved parts designed for the respirator.

**Training Requirements**

29 CFR 1910.132(f) and 29 CFR 1910.134(k)

The employer must provide respirators, training, and medical evaluations at no cost to the employee.

**Elements of basic respirator training.** The employer must ensure that each employee can demonstrate knowledge of:

- Why the respirator is necessary and how improper fit, usage, or maintenance can compromise the protective effect of the respirator
- The limitations and capabilities of the respirator
- How to use the respirator effectively in emergency situations, including situations in which the respirator malfunctions
- How to inspect, put on and remove, use, and check the seals of the respirator
- What the procedures are for maintenance and storage of the respirator
- How to recognize medical signs and symptoms that may limit or prevent the effective use of respirators
- The general requirements for fitting, wearing, using, cleaning, and storing respirators

The training must be conducted in a manner that is understandable to the employee.

**Procedures for IDLH atmospheres.** Employees located outside IDLH atmospheres must be trained and equipped to provide effective emergency rescue. The employer must ensure that employees located outside the IDLH atmosphere are trained and equipped to provide effective emergency rescue.

**Trainer qualifications.** An experienced or trained program administrator must be designated by the employer to oversee the respiratory protection program and conduct the required program evaluations. The employer must designate a program administrator who is qualified by appropriate training or experience that is commensurate with the complexity of the program to administer or oversee the respiratory protection program and conduct the required evaluations of program effectiveness.

**Audience.** Employers must provide effective training to employees required to use respirators. This training must be comprehensive, understandable, and be repeated annually, and more often if necessary.

**Voluntary use of a respirator.** The employer must provide the basic information on respirators contained in the regulation (29 CFR 1910.134 Appendix D) to employees who voluntarily wear respirators when not required by regulation or the employer.

**Training frequency.** The employer must provide respirator training before requiring the employee to use a respirator in the workplace.

An employer who is able to demonstrate that a new employee has received training within the past 12 months that addresses the elements of basic respirator training does not need to retrain the person, provided he or she can demonstrate knowledge of those elements. Previous training not repeated initially by the employer must be provided no later than 12 months from the date of the previous training.

Retraining must be administered annually, and when any of the following conditions apply:

- Changes in the workplace or the type of respirator render previous training obsolete
- Inadequacies in the employee’s knowledge or use of the respirator indicate that the employee has not retained the requisite understanding or skill
- Any other situation arises in which retraining appears necessary to ensure safe respirator use

**Delivery method and format.** The trainer may use a combination of classroom and hands-on at the worksite to introduce the basic requirements and concepts of respiratory protection, using any format that leads to comprehension and understanding (e.g., computer-based training (CBT), written manual, slide show, video, and hands-on exercises).

Trainers must show employees through hands-on demonstration how to put on (don), remove (doff), clean, inspect, and properly store respirators.

**Fit testing.** Before a trainee selects a respirator to wear, he or she must be shown how to put on a respirator, how it should be positioned on the face, how to set strap tension and how to determine an acceptable fit. Trainees must wear respirators during fit testing, and perform test exercises for all fit-testing methods.

**Trainee evaluation.** Determine how well employees understand how to use their respirators through a combination of methods, including oral and written tests, workplace observation, equipment inspection, and demonstration. If respirators are improperly worn, missing parts, dirty, improperly stored, or the wrong cartridges are being used, the employer should revise the training program and/or retrain employees. Pre-testing may be used as a training aid to determine the extent of retraining required.
Recordkeeping. The employer must certify in writing that each affected employee received and understands the required training for personal protective equipment, including respirators. The employer must verify that each affected employee has received and understands the required training through a written certification that contains the name of each employee trained, and the date(s) of training, and that identifies the subject of the certification.

Fit testing. A record of fit tests must be established and retained until the next fit test is administered.

Medical evaluations. Records of medical evaluations must be retained and made available to employees and designated employee representatives.

State requirements. Alaska (private and public sector workplaces) and New Jersey (public sector workplaces only) have adopted respiratory protection requirements that are stricter than federal requirements.

Basic Principles of Adult Learning
Most adults are self-directed learners; they want to learn what they want, when they want, and how they want. Adult learners have their own style of learning that includes four key elements: motivation, reinforcement, retention, and transference. See the Basic Principles of Adult Learning guide in this product for more information about the key elements of adult learning and other insights for training adults.

RESPIRATORY PROTECTION
Training Program Preparation

This section will help you prepare for your presentation and ensure that you have all the materials you will need. You may use different materials that cover the topic if you believe they will be more effective.

Resources and Materials
The following resources and materials should be available for every training session:
- A quiet room with basic accommodations for the comfort of trainees
- Sign-in sheet (included with this product)
- Printed copies of the training program (PowerPoint slide show notes, slide show handouts, exercises, and employee handouts)
- Copies of relevant regulations or company policies (if applicable)
- Computer and projector with the PowerPoint slide show loaded
- Screen or blank wall for projecting the slide show
- Copies of the evaluation form (optional)
- Copies of the quiz (optional)

Have the following training program materials available for respiratory protection:
- Full assortment of respirators used at your facility
- A copy of the facility’s written respiratory protection program
- Manufacturer’s instructions for maintaining, cleaning, and storing respirators and filters/cartridges/canisters
- Copies of the respirator inspection sheet

See the Appendix: Training Program Support Materials section for a complete list of support materials that come with this product.

Prepare the PowerPoint Slide Show
Before presenting the PowerPoint slide show, read the PowerPoint slides, slide show notes, the handouts, the exercises, and the quiz.

Prepare equipment and other support materials as suggested and appropriate for your workplace.

Slide show notes. The following slide show notes describe recommended interactive activities and materials to have on hand as you present the slide show. Each note is also embedded with the slide show notes for each slide to assist you as you are presenting your training program. They are listed here in the sequence that they are presented in the slide show:
- Ask trainees to identify inhalation hazards in their work areas.
- Take apart a respirator and show trainees how the inhalation and exhalation process works, and how airborne contaminants are stopped from inhalation. Or, have trainees wear the respirators as you explain the process.
- Describe the conditions when respirators are needed at your facility.
• Allow trainees to put on and practice using the appropriate respirator for their specific work areas. 
**Materials to have on hand:** Examples of the types of respirators used at the facility.
• Conduct an exercise that illustrates the inhalation hazards at the facility, and ask trainees to identify the appropriate respirator for the hazard.
• Discuss the fit test procedures used at your facility. Consult with the regulation at 29 CFR 1910.134, Appendix A, for fit test requirements.
• Describe your company’s program for voluntary respirator users, if applicable.
• Show trainees examples of respirator filters or cartridges with the appropriate color-coded labels.
• Show trainees the respirator inspection sheet. Have trainees conduct inspections of the sample respirators.
• Show trainees a copy of the manufacturer’s cleaning instructions. Have trainees perform the cleaning procedures using a sample respirator.
• Bring a copy of the written Respiratory Protection Plan and describe its basic elements. 
**Materials to have on hand:** The respirator inspection sheet.
**Materials to have on hand:** Copy of the company’s written Respiratory Protection Plan.
• Describe other safety measures that would be implemented at your facility.
• Give trainees the quiz.

**Customize Slides, Slide Show Notes, and Quiz**

The information contained in the PowerPoint slide show covers general guidelines and regulatory requirements for the topic that is presented. You may want to modify the slide show and quiz to meet site-specific objectives and policies or local regulatory requirements. If you have the PowerPoint software application on your computer, you may add, modify, or delete slides and slide show notes to meet your needs. See the How to Customize PowerPoint guide in this product for more information.

**Customize specific slides and slide show notes.** You may want to modify some slides and/or slide show notes to include information specific to your workplace. In the slide show notes of select slides in this presentation, we have recommended that you consider making such modifications.

Make sure that any modification or deletion of information does not diminish your ability to achieve your training goals or meet regulatory requirements.
This section provides tips and suggestions for presenting training materials to trainees.

Present to Trainees
The time it will take to present the PowerPoint slide show and conduct the exercises will vary depending on the size of your facility, the complexity of issues in your workplace, the level of knowledge and comprehension of the topic by trainees, and the amount of site-specific information. In general, assume each slide will take 2 to 3 minutes to cover. If you practice your presentation, keep in mind that presentations typically take longer during the actual training.

You can use your own words rather than read from the slide show notes.

Training tip: Consider varying the format within your training program two or three times during each hour of training. For example, switch from the PowerPoint slide show to an exercise after 20 minutes of slides, then return to the PowerPoint. Most people learn via more than one format (e.g., seeing images, reading text, hearing, and activity); a multimodal presentation keeps trainees interested and energized.

Trainee Participation
Involve trainees as much as possible by asking them questions and getting them to talk about their own jobs. Encourage them to make suggestions they may have on how to improve conditions in the workplace related to the topic. Ask trainees to talk about experiences in their workplace related to the topic. Use real-life examples as often as possible to reinforce learning.

Handout(s)
Give each trainee a copy of the handout(s) before the slide show or after the quiz.

Exercises
Multiple exercises for this topic are included with this product for your use during or after the PowerPoint slide show. The exercises may also be used independently of the slide show. Exercises are an excellent mechanism for reinforcing the training.

Questions and Answers
Answer any questions the best that you can. Even if you don’t have the technical knowledge to answer a lot of questions on the topic, you can still answer the important questions about the way that your company is addressing the topic-related issues. Follow up with responses to employee questions either personally, through the employee’s supervisor, or the company’s intranet, if applicable.

Follow-Up
Document that the training took place and who attended. Also, provide the trainees with documentation that they have completed training (such as a certificate of completion), and be sure to notify any trainees that failed to satisfactorily complete the training.

Complete these follow-up tasks:
- Distribute the Certificate to successful trainees as proof of completion of training (optional).
- Distribute the Evaluation Form to employees and collect the completed forms (optional).
- Place copies of the Quiz results in each trainee’s personnel file.
- File one copy of the Attendee Sign-In Sheet with the company records, and file one copy in the trainer’s files.
- Fill in the appropriate information on the Training Record for each employee.
- Within 2 weeks of giving the training, talk to some of the employees and supervisors to make sure they understood what was presented and how it applies to them.
Below is a list of support materials included with this product to help you prepare the training program and document your activities.

Additional Training Materials

- **Certificate**—A customizable certificate of completion for attendees. The file allows the user to type in the training topic and the trainee’s name.
- **Exercise**—An activity to help trainees apply their knowledge of work practices.
- **Employee Handout**—Single-page summary of key facts the trainee should know about the topic.

Forms

- **Attendee Sign-In Sheet**—A record of training program attendees.
- **Evaluation Form**—An evaluation by trainees of the performance of the trainer.
- **Training Record**—A record of all training sessions for each employee, including the date for refresher training.

Guidance

- **Basic Principles of Adult Learning**—A guide for training adult learners.
- **How to Customize PowerPoint**—A guide with instructions for using the PowerPoint application program and customizing the content of slides and slide show notes.