

Industrial
Hygiene

ST00148502

TRAINING RESOURCES

**RESPIRATORY
PROTECTION**

INTRODUCTION

This training resource module is a program designed to help employees understand respiratory protection. It is only one portion of a comprehensive respiratory protection program that also includes hazards identification and evaluation, equipment selection and use, fit testing, medical approval and respirator inspection and use responsibilities. The training is intended to help employees understand that their life and health may depend on proper use of respiratory protection.

OBJECTIVES

1. Understand the need for respiratory protection.
2. Describe the uses and limitations of air-purifying respirators, self-contained breathing apparatus, and supplied air respirators (air-line systems).
3. List important respirator use, cleaning and storage responsibilities.
4. Review the fit test procedures (quantitative and qualitative).
5. Understand the need for quantitative fit testing and medical approval.

ITEMS ENCLOSED

1. Suggested Safety Meeting Ideas.
2. Audiovisuals Available.
3. Leader's Review Topics.
4. Quiz.

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SUGGESTED SAFETY MEETING IDEAS

ST0048504

1. Introduction to Respiratory Protection.
 - a. Present audiovisual A Breath of Air.
 - b. Review Safety Standard S-745.
 - c. Discuss Leader's Review Topics.
 - d. Quiz.
 - e. Handout booklet "On-the-Job Respiratory Protection" available from Industrial Hygiene, 6-6663.
2. Plant Respirator Program.
 - a. Review plant chemical hazards (be specific). Identify work areas, substances, activities, exposure levels, and storage areas where respiratory protection is required.
 - b. Identify the types of respirators in use for each hazard identified above.
 - c. Discuss building respirator policy.
 - d. Present Plant Specific Quiz.
3. Scott Air Pak Training.
 - a. Present audiovisual, Scott Air Paks.
 - b. Conduct a "hands-on" session where some employee practices getting in and out of the Scott Air Pak.
 - c. Have one employee do exercises to illustrate Scott Air Pak time limitations.
 - d. Industrial Hygiene can also discuss Scott Air Paks. Call 6-6663 to schedule.
4. Dust Mask Training.
 - a. Present audiovisual on Dust Masks.
 - b. Conduct "qualitative" fit testing.
 - c. Industrial Hygiene can discuss dust masks. Call 6-6663 to schedule.

5. Medical Review.

- a. Have a Medical Department representative discuss the medical approval requirements.
- b. Review anatomy of the lung.
- c. Discuss toxic chemical exposure levels relative to lung diseases.

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AUDIOVISUALS

1. A Breath of Air - 20 minutes.

Videotape. Very good dramatic film discussing respiratory protection. Potential health consequences of improper respirator usage is emphasized. Excellent illustrations of selecting the right respirator and cartridge for the job.

Available from TV Scheduling, 6-6001.

2. Dust Masks.

a. 3M 9920 - 5 minutes.

Slide/sound show. A step-by-step approach to using the 3M 9920 UBA buckle respirator. Objective is to teach the correct method of donning the dust mask.

Available from TV Scheduling, 6-6001.

b. 3M 8710 - 5 minutes.

Slide/sound show. A step-by-step approach to using the 3M 8710 2-strap respirator. Objective is to teach the correct method of donning the dust mask with a quick fit test.

Available from TV Scheduling, 6-6001.

3. Scott Air Pak Training - 10 minutes.

Videotape or slide/sound show. A step-by-step procedure to donning the Scott Air Pak. Brief discussion of maintenance. Supplied air systems are discussed at end of tape.

Available from TV Scheduling, 6-6001.

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LEADER'S REVIEW TOPICS

1. Respiratory protection is important because it can protect you from breathing hazards that can cause serious injury, including death.
 - . What are the chemical or physical agents that pose an airborne exposure hazard in your building?
2. Some employees falsely believe that respiratory protection is necessary only when the airborne hazard is acutely irritating. In fact, some respiratory hazards, if left unprotected, may cause serious health problems after long term exposure.
 - . Are the materials identified in question 1 acutely irritating?
3. While some respiratory hazards are obvious (e.g., smokes, fumes, sprays, mists and dusts), many are invisible (e.g., gases, vapors, oxygen deficiency) and more importantly, are impossible to detect by odor, taste, irritation or other sensation.
 - . What are your job tasks requiring respiratory protection?
4. As a user of respiratory protection, you have to know (a) the kinds of respiratory hazards that you may be exposed to, (b) the respirator you're required to wear to minimize or reduce the hazard and (c) how to use and maintain the respirators properly.
 - . What respirators and cartridges are used for the job tasks identified in Question 3?
5. When a respiratory hazard has been identified, the employee has the responsibility to use respiratory protection provided by Dow.
 - . Are you using the right respirator for the job task?
6. There are 3 basic kinds of respirators; air purifying, supplied-air and Self Contained Breathing Apparatus (SCBA).
 - . What type and brand of respirator do you use?
7. Air purifying respirators, available in both 1/2 masks and full face masks, are used to filter or clean the air before it's inhaled. This includes both particle filtering types and vapor and gas removing types (cartridges, canisters).
 - . How long do you use a cartridge/canister before you replace it? What is the building policy?

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LEADER'S REVIEW TOPICS (continued)

8. There are two serious limitations to air purifying respirators; (a) they don't protect against oxygen deficiency and (b) each cartridge or canister protects only against specific kinds and concentrations of gases and vapors.
 - . Are you using the right cartridge/canister for the chemical or physical hazard?
9. Self-Contained Breathing Apparatus (SCBA) have two limitations; (a) limited work time (usually about 20 minutes), and (b) additional weight and bulk to maneuver. Additionally, most SCBAs are bell activated when the air supply is low and the employee must exit the area immediately.
 - . Are you trained in the use of the SCBA?
10. Supplied Air Systems can be limited by length and locations of hoses and the breathing air which shall be Grade D.
 - . Do you use a Supplied Air System with Grade D air?
11. To use respiratory protection as a requirement of the job (Category II), the employee must be trained, have medical approval and successfully pass a respirator fit test. Each is required every two years.
 - . Are you a Category I or Category II?
12. Before donning a respirator, the employee must check the respirator for proper working conditions. Check the face piece, filtering device, hoses, clamps, connectors, gaskets, heat straps and valves as appropriate.
 - . What parts of the respirator do you inspect before putting on the respirator?
13. Each time an air purifying respirator is donned and before entering the air hazards area, a positive/negative qualitative fit check should be conducted to ensure an adequate face/respirator seal.
 - . Can you list the steps necessary to perform a positive/negative fit check?
14. Anything that interferes with the respirator seal such as beards or eyeglasses may prevent adequate protection. Specially modified eyeglasses are available from Safety, 6-5842. Beards dramatically interfere with a successful face/respirator seal.
 - . Have you grown a beard since your last fit test?

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LEADER'S REVIEW TOPICS (continued)

15. Daily, or after each use, respirators should be cleaned thoroughly and stored (plastic bags) to protect it from dusts, temperature extremes or other hazards.
 - . List the steps to properly clean and store the respirator. Do you do all the steps?
16. Medical approval is required for all Category II personnel. Remember that not everyone can wear respiratory protection. For example, respiratory and circulatory problems could make breathing in a respirator difficult.
 - . Are you Category I or Category II? When did you last have Medical approval?

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QUIZ

NAME _____

DATE _____

Respiratory Protection

True/False: Circle "T" if the statement is true; "F" if the statement is false.

- T F 1. Unprotected exposure to airborne breathing hazards may cause serious injury, even death.
- T F 2. Whenever exposed to a breathing hazard, acute irritation occurs thus warning of the hazard.
- T F 3. All air purifying respirators offer about the same amount of protection for each specific chemical.
- T F 4. Air purifying respirators are used to filter or clean the air before it's inhaled.
- T F 5. Air purifying respirators have 2 limitations:
 - a. They don't protect against oxygen deficiency.
 - b. The cartridge or canister protects only against specific kinds and concentrations of breathing hazards.
- T F 6. Medical approval and fit testing is necessary only for employees who have to use Scott Air Paks for emergency response purposes.
- T F 7. If a respirator is not available, it is acceptable to work in a breathing hazard area for 4, fifteen minute periods per day.
- T F 8. When donning a respirator, a positive/negative qualitative fit check should be performed to ensure an adequate face/respirator seal.
- T F 9. Beards and other facial hair generally do not interfere with the respirator seal.
- T F 10. Daily, or after each use, respirators should be cleaned and stored to protect it from dusts or other hazards.

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QUIZ ANSWERS

Respiratory Protection

1. T
2. F, many breathing hazards are non-detectable at concentrations that may cause injury.
3. F, protection is dependent on the type of respirator and cartridge.
4. T
5. T
6. F, required for all Category II personnel.
7. F, when assigned, respiratory protection should always be used.
8. T
9. F, beards and facial hair drastically interfere with the seal.
10. T

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PLANT SPECIFIC QUIZ

NAME _____

DATE _____

ST0048512

Respiratory Protection

1. Are you classified as Category I or Category II?
2. List the job tasks which require respiratory protection for your job classification.
3. What chemicals or physical agents are you potentially exposed to during the job tasks identified in Question 2?
4. What type of respiratory protection do you use to protect yourself from airborne hazards identified in Questions 2 and 3?
5. List the parts of the respirator that should be checked before donning the respirator.
6. List the steps necessary to perform a positive/negative fit check of the respirator seal.
7. How do you clean and store your respirator?
8. How often do you clean your respirator?

PLANT SPECIFIC QUIZ (continued)

9. If you are a Category II employee, when did you last get fit tested and receive medical approval?
10. Where is the Building respirator policy stored?

ST0048513

ON-THE-JOB RESPIRATORY PROTECTION

ST0048514

A short booklet with an easy-to-read and understand discussion of respiratory protection.

Available from Industrial Hygiene, 6-6663.