SAFETY TRAINING

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RESPIRATORY PROTECTION:

The Facts

Leader's Guide, Fact Sheet & Quiz

Item Number: 4941

This easy-to-use Leader's Guide is provided to assist in conducting a successful presentation.

PREPARING FOR THE MEETING

Here are a few suggestions for using this program:

a) Review the contents of the Fact Sheet that immediately follows this page to familiarize yourself with the program topic and the training points discussed in the program. The Fact Sheet also includes a list of Program Objectives that details the information that participants should learn from watching the program.

b) If required by your organization, make an attendance record to be signed by each participant to document the training to be conducted.

c) Prepare the area and equipment to be used for the training. Make sure the watching environment is comfortable and free from outside distractions. Also, ensure that participants can see and hear the TV screen or computer monitor without obstructions.

d) Make copies of the Review Quiz included at the end of this Leader's Guide to be completed by participants at the conclusion of the presentation. Be aware that the page containing the answers to the quiz comes *before* the quiz itself, which is on the final page.

CONDUCTING THE PRESENTATION

a) Begin the meeting by welcoming the participants. Introduce yourself and give each person an opportunity to become acquainted if there are new people joining the training session.

b) Introduce the program by its title and explain to participants what they are expected to learn as stated in the Program Objectives of the Fact Sheet.

c) Play the program without interruption. Upon completion, lead discussions about your organization's specific policies regarding the subject matter. Make sure to note any unique hazards associated with the program's topic that participants may encounter while performing their job duties at your facility.

d) Hand out copies of the review quiz to all of the participants and make sure each one completes it before concluding the training session.

4941 RESPIRATORY PROTECTION: THE FACTS
FACT SHEET

LENGTH: 17 MINUTES **PRODUCTION YEAR: 2018**

PROGRAM SYNOPSIS:
Sometimes it is difficult to respect a hazard you can't see or one that may take years to affect you. Respirators can provide protection, but only if they are worn and used properly. Respiratory Protection: The Facts creates an awareness and respect for the hazards by demonstrating with highly effective graphics how the respiratory system works and the effects of different airborne hazards. The program covers proper use, care and maintenance of air-purifying respirators and the importance of proper selection and fit. It is designed to educate and motivate workers on when and how to properly use their air-purifying respirators.

Topics include why respiratory protection is needed, airborne hazards, types of respirators, fit testing and documentation.

PROGRAM OBJECTIVES: After watching the program, the participant should be able to explain the following:
- Why respiratory protection is needed;
- The difference between dust masks, cartridge respirators and supplied air respirators;
- How to do an initial check before use;
- Why it is important to maintain a respirator;
- How to perform a fit test;
- The procedure for keeping documentation of use and testing.

PROGRAM OUTLINE

WHY RESPIRATORY PROTECTION IS NEEDED
- Harmful gases, fumes, vapors, chemicals, oxygen deficient atmospheres: all of these pose a threat to your respiratory system.
- In turn this threat can lead to conditions ranging from minor irritation to disability to death. But there are instances where you must work in the vicinity of these potential threats.
- Respiratory protection is used to protect us from these threats.
- Respiratory protection ranges from a simple dust mask all the way up to SCBA. You need information and training on this type of equipment and the hazards involved before you attempt to use respiratory protection.
- Your organization will provide specific training, but this program is designed to give you some information about personal protection under adverse or hazardous conditions.

HOW CHEMICALS AFFECT US
- Chemicals and hazardous materials may have an adverse effect upon your health, but the effect may not show up for years later after repeated or long-term exposure.
- If you drop something on your foot, you know right away. If you're exposed to a harmful chemical, you may or may not feel the ill effects for a long time, if ever.
- Some chemicals such as chlorine act quickly so you know about that exposure immediately, but not all chemicals share this property.
- How do you become exposed to chemicals? One way is through inhalation or breathing.
- Breathing is a natural function and we usually never think of how it happens. Our brain sends signals to the nerves and muscles in the lungs telling them to function.
- The diaphragm a large muscle stretched across your abdomen contracts to pull air through the nose, down your windpipe and into the lungs. Once in the lungs, oxygen migrates into the bloodstream through the thin walls of tiny air sacs deep within the lungs.
- Through this process, toxic chemicals can end up in the lungs, but the lungs are only the point of entry. The liver brain kidneys and central nervous system are all potential victims of chemicals.
- Your body has natural defenses such as hair in the nose, tiny hair cells that line the respiratory system and other similar structures, but they cannot defend against most chemicals.

AIRBORNE HAZARDS
- Gases are usually produced by some chemical processes. Two common examples are hydrogen sulfide and carbon monoxide.
- Hydrogen sulfide is usually found in sewers or storm drains. Carbon monoxide gas is usually a byproduct of engine exhaust.
- Hydrogen sulfide smells like rotten eggs. Carbon monoxide is odorless and has no color - a big difference and one you need to be aware of.
- Vapors are another hazard. They're the products of volatile liquids giving off vapors such as gasoline, paint or solvents.
- Vapors can be flammable explosive and deadly.

- One of the problems that we all encounter is dust. Dust can be in the form of nuisance or hazardous dust.
- They float in the air and can enter your body through breathing, skin absorption or through eating or drinking the residue created by the dust.
- Fumes occur during high heat operations such as welding or smelting.
- Mists are hazards found in operations such as painting, pesticide applications or any area where liquids are set in motion in the air.
- One more hazard is oxygen deficiency. Oxygen deficiency is simply a lack of oxygen in the area you are working such as confined spaces.
- One thing these all have in common is they all are respiratory hazards and respiratory hazards require respiratory protection.

RESPONSIBILITIES IN A RESPIRATORY PROGRAM

- Effective respiratory protection is a joint effort involving employer and employee.
- The employer has the responsibility to determine the hazards of the job and to reduce or eliminate the hazards as much as possible. The employer also provides the respiratory protection program.
- The employee has the responsibility to follow company policies and procedures and wear all required personal protective equipment.
- The first step in a respiratory protection program is to have an examination by a physician to determine your fitness to wear respiratory protection.
- Also, if you have a beard or facial hair, you cannot safely wear respiratory protection as the hair on your face will not allow for a proper fit of the equipment.
- Training is a very important part of the program you need to know how to fit, inspect, clean, store and how to tell when respirator cartridges need replacing. Proper training can mean the difference between proper protection and the alternative.

TYPES OF PROTECTION

- What types of protection are available? There are many and each has its own specific use.
- If you wear improper equipment or you wear the proper equipment in an improper way, it can be the same as wearing no protection at all.

DUST MASKS

- Disposable masks are the lowest form of protection and are designed to protect against dusts. Disposable masks can also be approved for some hazardous dusts, fumes and mists.
- They do not provide protection from vapors, gases, oxygen deficiency, temperature extremes or even high levels of contaminants.
- A common mistake is attempting to use a dust mask as protection against fumes, mist and vapors. A dust mask cannot prevent harmful vapors from entering your breathing zone.
- Remember you must correctly identify the hazard, then select the appropriate protection.
- When fitting a disposable respirator or dust mask, be sure you have a snug fit. If a metal nose clip is provided, mold it to ensure a snug fit. If adjustable straps are provided, adjust them for a good fit.
- When any respirator becomes clogged with trapped particles, it becomes more difficult to breathe or possibly allows odors to enter the breathing zone.
- When this occurs, it's time to change the respirator or cartridge.

HALF MASK RESPIRATORS

- Half mask respirators are designed to cover your nose, mouth and chin.
- They also have replaceable cartridges that filter or trap dusts, mists and vapors before entering the breathing zone.
- Each cartridge has a specific purpose for a specific chemical and some cartridges may protect against several types of hazards. They may even have a pre filter that traps additional dusts, mists and fumes.
- That's why selection of the proper mask and cartridge is important. A cartridge for paint vapors may not do you any good when working with other chemicals.
- Know the hazard, then select the proper protection.
- A closer look at the half mask respirator reveals a rubber or silicone mask with two to three valves. One valve is designed as an exhalation valve, letting air out. The other valve lets air in.
- The entire mask must be inspected before use. Check the rubber silicone parts to make sure they're not cracked or otherwise damaged. Check the valves to make sure they're clean, not missing, brittle or broken.
- The most important thing to remember is that half masks do not protect from oxygen deficiency, nor do they provide any protection other than what is listed on the cartridge label.

A CORRECT SEAL AND FIT TESTING

- A tight seal is required for wearing any type of respiratory protection. That's why persons with beards cannot safely wear respiratory protection.
- To check the respirator to see if it's functioning properly, perform the negative air test first.
- Place the palms of your hands or a piece of paper over the cartridge opening. Inhale for five or 10 seconds. You should feel the mask pull snugly against your face, indicating a good fit.
- A positive test is completed by placing a palm over the exhalation opening, exhaling gently. You should feel an increased pressure in the mask indicating the mask and valve are working properly.

RESPIRATOR MAINTENANCE

- Respirators must be kept clean. Dusty or dirty respirators deteriorate rapidly and can cause damage to expensive equipment. Clean before and after each use.
- Your respirator supplier has a specific set of cleaning requirements therefore you should take care to follow these instructions.
- report any defects to management for repair or replacement.
- Never modify your respirator in any manner.
- Store your clean respirator in a zip lock type bag. This prevents dust and contamination from getting on the equipment.

FULL FACE RESPIRATORS

- Full face respirators are designed to protect your respiratory system and eyes from contamination.
- They use cartridges and or pre filters for protection. Again, check the cartridge for the hazards they are designed to eliminate.
- Contact lenses are never permitted when wearing a respirator.

SUPPLIED AIR RESPIRATORS AND A SELF-CONTAINED BREATHING APPARATUS

- Last but not least is the air supplied respirator self-contained breathing apparatus.
- This is the best protection from respiratory hazards and oxygen deficiency as you breathe purified air.
- There are two types of air supplied respirators: airline and self-contained breathing apparatus.
- Airline respirators supply clean air through a special hose attached to a pump or compressed air. Compressed air must be from special compressors or systems where all the contaminants are removed as well as lubrication oil and fumes as found on regular air compressors.
- Even when wearing one of these types of air supplied respirators, you may need an emergency pack of air to use in case of an emergency.

Manufacturers have specific requirements for the handling, using, cleaning, storing and inspection of their equipment. Follow the manufacturer's recommendations.

Most of the self-contained breathing apparatus respirators you carry on your back will last about 15 to 20 minutes depending upon the work activity and your size.

When the air supply becomes low, an alarm will sound telling you to get out and replace the air supply. Don't always rely upon mechanical alarms.

Check the amount of time you're in the work area and leave the area if you're about to run out of air.

CHECKING FOR INTIAL FIT OF A RESPIRATOR

- As with all respiratory equipment, it's recommended you have an annual physical to determine your physical fitness for wearing any respiratory protection device.
- Every respirator wearer should receive fitting instructions including demonstrations and practice and how the respirator should be worn, how to adjust it and how to determine if it fits properly.
- Assessment of comfort shall include reviewing the following points with the test subject and allowing the test subject adequate time to determine the comfort of the respirator: positioning of the mask on the wearer’s nose, room for eye protection, room to talk, positioning of the mask on the face and cheeks, chin properly placed, strap tension, fit across nose bridge, distance from nose to chin and if there is a tendency to slip.
- Respirators shall not be worn when conditions prevent a good face seal.
- To assure proper protection, the facepiece fit shall be checked by the wearer each time he or she puts on a respirator. This may be done by following each manufacturer’s face piece fitting instruction.
- Providing respiratory protection for individuals wearing corrective glasses is a serious problem, as a proper seal cannot be established if the temple bars of the eyeglasses extend through the ceiling edge of the full facepiece.
- As a temporary measure, glasses with short temple bars or without temple bars may be taped to the wearer’s head.
- Wearing of contact lenses in contaminated atmospheres with a respirator is not allowed.
- Systems have been developed from mounting corrective lenses inside full face pieces. When a worker must wear corrective lenses as part of the face piece, the face piece and lenses shall be fitted by qualified individuals to provide good vision comfort and a gas tight seal. Proper selection of equipment will minimize or avoid this problem.

FIT TESTING

- All respirators must be fit tested. How about those paper disposable masks? You just use them and throw them away. Do they have to be fit tested? The answer is yes.
- All respirators, even the throwaway paper masks, must be fit tested. If they're not fit tested how do you know they work?
- The primary purpose of fit testing is to identify the specific model, make and size respirator best suited for each employee.
- An improperly fit tested respirator can cause a worker to develop signs or symptoms of acute toxicity.
- The most common test is called a qualitative test. The test relies primarily on worker response and if the worker smells or tastes the substance used in the test, the respirator fails the test.
- Remember the employee must be clean shaven. Do not test anyone even with a day's worth of stubble, let alone a full beard. The importance of being clean-shaven when wearing a respirator cannot be overstressed. Even a day's growth can dramatically affect the fit.
- Next there are some exercises to be completed. OSHA's health standards office provides the following list of testing exercises: normal and deep breathing in a normal standing position, turning the head side to side with worker inhaling at each side, moving the head up and down, inhaling in the up position, grimacing, smiling and frowning, bending over at the waist as if to touch toes, jogging in place.
- These maneuvers provide a minimum set of test exercises and should be done for one minute each, but you have to administer the testing agent after each exercise.
- Next, the person being fit tested should read the rainbow passage or other document for approximately one minute. The point of this exercise is to work the mouth and jaw as you would when you're normally talking. This test just measures a true fit on your face during normal tasks.
- If at any time the person being tested indicates that the taste or smell of the testing substances is achieved, the fit is unsatisfactory, and a different respirator must be tried.
- If a satisfactory fit test is achieved, the test could be recorded as satisfactory and proper records should be maintained.
- Keep in mind that if at any time the person being tested has difficulty in breathing this person should be referred to a physician to determine whether the test subject can wear respirator while performing work.

DOCUMENTATION AND TEST RESULTS

- Accurate documentation must be maintained as each different type of respirator to be worn must be fit tested and qualitative fit testing should be accomplished at least annually but for some hazards, such as asbestos, fit testing is required every six months.
- A summary of all test results should be maintained for three years. This summary should include the name of the tested person, date of testing, name of test conductor, the respirator selected indicated by the manufacturer model, size and approval number and the testing agent used in the fit testing.
- Additionally, if the person gains 20 pounds or more that person must be fit tested again.
- There may be other reasons for fit testing due to other conditions that may interfere with facepiece sealing.
- Respiratory protection can mean the difference between life and death. That's why it's vital to be informed.
- You need to know what the hazards are and select the proper protection. If there's ever a question, don't guess. Get your questions answered your safety and health are too important to take a chance.

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ANSWERS TO THE REVIEW QUIZ

1. d
2. b
3. a
4. b
5. a
6. c
7. a
8. a
9. a
10. c

RESPIRATORY PROTECTION:

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REVIEW QUIZ

The following questions are provided to determine how well you understand the information presented in this program.

Name_____Date_____

1. Your body can be adversely affected by _____.

a. Gases
b. Vapors
c. Fumes
d. All of the above

2. Effective respiratory protection is only dependent on the employer providing a respiratory protection program.

a. True
b. False

3. Disposable masks do not provide protection from vapors, gases, oxygen deficiency, temperature extremes or even high levels of contaminants.

a. True
b. False

4. When a respirator becomes clogged with trapped particles, you should _____.

a. Take it off and brush off the particles
b. Change the respirator in a safe area
c. Keep using it but take smaller breaths

5. Each cartridge has a specific purpose for a specific chemical and some cartridges may protect against several types of hazards.

a. True
b. False

6. To check the respirator to see if it's functioning properly, perform the negative air test first. Place the palms of your hands or a piece of paper over the cartridge opening. Inhale for _____ seconds.

a. 20 or 30
b. 1 or 2
c. 5 or 10

7. A positive test is completed by placing a palm over the exhalation opening, exhaling gently. You should feel an increased pressure in the mask indicating the mask and valve are working properly.

a. True
b. False

8. Most of the self-contained breathing apparatus respirators you carry on your back will last about _____ minutes depending upon the work activity and your size.

a. 15 to 20 minutes
b. 40 to 60 minutes
c. 60 to 90 minutes

9. A qualitative test relies primarily on worker response and if the worker smells or tastes the substance used in the test, the respirator fails the test.

a. True
b. False

10. Qualitative fit testing should be accomplished at least _____.

a. Daily
b. Weekly
c. Annually