


Respiratory Protection Program



Texas A&M University - Texarkana

Respiratory Protection Program
Environmental Health and Safety
GENS-22-L2-S00-CH00-003
Rev. No. 1

	Texas A&M University - Texarkana		
	Respiratory Protection Program	Program:	General Safety & Security
		Doc. No.:	GENS-22-L2-S00-CH00-003
		Rev No:	1
	Level 2	Date:	April 13, 2020
Office:		Environmental Health and Safety	


Concurrence and Approval

Respiratory Protection Program document was developed for use by Texas A&M University - Texarkana and has been reviewed and approved by the following approvers.


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Approval:

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 4/8/2020

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Certification (if required by law or regulation)

Reserved – Not Applicable

Change History

Revision Number	Interim Change No.	Effective Date	Description of Change
1	-	4/13/2020	Initial document



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Section 1. Purpose

Any person required to wear a respirator on the job should be instructed and trained prior to using the equipment. In part, the training should include the nature, extent, and effects of the respiratory hazards to which a person may be exposed as well as signs and symptoms of exposure.

Before a person is required to wear a respirator on the job, a determination should be made that he/she is physically fit and able to wear a respirator. In most cases, it is necessary for a physician to make this determination, thus all respirator users should be enrolled in the TAMUT occupational health program. Employees should receive an initial fit test prior to respirator use and annually thereafter.

Section 2. Roles and Responsibilities

Environmental Health & Safety (EHS) will

- assist in determining if respiratory protection is needed
- determine appropriate respiratory protection
- coordinate with local occupational health provider to provide medical evaluations as appropriate
- coordinate with local occupational health provider to provide fit testing and respirator training as appropriate
- monitor program compliance

Local Occupational Health Provider is


- responsible for implementing and overseeing the medical clearance requirements and all respirator fit tests

Department/Supervisor will

- identify employees who may require respiratory protection
- notify EH&S of employees that may be required to participate in the Respiratory Protection Program
- assure workers receive proper respirators and employee fit testing
- assure workers receive respirator training

Employee will

- use the respirator in accordance with guidelines described in the Respiratory Protection Program and in the manufacturer's instruction manual
- inform his/her supervisor if a respirator is damaged or lost
- report to his/her supervisor any illness or change in physical condition that may interfere with the safe use of a respirator

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Section 3. Respirator Description

Respirators can be classified according to whether they use an air source or ambient air, whether they operate under negative or positive pressure, and the configuration of the mask

Choosing the right equipment involves:

- Determining what the hazard is and its extent,
- Considering user factors that affect respirator performance and reliability, and
- Selecting an appropriate NIOSH-certified respirator.

Equipment must be used in line with specifications accompanying the NIOSH certification.

When selecting respirators, employers must consider the chemical and physical properties of the contaminant, as well as the toxicity and concentration of the hazardous material and the amount of oxygen present. Other selection factors are nature and extent of the hazard, work rate, area to be covered, mobility, work requirements and conditions, as well as the limitations and characteristics of the available respirators.

Air-purifying respirators use filters or sorbents to remove harmful substances from the air. They range from simple disposable masks to sophisticated devices. They do not supply oxygen and must not be used in oxygen-deficient atmospheres or in other atmospheres that are immediately dangerous to life or health (IDLH). There are nine classifications of non-powered particulate air-purifying respirators certified under three filter classes: N, R, and P. Each class has three levels of filter efficiency: 95%, 99%, and 99.97% (designated as 100 in this system). N, R, and P 100 filters are equivalent to HEPA filters. N refers to Not resistant to oil, R refers to Resistant to oil, and P refers to oil-Proof.


Section 4. Respirator Selection

TAMUT's selection of a N95 filter respirator is based on the work area characteristics, materials used, and worker activities. Only respirators which are approved by NIOSH should be used. Each respirator is intended for emergency use only. The N95 has an assigned protection factor of 10.

Filter respirators provide protection against particulate matter such as dust, fumes, mists, smoke, microorganisms, and asbestos. They do not provide protection against chemical vapors or gases, or oxygen deficiency.

Section 5. Respirator Fit Test

There is not one style or size of respirator available which will properly fit every person who needs to wear one. This is why it is important that an individual is fit tested before they use a respirator, so that they are using one that fits properly and provides the best level of protection. Fit testing must be performed prior to initial use and annually thereafter. Additionally, a new fit test will need to be performed when a different respirator is used and when there are changes to the user's face shape that may affect the respirator fit.

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Fit testing can be accomplished by one of two methods: quantitative or qualitative. EH&S will identify which test should be performed on a case-by-case basis.

Quantitative Fit Test

This method of fit testing is very accurate and determines the actual fit factor of a respirator by comparing concentrations of particles inside the respirator to the ambient air.

Qualitative Fit Test

This method of fit testing uses an easily detected substance such as isoamyl acetate (banana oil) and/or an irritant smoke.

- The respirator used for the test must provide protection against the test substance (e.g. an organic vapor chemical cartridge must be used for isoamyl acetate and a HEPA cartridge must be used for the irritant smoke test).
- The test involves having the user don a respirator; exposing user to the test substance; requiring user to perform a task such as reciting the alphabet, moving head from side-to-side, etc.; determining whether user can detect the test substance.
- If the test substance is detected, then the respirator does not fit well and the test is repeated after adjustments have been made to the respirator, or a new respirator may be tested.
- If the test substance is not detected, then a satisfactory fit is assumed to be achieved.

Any person assigned a task requiring respirator protection must receive adequate training regarding the safe and proper use of the respirator. At a minimum, training should include the following:


- Reasons for the need for respiratory protection.
- Nature, extent and effects of respiratory hazards to which the person may be exposed.
- Selection of the appropriate respirator for the hazard.
- Explanation of the operation, capabilities, and limitations of the selected respirator.
- Instructions in inspecting, donning, fit testing and wearing the respirator.
- Directions for maintenance and storage of the respirator.
- Hands-on training to allow actually handling of the respirator.

Section 6. Proper Use of Respirators

It is essential that a person who is required to wear a respirator be informed and made of conditions and factors that might interfere with the respirator's performance.

Do:

- Make sure you have the correct respirator for the job.
- Have an additional person present if in dangerous atmospheres.
- Determine a means of communication between respirator wearers prior to using respirators in the field (hand signals are acceptable).
- Use a respirator which has been approved by NIOSH.
- Check respirator each time before use.
- Shave and put dentures in (if applicable) before wearing a respirator.

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- Be aware that some contaminants may enter or damage the body by means other than the respiratory tract (protective clothing may be required).
- Return to fresh air if: the canisters or cartridges need replacing; you feel nauseous, dizzy, or ill; or if you experience difficulty breathing.
- Wear eye protection if the contaminant concentration causes eye irritation (a full facepiece respirator may be used).
- Be aware that some environmental conditions can compromise a respirator's performance.
 - High temperatures can cause a person to sweat, breaking the face to facepiece seal
 - Freezing temperatures can ice-clog an exhalation valve and regulator
- Be alert to signs and symptoms of heat stress.
- Ensure your respirator is fit tested annually.

Do not:

- Remove a respirator in a contaminated atmosphere.
- Use a respirator without the proper training.
- Talk unnecessarily or chew gum while wearing a respirator.
- Overexert yourself.
- Mistakenly use a filter respirator for protection against gas and vapors.
- Allow hair or temple bars from glasses to pass between the face and facepiece of the respirator.

Section 7. Care of Respiratory Equipment

Proper maintenance of respirator equipment is essential to ensure its effectiveness. Whenever possible, each individual should be assigned a respirator for his/her exclusive use.

Inspection

Prior to use and after use, the respirator should be inspected to ensure that it is in good operating condition. Respirators that are stored for emergency or rescue use, should be inspected at least monthly. A respirator inspection should be tailored to the type of respirator as follows:

Disposable Respirators

- Integrity of the filter – check for holes or tears
- Elastic straps – check for loss of elasticity, tears, etc.
- Metal nose clip – check for breakage
- Loss of elasticity
- Broken or malfunctioning buckles or attachments


Cleaning and Disinfecting

Proper cleaning of a respirator reduces the potential for contamination and dermatitis. Clean and disinfect emergency use respirators after use. EHS can be consulted for any issues.

Storage

Respirators need to be stored properly to prolong their life and to maintain their effectiveness.

- Protect respirators from dust, sunlight, heat, extreme cold, excessive moisture, and chemicals.
- Routinely used respirators may be placed in plastic bags

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- Store emergency use respirators in an accessible, clearly marked compartment.

Section 8. Records and Reporting

EHS is responsible for maintaining records documenting the initial medical evaluation and fit test, the annual fit test, and the training in the use and care of respirators for each employee issued a respirator for work use.

Section 9. Change Management

This program shall be reviewed annually by the Environmental Health and Safety Department.

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Abbreviations, Acronyms and Definitions

ANSI-American National Standards Institute

Breathing tube-A tube which allows air to flow to the facepiece.

Cartridge-A component of a respirator which removes contaminants from the air.

Contaminant-Any gas, vapor, particulate, etc. present in the air which might harm a person.

Exhalation valve-A device in a respirator which allows exhaled air to leave and prevents outside air from entering.

Facepiece-The part of a respirator which covers the user's face. A full facepiece covers the eyes, nose, and mouth; a half facepiece covers the nose and mouth.

Filter-A fibrous media that removes liquid or solid particles from the air.

Gas Mask-An air purifying respirator which uses a large volume canister to remove gases and vapors from the air.

HEPA filter-High Efficiency Particulate Air filter used to remove asbestos fibers and other particulates from the air.

IDLH-Immediately Dangerous to Life and Health; respiratory exposure that may cause death, irreversible adverse health effects, or acute eye exposure that would prevent escape.

Inhalation Valve-A device in a respirator which allows respirable air to enter and prevents exhaled air from leaving.

MSHA-Mine Safety and Health Administration

NIOSH-National Institute for Occupational Safety and Health

PEL-Permissible Exposure Limit; the legal concentration of a contaminant (as dictated by OSHA) that cannot be exceeded.

Protection Factor-The ratio of the contaminant concentration outside a respirator to the contaminant concentration inside the respirator.

Respirable-Air which is fit for breathing.

Respirator-A device which protects a person from breathing airborne contaminants.

SCBA-Self Contained Breathing Apparatus

Service Life-The amount of usable time left for a cartridge or canister.

Sorbent-The material found in a cartridge or canister which removes gases or vapors from the air.

TLV-Threshold Limit Value; a recommended exposure limit issued by the American Conference of Governmental Industrial Hygienists; this limit represents a condition which is believed that nearly all workers may be repeatedly exposed to without adverse health effects.