

# University of Arizona Respiratory Protection Program

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# 1.0 Purpose and Applicability

## 1.1. Introduction and Purpose

The University of Arizona's Respiratory Protection Program (RPP) supports the protection of employees and students from exposure to respiratory hazards to maintain compliance with occupational health and safety standards. The RPP functions to establish requirements for the proper selection and use of respiratory equipment when engineering and administrative controls are not feasible or do not prevent exposure in compliance with occupational health and safety standards.

The University of Arizona RPP establishes the procedures necessary to meet the regulatory requirements described in OSHA's Respiratory Protection standard (29 CFR 1910.134). When respirators are used as specified, they can prevent injury and illnesses from both acute and chronic exposures to hazardous substances. The purpose of the UA RPP is to maximize the protection afforded by respirators when required for use.

## 1.2 Applicability and Scope

The UA RPP applies to all University-affiliated activities where employees, students and/or Designated Campus Colleagues (DCC's) are required to use respiratory protection due to the nature of their work. This includes locations that serve as assigned workplaces and educational or research settings for University faculty, staff, and selected visiting researchers including:

- University of Arizona Tucson Campus,
- Agricultural and Extension Centers (Maricopa, Safford, Yuma, and others),
- College of Medicine Phoenix (COM-Phoenix),
- College of Veterinary Medicine (CVM),
- Other University owned property, University leased space, temporary field locations, and field trips that are under the control of University operations and staff.

This RPP does not apply to University contractors; contractors operating on University property will be informed of areas requiring respiratory protection but all respiratory protection use and program functions shall be administered by their employer.

## 1.3 Definitions and Acronyms

**RPA:** Respiratory Protection Program Administrator

Note: The University of Arizona RPP is administered by the Manager of Industrial Hygiene Services (RMS) and is supported by RMS, RLSS, and OH staff members

**RMS:** Risk Management Services

**OH:** Occupational Health

**RLSS:** Research Laboratory & Safety Services

**RPP:** Respiratory Protection Program

**CHS:** Campus Health Service

**Air Purifying Respirator:** a type of respirator with an air-purifying filter, cartridge, or canister, that removes specific air contaminants by passing ambient air through the air-purifying element.

**Air-line Respirators:** a type of supplied air respirators that have an air hose that is connected to a fresh air supply from a central source. This source may be an ambient air pump situated indoors or outdoors, or an air compressor that provides at least Grade D breathing air.

**Atmosphere-supplying Respirator:** a respirator that supplies the respirator user with breathing air from a source independent of the ambient atmosphere and includes supplied air respirators (SARs) and self-contained breathing apparatus (SCBA) units.

**Assigned Protection Factor (APF):** Value provided from OSHA that determines how well a respirator and filter combination will protect an individual from contaminant(s) of concern.

**Canister or Cartridge:** a container with a filter, sorbent, or catalyst, or combination of these items, which removes specific contaminants from the air passed through the container.

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

**Filter:** a component used in respirators to remove solid or liquid aerosols from the inspired air.

**Filtering facepiece respirators (FFR):** are disposable, negative-pressure, air purifying respirators where an integral part of the facepiece or the entire facepiece is made of filtering material.

- These respirators are designed to be used once and then properly disposed of.
- However, a FFR may be reused by the same user, under some circumstances, as long as the respirator has not been obviously soiled or damaged (See discussion of specific conditions in which FFR reuse may be acceptable in section 8.1).
- An N95 FFR has a filter efficiency of 95% and is not resistant to oil, while a P100 FFR has a filter efficiency of 99.97% and has a strong resistance to oil. Filters with other combinations of filtration efficiency and oil resistance, “N”, “R” or “P”, categories are available.

**Fit Test:** a protocol to quantitatively or qualitatively evaluate the fit of a tight-fitting respirator on an individual.

**Grade D Breathing Air:** Compressed air with the specific and detailed (below) attributes, as described by ANIS/Compressed Gas Association G-7.1-1989. All cylinders must have a certificate of analysis from the supplier and be maintained by the employee and supervisor, including tagging and regular checks of tank changes.

- Oxygen Content 19.5%-23.5%
- Hydrocarbon (condensed)  $\leq 5 \text{ mg/m}^3$

- Carbon Monoxide (CO)  $\leq$  10 ppm
- Carbon Dioxide (CO<sub>2</sub>)  $\leq$  1000 ppm
- Lack of noticeable odor

**Immediately dangerous to life or health (IDLH):** an atmosphere that poses an immediate threat to life, would cause irreversible adverse health effects, or would impair an individual's ability to escape from a dangerous atmosphere. A low oxygen atmosphere is considered to be an IDLH condition.

**Physician or other Licensed Health Care Professional (PLHCP):** an individual whose legally permitted scope of practice (i.e., license, registration, or certification) allows him or her to independently perform, or be delegated the responsibility to perform, the activities described by the OSHA Respiratory Protection regulation.

**Loose Fitting Facepiece:** a respiratory inlet covering that is designed to form a partial seal with the face.

**Maximum Use Concentrations (MUC):** the upper limit of acceptable concentration that a particular respirator and filter combination can provide to protect workers. This is calculated by multiplying the Assigned Protection Factor (APF) by the Permissible Exposure Limit (PEL) of the contaminant(s) of concern.

**N95 respirator:** a generally used term for a half mask negative pressure air-purifying respirator with NIOSH-approved N95 filters or filter material (i.e., includes N95 filtering facepiece respirator or equivalent protection).

**NIOSH approval:** the approval of a respirator for worker protection by the National Institute for Occupational Safety and Health (NIOSH).

**Permissible Exposure Limit (PEL):** OSHA provided legal limitation for employee exposure to a chemical or physical agent. These are assigned based on a level of exposure that a typical worker may be exposed to without experiencing adverse health effects.

**Powered Air Purifying Respirator (PAPR):** an air purifying respirator that uses a blower to force the ambient air through air-purifying elements to the inlet covering.

**Respiratory Inlet Covering:** that portion of a respirator that forms the protective barrier between the user's respiratory tract and an air-purifying device or breathing air source, or both.

**Self-Contained Breathing Apparatus (SCBA):** an atmosphere-supplying respirator for which the breathing air source is designed to be carried by the user.

**Supplied Air Respirator (SAR) or Airline Respirator:** an atmosphere-supplying respirator for which the source of breathing air is not designed to be carried by the user.

**Tight-fitting Facepiece:** a respiratory inlet covering that forms a complete seal with the face.

## 2.0 Responsibilities

### 2.1 Risk Management Services (RMS) and Research Laboratory & Safety Services (RLSS)

The Manager of Industrial Hygiene Services at RMS will serve as the official University of Arizona Respiratory Protection Program Administrator (RPA), who will collaborate with and be supported by RMS and RLSS staff members.

The RPA and support staff will:

- Conduct:
  - Workplace hazard assessments and select the appropriate level of respiratory protection for each task or job title with potential exposure and record this information. Non-research environment risk assessments are performed by RMS and research environment risk assessments are performed by RLSS.
  - The review of completed hazard assessment forms that serve as the respiratory hazard evaluation and is updated annually. (Review the [Respirator Request Form](#)).
  - Consultations with respirator users, supervisors, and organizational respirator coordinators on issues related to the RPP.
  - An annual evaluation of the Program and implements Program improvements.
- Coordinate:
  - The implementation of the medical surveillance program requirements for respirator use in conjunction with OH staff.
  - The purchase, maintenance, repair, and replacement of respirators.
  - Annual respirator training and fit testing.
- Maintain:
  - A copy of this written RPP and program evaluations and ensure that they are readily accessible to anyone in the program.
  - Records of respirator training and fit testing as required by 29 CFR 1910.134 and 29 CFR 1910.1020.
- Inform organizations of product recalls, changes in respiratory protection equipment specifications, and changes in regulations.
- Support supervisors and users in:
  - Determining if respirator use is required or voluntary based on a hazard assessment and select appropriate respirators.
  - Monitoring respirator use to ensure that respirators are used in accordance with their certifications.
  - Monitoring compliance of respirator users.
  - Determining and documenting respirator cartridge change-out schedules, and review with workers during training.

### 2.2 Occupational Health (OH)

- Oversees and provides medical clearance for respirator fit testing and use based upon review of the information provided in the Respirator Medical Evaluation Questionnaire, and if needed, a physical exam and other tests or consultations.
- the respirator medical evaluation process as provided by Occupational Health.
- Maintain records of medical clearance as required by 29 CFR 1910.134 and 29 CFR 1910.1020; they may also assist in the maintenance of training and fit testing records.
- Review the [Respirator Medical Evaluation Questionnaire](#) to determine the employee's ability to wear a respirator for the stated hazards and activities.
- Follow up with respirator users as necessary to clarify responses on the Respirator Medical Evaluation Questionnaire and refer respirator users to the Physician or other licensed healthcare professional (PLHCP) as needed for physical examinations, tests or consultation.

### 2.3 Supervisors

Supervisors of employees included in the RPP will:

- Participate in the hazard assessment by evaluating all potential exposures to respiratory hazards and communicating this information to the RPA and support staff.
- Identify employees and/or tasks for which respirators may be required and communicate this information to the RPA and support staff.
- Be responsible for ensuring that employees in their units follow the procedures outlined in the RPP.
- Schedule employees for medical evaluations, training, and fit testing and ensure that they are allowed to attend these appointments during work hours.
- Ensure that department/unit/Principal Investigator/responsible party ("employer") purchases and provides appropriate respiratory protection for workers with a need demonstrated to and evaluated by the RPA and/or support staff.
- Prohibit employees from performing tasks for which respiratory protection has been determined necessary unless respiratory protection is actively and appropriately utilized.

### 2.4 Employees in the Program

Employees included in the RPP will:

- Complete the required questionnaire for medical clearance and participate in a medical examination if necessary.
- Participate in training sessions, tests for competency validation and fit tests.
- Comply with department- or site-specific policies on respirator use
- Adhere to policies on facial hair and respirator seal protection.
- Attend/complete annual training and respirator fit testing as required in the RPP.
- Use, maintain, and dispose of respirators properly in accordance with training and the procedures in the RPP.
- Inspect their respirators before each use and clean them after each use.
- Report any problems to their supervisors.

- Notify their supervisor and/or RPA of any changes in medical condition or work practice that could impact their medical clearance for respirator use.
- Notify the RPA and support staff of any changes in physical condition (such as facial scarring, dental changes, cosmetic surgery, or an obvious change in body weight) that may affect respirator fit, or when they find the fit of the respirator unacceptable.

## 3.0 Respirator Selection

The RPA and support staff will select the types of respirators to be used by staff based on the hazards to which employees may be exposed and in accord with OSHA regulations and Centers for Disease Control and Prevention (CDC) and other public health guidelines. With input from the respirator user, the RPA and support staff and supervisor will conduct a hazard assessment for each task, procedure, or work area with the potential for airborne contaminants. The hazard assessment will include the following as needed:

- Identification of potential exposures (e.g. hazardous gases, vapors, pathogens, etc.)
- A review of work processes to determine levels of potential exposure for all tasks and locations.
- Quantification or objective determination of potential exposure levels, where possible.

### 3.1 NIOSH-Certified Equipment

All respiratory protective equipment shall be approved by the National Institute for Occupational Safety and Health (NIOSH) for the configuration and environment in which it is going to be used. The NIOSH Certified Equipment List is found at: [www.cdc.gov/niosh/npptl/topics/respirators/cel](http://www.cdc.gov/niosh/npptl/topics/respirators/cel). Any deviation from NIOSH certified equipment requires consultation with the RPA and/or support staff.

### 3.2 Assignment of Respirators by Task and Location

The RPA and support staff will use the hazard assessment to assign appropriate types of respirators for use by specific work tasks and/or locations.

### 3.3 Types of Respirators

There are two main categories of respiratory protection: Air-Purifying Respirators (APRs) and Supplied Air Respirators (SARs).

APRs work by removing the contaminant from the air via filtration. These include face-filtering respirators like N95s, half- and full-face elastomeric respirators, and Powered-Air Purifying Respirators (PAPRs). Air purifying respirators protect the wearer by filtering or adsorbing specific airborne contaminants (harmful dusts, biological agents (pathogens and allergens), radionuclides, chemicals, vapors, gases). Disposable particulate respirators (such as N95, R95,

P100) and half-mask air purifying cartridge respirators are most commonly used on campus. APRs should never be used for: oxygen deficient respirators, in IDLH environments, for abrasive blasting operations and/or firefighting, when not approved by the RPA and support staff for the contaminant of concern, and with facial hair or other characteristics that may cause an imperfect respirator seal.

SARs provide clean breathing air to the wearer during work such as abrasive blasting, work or egress from oxygen deficient atmospheres and more. These utilize a clean source of breathing air from a cylinder or compressor instead of filtering the contaminant from the wearer's environment.

	Respirator Type	Filtration Type(s)	Air Supply	Common Uses	Assigned Protection Factor (APF)
<b>Air-Purifying Respirator (APR)</b>					
	Face-filtering respirator (FFR)	N95/99/100, R95/99/100, P95/99/100	N/A	Particulate matter	10
	Half-face elastomeric	Hazard assessment determines filtration type(s)	N/A	Particulate matter, gases, vapors, fumes	10
	Full-face elastomeric	Hazard assessment determines filtration type(s)	N/A	Particulate matter, gases, vapors, fumes	50
	Powered-air purifying respirator (PAPR)	Hazard assessment determines filtration type(s)	N/A	Particulate matter, gases, vapors, fumes	25-1000
<b>Supplied-Air Respirator (SAR)</b>					
	Air-line	N/A	Grade D	Abrasive Blasting, Emergency Escape	1000
	SCBA	N/A	Grade D	IDLH, Oxygen deficiency, Emergency Escape	10000

### 3.3.1 Face-Filtering Respirators (FFR)

Also known as “filtering facepiece” respirators, this type of air-purifying respirator covers the nose and mouth, is tight-fitting (seals to the face), and protects by filtering particles, and particulate matter only, out of the air the user is breathing. FFRs may or may not have an exhalation valve and may or may not be able to mitigate nuisance odors (non-harmful but potentially irritating to the user). FFRs require a fit test prior to use because they are tight-fitting. FFRs are not intended to be used more than one time (e.g. disposable). However, a FFR may be reused by the same user, under some circumstances, as long as the respirator has not been obviously soiled or damaged (See discussion of specific conditions in which FFR reuse may be acceptable in section 8.1); this must only be done after consultation with the RPA and support staff to ensure conditions of use are appropriate and the proper training has been administered to those reusing respiratory protection.



There are seven classes of filters for NIOSH-approved filtering facepiece respirators available for use based on the level of filtration and resistance to oil. Respirators span 95%, 99%, and 100% efficiency at filtering particulate matter and can be oil-resistant (P), somewhat oil-resistant (R), and non-oil resistant (N); surgical type FFRs also exist, which have additional moisture resistance and is also approved by the FDA. The most used type of FFR at the University of Arizona is the N95 respirator.



*Figure 1. Face-filtering (N95) respirators. Sources: Moldex and Kimberly Clark.*

### 3.3.2 Tight-fitting Air Purifying Respirators

Tight-fitting, air-purifying respirators come in half-face and full-face varieties and require the use of replaceable filters (for particulates) or cartridges or canisters (for gases and vapors) to protect the user. Half-face respirators cover the nose and mouth, while full-face cover the nose, mouth, eyes, and face. The full-face respirator provides a higher level of protection for the user, mainly when irritating vapors/gases and/or splashes are of concern. These respirators are comprised of a rubber or silicone facepiece that seals to the user's face; this type of respirator needs to be fit tested and can be used instead of a filtering facepiece respirator. Tight-fitting elastomeric respirators can be cleaned, decontaminated, and reused unlike FFRs. They can be used for particulates, but they can also be used for many gases and vapors if equipped with the proper cartridges.



Figure 2. Half-face (top left) and full-face (bottom right) tight-fitting respirators. Source: Global Industrial.

### 3.3.3 Powered Air-Purifying Respirators (PAPRs)

Powered air-purifying respirators, or PAPRs, are comprised of a loose or tight-fitting face piece combined with a blower that pulls air through attached filters. The blower then pushes the filtered air into the facepiece, which covers all of the user's face. Loose-fitting PAPRs do not require fit tests since they do not need to seal to the face (may be used with facial hair). Tight-fitting full facepiece PAPR uses an elastomeric facepiece made of rubber or silicone that seals to the user's face and does require a fit test.



Figure 3. Powered-air Purifying Respirator (PAPR) with a loose-fitting hood. Source: 3M.

### 3.3.4 Emergency Escape Respirators

Emergency escape breathing apparatus provides breathable oxygen for 5 or 10 minutes depending on the unit. These are used for emergency situations in which a worker must escape from environments immediately dangerous to life and health. It cannot be used to perform any work. If the RPA and support staff assess a workplace and determine the need for emergency escape respirators, only NIOSH certified Emergency Escape Respirators shall be used. The instances for this type of respiratory protection shall be determined on a case by case basis by the RPA and support staff and will be escape or other highly specific purposes only. Employees will be trained on the proper use, limitations and care of these respirators by the RPA, support staff, and OH prior to use.

### 3.3.5 Air-line Respirators

Air-line respirators supply clean breathing air to either a hood or a facepiece through a long hose, from a source of clean air such as a cylinder or compressor and require fit testing if the facepiece is tight-fitting.

**Portable Pump:** Employees will make sure that the placement of the air pump or extension hose is in an area free of vehicular traffic and other air contaminants that may be drawn into the pump. The breathing air of the worker must meet Grade D air requirements as outlined in ANSI G-7.1-1989.

**Air Compressor:** If the airline taps into an air compressor or compressed air system, the air compressor will be located in an area or designed to prevent contaminated air from being drawn in. In line sorbent beds and filters will be provided to ensure Grade D breathing air. These sorbent beds and filters will be inspected regularly according to manufacturer instructions by facility staff members and the compressor will be tagged with information dating the last inspection and filter change by the facility manager. The compressor located must be lubricated, and if deemed necessary by the RPA and support staff, shall be monitored for carbon monoxide levels (oil lubrication).

If employees are using a tight fitting face mask with their air-line respirator, they will be fit tested by RLSS and OH in the negative pressure mode prior to use to ensure a proper fit using an OSHA approved Qualitative or Quantitative method as described in Appendix A of the OSHA respiratory standard 1910.134. Employees will receive training on the proper use, care and limitations of their respirator annually by the RPA, support staff, and OH.



*Figure 4. Airline respirator. Source: MSA.*

### 3.3.6 Self-Contained Breathing Apparatus (SCBAs)

SCBA's are used in the following activities or areas: Hazardous gas cylinder exchanges by Cryogenics staff members and potentially by RMS staff members.

All oxygen used in compressed cylinders will meet U.S. Pharmacopoeia requirements for Grade D breathing oxygen (please see "Definitions" section of this document for the Grade D air specifications). The RPA and support staff will coordinate deliveries of compressed air with the company's vendor and will ensure that the cylinders are marked in accordance with NIOSH 42 CFR Part 84 and that the cylinders have a certificate of analysis saying that the air in the cylinders meets the specifications of Grade D breathing air.

Cylinders are to be inspected and maintained according to manufacturer instructions. Prior to each use, they are to be checked to ensure that they are fully charged and tested and to ensure that the regulator and warning devices are operating properly. It is the responsibility of the SCBA user to inspect and maintain the cylinders. Additional cylinders can be obtained and/or refilled through UA Cryogenics.

Employees wearing SCBA's will be fit tested in the negative pressure mode to ensure a proper fit using an OSHA approved Qualitative or Quantitative method as described in Appendix A of the OSHA respiratory standard 1910.134. Employees will receive training on the proper use, care and limitations of their respirator annually by the RPA, support staff, and OH.



*Figure 5. SCBA respirator. Source: Scott Safety.*

### 3.3.7 Entry into IDLH Atmospheres

Entry into Immediately Dangerous to Life and Health (IDLH) atmospheres requires an assessment, training, and evaluation by Risk Management Services and the RPA. Please contact them at 520-621-1790 for an assessment or questions.

### 3.4 Updating the Hazard Assessment

The RPA and support staff will revise and update the hazard assessment any time an employee or supervisor identifies or anticipates a new exposure or changes to existing exposures. Any employee who believes that respiratory protection is needed during a particular activity must contact his or her supervisor or the RPA and support staff. The supervisor must contact the RPA and support staff whenever respiratory protection is requested or the question of need for respiratory protection is raised. The RPA and support staff will assess the potential hazard with the employee and supervisor. If it is determined that respiratory protection is needed, all elements of this program will be in effect for those tasks and the program will be updated accordingly.

### 3.5 Voluntary Use of Respirators (29 CFR 1910.134 Appendix D)

The voluntary use of respirators applies only to face-filtering respirators (such as N95s) when it has been determined that:

- Such respirator use will not in itself create a hazard.
- Airborne occupational exposures to hazardous chemicals do not exceed established OSHA Permissible Exposure Limit (PEL).
- No airborne biological hazard is present.
- No specification standards require the mandatory use of respirators.

- Note: Voluntary use of respirators to protect against COVID-19 is not permitted at the University of Arizona. For more information, please review the most recent [University of Arizona Voluntary Use Policy online](#).

Employees who voluntarily use a disposable filtering facepiece respirator (i.e., dust-mask style respirator) are excluded from medical clearance, training and fit-testing requirements. The information in Appendix D, Important Information about Voluntary Use of Respirators, must be provided to all voluntary users of respirators for their review.

Any employee who experiences any difficulties while wearing the filtering facepiece respirator must immediately inform their supervisor. If an employee requests to wear a respirator other than a filtering facepiece respirator, they must contact their supervisor.

When the use of a respirator is not required by a substance-specific OSHA standard, the OSH Act or University policies and the RPA has determined that its use is not necessary to protect the health of the employee, an employee may still request to use a respirator voluntarily. Voluntary use does not require the employing unit to pay for respiratory protection equipment, unlike other uses of respiratory protection.

Employees using respirators voluntarily will be provided with the information in Appendix D to 29 CFR 1910.134 (Appendix D of this RPP).

The University of Arizona only permits the voluntary use of N95 respirators and filtering facepiece respirators; users will not be provided initial medical clearance and are required to clean, store, and maintain the respirator as per the requirements of this RPP. Please view the [University of Arizona Voluntary Use Policy online](#).

If employees voluntarily using respirators are aware of a change that warrants review of medical clearance or repeat fit testing, such as a determined need for respiratory protection within their workplace as opposed to voluntary use, they should bring that to the attention of their supervisor.

## 4.0 Medical Evaluation

Employees whose work activities require the use of respiratory protective equipment shall receive medical clearance prior to the use of a respirator and prior to being fit tested for a respirator.

Medical evaluations will be performed by a physician or other licensed health care professional (PLHCP) by referral from the RPA and/or support staff. At the University of Arizona, a PLHCP from the Occupational Health clinic will typically perform medical evaluations for employee enrollment into the RPP; student medical evaluation and clearance is typically managed by Campus Health Services (CHS) off-site employees (not at the Tucson campus) should contact

OH to determine where clearance should occur. Documentation of the medical evaluation should be furnished to the RPA and support staff if conducted by an entity other than OH.

Before being assigned to work in an area where respirators are required, each employee will complete the online questionnaire (<https://msp.occhealth.arizona.edu/msp/msp.php>), which is in accordance with Appendix C of this RPP. Employees may also speak directly with the PLHCP if they have questions.

The PLHCP will:

- Be provided with a copy of the RPP, information from the RPA and support staff about the type of respiratory protection to be used by employees, duration and frequency of respirator use, expected physical effort, other protective equipment worn, and any expected extremes of temperature or humidity.
- Review completed questionnaires and make a medical determination as to whether the employee can wear a respirator safely. The PLHCP may make this determination based on the questionnaire alone but may also require a physical examination of the employee and any tests, consultations, medical records reviews, or procedures the PLHCP deems are necessary.
- Provide a written recommendation to the employer, excluding any medical information, which may clear the employee for all respirator use, or may specify restrictions or limitations on use, such as the type of respirator that may be worn, the duration that it may be worn, and the acceptable level of exertion while wearing the respirator. A copy of this written determination shall also be provided by the PLHCP to the employee.

An additional medical evaluation is required when:

- The employee reports medical signs or symptoms that are related to their ability to use a respirator.
- A PLHCP, supervisor, or the RPA and support staff requests a reevaluation.
- Observations made during fit testing or program evaluation indicate a need for reevaluation (e.g., the employee experiences claustrophobia or difficulty breathing during the fit test).
- A change occurs in workplace conditions (e.g., physical work effort, protective clothing, or temperature) that may result in a substantial increase in the physiological burden placed on an employee wearing a respirator or that requires a different type of respirator (e.g. N95 to SCBA).

## 5.0 Fit Testing

Before an employee is required to use any respirator with a tight-fitting facepiece (anything except a PAPR with loose-fitting facepiece, hood, or helmet that does not rely upon a tight-fitting facepiece-to-face seal), they will be fit tested by RPA and support staff or their designee or an outside contractor. There is no requirement for certification of fit testers but the person doing the



fit testing must understand and follow the fit test protocol and understand how to train the wearer to don the respirator properly and do a user seal check. At least 15 minutes per person will be needed to show the employee how to put the respirator on, position it, and assess its comfort, perform the user seal check, and complete the fit testing. Users will also be required to complete the online RPP training (in development for launch 2020-2021).

Employees will be offered a selection of several models and sizes of respirators from which they may choose the one that correctly fits and is most acceptable/comfortable. Employees will need to be fit tested with the same make, model, style, and size of respirator to be used in their workplace/operations. Employees who use tight-fitting respirators are not permitted to have facial hair that interferes with the facepiece seal or valve function during the fit test and during normal use.

All employees who must wear respiratory protection shall receive medical clearance before fit testing is performed or the respirator is worn. Fit tests will be provided at the time of initial assignment and annually thereafter. Additional fit tests will be provided whenever the employee experiences significant physical changes OR the supervisor or RPA and support staff observes physical changes that could affect respirator fit. These changes include, but are not limited to, facial scarring, dental changes, cosmetic surgery, or an obvious change in body weight.

Employees who will be using only a PAPR with loose-fitting facepiece, hood, or helmet do not need to be fit tested. Any employee who cannot be successfully fit tested with a tight-fitting respirator may be assigned a PAPR with a loose-fitting facepiece, hood, or helmet for all tasks requiring a respirator. Employees must be clean shaven where the respirator seals to the face or they will need to be issued a PAPR.

A qualitative fit test may be used for all wearers of half mask APRs, including filtering facepiece respirators with N95 or P100 filters and elastomeric APRs. The qualitative test will follow the protocol for saccharine or Bitrex® solutions found in [Appendix A of the OSHA Respiratory Protection standard \(29 CFR 1910.134\)](#) and in Appendix A of this RPP.

A quantitative fit test may be used for all half and full mask APRs, including filtering facepiece respirators with N95 or P100 filters and elastomeric APRs. Quantitative fit-testing is performed using an ambient aerosol condensation nuclei counter (CNC) or Controlled Negative Pressure (CNP) fit testing protocol in accordance with the protocol from [Appendix A of the OSHA standard](#) and in Appendix A of this RPP.

## 6.0 Training

Annual respirator training will be provided for all employees covered by this program. The training will be conducted by the RPA and/or support staff and will include the following:

- The general requirements of the OSHA Respiratory Protection standard.
- The specific circumstances under which respirators are to be used.



- Respiratory hazards to which employees are potentially exposed during routine and emergency situations.
- Why the respirator is necessary and how proper fit, usage, and maintenance can ensure the protective effect of the respirator as well as how improper fit, usage or maintenance can compromise the protective effect of the respirator.
- The limitations and capabilities of the respirators that will be used.
- How to effectively use the respirators, including emergency situations and situations in which the respirator malfunctions.
- When medical clearance will be needed and what that entails for users.
- How to inspect, put on, remove, use, and check the seals of the respirator (for tight-fitting respirators such as N95 filtering facepiece respirators).
- The procedures outlined in this program for maintenance, storage, and cleaning or disposal of respirators.
- Employees who are issued PAPRs shall be instructed in procedures for charging and maintaining the batteries, and for checking the air flow rate.
- How to recognize medical signs and symptoms that may limit or prevent the effective use of respirators.
- How and when to decontaminate (or safely dispose of) a respirator that has been contaminated with chemicals or hazardous/infectious biological materials.

Training shall be available at the time of initial assignment to respirator use and completed prior to fit-testing; this must be done before actual respirator use in the workplace occurs. It must also be completed annually thereafter. This training may be performed in-person or online via video call.

Additional (refresher) training will be provided when there is a change in the type of respiratory protection used, or when inadequacies in the employee's knowledge or use of the respirator indicate that he or she has not retained the requisite understanding or skill.

The employee will also receive training during the fit testing procedure that will provide an opportunity to handle the respirator, have it fitted properly, test its facepiece-to-face seal, and wear it in normal air to familiarize themselves with the respirator. Every respirator wearer will receive fitting instructions, including demonstrations and practice in how the respirator should be worn, how to adjust it, and how to perform a user seal check according to the manufacturer's instructions.

Employees will be given the opportunity during training, annual refresher training and throughout the year to provide feedback on the effectiveness of the program and suggestions for its improvement.

## 7.0 Respirator Use

Employees will follow procedures for proper use of their respirators under conditions specified by this program and in accordance with the training they receive on the use of each particular model or type of respirator. The appropriate types of respirators to be used are chosen after an exposure or hazard assessment of the work environment. An appropriate type of respirator and filtration will be determined and recommended to workers by the RPA and support staff.

Respirators relying on a tight facepiece-to-face seal must not be worn when conditions prevent a good seal. Such conditions may be a beard, long moustache, sideburns, or even razor stubble (“5 o’clock shadow”) as well as scars, other facial abnormalities, piercings, and temple pieces on glasses. In addition, the absence of one or both dentures can seriously affect the fit of a facepiece.

Employees and supervisors must be diligent in observing practices pertaining to ensuring the safe use of respirators. To ensure proper protection, the wearer will always perform a user seal check, in accordance with manufacturer’s instructions and the training provided at the time of fit testing, **each time** they put on a tight-fitting respirator. Employees who wear corrective glasses or other personal protective equipment must wear these during their fit testing to ensure that it does not interfere with the facepiece seal.

When respirators with cartridges are used, the RPA and support staff will help recommend a cartridge type and should assist in creating a change schedule in accordance with the manufacturer’s recommendations and industry best practices. In addition to these, the [OSHA Respirator e-Tool](#) can aid in the development of a change schedule for cartridges. When filtering facepiece respirators are used, respirators should be discarded after each use or sooner if breathing becomes difficult or if the respirator is damaged, soiled, or contaminated. **Odor or taste may not be used as the primary basis for determining the useful life of a cartridge for gases or vapors.**

The onset of the COVID-19 pandemic has provided exemptions to some exceptions to these rules and regulations in order to maximize PPE resources. Please see Appendix G, the [UA Occupational Health website](#) and the [CDC’s N95 and FFR Extended Use Guidance](#) for more information.

Employees must leave the respirator use area:

- To adjust their respirator if the respirator is not fitting correctly or impeding their ability to work.
- To wash their face if the respirator is causing discomfort or rash. To change the respirator, filters, cartridges, or canister elements.
- To inspect the respirator if it stops functioning as intended, such as detection of vapor or gas breakthrough, changes in breathing resistance or leakage of the facepiece (e.g., fogging of eyeglasses).

# 8.0 Storage, Reuse, Maintenance and Care of Respirators

## 8.1 Storage and Reuse

Reusable respirators will be stored in a manner to protect them from damage, contamination, dust, sunlight, extreme temperatures, excessive moisture, and damaging chemicals.

Disposable filtering facepiece respirators (FFRs) should be discarded after each use. In some cases, as advised by the RPA and support staff, reuse of FFRs may be acceptable as long as the respirator is not damaged or soiled. The respirator must be discarded when it is no longer in its original working condition, whether that condition results from contamination, structural defects, or wear.

PAPRs will be cleaned and stored after use and will be provided for use by individuals who are unable to wear a respirator with a tight-fitting facepiece. PAPRs must be stored at room temperature in a dry area that is protected from exposure to hazardous contaminants as per the manufacturer's instructions.

## 8.2 Inspection, Maintenance and Repairs

All respirators will be inspected by the user prior to each use. Inspections should include a check of the condition of the various parts including, but not limited to:

- Facepiece, head straps, valves, and cartridges, canisters, or filters.
- All rubber or plastic parts, for pliability and signs of deterioration.
- PAPR connecting tubes or hoses, air flow, and batteries.

Any defective respirators shall be removed from service immediately. Defective disposable respirators will be discarded and replaced. Defective reusable respirators will be turned in to the manufacturer or supervisor for repair, adjustment, or disposal. Consult with the RPA and/or supporting staff for questions about defective respirators.

The user is responsible for charging and maintaining PAPR pumps, filters, and batteries when they are stored or not in use.

Filters or cartridges on reusable respirators shall be changed regularly and in accordance with the conditions of use. Please consult with the [OSHA Respiratory Protection eTool](#), RMS and/or RLSS to assess the appropriate schedule for your filter change out prior to use. **Difficulty breathing, ability to smell chemicals, and other breakthrough indicators should not be used for determining the appropriate filter change out schedule.**

For respirators maintained for emergency use, the user must:

- Keep respirators accessible to the work area. Store respirators in such a manner as to be clearly marked for emergency use.
- Store respirators in accordance with any applicable manufacturer instructions.
- Inspect respirators at least monthly and in accordance with the manufacturer's recommendations.
- Check for proper function before and after each use.
- Certify the respirator with documentation of date of inspection, inspector name/signature, findings, remedial action taken if necessary, and serial number.
- Provide certification information on a tag or label kept with the respirator or included in inspection reports stored as paper or electronic files.

### 8.3 Cleaning and Disinfection

Reusable respirators will be cleaned with mild soap and warm water (**never with alcohol-based sanitizers**) and air dried before storing in a plastic bag for reuse, as described in Appendix F of this RPP (which is mandatory Appendix B-2 of the Respiratory Protection standard).

Reusable respirators issued for the exclusive use of an employee will be cleaned and disinfected by the user as often as necessary to maintain a sanitary condition; it is highly recommended that users clean after every use before properly storing the respirator.

Reusable respirators used in fit testing and training must be cleaned and disinfected after each use. Disinfection and cleaning should be done according to the manufacturer's specifications and OSHA requirements detailed in Appendix B-2 of the respiratory protection standard:

“These procedures are provided for employer use when cleaning respirators. They are general in nature, and the employer as an alternative may use the cleaning recommendations provided by the manufacturer of the respirators used by their employees, provided such procedures are as effective as those listed here in Appendix B- 2. Equivalent effectiveness simply means that the procedures used must accomplish the objectives set forth in Appendix B-2, i.e., must ensure that the respirator is properly cleaned and disinfected in a manner that prevents damage to the respirator and does not cause harm to the user.

#### *I. Procedures for Cleaning Respirators*

A. Remove filters, cartridges, or canisters. Disassemble facepieces by removing speaking diaphragms, demand and pressure- demand valve assemblies, hoses, or any components recommended by the manufacturer. Discard or repair any defective parts.

B. Wash components in warm (43 deg. C [110 deg. F] maximum) water with a mild detergent or with a cleaner recommended by the manufacturer. A stiff bristle (not wire) brush may be used to facilitate the removal of dirt.

C. Rinse components thoroughly in clean, warm (43 deg. C [110 deg. F] maximum), preferably running water. Drain.

D. When the cleaner used does not contain a disinfecting agent, respirator components should be immersed for two minutes in one of the following:

1. Hypochlorite solution (50 ppm of chlorine) made by adding approximately one milliliter of laundry bleach to one liter of water at 43 deg. C (110 deg. F); or,
  2. Aqueous solution of iodine (50 ppm iodine) made by adding approximately 0.8 milliliters of tincture of iodine (6-8 grams ammonium and/or potassium iodide/100 cc of 45% alcohol) to one liter of water at 43 deg. C (110 deg. F); or,
  3. Other commercially available cleansers of equivalent disinfectant quality when used as directed, if their use is recommended or approved by the respirator manufacturer.
- E. Rinse components thoroughly in clean, warm (43 deg. C [110 deg. F] maximum), preferably running water. Drain. The importance of thorough rinsing cannot be overemphasized. Detergents or disinfectants that dry on facepieces may result in dermatitis. In addition, some disinfectants may cause deterioration of rubber or corrosion of metal parts if not completely removed.
- F. Components should be hand-dried with a clean lint-free cloth or air-dried.
- G. Reassemble facepiece, replacing filters, cartridges, and canisters where necessary.
- H. Test the respirator to ensure that all components work properly.”

## 9.0 Program Evaluation

The RPA and support staff will conduct a periodic evaluation of the RPP to ensure that all aspects of the program meet the requirements of the OSHA Respiratory Protection standard and that the RPP is being implemented effectively to protect employees from respiratory hazards. This evaluation will be done annually.

Program evaluation will be performed by the RPA and support staff and will include, but is not limited to:

- A review of the written program.
- A review of feedback obtained from employees (to include respirator fit, selection, use, and maintenance issues) that will be collected during the annual training session.

The RPP will be revised as necessary and records of revisions will be kept on file with the written program. Any procedural changes that are implemented as a result of program evaluation will be communicated to the employees and reinforced by their supervisors.

## 10.0 Recordkeeping

The RPA and support staff will ensure that the following records are maintained:

- Personnel medical records such as a completed Respirator Medical Evaluation Questionnaire and any other medical clearance records related to wearing a respirator shall be retained by OH or CHS as part of a confidential medical record. These records

will be maintained in a secure environment, in accordance with the University of Arizona [Data Protection Standard](#).

- Medical clearance records must be made available in accordance with the OSHA Access to Employee Exposure and Medical Records standard (29 CFR 1910.1020) and maintained for a minimum of thirty (30) years after an employee's separation or termination.
- Documentation of training and fit testing will be kept by the RPA and support staff until the next training or fit test.
- A copy of this RPP and records of program evaluations and revisions shall be kept by RPA and support staff and made available to all affected employees, their representatives, and representatives of OSHA upon request.

## **Appendix A: Fit Testing Procedures**

(29 CFR 1910. 134 Appendix A)

<https://www.osha.gov/laws-regs/regulations/standardnumber/1910/1910.134AppA>

## **Appendix B: User Seal Checks & Respirator Cleaning Procedures**

(29 CFR 1910. 134 Appendix B-1)

<https://www.osha.gov/laws-regs/regulations/standardnumber/1910/1910.134AppB1>

(29 CFR 1910. 134 Appendix B-2)

<https://www.osha.gov/laws-regs/regulations/standardnumber/1910/1910.134AppB2>

## **Appendix C: Medical Clearance Questionnaires**

(29 CFR 1910. 134 Appendix C)

<https://www.osha.gov/laws-regs/regulations/standardnumber/1910/1910.134AppC>

## **Appendix D: Information for Voluntary Users**

(29 CFR 1910. 134 Appendix D)

<https://www.osha.gov/laws-regs/regulations/standardnumber/1910/1910.134AppD>

[University of Arizona Voluntary Respirator Use](#)

## **Appendix E: COVID-19 Updates**

OH Program Updates

<https://occhealth.arizona.edu/programs/respirator-protection-program>

RLSS Updates

<https://rgw.arizona.edu/compliance/RLSS/covid-19-information>

RMS Updates

<https://risk.arizona.edu/>