



University of Minnesota

Respiratory Protection Program

Effective September, 2017

University of Minnesota Respiratory Protection Program

PURPOSE

The purpose of this program is to ensure the health and well-being of University community members who may be exposed to respiratory hazards. The primary method of preventing hazardous respiratory exposures is through the use of accepted engineering methods, such as elimination of the hazardous substance or isolation of hazards. However, when engineering controls are not feasible, or when they fail to reduce the level of contamination in the air to acceptable levels, respirators will be provided and required to be worn by employees.

In some cases respirators may also be worn voluntarily, even when no hazard exists.

SCOPE AND APPLICATION

This program applies to all mandatory respirator usage regardless of frequency or duration of use. This program applies to all U of M community members and operations. This includes employees, visitors and students.

Individual departments/locations which choose to implement and administer their own site-specific respiratory protection program may do so as long as the program is at least as protective as this program.

This program does not apply to the voluntary use of a filtering face piece respirator, such as an “N-95” when respiratory usage is not required¹.

DEFINITIONS

“Mandatory use” means the use of a respirator is required as a condition of employment. The use of respirators is mandatory when any of the following conditions are present:

- When there is objective evidence that an employee’s exposure to a respiratory hazard approaches, equals, or exceeds an established limit, such as an OSHA Permissible Exposure Limit (PEL), or an ACGIG Threshold Limit Value (TLV);
- When the Respiratory Protection Program (RPP) administrator, a Physician or Licensed Health Care professional (PLHCP) or other qualified safety professional determines based on objective evidence that there is a significant respiratory risk, regardless of exposure levels;

¹ 1910.1349(c)(2)(ii) ...Exception: Employers are not required to include in a written respiratory protection program those employees whose only use of respirators involves the voluntary use of filtering facepieces (dust masks).

- When University Health and Safety or supervisory/managerial personnel, such as a Principle Investigator (PI), choose to require the use of respiratory protection, even when hazards do not approach or exceed applicable limits;
- When an individual chemical label or Safety Data Sheet specifically indicates that use of respiratory protection is required, necessary, or mandatory; and
- When a Standard Operating Procedure (SOP), safety posting, or other such internal, written document indicates that use is required.

Physician or Licensed Health Care Professional (PLHCP) means an individual whose legally permitted scope of practice (i.e., license, registration, or certification) allows him or her to independently provide, or be delegated the responsibility to provide, some or all of the health care services required by this program.

Respirator means a protective device worn over the mouth and nose or the entire face to prevent the inhalation of dust, smoke, or other noxious substances. By definition, a respirator is certified by the National Institutes of Occupational Health and Safety (NIOSH) or other certifying body. A filtering facepiece respirator, often called a dust mask or “N-95”, is a respirator.

Voluntary use means that the use of a respirator is not required as a condition of employment. A person who chooses to use a respirator voluntarily (for example, to provide personal comfort or additional protection) is still covered by certain sections of this program.

RESPONSIBILITIES

Supervisors and Principal Investigators

- Identifying U of M community members and their jobs or tasks which may require respiratory protection and coordinating with University Health and Safety (UHS).
- Complying with all aspects of this respiratory protection program.
- Supervising U of M community members to ensure that the Respiratory Protection Program procedures are being followed, including medical evaluations, fit testing, training and proper respirator use.
- Purchasing and providing appropriate respirators, cartridges and filters suitable for mitigating the hazards.
- Enforcing the proper use of respirators.
- Ensuring that respirators are properly cleaned, maintained, and stored.
- Ensuring that respirator users receive appropriate training, medical evaluation, and fit testing per this program.
- Identifying changes in jobs or tasks which may require re-evaluation of respirator use and notifying the Respiratory Protection Program Administrator at UHS.

- Maintaining, storing, and monthly inspection of emergency use respirators as required so that they are readily accessible and operational when needed.

University Health and Safety (UHS) Staff²

- Reviewing and updating the written Respiratory Protection Program to ensure its overall effectiveness.
- Coordinating medical evaluation and fit testing services for respirator users.
- Maintaining records on medical clearances, fit testing, and online respirator training.
- Administering the University's online medical evaluation system.
- Evaluating respiratory hazards in the work areas and generating reports detailing findings and recommendations.
- When necessary, specifying the appropriate type of respirator to be worn, and assisting in calculating useful life.
- Providing training to all who require it.
- Conducting or assisting with fit testing for respirator users.
- Conducting periodic monitoring to assess concentrations of airborne contaminants.
- Conducting periodic inspections of respirator storage and use, and ensuring that these inspections are properly documented.
- Transmitting monitoring and inspection results to Supervisors, Principal Investigators and OHS.

Respirator User

- Using the respirator in accordance with the manufacturer's instructions and the training received.
- Storing, cleaning, maintaining, and guarding against damage to the respirator.
- Inspecting the respirator before each use.
- Reporting any malfunction of the respirator to his/her supervisor.
- Promptly reporting to his/her supervisor or the Respiratory Protection Program Administrator any symptoms of illness that may be related to respirator usage or exposure to hazardous atmospheres.
- Informing the supervisor or Respiratory Protection Program Administrator of operation changes or health status changes that could affect the safe use of the equipment.
- Participating in all required training, medical evaluations, fit testing, and other program activities.

Occupational Health Physician or Other Licensed Health Care Professional (PLHCP)

- Performing initial and periodic medical evaluations and any necessary follow-up examinations of respirator users to determine their ability to wear a respirator.
- Providing a written evaluation of the respirator user's ability to use a respirator to the Respiratory Protection Program Administrator.

² UHS Staff includes Safety Specialists, Industrial Hygienists, Occupational Health Program Specialists and other safety professionals.

- Maintaining records of medical evaluations.

PROGRAM COMPONENTS

1. **Hazard evaluation and respirator selection.** To the extent feasible, respiratory hazards will be identified and evaluated to determine when/if respiratory protection may be appropriate. If so, the proper respirator, cartridges and filters will be selected based on the hazard. Respirator use will be classified as mandatory or voluntary.
2. **Medical evaluation and approval.** With the exception of voluntary users of filtering facepieces, all respirator users will be medically evaluated to ensure they are medically qualified to use the respirator.
3. **Fit testing.** Employees who are required to wear a tight fitting respirator will be fit tested prior to their time of assignment to a job/area/task requiring respirator use, and at least annually thereafter.
4. **Use of respirators.** Procedures for the safe and proper use of respirators will be established.
5. **Storage, maintenance, care and repair of respirators.** Respirators will be properly cared for, stored, and maintained so as to ensure their protective value is not compromised.
6. **Breathing air quality and use.** Persons who use supplied air respirators, including SCBAs, will be provided with safe breathing air.
7. **Training and communication.** All respirator users will be adequately trained on the hazards that they may be exposed to as well as the safe, proper use of the respirator they will wear.

PROGRAM ELEMENTS

1. Exposure monitoring and respirator selection

To the extent feasible, the University will evaluate and document employees' exposures to respiratory hazards. U of M community members who identify substances, processes, or equipment that may present a respiratory hazard are to contact University Health and Safety to request a workplace exposure assessment. Selection of a respirator for a specific operation and/or contaminants shall be made by University Health and Safety staff in consultation with occupational health experts, industrial hygienists and users as appropriate.

All use of respiratory protection will be designated as either mandatory or voluntary by University Health and Safety or by supervisors/PIs. However, final determination of the status of respirator use (i.e. voluntary or mandatory) will be at the discretion of University Health and Safety.

When available, air purifying respirators worn for protection against gases or vapors must be equipped with an End of Service Life Indicator (ESLI) certified by NIOSH for contaminant at hand. If there is no ESLI for the contaminants encountered, then a written change schedule,

based on objective written exposure data will be developed, to ensure that respirators are not worn beyond their useful service life. It shall be the responsibility of supervisors/PIs to determine cartridge change-out schedules in consultation with University Health and Safety.

Employees who are required to wear any type of respirator will have respirators provided to them at no cost. Voluntary N95 tight fitting facepiece respirators will also be provided upon request.

2. Medical evaluation and approval

With the exception of voluntary users of filtering facepieces, the University requires all respirator users to be medically evaluated to ensure their medical fitness to safely use a respirator. Medical evaluation and approval must be obtained prior to allowing the respirator to be worn, and prior to any required fit testing. Periodic follow up medical evaluations may also be required.

Employees requiring a medical evaluation are required to complete an online medical questionnaire available through University Health and Safety.

In addition to the initial medical evaluation and follow up to initial evaluation, periodic re-evaluation will be provided if/when:

- An employee reports signs or symptoms that are related to ability to wear a respirator.
- A PLHCP, supervisor/PI, program administrator, or other suitably qualified and authorized person believes an employee needs to be re-evaluated.
- A change in workplace conditions (e.g., physical work load, temperature, humidity, protective clothing, etc.) that may result in a substantial increase in physiological burden.

The PLHCP will issue a written recommendation regarding the employee's ability to safely use a respirator. The recommendation will provide only the following information:

- Any limitations on respirator use related to the medical condition of the employee, or related to workplace conditions in which the respirator will be used, including whether or not the employee is medically able to use the respirator.
- The need, if any, for periodic re-screening (annually, bi-annually, etc.)
- A statement that the PLHCP has provided the employee with a copy of the PLHCP's written recommendation.

If the employee is required or permitted to wear a negative pressure respirator and the PLHCP observes a medical condition which precludes the employee from wearing a negative pressure respirator, then the U of M will provide to the employee (at no cost) a Powered Air Purifying

Respirator (PAPR). If/when subsequent medical evaluation shows that the employee may safely wear a negative pressure respirator, then the U of M may opt to no longer provide the PAPR.

3. Fit testing

Employees who are required to wear respirators with tight-fitting facepiece must be fit tested with the same make, model, style and size of the respirator that will be used. Fit testing will be completed only after the employee has been medically qualified in compliance with Section 2 of this program, and before they are allowed to use the respirator use and at least annually thereafter.

Additional fit testing will be provided when/if the employee reports, or the PLHCP, supervisor/PI, Respiratory Protection Program Administrator, or other qualified person makes visual observations of changes in the employee's physical condition that could affect respirator fit. Such conditions include, but are not limited to, facial scarring, dental changes, cosmetic surgery, or an obvious change in body weight.

All fit testing will comply with 29 CFR 1910.134, Appendix A and/or the respirator manufacturer's instructions.

A record of each fit test will be maintained until the next fit test is required and will include:

- The name or identification of the employee tested.
- Type of fit test performed (i.e. qualitative or quantitative, challenge media, etc.).
- Specific make, model, style, and size of respirator tested.
- Date of test.
- The pass/fail results of qualitative fit tests, or the fit factor and strip chart recording or other recording of the test results for quantitative fit tests.

University Health and Safety will maintain records of all fit testing.

4. Use of respirators

Respirators with tight-fitting face pieces shall not be worn by employees who have:

- Facial hair that comes between the sealing surface of the face piece and the face or that interferes with valve function; or
- Any other condition that interferes with the face-to-face piece seal or valve function.

No University employee is to knowingly work in an area which is, or is suspected of being, Immediately Dangerous to Life and Health (IDLH). No University employee is to engage in any type of structural firefighting.

5. Storage, maintenance, care, and repair of respirators

All respirators will be cared for, cleaned, maintained, stored, and repaired, as directed by the manufacturer.

An individually assigned respirator which is used routinely shall be cleaned as often as necessary to keep it in a sanitary condition. Respirators not individually assigned shall be cleaned and disinfected before each use. [EXCEPTION: Respirators kept for emergency/ rescue use or fit-testing shall be cleaned and disinfected after each use]

All Supervisors shall ensure that emergency use respirators are inspected as follows:

- Emergency escape-only respirators shall be initially inspected before bringing into the workplace for use.
- Check for proper function before and after each use.
- Inspect at least monthly and in accordance with manufacturer's recommendations. Certify the emergency use respirator by documenting inspection dates, the inspector's identification, findings, and remedial actions. The documentation shall be provided as a tag or label attached to the respirator's storage compartment and is included in inspection reports. This information shall be kept until replaced by a subsequent certification.

Emergency use respirators shall be stored in compartments or in covers that are clearly marked as containing emergency respirators.

6. Breathing air quality and use

The U of M will ensure that employees using atmosphere-supplying respirators (supplied-air and SCBA) are supplied with breathing gases of high purity.

The installation, use, maintenance, storage, inspection, etc. of any supplied air system will comply with manufacturer's instructions.

Compressed breathing air shall meet at least the requirements for Grade D breathing air described in ANSI/Compressed Gas Association Commodity Specification for Air, G-7.1-1989, to include:

- Oxygen content (v/v) of 19.5-23.5%;
- Hydrocarbon (condensed) content of 5 milligrams per cubic meter of air or less;
- Carbon monoxide (CO) content of 10 ppm or less;
- Carbon dioxide content of 1,000 ppm or less; and
- Lack of noticeable odor.

Compressors used to supply breathing air to respirators shall be constructed and situated so as to:

- Prevent entry of contaminated air into the air-supply system;
- Minimize moisture content so that the dew point at 1 atmosphere pressure is 10 degrees F (5.56 deg. C) below the ambient temperature;
- Have suitable in-line air-purifying sorbent beds and filters to further ensure breathing air quality. Sorbent beds and filters shall be maintained and replaced or refurbished periodically following the manufacturer's instructions.
- Have a tag containing the most recent change date and the signature of the person authorized by the employer to perform the change. The tag shall be maintained at the compressor.

For compressors that are not oil-lubricated, carbon monoxide levels in the breathing air shall not exceed 10 ppm. For oil-lubricated compressors, a high-temperature or carbon monoxide alarm, or both, shall be used to monitor carbon monoxide levels. If only high-temperature alarms are used, the air supply shall be monitored at intervals sufficient to prevent carbon monoxide in the breathing air from exceeding 10 ppm.

7. Training and communication

With the exception of employees whose only use of respirators is the voluntary use of a filtering facepiece, all respirator users (voluntary and mandatory) must receive training at their time of initial assignment to a job, area, or task in which respirators are permitted or required. Retraining must also be provided:

- Annually;
- Changes in the workplace or the type of respirator render previous training obsolete;
- The employee's knowledge or use of the respirator indicate that the employee has not retained the requisite understanding or skill; or any other situation arises in which retraining is deemed necessary to ensure safe respirator use.

Training for mandatory users must include:

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

Training for voluntary users is limited to the information contained in the form entitled “Information for employees using respirators when not required” (Appendix A).

All training will be documented in writing using the form in appendix B or equivalent.

LEGAL REFERENCE

29 CFR 1910.134 Respiratory Protection Standard

APPENDICES

Appendix A – Information for Employees Using Respirators when Not Required

Appendix B – Respiratory Protection Training Documentation (Example)

APPENDIX A – INFORMATION FOR EMPLOYEES USING RESPIRATORS WHEN NOT REQUIRED

Respirators are an effective method of protection against designated hazards when properly selected and worn. Respirator use is encouraged, even when exposures are below the exposure limit, to provide an additional level of comfort and protection for workers. However, if a respirator is used improperly or not kept clean, the respirator itself can become a hazard to the worker. Sometimes, workers may wear respirators to avoid exposures to hazards, even if the amount of hazardous substance does not exceed the limits set by OSHA standards. If your employer provides respirators for your voluntary use, or if you provide your own respirator, you need to take certain precautions to be sure that the respirator itself does not present a hazard.

You should do the following:

1. Read and heed all instructions provided by the manufacturer on use, maintenance, cleaning and care, and warnings regarding the respirator’s limitations.
2. Choose respirators certified for use to protect against the contaminant of concern. NIOSH, the National Institute for Occupational Safety and Health of the U.S. Department of Health and Human Services, certifies respirators. A label or statement of certification should appear on the respirator or respirator packaging. It will tell you what the respirator is designed for and how much it will protect you.
3. Do not wear your respirator into atmospheres containing contaminants which your respirator is not designed to protect against. For example, a respirator designed to filter dust particles will not protect you against gases, vapors, or very small solid particles of fumes or smoke.
4. Keep track of your respirator so that you do not mistakenly use someone else’s respirator.

Employee Name: _____

Department: _____ **Employee ID#:** _____

I have read and understood the information provided above regarding voluntary respirator use.

Employee Signature **Date**

APPENDIX B – RESPIRATORY PROTECTION TRAINING DOCUMENTATION

Training Date	Time	Location	Trainer
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Training outline
<ul style="list-style-type: none"> ● Why the respirator is necessary and how improper fit, usage, or maintenance can compromise the protective effect of the respirator; ● What the limitations and capabilities of the respirator are; ● How to use the respirator effectively in emergency situations, including situations in which the respirator malfunctions; ● How to inspect, put on and remove, use, and check the seals of the respirator; ● What the procedures are for maintenance and storage of the respirator; ● How to recognize medical signs and symptoms that may limit or prevent the effective use of respirators; and ● The general requirements of the respiratory protection program.

Other topics discussed

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