



LAWRENCE UNIVERSITY

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RESPIRATORY PROTECTION PROGRAM

October 13, 2010

Guidelines:

This program is designed to help reduce employee exposure to occupational dusts, fogs, smoke, mists, fumes, gases, vapors, or sprays that are harmful to the employee's respiratory system as well as the hazard of oxygen deficiency (<19.5%) or enrichment (>20.5%). These conditions may be found but not limited to: storage tanks, sewers, utility vaults, storage areas, boilers, manholes, pipelines, tank cars, silos, digester pits, ditches, wells machinery housings, etc.

The primary objective is to prevent unnecessary exposure to these contaminants.

Where feasible, exposure to contaminants will be eliminated by engineering controls (i.e. general and local ventilation, enclosure or isolation, and substitution of a less hazardous procedure or material.

When effective engineering controls are not feasible, the use of personal protective equipment may be required to achieve this goal. Any required equipment, evaluation, or additional information necessary will be provided at no cost to the employee. All documentation associated with the respiratory protection program will be maintained by Lawrence University's Safety department.

Responsibilities:

Management: It is the responsibility of management to determine what specific applications require the use of respiratory equipment. Management will provide proper respiratory equipment to meet the needs of each specific application and provide adequate training, and instruction on all equipment.

Competent Person: It is the responsibility of the competent person to oversee respirator users in the work area and ensure they are used in accordance with this policy.

Employee: It is the responsibility of the employee to wear the respirator in accordance with this policy while exposed to the workspace hazard. The employee is also responsible for cleaning their assigned respirator and seeking assistance when ever unsure of the proper protocol.

Definitions:

Air-purifying respirator means a respirator with an air-purifying filter, cartridge, or canister that removes specific air contaminants by passing ambient air through the air-purifying element.

Class A Respirator means an airline system – positive pressure demand system.

Class B Respirator means a Self Contained Breathing Apparatus (SCBA) – Positive pressure, Demand air system

Class C Respirator includes all half face and full face negative pressure respirators

Class D Respirator means an escape respirator only.

End-of-service-life indicator (ESLI) means a system that warns the respirator user of the approach of the end of adequate respiratory protection, for example, that the sorbent is approaching saturation or is no longer effective.

Escape-only respirator means a respirator intended to be used only for emergency exit. (Lawrence has one in the Chlorine storage room in the Rec Center).

Fit factor means a quantitative estimate of the fit of a particular respirator to a specific individual, and typically estimates the ratio of the concentration of a substance in ambient air to its concentration inside the respirator when worn.

Fit test means the use of a protocol to qualitatively or quantitatively evaluate the fit of a respirator on an individual. (See also Qualitative fit test QLFT and Quantitative fit test QNFT.)

High efficiency particulate air (HEPA) filter means a filter that is at least 99.97% efficient in removing particles of 0.3 micrometers in diameter or larger. The equivalent NIOSH 42 CFR 84 particulate filters are the N100, R100, and P100 filters.

Immediately dangerous to life or health (IDLH) means 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.

Negative pressure respirator (tight fitting) means a respirator in which the air pressure inside the face piece is negative during inhalation with respect to the ambient air pressure outside the respirator. (Examples include; Dust masks, Surgical masks, half face and full face cartridge respirators).

Oxygen deficient atmosphere means an atmosphere with an oxygen content below 19.5% by volume.

Physician or other 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 paragraph (e) of this section.

Powered air-purifying respirator (PAPR) means an air-purifying respirator that uses a blower to force the ambient air through air-purifying elements to the inlet covering. (Lawrence University does not have this type of respirator).

Pressure demand respirator means a positive pressure atmosphere-supplying respirator that admits breathing air to the face-piece when the positive pressure is reduced inside the face-piece by inhalation. (Lawrence University does not have this type of respirator).

Qualitative fit test (QLFT) means a pass/fail fit test to assess the adequacy of respirator fit that relies on the individual's response to the test agent.

Quantitative fit test (QNFT) means an assessment of the adequacy of respirator fit by numerically measuring the amount of leakage into the respirator.

Self-contained breathing apparatus (SCBA) means an atmosphere-supplying respirator for which the breathing air source is designed to be carried by the user. (Lawrence University does not have this type of respirator).

Supplied-air respirator (SAR) or airline respirator means an atmosphere-supplying respirator for which the source of breathing air is not designed to be carried by the user. (Lawrence University does not have this type of respirator).

Respirator Applications on Campus:

- N-95 Particulate Respirator. Phasing in 3M 8511 particulate respirator with relief valve. Used primarily on a voluntary basis for wood particulate, dust, cutting, grinding, etc.
- Half-face respirator. Currently have MSA Comfo Pro, 3M, AO Safety. Used by painters, boiler operator, and welding/cutting operations.
- Hooded Escape Respirator: Located in chlorine store room of Buchanan-Keiwi Rec Center. Emergency use only!

Requirements:

General:

Employees shall not be allowed to enter an area requiring the use of a respirator without meeting all of the requirements of this policy.

Medical evaluations shall be required for the Class A, B, C respirator users. Parameters of the medical evaluation are determined by a physician or other licensed health care professional (PLHCP) and required regulations.

Respirator Selection:

The type of exposure (routine, non-routine, emergency) and expected airborne type and concentration level shall be considered when making a respirator selection. The Safety Director shall identify the type of respirators to be evaluated for employee selection.

All air purifying respirators shall be NIOSH approved for the types and levels of contaminants they are to protect against.

Training:

Training shall be required initially (prior to use) and annually thereafter for all respirator users. Retraining shall occur before the next use of a respirator if an employee is observed to demonstrate a lack of knowledge of proper use, changes in the workplace rendering prior training obsolete, or there are changes in the respiratory equipment.

Training shall include:

- An opportunity to handle the respirator
- Proper fit testing/ Testing of the face to face piece seal
- A long familiarizing period of wear in normal air
- Explanation of how a particular type of respirator was selected, and its limitations
- Why a respirator is necessary
- How to clean and inspect a respirator
- How to maintain and change cartridges.

Medical Evaluation:

Prior to fit testing employees shall have a medical evaluation performed by a physician or other licensed health care professional (PLHCP) prior to being assigned to use a face-fitting respirator. A medical questionnaire (appendix A) shall be completed by the employee and given to the Safety Director for

submission to the PLHCP. The PLHCP will evaluate the questionnaire and determine if further information is necessary to authorize the use of the listed respirator(s).

The PLHCP will provide written recommendations regarding the employee's ability to use the respirator and will determine if a follow-up medical exam is needed. The designated health care provider's name and address will be made available to employees.

The respirator user's medical status will be reviewed:

- ♦ if an employee reports medical symptoms that are related to their ability to use a respirator,
- ♦ if a change occurs in workplace conditions that may result in substantial increase in the physiological burden placed on the employee, or
- ♦ if observations during fit testing or program evaluation indicates a need for reevaluation.

Fit Testing:

Employees shall be fit tested for each specific make, model, style and size of respirator to be utilized prior to use. Any changes in physical attributes affecting their ability to wear/use the respirator shall be immediately reported to the Safety Director as to determine the need for further medical evaluation and fit testing.

Qualitative fit testing shall be done using Bitrex and or irritant smoke and a chamber when respirators are first issued and during refresher training.

Quantitative fit testing, if necessary, shall be provided by designated source established by the Safety Director.

Tight fitting face piece users shall not have facial hair that interferes with the face seal (Rule of thumb is no more than 2 days growth of facial hair).

Maintenance and Storage:

Employees are responsible for cleaning and the storage of their assigned respirator. The competent person is responsible for replacing parts as needed with OEM components in accordance with manufacturers' instructions. If there are questions regarding if the respirator should be fixed or replaced contact the competent person or the Safety Director. For unassigned respirators the competent person over the operation shall oversee or conduct the cleaning of the unassigned respirators. Respirators used by more than one employee shall be cleaned and disinfected after each use. Cartridge respirators should be stored in containers or Ziploc bags to maintain cleanliness. (Ice cream buckets make excellent storage containers.)

Identification of Filters/Cartridges/Canisters:

All filters, cartridges, and canisters used in the workplace are to be color coded with the NIOSH approval label. Never remove the NIOSH Label and be sure it is legible. Be sure that the proper cartridge is used for the hazard present in the work space. Contact the competent person or Safety Director to clarification on the proper cartridge.

Documentation & Recordkeeping:

- Medical certification from the PLHCP that the employee is capable of wearing a respirator under his or her given work conditions.
- Record of fit tests administered.
- A record of employee training programs and attendance
- The number and types of respirators in use.

OSHA Appendix D to Sec. 1910.134 (Mandatory) Information for Employees Using Respirators when not required under the standard.

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 respirators 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 respirators into atmospheres containing contaminants for 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.