AMERICAN UNIVERSITY
WASHINGTON, DC

Respiratory Protection Program

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1.0 Policy and program administration

American University is committed to providing a safe and healthful work environment for its entire staff. Therefore, the following Respiratory Protection Program has been developed to minimize occupational exposure to particulates (dusts, fogs, fumes, smokes, and mists) as well as chemical gases and vapors. Exposure to these contaminants is preferentially mitigated by engineering and/or administrative controls. These methods are addressed in Chemical Hygiene Plan as well as other work specific programs. The respiratory protection program specifically addresses respiratory exposure control by means of personal protective equipment. Because respirators are classified as personal protective equipment, this program applies when the atmospheric hazards present cannot be satisfactorily mitigated using engineering controls, administrative controls, and/or substitution.

The Respiratory Protection Program is a key document used to assist AU in implementing and ensuring compliance with 29 CFR 1910.134, OSHA's respiratory protection standard. According to this standard, employers are required to establish a respiratory protection program whenever:

- Employees may be exposed to harmful concentrations of hazardous gases or vapors
- Employees may be exposed to harmful concentrations of airborne particulates including dusts, mists, and fumes
- Employees may be exposed to oxygen deficient atmospheres

This program applies to all American University departments and employees engaged in activities requiring respiratory protection. This program is operative at all AU facilities, laboratories, studios, and off-campus sites.

2.0 Roles and responsibilities

Respiratory protection equipment is assigned and managed by the department or facility manger in conjunction with the respiratory protection plan program administrator. Respiratory protective equipment is considered mandatory when determined as such via a hazard assessment or by recommendation from a licensed healthcare professional. When respiratory protective equipment is mandated, the department management and employees will comply with the requirements of this program.

Employees may elect to use respiratory protective equipment when it is not mandated. Non-mandatory/voluntary employee respirator use is addressed in the "Voluntary use" section of this program.

The roles and responsibilities of each individual involved in the Respiratory Protection Program is as follows:

2.1 Environmental Health & Safety (EH&S)

- Institute and administer this program
- Identify and designate a Respiratory Protection Program Administrator
- Identify or approve Licensed Healthcare Providers for respirator related medical surveillance.
- Identify or approve qualified individuals for respirator fit testing

2.2 Respiratory Protection Program Administrator

- Maintain, review, and update this program annually and whenever necessary to include new or modified tasks or procedures
- Conduct hazard assessments
- Conduct and/or coordinate employee exposure monitoring
- Review all exposure monitoring
- Aid in the selection of respiratory protection equipment
- Review all fit test results
- Develop and conduct initial and annual respiratory protection training per the requirements of 29 CFR 1910.134
- Manage employee respirator-related medical surveillance
- Monitor respirator use and care
- Maintain respiratory protection program records

2.3 Supervisory Faculty and Staff

- Verify proper use of respiratory protection equipment

- Verify that respirators are cleaned, maintained, and stored according to the requirements in this document
- Coordinate with the respiratory protection program administrator to
    - Monitor work areas and tasks for identification of respiratory hazards
    - Schedule employee medical surveillance, fit testing, and training
    - Provide final determination of respiratory protection devices

2.4 Respirator User

- Use the assigned respirator in the manner intended and in accordance with manufacturer's instructions and training received
- Comply with instructions for respirator assignment, fit testing, cleaning, repair, and storage
- Inspect the respirator before each use
- Inform the program administrator of:
    - Concerns with respirator fit and/or condition
    - Questions/concerns with assigned respiratory protection
    - All respiratory hazards that the employee feels warrants assessment or inspection
- Promptly report any symptoms of illness that may be related to respirator use or exposure to hazardous atmospheres
- Participate in annual medical surveillance
- Consult with the program administrator for voluntary use of all negative pressure respirators, including N95 filtering face masks

2.5 Licensed Healthcare Provider

- Perform initial and periodic medical evaluations to determine ability to use a respirator
- Provide a written evaluation of the employee's ability to use a respirator to the RPP Administrator

3.0 Exposure assessment

Initially and/or whenever changes to existing processes, respiratory contaminants, or equipment are identified, the RPP administrator will arrange for a workplace exposure assessment. Based on data collected, the need for respiratory protection will be determined.

4.0 Risk Assessment

The Respiratory Protection Program is available to all employees, regardless of program enrollment status. The program is available for download on the AU's Environmental Health and Safety website and is supplied upon request to the program administrator.

4.1 Respirator hazards

Respirators impart a specific set of hazards that assigned users will be made aware of during training. Examples of these hazards include:

- Potential communication disruption
- Increased stress on the cardio-pulmonary system when negative-pressure respirators or SCBAs are used
- Curtailment of motion where supplied airline respirators are used

Note: As of current authorization, American University's Respiratory Protection Program only addresses negative-pressure respirators, N95 Filtering Facepieces and Powered Air Purifying Respirators (PAPR). Supplied Air Respirators (SAR), Self-Contained Breathing Apparatuses (SCBA), and supplied airline systems are addressed for informational purposes only.

American University employees do not provide emergency response and not permitted to enter areas were the atmosphere may be immediately dangerous to life and health (IDLH). In the event of an emergency that produces a potential hazardous atmosphere, employees are directed to immediately evacuate the work area and report the potential hazards to their supervisor.

4.2 Notification and posting

All project sites and laboratories requiring respiratory protection will have appropriate signage at the entrances identifying the hazard(s) and all mandatory and/or recommended personal protective equipment.

All employees must be informed of the chemical and particulate hazards in their work places upon assignment. Employees participating in the RPP will also be informed of the nature of the specific hazards in their work environment(s) in conjunction with the hazards involved with respirator use.

5.0 Training

All employees enrolled in the Respiratory Protection Program will participate in initial and annual respirator training. Initial and annual training will be conducted by the program administrator.

5.1 Training for Required or Assigned Respirator Use

Employees who are required or assigned a respirator for use in the workplace will undergo training, which will include:

- Review of this program and 29 CFR 1910.134
- Review of air purifying respirators
- Review of respirator filtration and sorbent media (particulate filters and chemical cartridges)
- Review of respirator protection factors
- Review of the specific respiratory hazards that the trainees are likely to be exposed,
- Review of medical surveillance requirements
- Proper use, cleaning/disinfection, maintenance, repair, and storage of assigned respirator(s)
- Instruction on performing seal checks
- Review of fit testing procedures and requirements
- Completion of a written test designed to assess and record the employee's understanding of the respiratory protection plan and its associated documents

5.2 Training for voluntary respirator use

Before voluntary respirator use may be formally approved through the Respiratory Protection Program, the employee must:

- Receive initial training in the proper use, care, and limitations of the selected respirator
- Review, sign, and submit the Voluntary Respirator Use Agreement to the Environmental Health and Safety office/program administrator

6.0 Respirator selection

The program administrator will conduct or review safety assessments for all task-specific respiratory hazards. The administrator will then select the appropriate filtration type or sorbent media for the hazardous contaminant. The program administrator will base respirator selection on the following:

- Identity and physical state of the potential contaminants
- The concentration of contaminants in the environment
- The chemical and toxicological properties of the contaminants
- Occupational exposure limits and recommendations, as indicated by OSHA, NIOSH, ACGIH, and AIHA
- Presence of oil mists
- Potential of IDLH of oxygen-deficient atmospheres
- Environmental factors likely to increase stress on employees
- The assigned protection factors of each type of respirator (see table below)

Table 1. Assigned Protection Factors

Type of respirator	Quarter mask	Half mask	Full facepiece	Helmet/ hood	Loose-fitting facepiece
Air-purifying respirator	5	10	50	-	-
Powered air-purifying respirator (PAPR)	-	50	1,000	25/1,000	25
Supplied-air respirator (SAR) or airline respirator • Demand mode • Continuous flow mode • Pressure-demand or other positive-pressure mode	-	10 50 50	50 1,000 1,000	25/1,000	25
Self-contained breathing apparatus (SCBA) • Demand mode • Pressure-demand or other positive-pressure mode	-	10	50 10,000	50 10,000	-

Adapted from 29 CFR 1910.134(d)(3)(i)(A)

Employees will have a minimum of two brands of the same tight-fitting respirator to select from as well as small, medium, and large size options.

6.1 General considerations

Proper respirator selection for any given situation requires a workplace respiratory hazard assessment, including an estimate of the employee's exposure to respiratory hazard(s) and the contaminant's chemical state and physical form.

Based on the current tasks performed on campus and their contaminant characteristics, N95 and negative pressure half-face respirators are the only respirators assigned to employees. Future changes in work tasks and/or environmental conditions necessitating additional respirators will be reflected in this program accordingly.

6.2 Approved respirators, filters, cartridges, and canisters

Only respirators certified by NIOSH are permitted for selection and assignment. Furthermore, respirator use must be in accordance with the terms of the NIOSH certification. All filtration and sorption media must display a NIOSH-approved, color-coded label. NIOSH labels may not be removed or defaced while in use.

6.3 Respirators for use in IDLH atmospheres

American university employees do not perform work in IDLH environments. Therefore, no supplied atmosphere respirators are issued under the current respiratory protection program. Should work tasks change to include potential IDLH environments, the program will be adjusted accordingly.

This section is provided for informational purposes only.

The only types of respirators authorized for use in an IDLH atmosphere are:

- Full facepiece pressure demand SCBA certified by NIOSH for a minimum service life of 30 minutes
- A combination full facepiece pressure demand supplied-air respirator with auxiliary self-contained air supply
- For uses in emergency escape from IDLH atmospheres, respirators shall be NIOSH-certified for escape from the specific IDLH involved

6.4 Respirators for use in non-IDLH atmospheres

When protection from gases and vapors is needed, the respirator provided must be either an air-supplying respirator or an air-purifying respirator. If an air-purifying respirator is selected, it must be equipped with an end-of-service-life indicator or employees must follow the cartridge change schedule as assigned by Environmental Health and Safety.

When particulate protection is necessary, the respirator provided must be an air-supplying respirator or an air-purifying respirator equipped with a NIOSH-certified filter rated N95 or higher.

7.0 Medical evaluation and surveillance

Prior to fit-testing an individual for a respirator, a medical evaluation will be provided by a Licensed Healthcare Provider. This evaluation will determine the individual's ability to wear and use a respirator specific to the hazards and work processes involved with the individual's job responsibilities.

Medical evaluations are not necessary for voluntary use of filtering facepieces/dust masks (N 95/99/100).

7.1 Medical evaluation

All employees that are assigned to or choose to voluntarily use an Air Purifying Respirator (APR) will be given a medical evaluation through a licensed healthcare provider. This evaluation will consist of an initial medical evaluation using the Respirator Medical Evaluation Questionnaire (Appendix A), followed by the physician's review of answers and any medical tests, consultations, or diagnostic procedures the physician may deem necessary.

7.2 Respirator Alternatives

Should an individual be found not medically fit for a negative pressure respirator, a powered-air purifying respirator will be provided. Should medical status change, written recommendation must be provided by the healthcare provider stating that the employee is medically able to use a negative pressure respirator.

7.3 Medical surveillance

Additional medical evaluations and/or surveillance will be provided when:

- An employee reports symptoms associated with the chemical(s) or particulates in use
- Following a work-related incident that results in overexposure or suspected overexposure
- An employee reports signs/symptoms that may affect his/her ability to properly use a respirator
- A change in workplace conditions occurs (e.g. increased physical work efforts needed, additional protective clothing requirements, or higher temperature work environment)

7.4 Privacy

All personal medical information and documentation generated between the employee and the professional healthcare provider will remain between the provider and the patient. Employees may request access to their medical records from the healthcare provider free of charge.

8.0 Authorization for use

Any respirator used by employees or students, required or voluntary, must be pre-approved by the Respiratory Protection Program Administrator. This does not include filtering facepieces (dust masks) or surgical masks.

8.1 Voluntary use

Employees currently participating in the respiratory protection program (i.e. a current fit test is on file) may use their respirator at their discretion. American University requires that all respirator use occur within the oversight of the program administrator. If an employee believes that respirator use is necessary for safe work practice, the plan administrator must be notified and a workplace hazard assessment will be performed.

Employees that are not currently participating in the respirator protection program may use their own tight-fitting respirators under the following conditions:

- The program administrator must be notified of the user's intent to use a tight-fitting respirator
- Medical evaluation for respirator use must be current
- The respirator and cartridges must be certified by NIOSH
- The respirator and associated cartridge/filtration media must be submitted to the program administrator for inspection and approval for compatibility with the expected exposure(s)
- The employee must inform the program administrator of the specific work tasks/projects or which voluntary respirator use is planned
- The employee must clean and maintain the respirator in accordance with the respiratory protection program's requirements
- The program administrator must maintain a record of voluntary respirator use specific to the hazards and employees

Employees that voluntarily make use of respirators must be supplied with a copy of the Voluntary Respiratory Use Agreement, Appendix B. Annual respirator training and fit-testing for voluntary users is not required, but is strongly advocated.

9.0 Fit testing procedures

Tight-fitting facepiece respirators can be fit tested using either quantitative or qualitative methods. Either method meets the requirements of this respiratory protection program, provided it is administered by a qualified individual and performed according the requirements set forth by 29 CFR 1910.134. Fit test records, including the name of the person who performed the fit test and methods used must be forwarded to the program administrator for recordkeeping purposes.

Fit testing for all tight-fitting respirators is conducted on the following schedule:

- Initial fit test: Takes place at the time of employee's initial medical evaluation for respirator use
- Annual fit test: Employees are fit tested annually concurrent with the annual medical evaluation
- Intermittent fit test. Employees will be fit tested when a different manufacturer, size, or type of respirator is first used. Employees may request a fit test at any time by notifying the program administrator

10.0 General respirator use procedures

10.1 Performing seal checks

Seal checks must be performed each time the employee dons the respirator for both negative and positive pressure respirators.

For negative pressure check, the employee:

- Dons the respirator
- Covers the inlets (cartridges or seals, as applicable) with his/her hands
- Inhales
- Holds his/her breath for 10 seconds while continuing to cover the inlets

If the respirator fit is good, the facepiece will collapse toward the face and remain in this state for the 10 second test period.

For a positive pressure check, the employee:

- Dons the respirator
- Covers the exhalation port
- Exhales

If the respirator fit is good, the positive pressure in the facepiece should hold for a few seconds and the employee should not notice any air leaking out of the face seal.

If the seal checks are not satisfactory, the employee should inspect the respirator for any damage to the seals or other items interfering with a good seal. If a repeated seal check indicates a poor fit, the employee must notify the program administrator and not enter the respirator required work area. If a new respirator is issued, a fit test must be conducted before the worker can engage in activities requiring respirator use.

10.2 Care and storage

Respirators will be inspected by the RPP administrator or approved delegate as follows:

- At the time of issuance to the employee
- Annually or prior to all fit testing
- When the respirator is returned to the program administrator for repair or malfunction
- When the respirator is returned at the end of a specific project

The above respirator inspections will be documented and maintained by the RPP administrator.

Employees with assigned respiratory protection or voluntarily wearing respirators should inspect their respirators daily prior to use and before storing the unit.

All employees enrolled in the RPP and able to wear an elastomeric negative pressure respirator are issued an individual respirator for its useful life.

For low dust/particulate environments, it is recommend that the employees wipe both the interior and exterior surfaces daily to maintain the equipment in a clean and sanitary state.

For environments with high dust/particulate levels, the employee should wipe all surfaces as often as needed. At the end of the work shift the employee should dissemble the respirator and clean all surfaces.

All materials for respirator cleaning and disinfecting will be made available to the employees. For projects requiring containment, the safe area will be located adjacent to the containment exit and will be equipped with cleaning/sanitation supplies.

The employee is responsible for storing assigned respirators in a manner and location where the unit is free from dust, sunlight, temperature extremes, chemicals, and moisture.

The cleaned and sanitized respirator must be stored in a protective bag or box. Respirators may not hang by the head straps or rest in any fashion that will result in deformation of the sealing surface.

When respirators are returned, the Plan administrator is responsible to store the units as described above.

10.3 Replacement schedule

The particulate filtration cartridge change-out schedule is as follows:

- At the conclusion of the short term project (any project <1 month in duration)
- When the employee notices increased inhalation resistance
- Any time that the employee feels a change in media is warranted

The chemical cartridge change out schedule is as follows:

- Immediately upon alert from an ESLI
- As recommended by the manufacturer for the contaminant(s) involved
- Any time that the employee feels a change in media is warranted

Note: The odor threshold of the contaminant(s) is not an acceptable means for determining the end of service for a chemical cartridge.

10.4 Instances precluding respirator use

Employees may not use respirators under the following conditions:

- The employee is not enrolled in the RPP and has not had a medical evaluation

- For tight fitting respirators, no conditions may interfere with a face to respirator facepiece seal (i.e. facial hair, scars).
- The employee has not passed a fit test for the specific tight fitting respirator.
- Medical evaluation counter-indicates respirator use
- The respirators and/or cartridges available are not appropriate for the contaminant.
- The employee is issued a respirator by an employee other than the Plan administrator or approved delegate.
- The employee has been given a respirator by vendor or other party and does not have a fit test for the unit.

11.0 Emergency procedures

11.1 Respirator malfunction and breakthrough

In the instance of respirator malfunction or End of Service Life Indicator (ESLI) alert for negative pressure elastomeric respirators, the employee should proceed to the safe area adjacent to the work area and doff the respirator. All respirator malfunctions must be reported to the Plan administrator. In the event of respirator malfunction concurrent with exposure to concentrations greater than the OSHA PEL, an accident investigation will be initiated by the RPP administrator or approved delegate.

Consistent adherence to the cartridge/filter change out schedule should preclude breakthrough. Particulate filtering cartridges are overloaded and should be discarded when the wearer notices increased resistance upon inhalation. Air leakage around the seals may indicate improper fit or damage to the seal surfaces. For chemical cartridges, if an employee detects the odor of a chemical the cartridge is most likely saturated. Under any of these conditions, the employee must:

- Proceed to the safe area adjacent the work area
- Doff the respirator and inspect it for irregularities along the seals
- Clean the interior and exterior of the respirator
- Remove the spent cartridges and replace them with fresh cartridges approved for the contaminants in the work area
- Don the respirator and conduct seal check
- If the seals are damaged of if the employee cannot achieve a good seal check, see the Plan administrator for a new respirator or respirator repair
- If a new respirator is issued, a fit test must be performed prior to returning to the work area

Employees assigned N95 filtering facepieces may change these respirators without fit testing as long as the new facepiece is of the same size, model and manufacturer as defined on the individual's most recent fit test.

Should the employee report symptoms of exposure, medical surveillance procedures will be initiated.

11.2 Emergency response

American University employees are not trained as emergency responders, and donning respiratory protection for this purpose is not permitted. In event of an emergency, Public Safety shall be notified and all employees, students, and visitors should exit the affected area or building.

12.0 Recordkeeping

12.1 Medical records (evaluation and surveillance)

All medical records are to be maintained by the licensed healthcare provider performing the review/evaluations. No other American University employee, manager, or external agent may view or receive a copy of an employee's medical records without written consent from the employee in question.

All medical consultations, medical examinations and medical surveillance records are to be maintained and provided free of charge to any employee or former employee for a period of not less than 30 years from the end of that person's employment from American University. An employee's representative may receive medical records for the employee upon written request signed by the employee. Medical records for all other employees regardless of job task relationship are confidential and may not be released to third parties.

The privacy of individually identifiable health information is guaranteed by the United States Department of Health and Human Services under the Public Law 104-191: Health Insurance Portability and Accountability Act of 1996 (HIPAA). Occupational related individually identifiable health information includes such records as medical surveillance in the event of an overexposure or injury, medical test results from OSHA or DOT related physicals, physician or licensed health care provider diagnoses, findings and/or recommendations. The employee must be made aware of the right to secure medical records as mandated by HIPPA at the time of medical attention.

12.2 Exposure monitoring records

Exposure records generated from air monitoring, passive samplers, etc. are not considered medical records and are therefore not confidential. Biological exposure records (blood and/or urine analysis, sputum cytology etc.) are confidential when the employee's name is associated with the analytical value.

All exposure monitoring records associated with the RPP will be maintained by the plan administrator. The administrator or project manager/supervisor will distribute the exposure monitoring results to all employees involved in the same work practice. Biological exposure records with employee name association will be released to the individual only.

12.3 Training records

All RPP associated training records including hazard communication training related to projects involving respirator use will be maintained by the program administrator for a period of no less than five years.

12.4 Fit testing records

All fit testing records will be maintained by the program administrator for the entire length of employment for all employees. Should an individual leave the employ of American University, the fit testing records will be maintained for a minimum of 30 years thereafter.

Fit testing records have limited confidentiality. The program administrator may disperse fit testing records to American University, Safety Director, Director of Operations, Human Resources manager, and to managers/supervisors with oversight of the employee on projects where respirators are required. The program administrator may also release current fit testing records to a contractor or subcontractor in the event that the employee is assigned to a related project requiring respirator use.

12.5 Respirator selection records

All respirator selection records, including the employee's respirator use profile (Appendix C) and any annual use questionnaires (Appendix D) will be maintained by the Plan administrator for a period of not less than 5 years. These records will also be added to the pertinent project files and are available to all American University employees for review by request to the plan administrator.

13.0 Program review

The respiratory protection program will be reviewed annually and whenever changes to respiratory protection protocol or work practices indicate a review is needed or upon the request of an employee. This review will be initiated and facilitated by the program administrator.

Each reviewer will complete the RPP checklist (Appendix A) and sign off on the review by initialing and dating the checklist and then returning it along with their edits (if any) to the RPP to the administrator.

The program administrator will make the necessary amendments to the respirator protection program and the revised program will be assigned a sequential revision number and then distributed to all affected parties and published on the Risk Management website. The preceding document will be removed from service.

Rev.	Date	Description
00	03/13/08	New procedure
01	11/16/10	Revision following annual review.
02	05/29/2013	Revision following annual review.
03	06/08/2015	Revision following annual review.

14.0 Abbreviations

ACGIH: American Conference of Governmental Industrial Hygienists

AIHA: American Industrial Hygiene Association

APR: Air Purifying Respirator

BEI: Biological Exposure Index (ACGIH)

ESLI: End of Service Life Indicator

HEPA: High Efficiency Particulate Air

IARC: International Agency for Research on Cancer

IDLH: Immediately Dangerous to Life and Health

NIC: Notice of Intended Change (ACGIH)

NIOSH: National Institute of Safety and Health

OEL: Occupational Exposure Limit

OSHA: Occupational Safety and Health Administration

PAPR: Powered Air Purifying Respirator

PEL: Permissible Exposure Limit (OSHA, 8 hour TWA unless otherwise noted)

PNS: Peripheral Nervous System

QLFT: Qualitative Fit Test

QNFT: Quantitative Fit Test

REL: Recommended Exposure Limit (NIOSH, 10 hour TWA unless otherwise noted)

RPP: Respiratory Protection Program

SAR: Supplied Air Respirator

SOP: Standard Operating Procedure

STEL: Short Term Exposure Limit

STP: Standard Temperature and Pressure (25°C, 760 mm Hg)

SWI:	Safe Work Instruction
TLV:	Threshold Limit Value (ACGIH, 8 hour TWA)
TWA:	Time Weighted Average
WEEL:	Workplace Environmental Exposure Limits (AIHA)

15.0 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.

Assigned protection factor (APF) means the workplace level of respiratory protection that a respirator or class of respirators is expected to provide to employees when the employer implements a continuing, effective respiratory protection program as specified by this section.

Atmosphere-supplying respirator means a respirator that supplies the respirator user
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http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=127
16 3/3/2009
with breathing air from a source independent of the ambient atmosphere, and includes supplied-air respirators (SARs) and self-contained breathing apparatus (SCBA) units.

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

Demand respirator means an atmosphere-supplying respirator that admits breathing air to the facepiece only when a negative pressure is created inside the facepiece by inhalation.

Emergency situation means any occurrence such as, but not limited to, equipment failure, rupture of containers, or failure of control equipment that may or does result in an uncontrolled significant release of an airborne contaminant.

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

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.

Filter or air purifying element means a component used in respirators to remove solid or liquid aerosols from the inspired air.

Filtering facepiece (dust mask) means a negative pressure particulate respirator with a filter as an integral part of the facepiece or with the entire facepiece composed of the filtering medium.

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.)

Helmet means a rigid respiratory inlet covering that also provides head protection against impact and penetration.

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

Hood means a respiratory inlet covering that completely covers the head and neck and may also cover portions of the shoulders and torso.

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.

Interior structural firefighting means the physical activity of fire suppression, rescue or both, inside of buildings or enclosed structures which are involved in a fire situation beyond the incipient stage. (See 29 CFR 1910.155)

Loose-fitting facepiece means a respiratory inlet covering that is designed to form a partial seal with the face.

Maximum use concentration (MUC) means the maximum atmospheric concentration of a hazardous substance from which an employee can be expected to be protected when wearing a respirator, and is determined by the assigned protection factor of the respirator or class of respirators and the exposure limit of the hazardous substance. The MUC can be determined mathematically by multiplying the assigned protection factor specified for a respirator by the required OSHA permissible exposure limit, short-term exposure limit, or ceiling limit. When no OSHA exposure limit is available for a hazardous substance, an employer must determine an MUC on the basis of relevant available information and informed professional judgment.

Negative pressure respirator (tight fitting) means a respirator in which the air pressure inside the facepiece is negative during inhalation with respect to the ambient air pressure outside the respirator.

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.

Positive pressure respirator means a respirator in which the pressure inside the respiratory inlet covering exceeds the ambient air pressure outside the respirator.

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.

Pressure demand respirator means a positive pressure atmosphere-supplying respirator that admits breathing air to the facepiece when the positive pressure is reduced inside the facepiece by inhalation.

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.

Respiratory inlet covering means 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. It may be a facepiece, helmet, hood, suit, or a mouthpiece respirator with nose clamp.

Self-contained breathing apparatus (SCBA) means an atmosphere-supplying respirator for which the breathing air source is designed to be carried by the user.

Service life means the period of time that a respirator, filter or sorbent, or other respiratory equipment provides adequate protection to the wearer.

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.

Tight-fitting facepiece means a respiratory inlet covering that forms a complete seal with the face.

User seal check means an action conducted by the respirator user to determine if the respirator is properly seated to the face.

16.0 References

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