



Respiratory Protection Program

I. Policy

California State University, Fullerton (CSUF) intends to maintain, insofar as can reasonably be expected, an environment that will not adversely affect the health, safety and well-being of students, employees, visitors, nor the surrounding community. Because not all working environments can be made completely safe from potentially hazardous substances and atmospheres, CSUF has established the Respiratory Protection Program (Program) for the safety and well-being of its employees. CSUF also requires compliance where the word "shall" is used and offers guidance when the word "should" is used.

II. Authority

California Code of Regulations (CCR), Title 8, § 5144 and Code of Federal Regulations Title 29, Section 1910.134

III. Scope

The Program applies to all University Departments and employees who may work in potentially hazardous atmospheres. It sets forth accepted practices for respiratory equipment users and provides information and guidance for the proper selection, use, and care of the equipment and requirements governing its use. It addresses requirements for protection of the respiratory system from particulate matter, toxic gases, and vapors. It will help safeguard health, as mandatory use of respiratory protective equipment implies that the wearer needs protection from a hazardous atmosphere.

IV. Definitions

Approved - Tested and listed as satisfactory by the National Institute for Occupational Safety and Health (NIOSH).

Atmosphere-Supplying Respirator – Respirator that supplies the respirator user with breathing air from a source independent of the ambient atmosphere.

Cartridge - A small container filled with air-purifying media.

Contaminant - A harmful, irritating, or nuisance agent foreign to the normal atmosphere.

Exhalation Valve - A device which allows exhaled air to leave a respirator and prevents infiltration of outside air.

Face-piece - The portion of a respirator that covers the wearer's nose and mouth in a half face-piece and nose, mouth, and eyes in a full face-piece. It seals to the face and includes the headbands, exhalation valve(s), and connections for an air-purifying device.

Filter - A medium used in respirators to remove solid or liquid particles from the air stream entering the respiratory enclosure.

Filtering Face-Piece - A negative pressure particulate respirator with a filter as an integral part of the face-piece or with the entire face-piece composed of the filtering medium (e.g. a dust mask).

High-Efficiency Particulate Air (HEPA) Filter - A filter that removes 99.97% of specific particulates from an air stream.

Immediately Dangerous to Life or Health (IDLH) – An atmosphere that poses an immediate threat to life that would cause irreversible adverse health effects, or that would impair a person's ability to escape from a dangerous atmosphere.

Inhalation Valve - A device that allows air to enter the face-piece and prevents exhaled air from leaving the face-piece.

National Institute for Occupational Safety and Health (NIOSH) - A Federal agency that tests, approves, and certifies respirators.

Oxygen Deficient Atmospheres - Air that contains less than 19.5% oxygen by volume.

Particulate – Airborne solid or liquid dusts, fogs, fumes, mists, smokes, or sprays.

Permissible Exposure Limit (PEL) – Contaminant exposure concentrations listed by the California Occupational Health and Safety Administration (Cal/OSHA) that a healthy individual normally can tolerate for 8 hours a day, five days a week, without harmful effects. Particulate concentrations are listed as milligrams per cubic meter of air (mg/m³), and gaseous concentrations are listed as parts per million by volume (ppm).

Qualitative Fit Test - A test method that relies on the respirator wearer's sense of taste, smell, or irritation to detect leakage into the respirator facepiece using isoamyl acetate, saccharin, bitrex, or irritant smoke.

Quantitative Fit Test – A test method using a machine to measure the actual amount of leakage into the facepiece that does not rely upon the wearer's sense of taste, smell, or irritation to detect leakage.

Respirator - A device that protects the wearer from inhalation of harmful contaminants.

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

Threshold Limit Value (TLV) - Contaminant exposure concentrations published by the American Conference of Governmental Hygienists that a healthy individual normally can tolerate for 8 hours a day, five days a week, and without harmful effects. Particulate concentrations are listed as mg/m³, and gaseous concentrations are listed as ppm.

Vapor - The gaseous state of a substance.

V. Responsibilities

A. Department

The Department Chair or Director is responsible for the overall health and safety of employees, visitors, and students at CSUF facilities under their control. They are responsible for assuring the adherence of the mandatory requirements of this program.

B. Environmental Health and Safety (EHS)

1. Reviews and approves purchases of respiratory protection equipment.
2. Provides instruction on the need for respiratory protection and criteria for selection, respirator fitting, use, and maintenance.
3. Coordinates annual medical surveillance for each employee who is required to wear a respirator and maintains authorization records.
4. Conducts annual training for respiratory equipment usage, maintenance, and storage.
5. Conducts annual fit tests and respirator inspections for employees in the Program.
6. Performs exposure assessment and monitoring to determine appropriate respiratory protection requirements.
7. Conduct ongoing evaluations to ensure the written Respirator Protection Program is being properly implemented, consult employees to ensure they are using respirators properly, assess employee's views on program effectiveness and problems, and make changes to the Program as needed.

C. Supervisor

The employee's immediate supervisor is responsible to:

1. Identifies employees who may need respiratory equipment and contact EHS for assessments and medical exams.

2. Requests assistance from EHS to evaluate operational changes that may create respiratory hazards.
3. Enforces the use of respiratory protection equipment and safe work practices when applicable.
4. Ensures inspections occur prior to use.
5. Confirms that the face to face-piece seal is unobstructed by facial hair or other material.

D. Employee

CSUF employees required by the Program to wear respirators are responsible to:

1. Utilizes the issued respiratory protection equipment in accordance with instruction and training provided by EHS.
2. Informs the supervisor of any personal health problems that could be aggravated by the use of respiratory equipment.
3. Guards against damage and ensuring respirators are not disassembled, modified, or altered in any unauthorized manner.
4. Reports any observed or suspected malfunctioning respirator to EHS.
5. Uses only those brands, sizes, and types of respiratory protection equipment for which they have been trained and fitted.
6. Utilizes proper cartridges for anticipated exposure.
7. Ensures an effective face to face-piece seal during respirator use.

VI. Program

A. Authorization

Only staff designated by the supervisor, project leader, or EHS may wear respirators while working at CSUF. Respirator users shall annually complete respirator fit testing, training, and required medical surveillance.

B. Respirator Selection

1. Dust Masks - The N95 filtering face-piece respirators (dust masks) are available to authorized users, such as medical staff at the Student Health & Counseling Center (SHCC) and those who voluntarily choose to use them. The staff at the SHCC are fit tested for use in compliance with Title 8, Section 5199, regarding aerosol transmissible diseases. Voluntary users (see section

G) have not been identified as having hazardous exposures and are not fit-tested.

2. Air-purifying Half Face-piece Respirators – These include 3M and North brands which are available from EHS. They do not provide protection in oxygen deficient atmospheres, but utilize replaceable filters cartridges specific to certain contaminants.
3. Air-purifying Full Face-piece Respirators (3M and North brand) – These brands are available from EHS and provide more protection than half-masks because their shape allows a better mask-to-face seal, and they protect the eyes. They utilize the same filtering cartridges as do the half face-piece respirators.
4. Full Face-piece Respirators (Avon and MSA) – The University Police use specialized masks and filters from Avon and MSA that have been approved by NIOSH as protective against certain biological, chemical, and radiological agents.
5. Filter Cartridges - HEPA filters protect against particulates such as asbestos, lead, and low levels of toxic and radioactive particulates. Other filters protecting against specific contaminants such as acid gases or organic vapors. Combination filters protect against all or a few of these specific contaminants. University Police use special approved filters designed to protect against terrorist agents. Generally replace the cartridge filters when contaminants are detected through the mask by smell or taste or when breathing becomes difficult. Appendix A provides more specifics on cartridge filters.
6. Atmosphere-Supplying Respirators (SCOTT AIR-PAK 75i SCBA) – To be used in high-hazard atmospheres. High-hazard atmospheres can be encountered during emergency situations, chemical spills, very high concentrations of air contaminants, or the use of materials that have poor warning properties. When there are no reliable data to identify or reasonably estimate exposure levels (e.g. in confined space entries, during emergency procedures, or chemical spills) the atmosphere must be considered IDLH, and atmosphere-supplying respirators must be used.

When an atmosphere-supplying respirator is used, at least one employee will be located outside the unknown or IDLH atmosphere. The standby employee(s) will maintain visual, voice, or signal line communication with the employee(s) in the unknown or IDLH atmosphere and are equipped with SCBA(s) and appropriate retrieval equipment. The standby employee(s) are trained and equipped to provide effective emergency rescue and are required to notify University Police if emergency response is necessary.

Refer to 'Self-Contained Breathing Apparatus (SCBA) Operating Procedures for SCOTT AIR-PAK 75i' for additional use and maintenance procedures.

C. Medical Monitoring

Only those individuals medically able to wear respirators and have completed the associated requirements shall be issued a respirator (this includes the N95 masks for SHCC personnel). Those who voluntarily choose to use N95 filtering face-piece respirators as a dust mask are not monitored. Medical monitoring for respirators generally involves a questionnaire consistent with the requirements of Appendix C of CCR Title 8, Section 5144. A contracted occupational health physician reviews it and may request a physical exam based on its answers. For more information on this process refer to the Medical Monitoring Program.

D. Employee Education and Training

Program respirator wearers shall complete training describing available respiratory protective equipment and the care, maintenance, purpose, and function of the equipment. The instruction discusses proper wearing of each respirator, pertinent State and Federal regulations and standards, and CSUF policies. No CSUF employees will be required to work in atmospheres immediately dangerous to life and health, and so the instruction will focus on work in and around low hazard atmospheres and nuisance dusts. Training shall meet the requirements of CCR Title 8, Section 5144.

E. Respirator Fit Testing

The Program requires both daily tests and annual qualitative or quantitative fit tests. EHS inspects respirators during fit tests and offers either a quantitative fit test or a qualitative fit test. In addition, respirator wearers shall complete the daily tests prior use. Archive and current fit test records are maintained by EHS.

1. Daily test

Prior to each use, the respirator wearer will complete a negative pressure test. Don the respirator, and place the hands over the inlet of the filter cartridges to restrict air from passing through; inhale gently so the face-piece slightly collapses; and hold their breath for approximately 10 seconds. If the face-piece remains slightly collapsed and no inward leakage occurs, the test is successful. Next, complete a positive pressure test by covering the exhalation valve and exhaling gently into the face-piece. If no outward air leakage occurs the test succeeds.

2. Qualitative Test – Options for fit testing include Irritant smoke (stannic chloride), Bitrex solution, or banana oil applied to the face to face-piece seal. Irritant smoke is applied approximately six inches from the seal as the respirator wearer counts loudly from 100 to 1 or repeats the OSHA “Rainbow Passage” while moving the head from side-to-side and up-and-down. The test simulates movements and conversation the wearer will use during the workday. Infiltration of the smoke will cause the wearer to cough involuntarily

and result in an unsuccessful test. If no smoke infiltrates the seal, the test succeeds. The Bitrex solution or banana oil is used with the employee inside of a test enclosure. The test succeeds if the wearer cannot taste the solution upon infiltration of the mask. A sensitivity test confirms that the wearer can detect the solution.

3. Quantitative Test – A machine is used to measure the actual amount of leakage into the facepiece and does not rely upon the wearer’s sense of taste, smell, or irritation in order to detect leakage. The respirator is worn by the wearer and connected to the machine with tubes or hosing. Three methods have been accepted by OSHA: general aerosol, ambient aerosol, and controlled negative pressure.
4. General Information – Fit testing can detect and help correct poorly fitting or performing respirators based upon contaminant leakage into the respirator. During fit tests, adjust the straps properly as comfortably as possible to simulate working conditions. Cal/OSHA lists fit testing procedures in Appendix A of CCR Title 8, Section 5144.

F. Protection Factors

Quantitative tests provide a numerical fit factor for each respirator. These fit factors relate to a specific respirator, but Cal/OSHA has assigned protection factors to different classes of respirators as guidance on proper selection. Like the fit factor, the protection factor (PF) equals the ambient concentration of a contaminant divided by the concentration within the respirator ($PF = \text{ambient concentration} / \text{inside concentration}$). PF generally equal 10 for half face-piece respirators and 50 for full face-piece respirators. Example: Work with a half face-piece respirator in an atmosphere with 10 ppm contaminant concentration equates to an exposure of 1 ppm.

G. Voluntary Use

Certain authorized employees may voluntarily use N95 filtering face-piece respirators, available from Material Control, but may not use half or full face-piece respirators. Voluntary users are exempt from medical monitoring, but must have completed the appropriate training as required by the Voluntary Respirator Use Program (Refer to Appendix B).

H. Respirator Care

1. Respirators are issued by EHS. Respirator wearers must continually care for their respirators. If a respirator exhibits any defects, return it to EHS and request a new respirator.
2. Inspection – Prior to and after each use the respirator wearer must inspect the following respirator parts to ensure they are not cracked, decomposed, distorted, frayed, loose, pitted, stretched, stiffened, swollen, torn, or warped:

rubberized face-piece, plastic adapters, inhalation valves flaps, headband straps, plastic exhalation valve seats, exhalation valve covers, and filter elements.

3. Maintenance – Clean the respirator after use with either respirator wipe pads from EHS and Material Control or by removing the filters and straps and using a mild soap solution and a soft brush. After using soap, rinse with clean warm water and air dry. Store the respirators in a cool dry location without distorting the face-piece.

I. Exposure Assessment

Employees wishing to use a respirator should contact EHS for an exposure assessment. EHS will establish whether exposures to hazardous substances exceeds regulatory permissible exposure limits (PEL) or recommended threshold limit values (TLV). The employee enters the Program when exposures exceed the PEL and TLV, and engineering controls and administrative cannot successfully reduce exposures. EHS compares exposures to the respirator PF to select the appropriate respirator.

J. Record Keeping

Program records include enrollee names, training tracking, completed fit tests, and medical monitoring. Program records are maintained by EHS.

Appendix A, Filter Cartridge Selection

Appendix B, Voluntary Respirator Use Program

Responsible Executive: Vice President for Administration and Finance

Responsible Office: Environmental Health and Safety

Originally Issued: 6/1992

Revised: 2/1996, 5/2007, 5/2010, 2/2012, 6/2018, 4/2019

Appendix A to CSUF Respiratory Protection Program

Respirator Selection Chart

Job Categories	Type of Job Task	Mask	Filter
Art Technician	Spray painting operations	1	A
	General dusty condition (Voluntary)	4	N/A
	Welding operations in well ventilated areas (Non-stainless steel surface)	4	N/A
Auto Shop Mechanic	Asbestos brake change out operations	1	B
	General dusty condition (Voluntary)	5	N/A
	Welding operations in well ventilated areas (Non-stainless steel surface)	4	N/A
Building Service Engineer, Refrigeration Mechanic	General dusty or oily environment (Voluntary)	4, 5	N/A
	Work within fume hoods lab hood ductwork	1	C
	Sulfuric acid transfer	1	C
	Chlorine transfer	1	D
Chem/Bio/Physics Technicians	Welding operations in well ventilated areas (Non-stainless steel surface)	4	N/A
	General dusty environment (Voluntary)	4	N/A
	Work with formaldehyde	1, 2	E
Groundswoker, Tree Trimmers, Custodian, Animal Care Worker	General dusty environment (Voluntary)	4	N/A
Painter	Spray painting operations.	1	A
	General dusty or oily environment (Voluntary)	4, 5	N/A
Pesticide Applicator	Spraying liquid or gaseous pesticides in areas with limited ventilations.	1	A
Police Officer	General dusty environment (Voluntary)	4	N/A
	Emergency response	2	F
Building Maintenance, Carpenter, Electrician, Plumber, Skilled Labor	General dusty environment (Voluntary)	4	N/A
	Asbestos abatement (Authorized personnel)	1	B
	Under-sink trap at laboratories (DBH, MH, Etc.)	1	C
Theater Technician	Spray painting operations	1	A
	Welding operations in well ventilated areas (Non-stainless steel surface)	4	N/A
	General dusty condition (Voluntary)	4	N/A
EHS Response Team	Emergency response	1, 2, 3	G

Type of Mask

- 1 = Half Face
- 2 = Full Face
- 3 = Pressure Demand SCBA
- 4 = N-95, General Dust
- 5 = P-100 Dusty, Oily Environment

Type of Filter Cartridge

- A = Organic Vapor/P100 (Black/Magenta)
- B = P-100 or HEPA (Magenta)
- C = Organic Vapor / Acid Gas (Yellow)
- D = Chlorine (Orange)
- E = Formaldehyde (Olive)
- F = CBRN
- G = Multi-gas/Organic Vapor/P100 (Olive/Magenta)

Appendix B to CSUF Respiratory Protection Program

Voluntary Respirator Use

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 your respirator into atmospheres containing contaminants for which your respirator is not designated 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.