# UCMERC UNIVERSITY OF CALIFORNIA, MERCED

Respiratory Protective Equipment Program Appendix A - Definitions and Key Terms

#### Definitions include those from OSHA Sec. 1910.134(b), NIOSH, and ANSI

ACGIH	American Conference of Governmental Industrial Hygienist
Aerosol	Liquid or solid particles dispersed in the air including mists, smokes, fumes, and dusts.
Air-Purifying Respirator (APR)	A respirator that utilizes an air-purifying filter, sorbent or catalyst element to remove contaminants from the air before it is inhaled.
American National Standards Institute (ANSI)	A private organization that recommends safe work practices and engineering designs; Z88.2-1992, Respiratory Protection, Z88.6-1984 Respiratory Protection - Respirator Use - Physical Qualifications for Personnel.
Approved	Respirators tested and listed as permissible by the National Institute for Occupational Safety and Health (NIOSH) of the U.S. Department of Health, Education, and Welfare. The NIOSH approval number is preceded by a "TC" (testing & certification) and indicated on the respirator cartridge or, in the case of single-use or disposable respirators, on the facepiece (ref. T42 CFR 84).
Assigned Protection Factor (APF)	[See Protection Factor – ANSI & NIOSH Definitions]
Assigned Protection Factor (APF):	[Reserved – OSHA Definition]
Atmosphere-Supplying Respirator (ASR)	A respirator that supplies the respirator user with breathing air from a source independent of the ambient atmosphere, and includes supplied-air respirators (SAR's) and self-contained breathing apparatus (SCBA) units.
Canister or cartridge	A container with a filter, sorbent, or catalyst, or combination of these items, which removes specific contaminants from the air passed through the container.
Cartridge	The container(s) housing a filter, sorbent, catalyst, or any combination of these items. The type of cartridge depends upon the contaminant to be removed from the air.
Contaminant	A harmful, irritating, or nuisance airborne material.
Contaminant Demand Respirator	
	A harmful, irritating, or nuisance airborne material. An atmosphere-supplying respirator that admits breathing air to the facepiece



Emergency Situation	Any occurrence such as, but not limited to, equipment failure, ruptures of containers, or failure of control equipment that may or does result in an uncontrolled significant release of an airborne contaminant.
Emergency Respirator Use Situation	A situation requiring the use of a respirator due to the unplanned generation of a hazardous atmosphere, (often of unknown composition), caused suddenly by an accident, mechanical failure, or other means, and requires evacuation of personnel or immediate entry for rescue or corrective action.
Employee Exposure	An 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)	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	A respirator intended to be used only for emergency exit.
Facepiece	The main part of the respirator that covers the wearer's nose and mouth in a half- mask (under the chin) facepiece, or covers the nose, mouth, and eyes in a full facepiece.
Filter or Air-Purifying Element	A media component used in respirator cartridges or, in the case of disposable respirators, in the facepiece, to remove solid or liquid particles from the air breathed through it. (ref. <u>NIOSH Guide to Selection of Particulate Respirators - T42 CFR 84</u> )
Filtering Facepiece (dust mask)	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	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-Check	A positive and negative pressure check performed by the wearer to determine if the respirator is properly seated to the face providing a gas-tight face seal. The fit of a respirator must be checked each time the respirator is donned. This is normally done by using the palm of the hand to seal the exhalation valve cover and then gently exhaling to form a positive pressure (ref. Appendix G – Annual Program Evaluation Checklist). Using the hands, the respirator cartridges are similarly sealed and the wearer inhales forming a negative pressure as directed in the fitting instructions. A fit check ensures proper facepiece-to-face sealing and does not qualify as a fit test.
Fit-Test	Using a challenge agent such as irritant smoke, the fit of a respirator on an individual can be evaluated to determine if a gas-tight face fit can be achieved with a particular type of respirator. As required by federal and state OSHA



regulations, the fit test must be satisfactorily completed before a respirator is worn in a contaminated area. Fume Solid aerosols formed by reaction and condensation of a vapor or gas. Aerosols are minute solid particles arising from the heating of a solid body such as steel, in distinction to a gas or vapor. The physical change is often accompanied by a chemical reaction such as oxidation. Fumes flocculate and sometimes coalesce. Odorous gas and vapor should not be called fumes. Gas A state of matter in which the material has very low density and viscosity; can expand and contract greatly in response to changes in temperature and pressure; easily diffuse into other gases; readily and uniformly distributes itself throughout any container. Hazardous Atmosphere An atmosphere that contains an airborne contaminant(s) in concentrations greater than the permissible exposure limit (PEL) or threshold limit value (TLV) or that is oxygen deficient. A rigid respiratory inlet covering that also provides head protection against Helmet impact and penetration. High Efficiency Particulate Air 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 (HEPA) Filter the N100, R100, and P100 filters. Hood 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 A hazardous atmosphere that poses an immediate threat or loss of life, produces or Health (IDLH) immediate or delayed, irreversible effects on health, or causes effects to the eye, which could prevent escape. Loose-Fitting Facepiece A respiratory inlet covering that is designed to form a partial seal with the face. Maximum Use Concentration [Reserved – OSHA Definition] (MUC) Mist An aerosol composed of suspended liquid droplets generated by condensation from the gaseous to the liquid state or by breaking up a liquid into a dispersed state, such as by splashing, foaming, or atomizing. Mist is formed when a finely divided liquid is suspended in air. Negative Pressure Respirator A respirator in which the air pressure inside the facepiece is negative during (tight fitting) inhalation with respect to the ambient air pressure outside the respirator. **Orinasal Respirator** A respirator that covers the nose and mouth and that generally consists of a quarter- or half-facepiece. [NIOSH Definition] Oxygen Deficient Atmosphere An atmosphere with an oxygen content below 19.5% by volume.



Permissible Exposure Limit Permissible Exposure Limit, adopted in OSHA regulations is a maximum (PEL) allowable concentration of a contaminant in the air to which an individual may be exposed. These may be time-weighted averages (TWA), short-term limits (STEL), or ceiling (C) limits (see threshold limit value (TLV)). Physician or other Licensed An individual whose legally permitted scope or practice (i.e., license, registration, Health Care Professional 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 (PLHCP) subsection (e). **Positive Pressure Respirator** A respirator in which the pressure inside the respiratory covering exceeds the ambient air pressure outside the respirator. [OSHA Definition] **Poor Warning Properties** A substance whose odor or irritation effects are not detectable or not persistent at concentrations at or below the PEL or threshold limit value (TLV). Any substance, or combination or mixture of substances, which causes an Potential Occupational increased incidence of benign and/or malignant neoplasms, or a substantial Carcinogen decrease in the latency period between exposure and onset of neoplasms in humans or in one or more experimental mammalian species as the result of any oral, respiratory, or dermal exposure, or any other exposure which results in the induction of tumors at a site other than the site of administration. This definition also includes any substance that is metabolized into one or more potential occupational carcinogens by mammals (29 CFR 1990.103, OSHA Cancer Policy). [NIOSH Definition] Powered Air-Purifying The powered air-purifying respirator (PAPR) uses a blower to pass contaminated air through filter or sorbent cartridges that remove the contaminant and supplies Respirator (PAPR) purified air to the respirator facepiece. Positive Pressure Respirator A respirator in which the pressure inside the respiratory inlet covering exceeds the ambient air pressure outside the respirator. Pressure Demand Respirator A positive pressure atmosphere-supplying respirator that admits breathing air to the facepiece when the positive pressure is reduced inside the facepiece by inhalation. **Protection Factor** ANSI - The protection factor is a measure of the degree of protection provided by a respirator to the wearer when a respirator is used correctly. The ratio of the ambient concentration of an airborne substance to the concentration of the substance inside the respirator. **OSHA**: Assigned Protection Factor (APF): The minimum anticipated protection provided a properly functioning respirator or class of respirators to a given percentage of properly fitted and trained users.



	<ul> <li>Simulated Protection Factor (SWPF): A surrogate measure of the workplace protection provided by a respirator. The protection factor determined by quantitative measurement of a challenge agent inside a test hood or the ambient atmosphere particulate concentration (C<sub>o</sub>) divided by the particulate concentration measured inside the respirator (C<sub>i</sub>); i.e., C<sub>o</sub> ÷ C<sub>i</sub> = PPF.</li> <li>Workplace Protection Factor (WPF): A measure of the protection provided in the workplace by a properly functioning respirator when correctly worn and used.</li> </ul>
Qualitative Fit Test (QLFT)	Qualitative fit test means a pass/fail fit test to assess the adequacy of respirator fit that relies on the individual's response to the test agent (see Fit-Test).
Quantitative Fit Test (QNFT)	An assessment of the adequacy of respirator fit by numerically measuring the amount of leakage into the respirator. [OSHA Definition]
Respirator	A personal device designed to protect the wearer from the inhalation of hazardous atmospheres. [OSHA Definition]
Respiratory Inlet Covering	The 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.
Sanitizing	The removal of dirt and inhibiting the action of agents that cause infection or disease.
Self-Contained Breathing Apparatus (SCBA)	An atmosphere-supplying respirator for which the breathing air source is designed to be carried by the user.
Service Life	The period of time that a respirator, filter or sorbent, or other respiratory equipment provides adequate protection to the wearer.
Single-Use Dust or Dust and Mist Respirators	Respirators approved for use against dusts or mists that may cause pneumoconiosis and fibrosis. [NIOSH Definition]
Sorbent	A material that is contained in a cartridge and removes toxic gases and vapors from the inhaled air.
Supplied-Air Respirator (SAR) or Airline Respirator	An atmosphere-supplying respirator for which the source of breathing air is not designed to be carried by the user (see Atmosphere-Supplying Respirator (ASR)).
Tight-Fitting Facepiece	A respiratory inlet covering that is designed to form a complete seal with the face. A half-mask facepiece covers the nose and mouth; a full-face facepiece covers the nose, mouth and eyes.



Threshold Limit Value (TLV)	Threshold Limit Values are exposure limits adopted and recommended by the American Conference of Governmental Industrial Hygienist (ACGIH) (see Permissible Exposure Limit (PEL)).
Time Weighted Average (TWA)	The Time Weighted Average is the average concentration of a chemical in air over the total exposure time - usually an 8-hour workday.
User Seal Check	An action conducted by the respirator user to determine if the respirator is properly seated to the face.
Vapor	The gaseous form of a substance that is normally a solid or liquid at room temperature and pressure. Liquids are changed into the vapor state and mixed with the surrounding atmosphere through evaporation.
Voluntary Respirator Users	Employees have the option to wear a respirator in areas where it is not required under this policy or for compliance with state or federal OSHA regulation. Voluntary users of all respirator types (except dust masks) are required to comply with all elements of this program, including medical clearances.