

**University of Dayton  
Respiratory Protection Program  
29 CFR 1910.134**



# What to expect from this training:

- Employees who are required to use respirators must be trained such that they can demonstrate knowledge of at least:
  - why the respirator is necessary and how improper fit, use, or maintenance can compromise its protective effect
  - limitations and capabilities of the respirator
  - effective use in emergency situations
  - how to inspect, put on and remove, use and check the seals
  - maintenance and storage
  - recognition of medical signs and symptoms that may limit or prevent effective use

# Permissible Practice of Respirators

- The primary means to control occupational diseases caused by breathing contaminated air is through the use of feasible engineering controls, such as enclosures, confinement of operations, ventilation, or substitution of less toxic materials
- When effective engineering controls are not feasible, or while they are being instituted, appropriate respirators shall be used pursuant to this standard

# Employee Exposure

Exposure to a concentration of an airborne contaminant that would occur if the employee were *not* using respiratory protection.

# 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
- May be a facepiece, helmet, hood, suit, or a mouthpiece respirator with nose clamp

# Tight -Fitting Coverings



Quarter Mask



Half Mask



Full Facepiece



Mouthpiece/Nose Clamp  
(no fit test required)

# Loose-Fitting Coverings



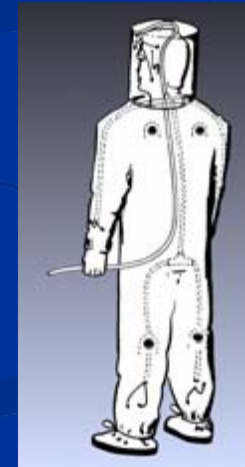
Hood



Helmet



Loose-Fitting  
Facepiece



Full Body Suit

# Filter

A component used in respirators to remove solid or liquid aerosols from the inspired air. Also called air purifying element.





# High Efficiency Particulate Air Filter (HEPA)

Filter that is at least 99.97% efficient in removing monodisperse particles of 0.3 micrometers in diameter.

Equivalent NIOSH 42 CFR 84 particulate filters are the N100, R100, and P100 filters.



# 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.



# Service Life

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

# End-of-Service-Life Indicator (ESLI)

A system that warns the user of the approach of the end of adequate respiratory protection; e.g., the sorbent is approaching saturation or is no longer effective.



# Negative Pressure Respirator

A respirator in which the air pressure inside the facepiece is negative during inhalation with respect to the ambient air pressure outside the respirator.

# 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.



\*\*Note: Dust Masks are not supported or distributed by EHS/RM

# Air-Purifying Respirator (APR)

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



# Powered Air-Purifying Respirator (PAPR)

An air-purifying respirator that uses a blower to force the ambient air through air-purifying elements to the inlet covering.





# Atmosphere-Supplying Respirator

- A respirator that supplies the user with breathing air from a source independent of the ambient atmosphere
- Includes supplied-air respirators (SARs) and self-contained breathing apparatus (SCBA) units

# Classes of Atmosphere-Supplying Respirators

- ***Continuous Flow.*** Provides a continuous flow of breathing air to the respiratory inlet covering
- ***Demand.*** Admits breathing air to the facepiece only when a negative pressure is created inside the facepiece by inhalation
- ***Pressure Demand.*** Admits breathing air to the facepiece when the positive pressure inside the facepiece is reduced by inhalation

# Supplied Air Respirator (SAR)

An atmosphere-supplying respirator for which the source of breathing air is not designed to be carried by the user. Also called airline respirator.



# Self-Contained Breathing Apparatus (SCBA)

An atmosphere-supplying respirator for which the breathing air source is designed to be carried by the user.



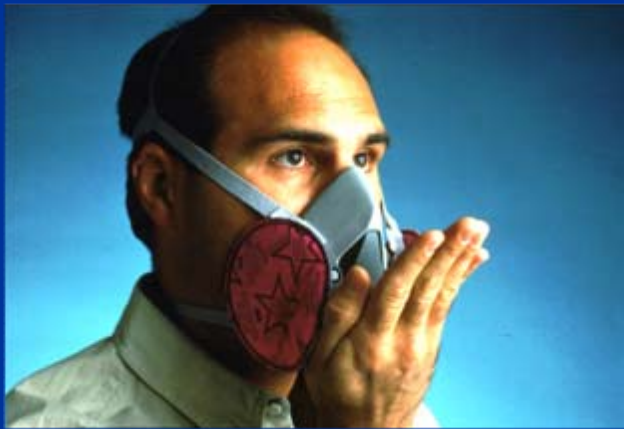
# Escape-Only Respirator

A respirator intended to be used only for emergency exit.



# User Seal Check

An action conducted by the respirator user to determine if the respirator is properly seated to the face.



**Positive Pressure Check**



**Negative Pressure Check**

# Qualitative Fit Test (QLFT)

A pass/fail fit test to assess the adequacy of respirator fit that relies on the individual's response to the test agent.



# Fit Factor

A quantitative estimate of the fit of a particular respirator to a specific individual, and typically estimates the ratio:

$$\frac{\text{Concentration of a substance in ambient air}}{\text{Concentration inside the respirator when worn}}$$



# Immediately Dangerous to Life or Health (IDLH)

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.

# Oxygen Deficient Atmosphere

An atmosphere with an oxygen content below 19.5% by volume.

# Physician or Other Licensed Health Care Professional (PLHCP)

An individual whose legally permitted scope of practice (i.e., license, registration, or certification) allows him/her to independently provide, or be delegated the responsibility to provide, some or all of the health care services required by paragraph (e), *Medical evaluation*.

# Respirator Program Elements

1. Selection
2. Medical evaluation
3. Fit testing
4. Use
5. Maintenance and care
6. Breathing air quality and use
7. Training
8. Program evaluation

# Selection of Respirators

Employer must select and provide an appropriate respirator based on the respiratory hazards to which the worker is exposed and workplace and user factors that affect respirator performance and reliability.



# Selection of Respirators (cont'd)

- Select a NIOSH-certified respirator that shall be used in compliance with the conditions of its certification
- Identify and evaluate the respiratory hazards in the workplace, including a reasonable estimate of employee exposures and identification of the contaminant's chemical state and physical form
- Where exposure cannot be identified or reasonably estimated, the atmosphere shall be considered IDLH
- Select respirators from a sufficient number of models and sizes so that the respirator is acceptable to, and correctly fits, the user

# Classes of Filters

- There are nine classes of filters (three levels of filter efficiency, each with three categories of resistance to filter efficiency degradation)
- Levels of filter efficiency are 95%, 99%, and 99.97%
- Categories of resistance to filter efficiency degradation are labeled N, R, and P
- Use of the filter will be clearly marked on the filter, filter package, or respirator box (e.g., N95 means N-series filter at least 95% efficient)

# Selection

Selection of N-, R-, and P-series filters depends on the presence or absence of oil particles, as follows:

- If no oil particles are present, use any series (N, R, or P)
- If oil particles are present, use *only* R or P series
- If oil particles are present and the filter is to be used for more than one work shift, use *only* P series

**N** for *Not* resistant to oil

**R** for *Resistant* to oil

**P** for oil *Proof*



# Medical Evaluation Procedures

- Must provide a medical evaluation to determine employee's ability to use a respirator, before fit testing and use
- Must identify a PLHCP to perform medical evaluations using a medical questionnaire or an initial medical examination that obtains the same information
- Follow-up medical examination is required for those who demonstrates the need for a follow-up medical examination

# Medical Evaluation

## Additional Medical Evaluations

At a minimum, employer must provide additional medical evaluations if:

- Employee reports medical signs or symptoms related to the ability to use a respirator
- PLHCP, supervisor, or program administrator informs the employer that an employee needs to be reevaluated
- Information from the respirator program, including observations made during fit testing and program evaluation, indicates a need
- Change occurs in workplace conditions that may substantially increase the physiological burden on an employee

# Fit Testing

Before an employee uses any respirator with a **negative or positive pressure tight-fitting facepiece**, the employee must be fit tested with the same make, model, style, and size of respirator that will be used.



# Fit Testing

Employees using tight-fitting facepiece respirators must pass an appropriate qualitative fit test (QLFT) or quantitative fit test (QNFT):

- prior to initial use,
- whenever a different respirator facepiece (size, style, model or make) is used, and
- at least annually thereafter

# Use of Respirators

## Facepiece Seal Protection

- Respirators with tight-fitting facepieces must NOT be worn by employees who have facial hair or any condition that interferes with the face-to-facepiece seal or valve function
- Corrective glasses or goggles or other PPE must be worn in a manner that does not interfere with the face-to-facepiece seal
- Employees wearing tight-fitting respirators must perform a user seal check each time they put on the respirator

# Maintenance and Care

- Each respirator must be clean, sanitary and in good working order
- Use according to manufacturer's recommendations
- Clean and disinfect at the following intervals:
  - as often as necessary when issued for exclusive use
  - before being worn by different individuals when issued to more than one employee
  - after each use for emergency respirators and those used in fit testing and training

# Identification of Filters, Cartridges, and Canisters

- All filters, cartridges and canisters used in the workplace must be labeled and color coded with the NIOSH approval label
- The label must not be removed and must remain legible
- Marked with “NIOSH”, manufacturer’s name and part number, and an abbreviation to indicate cartridge or filter type (e.g., N95, P100, etc.)



# Training and Information

Employers must provide training to employees who are required to use respirators.





# Training and Information (cont'd)

- Training must be provided prior to use
- Retraining is required when:
  - changes in the workplace or type of respirator render previous training obsolete
  - there are inadequacies in the employee's knowledge or use
  - any other situation arises in which retraining appears necessary

# Test

Please [click here](#) to take the test!

If you have any questions, please call us at 229-4503

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