OSHA's Respiratory Protection Standard 29 CFR 1910.134

Respiratory Protection

Terminal Objective

Given classroom instruction the student will identify and explain the types, uses, selection and maintenance of respiratory protection equipment as per OSHA standard 1910.134.

Respiratory Protection

Enabling Objectives

- Identify 5 types of respiratory protection devices
- Describe the difference between QLFT and QNFT
- Describe an IDLH atmosphere
- Describe maintenance and care procedures
- Identify training and evaluation requirements

Definitions

- OSHA 29 CFR 1910.134
- NIOSH
- Oxygen atmosphere parameters
- Permissible practice
- Employee exposure
- Respiratory inlet cover

OSHA 29 CFR 1910.134
NIOSH

- Standard that establishes minimum medical, training and equipment levels for respiratory protection programs.
- National Institute for Occupational Safety and Health, 42 CFR Part 84. Sole responsibility for testing and certification of respiratory protection equipment.

Oxygen Atmosphere Parameters

As per OSHA

- Oxygen Deficient – below 19.5 %
  - Impaired thinking and attention
  - 14% abnormal fatigue, poor judgment
  - 12% nausea/vomiting
  - 10% convulsions, death
- Oxygen Enriched – 23.5 and above creating a fire hazard

Permissible Practice

- **Feasible engineering controls** such as enclosures, confinement of operations, ventilation, or substitution of less toxic materials
- If these controls are not feasible, or while they are being instituted, appropriate respirators shall be used pursuant to this standard

Permissible Practice

- Employer shall provide respirators, when necessary, which are applicable and suitable for the purpose intended
- Employer shall be responsible for establishment and maintenance of a **respirator program.**

Employee Exposure

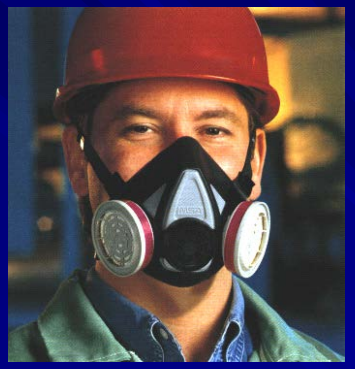
"Exposure to a concentration of an airborne contaminant that would occur if the employee were **not** using respiratory protection."

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 face piece, helmet, hood, suit, or a mouthpiece respirator with nose clamp

Tight -Fitting Coverings

Quarter Mask



Half Mask

Full Facepiece

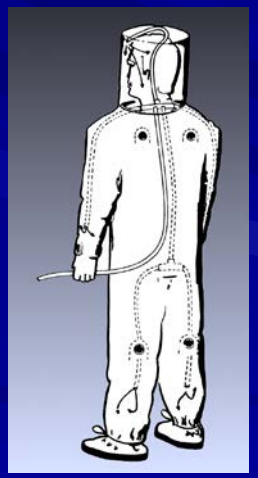
Mouthpiece/Nose Clamp
(no fit test required)

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**.

Canister or Cartridge

A filter, sorbent, or catalyst, or combination of these items, which removes specific contaminants from the air passed through the container. Must be labeled/color coded with NIOSH approved label

Respiratory Protection Devices

Filtering Facepiece (Dust Mask)

- Negative pressure particulate filter
- N95 should be kept in deployment bag

Air-Purifying Respirator (APR)

- Utilizes filter, cartridge or canister
- Ambient air passes through element

Powered Air-Purifying Respirator (PAPR)

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

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.

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 provide appropriate respirator
- Based on the respiratory hazard to which the worker is exposed
- Include respirator performance and reliability.

Immediately Dangerous to Life or Health (IDLH)

- An atmosphere that poses an immediate threat to life
- Would cause irreversible adverse health effects
- Would impair an individual's ability to escape from a dangerous atmosphere.

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.

Classes of Nonpowered Air-Purifying Particulate Filters

- Nine classes
- Three levels of filter efficiency, each with 3 categories of resistance to filter efficiency degradation due to presence of oil aerosols

N	R	P
100	100	100
99	99	99
95	95	95

High Efficiency Filters

Filter that is at least 99.97% efficient in removing monodisperse particles of 0.3 micrometers in diameter. (HEPA filter per NIOSH 30 CFR 11)

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

Medical Evaluation

Annual review of medical status is **not required** unless:

- **Employee reports medical issue related to respirator use**
- **Supervisor requires employee reevaluation**
- **Fit test indicates need**
- **Change in workplace conditions**

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.

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.

REQUIREMENTS

- 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
  - Change in physical condition affecting fit

Quantitative Fit Test (QNFT)

An assessment of the adequacy of respirator fit by numerically measuring the amount of leakage into the respirator.

Seal Protection

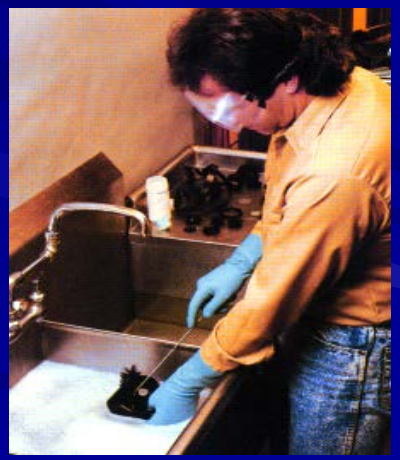
- Respirators with tight-fitting facepieces must not be worn by employees who have facial hair or any condition that interferes with the face-to-facepiece seal or valve function
- Corrective glasses or goggles or other PPE must be worn in a manner that does not affect the seal
- Employees must perform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

Procedures for IDLH Atmospheres

- Communication must be maintained between employees inside and outside
- Employees located outside must be trained and equipped to provide effective emergency rescue.
- Equipment includes SCBA or SAR with auxiliary SCBA and retrieval devices

Maintenance and Care

- Provide each user with a respirator that is clean, sanitary and in good working order
- Clean and disinfect using the CDC NIOSH procedure # 3
- 4 buckets, water and bleach



Training and Information

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

Training and Information

- Annual training required
- Fit testing
- Operation of equipment
- Limitations
- Use in emergency situations
- Maintenance and storage

Program Evaluation

- Performed on a regular basis
- Assess respirator effectiveness
- Identify/correct problems

SUMMARY

- Oxygen parameters
- 5 types of respiratory protection devices
- IDLH atmosphere
- Qualitative and Quantitative fit testing
- Maintenance and care
- Training and program evaluation

This completes the general training requirement for Respiratory Protection.

This completes the general training requirement for Respiratory Protection Training

Click the box below to take a quiz and receive a Certificate of Completion.

FINAL QUIZ