Respiratory Protection Training

29 CFR 1910.134

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Aberdeen Chemical Plant

Training Objectives:

To communicate the hazards for which respirators provide protection, limitations and capabilities of respirators, and proper use of respirators (including donning, inspections, and maintenance).

Training Materials:

Respiratory Protection Handout
Respirators (used in your particular area) for demonstration and hands-on
Training Sign-in Sheet

Training Agenda

I. Complete Training Sign-in Sheet and return to Safety Dept (SPS).

II. Distribute Respiratory Protection Handout.

III. Cover/Discuss the information on the Respiratory Protection Handout.

Important Points: Hazards that require respirators (specific to your area)
Types of respirators used in your area
Proper donning and operation of respirators
Maintenance and storage of respirators

IV. Review and demonstrate the proper technique to don a respirator.

IV. Demonstrate the technique for positive and negative pressure fit tests.

RESPIRATORY PROTECTION TRAINING

HAZARDS

The main hazards present during work at the plant that may require the use of a respirator:

- **Vinyl Chloride**: OSHA-PEL: 1 ppm (8-hr TWA), acute exposure effects respiratory tract irritation, lethargy, headache, anesthesia (numbing), loss of consciousness, asphyxiation, death (high conc.) chronic exposure effects: acro-osteolysis, cancer

  Respirators: 1 ppm to 1000 ppm ⇒ MSA Ultravue Full Face (air line)
  Unknown, or greater than 1000 ppm⇒ Scott Air Pak (SCBA)
  Emergency or Leak Response⇒ Scott Air Pak (SCBA)

- **Lead**: OSHA-PEL: 33.3 micrograms per cubic meter of air (12-hr shift) acute exposure effects few effects from exposure to low concentration chronic exposure effects nervous system, kidneys, reproductive organs, blood chemistry

  Respirator: 3M 6000 series (half face) w/ 2091 HEPA (High Efficiency Particulate Air) filter (pink)

- **Nuisance Dusts**: (Includes PVC resin dust, compound additives) OSHA-PEL: 15 milligrams per cubic meter of air (total dust), 10 mg/M (respirable) acute exposure effects: respiratory tract irritation, coughing, difficulty breathing chronic exposure effects: pnuemoconiosis (overloading lungs w/ dust)

  Respirators: 3M 6000 series (half face) w/ 2091 HEPA filter (pink), 3M disposable Dust Masks, MSA Ultravue Full Face w/ HEPA filter attachment (available in storeroom)

- **Chlorine**: OSHA-PEL: 1 ppm (8-hr TWA) acute exposure effect: respiratory tract irritation, skin irritation/burn, death

  Respirators: Scott Chlorine Canister respirator (precautionary and escape)
  Unknown concentrations ⇒ Scott Air Pak (SCBA)

- **Oxygen Deficiency**: Confined spaces, trenches, low lying areas Typical Air- 20.9%, Minimum for Safety- 19.5%, Asphyxiation begins- 16.0%

  Respirator: Scott Air Pak (SCBA): only respirator allowed in oxygen deficiency

RESPIRATOR TYPES

- **Air Purifying**: provides the wearer with filtered air from the immediate area
  examples: 3M 6000 series, 3M dust masks, MSA Ultravue w/ HEPA attachment

- **Supplied Air**: provides wearer with breathable air from other than the immediate area
  - Air Line Respirator (MSA Ultravue Full face)
  - Self-Contained Breathing Apparatus (SCBA): Scott Air Pak

DONNING

Before wearing any of the respirators used in the plant, the following should be done:
- Inspect respirator to see that it is in proper working order (all parts, straps, valves)
- Make sure respirator is clean
- If problem(s) exist, remove from service

Donning Full face MSA Ultravue:
- Check breathing air source
- Place chin in "chin cup"
- Pull straps over head
- Tighten straps (1. Side 2. Temple 3. Top)
- Connect air line to breathing air source

Donning Scott Air Pak:
- Check air bottle for air content
- Open air bottle valve
- Pull straps over shoulders and tighten
- Fasten belt and tighten
- Check shoulder gauge for reading
- Put on Scott mask (tighten straps)
- Connect regulator to mask (red bleeder valve facing up, turn clockwise)

Donning 3M 6000 series (half face):

- Check filter connection to mask
- Connect bottom strap around neck
- Place chin in "chin cup"
- Pull top strap over head (tighten straps to fit)

Immediately after donning respirators a Negative and Positive Pressure Fit Test should be done:

- Negative Pressure Fit Test
  - Block air inlet, inhalation valve (on face piece (mask) , end of hose)
  - Inhale: mask should collapse against face with no detectable air leaks

- Positive Pressure Fit Test
  - Block air outlet (exhalation valve)
  - Exhale: mask should be forced away from your face evenly

SAFE OPERATION

- Supplied Air Respirator (SCBA, air line respirator)
  - Verify adequate air supply is available
  - If lack of breathing air or difficulty breathing, remove respirator and leave area immediately

- Air Purifying Respirators (3M 6000, 3M dust mask, chlorine canister)
  - Use correct filter/cartridge/canister
  - Know the warning signs of exposure to contaminants (change out filter if smell, taste, irritation exists)
  - Never use in oxygen deficient atmosphere
  - Cannot be used in extremely high concentrations

MAINTENANCE AND STORAGE

- Cleaning
  - Use personal protective equipment (PPE) cleaning wipes after each use
  - Inspect for damage (rubber degradation) while cleaning

- Storage:
  - once clean, face pieces should be kept inside clean plastic bag (found in storeroom) until next use
  - keep out of the weather