



RESPIRATORY PROTECTION MANUAL AND GUIDELINE

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Introduction

OSHA 1910.134(b)(10) requires that no employee be assigned to a task that requires the use of a respirator, unless it has been determined that the person is physically able to perform under such conditions. In addition, once a determination is made as to physical ability to wear a respirator and perform the work task, a review of the employee's health status must be made periodically -- for instance, "annually." A physician with knowledge of pulmonary disease and respiratory protection practices should determine what medical factors are pertinent, which tests will be performed and ultimately whether or not an employee may wear a respiratory protection device.

Physiological Factors

Wearing any type of respirator imposes some physiological stress on the wearer. With air-purifying devices, resistance to inhalation is always experienced because the filter or chemical cartridge restricts air flow; in addition, the wearer must work against the exhalation valve upon expiration. Similar breathing resistance will be encountered when using demand-type air-line respirators or self-contained breathing apparatus (SCBAs). The exhalation valve used in pressure-demand SCBAs or air-line devices is designed to always maintain positive pressure within the mask; therefore, significant exhalation breathing resistance is encountered when using this equipment.

The bulk and weight of SCBAs (up to 35 lbs.) will be of some concern especially when the employee must perform strenuous work. Air-line respirator units require that the wearer drag around the hose or air-line, which will also add to the stress of job performance.

Pulmonary Factors

Respirator wearers should be examined for any evidence of respiratory impairment such as emphysema, obstructive lung disease, bronchial asthma, etc. Historical and clinical evidence of impairment of pulmonary function, including x-ray findings, a reduction in vital capacity or forced expiratory volume, may justify forbidding a person to wear a respirator that restricts inhalation and exhalation (the individual may be able to perform adequately in a continuous-flow supplied air device). Breathing difficulty may not, in and of itself, prohibit the wearing of a respirator if the employee is reasonably comfortable using the



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device, and a proper medical clearance has been obtained, especially when such a prohibition might deprive the livelihood of the individual.

Cardiovascular

The use of air-purifying, demand-type or pressure-demand supplied air devices may pose a serious problem for employees with cardiovascular disease. These people may be able to use continuous flow devices. As always, the physician must make the final determination.

Serious consideration should be given to the assignment of employees with cardiovascular disease to a job where they need not respond to an emergency situation or escape from a contaminated area with respiratory protective devices.

Health Problems

Conditions that may prevent an employee from wearing a respirator, and thus from working in a contaminated area, include:

- a. Diabetes
- b. Epilepsy
- c. Alcoholism
- d. Use of certain medication
- e. Punctured ear drum
- f. Skin sensitivities
- g. Impaired or non-existent sense of smell
- h. Any other condition that the plant physician determines to place the employee at added physical risk

Facial Limitation

Facial deformities or excessive facial hair, as determined by the examining physician, may prohibit wearing of certain types of respirator facepieces or mouthpieces, since the face-to-face-piece seal may not be adequate or reliable.

Psychological Limitation

While somewhat less clearly defined than physical limitations in respirator usage, psychological factors may prevent an employee from wearing a respirator. A physician should be consulted for advice in these cases.

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A somewhat more difficult problem to deal with is discomfort. A respirator that is improperly fitted or that causes continual discomfort will inevitably result in an industrial relations problem. These problems can generally be avoided by proper fitting, education and training.

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