

Breathing Hazards

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Construction personnel are often required to work in dusts, fumes, mists and other airborne hazards. If your work involves welding, renovating, painting or applying adhesives, you might need a respirator to protect your health. However, the preferred method of controlling health hazards is to remove or reduce the hazard by substitution, enclosure, ventilation, or by modifying the process that generates the hazard.

Substitution

Sometimes, when you are in a harmful situation, the easiest way to avoid it is to use a different product or tool entirely. One example of substitution is replacing paint containing toluene or mineral spirits with a version that is water-based. Even with substitution there may still be a respiratory hazard, though not as much as with the original material.

Enclosure

Enclosures can provide effective protection against many hazards during operations such as sandblasting. However, on some construction projects, work must be done inside the enclosure. While the enclosure may eliminate the need for respiratory protection for other workers, those inside may face increased exposure and, therefore, require respirators all the more.

Ventilation

Good ventilation can reduce or eliminate the need for respiratory protection. Keeping doors and windows open when you are using adhesives, paints, or coatings is good practice. Fumes from indoor welding can be removed very effectively by using an appropriate fume extractor that captures the fume at the source and either filters the exhaust or vents it outdoors.

Modification

Changing the process may make the job less hazardous. Modification should be checked to ensure that it is safer. Applying paint with a brush or roller produces much lower vapor level than spraying it.

Respiratory Protection

Unfortunately, options such as substitution, modification, and enclosure are not always available in construction. Respiratory protection is sometimes the only choice left. Many people think that all respirators are the same. This belief is wrong and can have serious and sometimes fatal results. That is why it's important to know how to recognize airborne hazards, how to select the right respirator, and how to make sure that it works and fits properly.

Hazards

Respiratory hazards may be gas, vapor, fume, mist or dust. Hazardous gasses in construction include carbon monoxide from engine exhaust and hydrogen sulfide from decaying sewage. Solvents such as xylene, toluene and the mineral spirits used in paints, coating and degreasers release hazardous vapors. Fumes are different from gases and vapors. Fumes are tiny particles produced by combustion or heat. Welding fumes is a common example in construction. Fumes are also released from roofing tar and diesel engines. Mists are small droplets of liquid suspended in air. The spraying of paint and form oils releases mists. Dusts are larger particles released by crushing, grinding, sanding or cutting. Hazardous dusts in construction include asbestos from insulation and silica from sandblasting and concrete cutting. A particular job does not necessarily involve only one hazard. Spray painting, for example, can release both mist and vapor while welding can generate both gas and fume. In construction, hazards can be compounded depending on the number and variety of operations underway at one time.