

# Occupational Safety & Health Fact Sheet

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## Personal Protective Equipment & The Workplace

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## **CWA Occupational Safety and Health Fact Sheet #15**

### **Personal Protective Equipment & the Workplace**

Ideally, employers should provide employees with a workplace free of safety and health hazards. However, due to the nature of a given work operation, employees may be exposed to potentially hazardous chemical and physical agents. It is not uncommon for CWA members to be exposed to such work conditions. This is particularly true for members employed in the high hazard bargaining units and occupations that the Union represents (e.g., manufacturing, telecommunications service and installation, printing, and health care jobs).

As stated in the Occupational Safety and Health Act of 1970, employers must provide workplace controls to protect employees from exposures to hazardous substances. The type(s) of control measures that may be implemented will depend on the nature of the substance, the type of exposure, and the route of entry into the body: i.e., inhalation (breathing), absorption (skin), and/or ingestion (swallowing).

Before making a decision on what type of control measure(s) to implement, the circumstances surrounding the problem(s) should be thoroughly examined to identify corrective steps. In this process, the Hierarchy of Controls should be used to determine the most protective methods of eliminating/reducing exposure. The Hierarchy of Controls includes the most protective Elimination, then Substitution, Engineering Controls, Administrative Controls, and the least protective Personal Protective Equipment. For example, in the case of an air contaminant, an exposure problem may be minimized/eliminated by eliminating the substance, replacing it with a less toxic substitute, or implementing engineering controls to eliminate/reduce the amount of the contaminant in the work area. Less protective procedures would include using administrative controls such as changes in work procedures, reduced hours of exposure, and additional staffing and the provision of personal protective equipment including gloves, goggles, disposable clothing, and respirators. An analysis of the source of the toxic, the path by which the contaminant travels to the worker, and the employee's work pattern should provide the worker with information enabling her/him to select or be provided with the most protective control measure.

- **Preferred Protective Control Measures**

As noted above, the best methods of controlling potential occupational safety and health hazards is through the elimination of toxic materials or substitution of more hazardous with less hazardous substances. The next most protective procedure is the implementation of engineering controls. Engineering controls are design methods that prevent harmful worker exposure. Ideally, the proper time to establish engineering controls is when the workplace is being designed. However, quite often this is either not done or not possible. In these circumstances, the following control measures should be considered:

**Closed Systems**

Where possible, work operations that involve potentially hazardous exposures should be conducted in closed systems. Closed systems allow for materials to be brought into the workplace in sealed containers and emptied into storage tanks, thus preventing employee contact or exposure to the substance. Unfortunately, not all operations lend themselves to such an approach.

**Changing a Process**

Another control method would be altering or changing a work operation to minimize worker exposure. For example, vapor degreasing could be accomplished with the use of dip tanks equipped with adequate local exhaust ventilation controls rather than having the worker hand wash parts in open containers.

**Isolation**

Where possible, potentially hazardous work operations might be isolated or enclosed to reduce employee exposures. An example of this process would be utilizing acoustic panels to reduce noise. Isolation equipment may be operated by remote control from some protected location. The degree of isolation should be determined by the toxicity of the substance, the amount and duration of the contaminant exposure, and the involved work patterns.

**Local Exhaust Ventilation**

Local exhaust ventilation is a mechanical system located at the source of contaminant generation that captures the hazardous substance(s) before it/they escape into the air/workplace environment. Local exhaust ventilation systems are a preferred control method because they remove air contaminants rather than just dilute them.

**General Ventilation**

General or dilution ventilation systems add or remove air from the workplace to keep the concentration of air contaminants below hazardous levels. General ventilation consists of the airflow through open windows or doors, fans, and roof ventilators. It should be remembered that general ventilation controls only dilutes air contaminants unlike local exhaust ventilation which removes air contaminants. Therefore, general ventilation should not be used to remove significant amounts of air contaminants from the workplace environment or to control major localized sources of air contamination. When using general ventilation systems, care should be taken not to re-circulate the toxic substances throughout the workplace.

**Wet Methods**

Wetting a particular substance will reduce the generation of dust/airborne contaminants. This control method is widely utilized because it is a simple, effective, and inexpensive way to minimize potential health hazards. In order that this method works most effectively, use of a wetting agent may be required and proper disposal procedures should be implemented.

- **Administrative Controls**

An employer might decide to use administrative controls to minimize occupational exposures to toxic substances and other workplace hazards. Administrative controls include changes in work policies and procedures, reduced hours of work in hazardous work operations, staffing, and training. Administrative controls do not remove the hazard, thus they should not be viewed as a long-term substitute for more protective controls—elimination, substitution, and engineering controls.

Training is an extremely important administrative control. Employers should develop and implement comprehensive, effective workplace safety and health training programs. Such programs should include information on the identification of workplace hazards, coverage of identified occupational hazards/working conditions, and control of/prevention from exposure to identified hazards. Remember it is the employer's responsibility to provide workers with safe and healthful working conditions including relevant training. However, whenever possible, CWA leaders/activists should encourage worker involvement in the development and conducting of workplace safety and health training.

- **Personal Protective Equipment**

The provision of personal protective equipment is the least effective method of controlling exposures to hazardous substances/materials/working conditions. Personal protective equipment does not remove the hazard, but rather places the burden upon the worker to make sure the personal protective equipment operates effectively. Employers prefer personal protective equipment because it is the least expensive method of protection.

Personal protective equipment includes eye and face protection such as safety glasses, goggles, and face shields; hearing protection like ear muffs, and ear plugs; protective clothing such as gloves, gauntlets, coveralls, aprons, and boots; skin protection solutions like creams and lotions; and upper respiratory protection such as the most protective powered air purifying respirator (PAPR), P100, N95, or the least protective dust mask. When personal protective equipment is provided, employers should ensure the proper, most protective equipment is provided for specific work operations and exposures. For example, when an employee is working with a particular solvent, she/he should be provided the proper gloves to prevent the substance from permeating or seeping through the glove causing harmful skin contact/exposure.

More and more, employers have begun emphasizing the use of respirators rather than implementing more protective controls. Respirators should not be viewed as a substitute for more protective controls. Rather, when used, they should be seen as offering only short-term or emergency protection. An approved respirator should be appropriate for protection from the particular hazard or work environment in which the respirator is to be utilized (e.g., dust masks should not be used to protect against chemical exposures). In addition, the type of air contaminant, its expected maximum concentration, the possibility of oxygen deficiency, the life of the respirator, and available escape routes should be determined before work is initiated. Before supplying employees with respirators,

employers should provide complete physical examinations to determine the workers' physical adaptability to respirators and provide comprehensive respirator protection training.

However, when it is not possible or feasible to eliminate dangerous levels of hazardous substances from the workplace, it may become necessary for the employer to provide personal protective equipment to reduce/minimize toxic exposures. Having said this, before personal protective equipment is used, a comprehensive review of workplace hazards should be conducted to determine whether more protective procedures could be implemented. Personal protective equipment should not be used when it is possible to implement more protective control procedures. Remember personal protective equipment does nothing to minimize or eliminate the source of the problem, i.e., the hazard. Thus, if the personal protective equipment fails to work properly, affected workers suffer immediate exposure to the toxic substance.

Additional control procedures include:

#### **Medical Surveillance**

The development and implementation of a comprehensive medical surveillance program is an essential element of an employer's workplace safety and health program. Such a program should include baseline and follow-up physical examinations for all workers. Exams should include a thorough medical and work history- including information on work with/exposures to hazardous substances. Results from these examinations provide data that will allow for the detection and evaluation of the harmful effects of particular work operations/exposures upon individual workers. In turn, with permission from individual workers, the union can use an individual's medical information to pressure employers to provide safe and healthful working conditions.

In addition to medical examinations, employers should conduct initial and periodic exposure monitoring tests where hazardous substances are used or contained. Where this monitoring is conducted in active work areas, instrumentation/industrial hygiene equipment should be equipped with an alarm mechanism that triggers a warning if contaminant concentrations reach or exceed safe levels- providing for the implementation of emergency response procedures. Monitoring data must be maintained by the employer and provided to requesting individual workers and/or union representatives. Monitoring data can be effectively used to help identify and control hazardous workplace exposures.

#### **Maintenance**

All employers should make sure that adequate maintenance schedules are established and adhered to. Poor maintenance of workplace equipment usually results in the inadequate/poor operation of machinery and, in turn, increased workplace accidents and illnesses. A regular maintenance schedule should include periodic shutdowns of all equipment. Employees performing maintenance should be provided with the necessary personal protective equipment.

**Good Housekeeping**

It makes sense for companies to establish and maintain good housekeeping practices. Proper good housekeeping procedures include a thorough cleaning of the workplace, as well as adequate washing, toilet, eating, and waste disposal facilities. Employers should ensure that toxic substance spills are cleaned immediately and properly. Work practices should also be in effect for the safe disposal of toxic chemicals and other hazardous substances.

**Personal Hygiene**

Employers should make hand-washing facilities readily available to employees working with or near toxic substances. It is important that workers be able to wash promptly in case of accidental splashes of toxic substances. Also, where called for, convenient access to emergency eye wash stations/showers should be provided. Eating and storage of food or drinking of liquids should be forbidden where toxic substances are used.

**What Can You Do?**

All CWA members should make sure that their employer is maintaining a safe and healthful workplace. The key to making the workplace safe for all CWA members is strong, active local safety and health committees. The committee can identify dangerous conditions at the workplace and discuss them with management. If the employer refuses to cooperate, the committee can request an OSHA inspection. The committee should always coordinate its activities through the local officers, the CWA Representatives, and negotiated safety and health committees.

In addition, CWA members may obtain information and assistance by contacting the:  
CWA Occupational Safety and Health Department

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Webpage: [www.cwasafetyandhealth.org](http://www.cwasafetyandhealth.org)

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