Introduction

The purpose of this guide is to ensure the safe use of formaldehyde at USC, and to assist departments in complying with the OSHA Formaldehyde Standard.

Health Effects

Studies indicate that formaldehyde is a potential human carcinogen. Airborne concentrations above 0.1 ppm (per million parts of air) can cause irritation of the eyes, nose, and throat. The severity of irritation increases as concentrations increase; at 100 ppm it is immediately dangerous to life and health. Dermal contact causes various skin reactions including sensitization, which might force persons thus sensitized to find other work.

Program Description

Applicability of the OSHA standard

To protect workers exposed to formaldehyde, the Occupational Safety and Health Administration (OSHA) standard (29 CFR 1910.1048) applies to formaldehyde gas, its solutions, and a variety of material such as trioxane, paraformaldehyde, and resin formulations; and solids and mixtures containing formaldehyde that serve as sources of the substance. In addition to setting permissible exposure levels, exposure monitoring and training, the standard requires medical surveillance and medical removal, recordkeeping, regulated areas, hazard communication, emergency procedures, primary reliance on engineering and work practices to control exposure, and maintenance and selection of personal protective equipment.

Permissible Exposure Limit

The permissible exposure limit (PEL) for formaldehyde covered by the OSH Act is 0.75 ppm measured as an 8-hour time weighted average (TWA). The standard includes a 2 ppm short-term exposure limit (STEL) (i.e., maximum exposure allowed during a 15-minute period). The "action level" is 0.5 ppm measured over 8 hours.

Exposure Monitoring

The standard requires that the employer conduct initial monitoring to identify all employees who are exposed to formaldehyde at or above the action level or STEL and to accurately determine the exposure of each employee so identified.

If the exposure level is maintained below the STEL and the action level, employers may discontinue exposure monitoring, until such time as there is a change which could affect exposure levels. The employer must also monitor employee exposure promptly, upon receiving reports of formaldehyde-related signs and symptoms.

MEDICAL REMOVAL PROTECTION

Medical removal protection provisions are included for employees suffering significant adverse effects from formaldehyde exposure. This provision requires that such employees be removed to jobs with less exposure until their condition improves, or until a physician determines that they will not ever be able to return to any workplace formaldehyde exposure, or for a period of six months, whichever occurs first.

ENGINEERING AND WORK PRACTICE CONTROLS
The employer must institute engineering and work practice controls to reduce and maintain employee exposure to formaldehyde at or below the TWA and the STEL. Whenever the employer has established that feasible engineering and work practice controls cannot reduce employee exposure to or below the PEL, the employer must apply these controls to reduce employee exposure to the extent feasible and must supplement them with respirators that satisfy this standard.

LABELING

Specific hazard labeling requirements are needed for all forms of formaldehyde, including mixtures and solutions, composed of 0.1 percent or greater formaldehyde, and for materials capable of releasing formaldehyde in excess of 0.1 ppm. Hazard labeling, including a warning that formaldehyde presents a potential cancer hazard, is required where formaldehyde levels, under reasonably foreseeable conditions of use, may potentially exceed 0.5 ppm.

Training

Training is required at least annually for all employees exposed to formaldehyde concentrations of 0.1 ppm or greater. The training will increase employees' awareness of specific hazards in their workplace and of the control measures employed. The training also will assist successful medical surveillance and medical removal programs. These provisions will only be effective if employees know what signs or symptoms are related to the health effects of formaldehyde, if they know how to properly report them to the employer, and if they are periodically encouraged to do so.