

# **OSHA Essentials: An Overview**

**Goal:** To learn basic information needed to achieve compliance with OSHA regulations

**Objectives:** After completion, this course should enable you to:

- Understand the hazards and safety procedures related to the use of formaldehyde and other chemicals in the workplace
- Increase your knowledge about hazard communication, including what is necessary for employee training, as well as what to expect if an OSHA compliance officer visits.
- Fulfill the requirements needed to meet the Bloodborne Pathogen Standard

## **Introduction**

The Occupational Safety and Health Administration (OSHA) is the federal agency responsible for maintaining or improving safe and healthy practices in the workplace. It does so in a variety of ways, including: conducting research, establishing and enforcing Standards, developing training programs, and monitoring job-related injuries and illnesses.

For those who must comply with these Standards, the task may sometimes seem burdensome, particularly when there are so many professional demands made on your time. So it is important to remember that the purpose of the Standards is not to make your life more difficult, but rather to reduce occupational hazards for both employer and employees. You could view compliance as supporting the old adage “an ounce of prevention is worth a pound of cure.”

What follows is information regarding those OSHA Standards that relate to the funeral industry, which are the Formaldehyde, Hazard Communication, and Bloodborne Pathogens Standards. Where pertinent, we will also discuss Ventilation, Personal Protective Equipment, and Universal Precautions.

We have sought to somewhat simplify complex information to make it more accessible for you, the reader. So it is important for you to realize that this course, while thorough, is not exhaustive. For example, it cannot substitute for actual employee training programs, though much of the information the course contains should be included in such programs. Employee training must be developed to suit the specific needs of your business environment.

The thumbs-up symbols used in the course highlight particularly useful points or ideas. Nevertheless, all information contained in the course is important and should be read thoroughly and thoughtfully.

**Important Note: This material is presented for informational and educational purposes only. It is not intended to replace competent professional legal, medical, or governmental advice. Anyone involved in the preparation or dissemination of this course shall not be liable for any inappropriate use of the information contained in the course beyond the purposes stated above. It is the student’s responsibility to follow laws and regulations related to any aspect of this course and its materials.**

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# **OSHA Essentials: An Overview**

## **Chapter 1**

### **The Formaldehyde Standard**

Formaldehyde is probably the single chemical most identified with the funeral industry. Many consumers would be surprised to learn that it is also used in the manufacturing of cosmetics, particleboard, and glues, and that formaldehyde resins are used to treat fabrics to make them wrinkle resistant.

👍 This chemical is a colorless, pungent gas at room temperature, with an approximate odor threshold of 1 ppm (part per million or air). It is important to remember that over extended periods, the odor threshold or degree of eye irritation are not reliable methods for determining the amount of exposure. The perception of formaldehyde by odor or eye irritation becomes less sensitive with time as one adapts to the chemical. This can lead to overexposure if a worker is relying on formaldehyde's sensory warning properties to alert him or her to the potential for exposure.

Though we will use the word formaldehyde throughout this course, the term "formalin" more precisely describes mixtures of formaldehyde, water, and alcohol, particularly those containing 37 to 50 percent formaldehyde and 6 to 15 percent alcohol stabilizer.

### **Health Risks and Emergency Procedures**

Health risks when working with formaldehyde and other hazardous chemicals fall into two categories: acute effects, which generally occur rapidly as a result of short-term exposure and are of short duration; and

chronic effects, which generally occur as a result of long-term exposure and are of long duration. Always report any incident to your supervisor and obtain needed medical support.

### Acute Effects of Exposure

#### Ingestion (Swallowing):

Liquids containing 10 to 40 percent formaldehyde cause severe irritation and inflammation of the mouth, throat, and stomach. Severe stomach pains will follow ingestion with possible loss of consciousness and death. Ingestion of dilute formaldehyde solutions (0.03-0.04 percent) may cause discomfort in the stomach and pharynx.

#### Inhalation (Breathing):

Formaldehyde is highly irritating to the upper respiratory tract and eyes. Concentrations of 0.5 to 2.0 ppm may irritate the eyes, nose, and throat of some individuals. Concentrations of 3 to 5 ppm also cause tearing of the eyes and are intolerable to some persons. Concentrations of 10 to 20 ppm cause difficulty in breathing, burning of the nose and throat, cough, and heavy tearing of the eyes, and 25 to 30 ppm causes severe respiratory tract injury leading to pulmonary edema and pneumonitis. A concentration of 100 ppm is immediately dangerous to life and health. Deaths from accidental exposure to high concentrations of formaldehyde have been reported.

#### Skin (Dermal):

Formaldehyde is a severe skin irritant and a sensitizer (a 'sensitizer' is a chemical that causes a substantial proportion of exposed people to develop an allergic reaction in normal tissue after repeated exposure to the

chemical). Contact with formaldehyde causes white discoloration, smarting, drying, cracking, and scaling. Prolonged and repeated contact can cause numbness and a hardening or tanning of the skin. Previously exposed persons may react to future exposure with an allergic eczematous dermatitis or hives.

#### Eye Contact:

Formaldehyde solutions splashed in the eye can cause injuries ranging from transient discomfort to severe, permanent corneal clouding and loss of vision. The severity of the effect depends on the concentration of formaldehyde in the solution and whether or not the eyes are flushed with water immediately after the accident.

#### Chronic Effects of Exposure

Formaldehyde has the potential to cause cancer in humans. Repeated and prolonged exposure increases the risk. Exposure has been associated with cancers of the lung, nasopharynx and oropharynx, and nasal passages. Some persons have developed asthma or bronchitis following exposure to formaldehyde, most often as the result of an accidental spill involving a single exposure to a high concentration of formaldehyde.

#### First Aid Procedures

##### Ingestion (Swallowing):

If the victim is conscious, dilute, inactivate, or absorb the ingested formaldehyde by giving milk, activated charcoal, or water. Keep affected person warm and at rest. Get medical attention immediately. If vomiting

occurs, keep head lower than hips if person is in a seated position, or on their side if person is lying down.

#### Inhalation (Breathing):

Remove the victim from the exposure area to fresh air immediately. Where the formaldehyde concentration may be very high, each rescuer must put on a self-contained breathing apparatus (SCBA) before attempting to remove the victim, and medical personnel should be informed of the formaldehyde exposure immediately. If breathing has stopped, give artificial respiration. Keep the affected person warm and at rest. Qualified first-aid or medical personnel should administer oxygen, if available, and maintain the patient's airways and blood pressure until the victim can be transported to a medical facility. If exposure results in a highly irritated upper respiratory tract and coughing continues for more than 10 minutes, the worker should be hospitalized for observation and treatment.

#### Skin Contact:

Remove contaminated clothing (including shoes) immediately. Wash the affected area of your body with soap or mild detergent and large amounts of water until no evidence of the chemical remains (at least 15 to 20 minutes). If there are chemical burns, get first aid to cover the area with sterile, dry dressing, and bandages. Get medical attention if the worker experiences appreciable eye or respiratory irritation.

#### Eye Contact:

Wash the eyes immediately with large amounts of water occasionally lifting lower and upper lids, until no evidence of chemical remains (at least 15 to 20 minutes). In case of burns, apply sterile bandages loosely without medication. Get medical attention immediately. If you have experienced

appreciable eye irritation from a splash or excessive exposure, you should be referred promptly to an ophthalmologist for evaluation.

### Emergency Procedures

If you work in an area where a large amount of formaldehyde could be released in an accident or from equipment failure, the employer must develop procedures to be followed in event of an emergency. Each person should be trained in his or her specific duties in the event of an emergency, and it is important that they clearly understand these duties. Emergency equipment must be accessible and someone should be trained to use it. Remember that formaldehyde contaminated equipment must be cleaned before reuse.

If a spill of appreciable quantity occurs, leave the area quickly unless you have specific emergency duties. Do not touch spilled material. Designated persons should isolate the hazard area and deny entry except for necessary people protected by suitable protective clothing and respirators adequate for the exposure. Use water spray to reduce vapors. Do not smoke, and prohibit all flames or flares in the hazard area. Designated persons may stop the leak and shut off ignition sources if these procedures can be done without risk.

### Fire and Explosion Procedures

👍 Formaldehyde presents a moderate fire and explosion hazard when exposed to heat or flame. To extinguish, use dry chemical, "alcohol foam", carbon dioxide, or water in flooding amounts as fog. Solid streams may not be effective. Cool fire-exposed containers with water until well after fire is out. Use of water spray to flush spills can also dilute the spill to produce nonflammable mixtures. Water runoff, however, should be contained for treatment.

Special Firefighting Procedures: Contact your local fire department to learn procedures and responsibilities in the event of a fire in your workplace. Become familiar with the appropriate equipment and supplies and their location.

### Spill, Leak, and Disposal Procedures

#### Occupational Spill:

For small containers, place the leaking container in a well ventilated area. Take up small spills with absorbent material and place the waste into properly labeled containers for later disposal. For larger spills, dike the spill to minimize contamination and facilitate salvage or disposal.

### **Monitoring Exposure Levels**

Now that you are familiar with the health risks, it is useful to know what steps you need to take to minimize excessive exposure.

👍 Following are basic terms and acronyms it is essential to understand:

PEL stands for Permissible Exposure Limit

STEL is the Short-Term Exposure Limit: A concentration of two parts formaldehyde per million parts of air (2 ppm) is the 15 minute short-term exposure limit.

TWA is the Time-Weighted Average: A concentration of .75 parts formaldehyde per million parts of air (.75 ppm) is the eight-hour time-weighted average limit.

Action Level: A concentration of 0.5 part formaldehyde per million parts of air (0.5 ppm) calculated as an eight-hour TWA concentration.



Employee Exposure: The exposure to airborne formaldehyde, which would occur without corrections for protection from a respirator in use.

The employer must determine whether employees may be exposed to concentrations in excess of a PEL through an initial monitoring process. This becomes the first step in an employee exposure-monitoring program. If a measurement indicates that an employee is exposed at or above the Action Level, the employer must measure exposure at least every six months. If measurement results reveal that the employee is exposed at or above the STEL, the employer must repeat monitoring of employees at least once a year under 'worst conditions.' Worst conditions means that monitoring should be conducted under circumstances that potentially create the greatest exposure to the chemical. For example, exposure monitoring should be conducted during an embalming procedure.

The employer must notify employees of monitoring results within 15 days after receipt of those results. Notification must be in writing, either by posting the results or distributing copies of results to affected employees.

The employer shall establish regulated areas where the concentration of airborne formaldehyde exceeds either the TWA or the STEL and post all entrances and access ways with signs bearing the following information:

**DANGER**  
**FORMALDEHYDE**  
**IRRITANT AND POTENTIAL CANCER HAZARD**  
**AUTHORIZED PERSONNEL ONLY**

The employer shall limit access to regulated areas to authorized persons who have been trained to recognize the hazards of formaldehyde.

Following initial monitoring, the same procedures should be used each time there is a change in production, equipment, process, personnel, or control measures which may result in a new or additional exposure to formaldehyde.

If an employer receives reports of signs or symptoms of respiratory or skin conditions associated with formaldehyde exposure, the employer should promptly monitor the affected employee's exposure.

The employer may discontinue periodic monitoring for employees if results from two consecutive sampling periods, taken at least seven days apart, show that employee exposure is below the Action Level and the STEL.

👍 Based on research, OSHA concluded that in the funeral industry TWA exposures are generally less of a problem than STEL exposures.

**Following a partial list of companies and Formaldehyde exposure measuring devices available for purchase.**

### **Passive and Direct Reading Devices**

COMPANY: Air Quality Research (415-644-2097). PRODUCT NAME: Passive Formaldehyde Kit (PF-20). METHOD OF COLLECTION: Bisulfite coated glass fiber filter. DETECTION: Chromotropic acid. SENSITIVITY: 0.1 ppm for 8 hours; 5 ppm for 15 minutes INTERFERENCES: Low humidity may cause adverse effects. COMMENTS: Manufacturer claims the PF-20 monitor will operate in a humidity range of 20 to 90% RH. Face velocities must be greater than 25 cm/s during sampling.

COMPANY: Assay Technology (415-424-9947). PRODUCT NAME: Chem Chip (TM). DETECTION: Colorimetric (Furpald procedure). SENSITIVITY: 0.1 ppm for 8 hours; 0.3 ppm for 15 minutes. INTERFERENCES: Other aldehydes but less interference with higher molecular weights. COMMENTS: Good for the STEL according to

manufacturer's literature. Interferences of other aldehydes would cause a problem in certain industries such as embalming where glutaraldehyde may also be present.

COMPANY: Crystal Diagnostic (617-933-4114). PRODUCT NAME: AirScan (TM). METHOD OF COLLECTION: Chemical reaction. DETECTION: Visible. SENSITIVITY: 0.1 ppm 8 Hr.; STEL (see comments). INTERFERENCES: Possibly humidity but not definite. COMMENTS: The company states their monitors are sensitive enough for the STEL if the badge is allowed to develop for several hours. The results on the humidity interference were inconclusive.

(1) This is a summary of information from the formaldehyde docket on passive and direct reading devices. It is not a comprehensive list of all available devices. For further information contact the OSHA Salt Lake City Laboratory (FTS 588-4270).

COMPANY: CEA Instrument, Inc. (201-664-2300). PRODUCT NAME: Model 555. METHOD OF COLLECTION: Direct Reading Instrument. DETECTION: Colorimetric (pararosaniline). SENSITIVITY: 0.01 ppm continuous reading. INTERFERENCES: Temperature can cause a problem; other aldehydes. COMMENTS: A review article states that there is a long equilibration time and calibration must be done often. Interferences of other aldehydes would cause a problem in certain industries such as embalming where glutaraldehyde may also be present.

COMPANY: CEA Instruments, Inc. (201-664-2300). PRODUCT NAME: TGM 555. METHOD OF COLLECTION: Direct Reading Instrument. DETECTION: Colorimetric (pararosaniline). SENSITIVITY: 0.003 ppm continuous reading. INTERFERENCES: Temperature can cause a problem; other aldehydes. COMMENTS: Modification of Model 555. Need to average the continuous readout for STEL. Interferences of other aldehydes would cause a problem in certain industries such as embalming where glutaraldehyde may also be present.

COMPANY: Dosimeter Corporation (513-489-8100). PRODUCT NAME: Model F-3. METHOD OF COLLECTION: Cellulose sponge containing a sorbent DETECTION: Visual with a comparator badge. SENSITIVITY: 0.03 ppm for 4 hours.

INTERFERENCES: None listed COMMENTS: Manufacturer's stated sensitivity would make it adequate for STEL.

COMPANY: DuPont. PRODUCT NAME: Pro-Tek C-60 (TM). METHOD OF COLLECTION: Modified 1% bisulfite. DETECTION: Colorimetric (Chromotropic acid). SENSITIVITY: 0.12 ppm for 8 hours; 1 ppm for 15 minutes. INTERFERENCES: Phenol, ethanol and other alcohols but in concentrations 8 times and 15 times, respectively. COMMENTS: Not good for STEL. The interferences of phenol and ethanol may cause problems in certain industries such as plywood manufacturing.

COMPANY: Envirotech Services, Inc. (608-643-4755). PRODUCT NAME: ETS Dosimeter (TM). METHOD OF COLLECTION: Organic acid on polycarbonate sponge. DETECTION: Colorimetric (Purpald procedure). SENSITIVITY: 0.1 ppm for 8 hours. INTERFERENCES: Other aldehydes. COMMENTS: Not good for the STEL. Interferences are other aldehydes which would cause a problem in certain industries such as embalming where glutaraldehyde may also be present.

COMPANY: Foxboro Analytical (203-853-1616) PRODUCT NAME: Miran-1A. METHOD OF COLLECTION: Direct Reading Instrument. DETECTION: Infrared Spectrophotometer. SENSITIVITY: 1 ppm continuous reading. INTERFERENCES: Any compound which has an absorbance at 3.58 micrometers (C-Ia stretch). Possibly any aliphatic hydrocarbon may interfere. COMMENTS: Need to average the continuous readout for STEL or TWA.

COMPANY: MDA Scientific, Inc. PRODUCT NAME: Lion Formaldemeter. METHOD OF COLLECTION: Direct Reading Instrument. DETECTION: Electrochemical. SENSITIVITY: 0.3 ppm. INTERFERENCES: Compounds that are easily oxidized such as methanol, phenol, ethanol and formic acid. COMMENTS: Not useable for STEL due to the short sampling time (approx. 20 seconds) and the time delay for the electrochemical cell to return to zero would prevent rapid sequential measurements.

COMPANY: Sensidyne (813-530-3602). PRODUCT NAME: 91L. METHOD OF COLLECTION: Detector tube. DETECTION: Visible color indication. SENSITIVITY:


0.2-5 ppm. INTERFERENCES: Aldehydes, acid gases and ketones. COMMENTS: The tube has the sensitivity for the STEL but taking a continuous 15-minute sample would be difficult. The number of interferences may lead to a problem.

COMPANY: 3M (612-733-8029). PRODUCT NAME: 3721 (TM). METHOD OF COLLECTION: Bisulfite impregnated pad. DETECTION: Colorimetric (Chromotropic acid). SENSITIVITY: 0.1 ppm for 8 hours. INTERFERENCES: Manufacturer claims phenol is not an interference since the monitor has a low collection efficiency for phenol. COMMENTS: Not good for the STEL. Sampling for longer than 16 hours in low humidity may make it unusable.

COMPANY: Kem Medical (800-553-0330) PRODUCT NAME: 8510 Vapor-Trak. METHOD OF COLLECTION: Moistened chemical pad. DETECTION: Colorimetric (Chromotropic acid). SENSITIVITY: 0.02 ppm (8 hours); 0.64 ppm (15 min). INTERFERENCES: None listed but colorimetric methods usually have some interferences. COMMENTS: Manufacturer's material states that humidity should not be a problem but if it does cause a problem then the exposure would be underestimated. They do state that 20% RH did not cause a problem. That RH is probably at room temperature.

COMPANY: Air Technology Labs, Inc. (209-435-3545). PRODUCT NAME: Passive Bubbler. METHOD OF COLLECTION: 3-methyl-2-benzothiazolinone hydrazone hydrochloride (MBTH) solution. DETECTION: Colorimetric. SENSITIVITY: 0.2 ppm for 8 hours. 0.8 ppm for 15 minutes. INTERFERENCES: Other aliphatic aldehydes. COMMENTS: Device is a passive liquid sampler that is independent of humidity effects.

## **Personal Protective Equipment (PPE)**

 PPE is essential in any environment where a worker is at risk of excessive exposure to potentially hazardous substances. The appropriate combination

of protective gear is vital to maintaining workers' safety and health, and must be provided by the employer at no cost to workers.

Material impervious to formaldehyde is needed if the employee handles formaldehyde solutions of one percent or more.

#### Respiratory Protection:

Use respirators approved by the National Institute for Occupational Safety and Health (NIOSH), equipped with approved cartridges or canisters within the use limitations of these devices. For formaldehyde concentrations up to 7.5 ppm (10 x PEL) use either a full faceplate with cartridges (or canisters) specifically approved for protection against formaldehyde, or a half-mask respirator with approved cartridges in combination with effective gas-proof goggles.

#### Protective Gloves:

Wear protective (impervious) gloves to prevent contact with formaldehyde. Generally, thicker is better. However all chemicals pass or permeate through protective barriers sooner or later, and this permeation can take place without any visible evidence of change in protective materials. Butyl rubber or nitrile rubber gloves with a thickness greater than 0.3 mm are recommended, but check with the manufacturer regarding time limits for resistance protection.

#### Eye Protection:

If you might be splashed in the eyes with formaldehyde, it is essential that you wear goggles or some other type of complete protection for the eye. You may also need a face shield if your face is likely to be splashed with

formaldehyde, but you must not substitute face shields for eye protection. (This section pertains to formaldehyde solutions of one percent or more.)

#### Other Protective Equipment:

You must wear protective (impervious) clothing and equipment to prevent repeated or prolonged contact with formaldehyde liquids. If you are required to change into whole-body chemical protective clothing, a change room must be provided for your privacy and for storage of your normal clothing.

👉 If you are splashed with formaldehyde:

Immediately use the emergency showers and eyewash fountains, which must be provided by your employer, to prevent serious injury. Wearing protective clothing does not affect the need for quick-drench showers, since the employee must be able to remove PPE splashed with formaldehyde in a safe manner. The availability of emergency showers should also help to lower any potentially serious inhalation hazard related to being splashed.

### **Ventilation**

Clearly, one of the greatest risks associated with the use of formaldehyde is breathing the fumes. There are ways to minimize the risk, one of which (respirators) we have already discussed. In addition, an employer should implement appropriate ventilation techniques.

👉 There are two ventilation systems for embalming. NIOSH recommends the Local Exhaust Ventilation (LEV) system. This method involves slotted hoods on each side of the embalming table to which an exhaust fan is attached. [A diagram, **HC26-Controlling Formaldehyde During Embalming**, is available on the Internet, through the Website:

[www.cdc.gov/niosh/hc26.html](http://www.cdc.gov/niosh/hc26.html). You can also call NIOSH. The phone number is listed in **Chapter 4**, along with other resources.]

Mechanical (or General) dilution ventilation is another alternative. It involves continuous introduction of fresh air into the workroom to mix with the contaminated air, thereby lowering the breathing zone concentration of formaldehyde. For example, the exhaust vent could be placed near the floor, while the clean air entering the room would come from a vent on the opposite wall near the ceiling. Be sure to regularly check filters to maintain optimum performance. It is also critical that the exhaust fumes be directed outside in a manner that does not put anyone at risk of receiving those fumes.

When ventilating formaldehyde-contaminated clothing and equipment, the employer shall establish a storage area so that employee exposure is minimized. Containers for contaminated clothing and equipment and storage areas shall have labels and signs containing the following information:

**DANGER**  
**FORMALDEHYDE-CONTAMINATED [CLOTHING] EQUIPMENT**  
**AVOID INHALATION AND SKIN CONTACT**

The employer shall assure that only persons trained to recognize the hazards of formaldehyde remove the contaminated material from the storage area for purposes of cleaning, laundering, or disposal.

The employer shall assure that no employee takes home equipment or clothing that is contaminated with formaldehyde.




The employer shall repair or replace all required protective clothing and equipment for each affected employee at no cost, as necessary to assure its effectiveness.

## **Medical Surveillance**

Medical surveillance helps to protect employees' health, and they should be strongly encouraged to participate in the medical surveillance program.

An employer must make a medical surveillance program available at no expense to employees and at a reasonable time and place if any worker is exposed to formaldehyde at concentrations above 0.5 ppm as an 8-hour average or 2 ppm over any 15-minute period. Employees should be offered medical surveillance at the time of their initial assignment and once a year afterward as long as exposure is at least 0.5 ppm (TWA) or 2 ppm (STEL). Even if exposure is below these levels, workers should inform the employer if they have signs and symptoms that they suspect, through training, are related to formaldehyde exposure because they may need medical surveillance to determine if their health is being impaired by that exposure.

 The surveillance plan includes:

- (a) A medical disease questionnaire.
- (b) A physical examination if the physician determines this is necessary.

If workers are required to wear a respirator, the employer must offer them a physical examination and a pulmonary function test every year.

The physician must collect all information needed to determine if workers are at increased risk from exposure to formaldehyde. At the physician's

discretion, the medical examination may include other tests, such as a chest x-ray, to make this determination.

After a medical examination the physician will provide the employer with a written opinion, which includes any special protective measures recommended and any restrictions on employee exposure. The physician must inform workers of any medical conditions they have which would be aggravated by exposure to formaldehyde.

All records from medical examinations, including disease surveys, must be retained at the employer's expense.

### Emergencies

If workers are exposed to formaldehyde in an emergency and develop signs or symptoms associated with acute toxicity, the employer must provide them with a medical examination as soon as possible. This medical examination will include all steps necessary to stabilize health. Workers may be kept in the hospital for observation if symptoms are severe to ensure that any delayed effects are recognized and treated.

### Medical Removal

Medical removal provisions apply when an employee reports significant irritation of the mucosa of the eyes or of the upper airways, respiratory sensitization, dermal irritation, or dermal sensitization attributed to workplace formaldehyde exposure. Medical removal provisions do not apply in the case of dermal irritation or dermal sensitization when the product suspected of causing the dermal condition contains less than 0.05 percent formaldehyde.

Medical Removal provisions detail requirements for managing cases in which workers believe they are experiencing symptoms related to formaldehyde exposure, to such an extent that they are unable to continue performing their duties. Procedures for getting medical opinions, as well as the employer's responsibilities regarding employee earnings, benefits, and seniority are described.

It is our hope that this provision will never need to be implemented for any worker.

## Chapter 2

### The Hazard Communication Standard (HCS)

👍 The HCS is based on the principal that employees have both a need and a right to know the hazards and identities of the chemicals they are exposed to when working. They also need to know what protective measures are available to prevent adverse effects from occurring. The HCS addresses the issues of evaluating and communicating hazards to workers.

Producers, importers, or distributors of chemicals (suppliers) are required to provide the hazard information to employers that purchase their products. In the funeral industry, formaldehyde is generally ordered through suppliers, so funeral home owners need only focus on those parts of the Standard that deal with establishing a workplace training program and communicating chemical hazard information to their workers. The following can serve as a general guide to help you determine what's required under this Standard.

The HCS requires information to be prepared and transmitted regarding all hazardous chemicals in the workplace, both in terms of physical hazards (such as flammability), and health hazards (such as irritation, lung damage, and cancer).

One difference between this rule and many others adopted by OSHA is that this one is performance-oriented. That means that you have the flexibility to adapt the rule to the needs of your workplace, rather than having to follow specific, rigid requirements. It also means that you have to exercise more judgment to implement an appropriate and effective program.

The standard's design is simple. Chemical manufacturers, importers, or distributors must evaluate the hazards of the chemicals they produce or

import. Using that information, they must then prepare labels for containers, and a more detailed technical bulletin called the Material Safety Data Sheet (MSDS). Note that the initials MSDSs are used to denote more than one MSDS.

Chemical manufacturers, importers, and distributors of hazardous chemicals are all required to provide the appropriate labels and MSDSs for the employers to which they ship the chemicals. The information is to be provided automatically. Every container of hazardous chemicals you receive must be labeled, tagged, or marked with the required information. Your suppliers must also send you a properly completed MSDS at the time of the first shipment of the chemical, and with the next shipment after the MSDS is updated with new and significant information about the hazards.

👍 Employers can rely on the MSDS information received from suppliers.

They have no independent duty to evaluate or analyze the chemical.

### Identify Responsible Staff

Compliance with the HCS is not a "one shot deal." Hazard communication needs to be a continuing program. It will be necessary for the employer to assign responsibility for both the initial and ongoing activities that have to be undertaken for compliance.

For any safety and health program, success depends on commitment at every level of the business. This is particularly true for hazard communication, where success requires a change in behavior. This will only occur if employers understand the program, and are committed to its success, and if employees are motivated by the people presenting the information to them.

## Identify Hazardous Chemicals in the Workplace

👍 The Standard requires a list of hazardous chemicals in the workplace as part of the written hazard communication program. The list will eventually serve as an inventory of everything for which an MSDS must be maintained. At this point, however, preparing the list will help to complete the rest of the program since it will give some idea of the scope of the program required for compliance in your facility.

The person assigned this responsibility should look around and make a list of all chemicals in the workplace that are potentially hazardous. For information and planning, it is useful to note on the list the location(s) of the products within the workplace, and an indication of the hazards as found on the label. This will help to prepare the rest of the program.

Once as complete a list as possible of the potentially hazardous chemicals in the workplace has been compiled, the next step is to determine if there is an MSDS for each of them. Check files against the inventory just compiled. If any are missing, contact the supplier and request one. If there are MSDSs for chemicals that are not on the list, figure out why. Maybe the chemical isn't used anymore. Or maybe it was missed in the survey.

Do not allow employees to use any chemicals for which there is not an MSDS. The MSDS provides information you need to ensure proper protective measures are implemented prior to exposure.

## **Preparing and Implementing a Hazard Communication Program**

👍 All workplaces where employees are exposed to hazardous chemicals must have a written plan that describes how the Standard will be

implemented in that facility. Preparation of a plan is not just a paper exercise - all of the elements must be implemented in the workplace in order to be in compliance with the Standard.

## **OSHA Inspections – What to Expect**

If OSHA inspects your workplace for compliance with the HCS, the OSHA compliance officer will ask to see a written plan at the outset of the inspection. The written program must describe how the requirements for labels and other forms of warning, material safety data sheets, and employee information and training, are going to be met in the facility. Following is the type of information compliance officers will be looking for to decide whether these elements of the hazard communication program have been properly addressed (letters A through D, below):

### **A) Labels and Other Forms of Warning**

Containers of hazardous chemicals kept 'in-house' must be labeled, tagged, or marked with the identity of the material and appropriate hazard warnings. The primary information to be obtained from an OSHA-required label is an identity for the material, and appropriate hazard warnings. The identity is any term that appears on the label, the MSDS, and your list of chemicals, and thus links these three sources of information. The identity used by the supplier may be a common or trade name, or a chemical name. The hazard warning is a brief statement of the hazardous effects of the chemical ("flammable," "causes lung damage"). Labels frequently contain other information, such as precautionary measures ("do not use near open flame"), but this information is provided voluntarily and is not required by the Standard. Labels must be legible, and prominently displayed. There are no specific requirements for size or color, or any specified text.

With these requirements in mind, the OSHA compliance officer will be looking for the following types of information to ensure that labeling will be properly implemented in the facility:

1. Designation of person(s) responsible for ensuring labeling of in-house containers;
2. Designation of person(s) responsible for ensuring labeling of any shipped containers;
3. Description of labeling system(s) used;
4. Description of written alternatives to labeling of in-house containers (if used); and,
5. Procedures to review and update label information when necessary.

Employers that are purchasing and using hazardous chemicals - rather than producing or distributing them - will primarily be concerned with ensuring that every purchased container is labeled. They can simply choose to use the labels provided by the suppliers on the containers. These will generally be verbal text labels, and do not usually include numerical rating systems or symbols that require special training.

The most important thing to remember is that this is a continuing duty: all in-house containers of hazardous chemicals must always be labeled. Therefore, it is essential to designate someone to be responsible for ensuring that the labels are maintained as required on the containers in the facility, and that newly purchased materials are checked for labels prior to use.



## **B) Material Safety Data Sheets (MSDS)**

Employers must have an MSDS for each hazardous chemical that is used. The MSDS must be in English, and must be readily accessible to employees when they are in their work areas during their work shifts. Some employers keep the MSDSs in a binder in a central location, or they may computerize the information and provide access through terminals. As long as employees can get the information when they need it, any approach may be used.

In order to ensure that there is a current MSDS for each chemical on the premises, as required, and that employee access is provided, the compliance officer will be looking for the following types of information in the written program:

1. Designation of person(s) responsible for obtaining and maintaining the MSDSs;
2. How such sheets are to be maintained in the workplace (e.g., in notebooks in the work area(s) or in a computer with terminal access), and how employees can obtain access to them when they are in their work area during the work shift;
3. Procedures to follow when the MSDS is not received at the time of the first shipment (e.g., contacting the supplier); and,
4. Description of alternatives to actual data sheets in the workplace, if used.

For employers using hazardous chemicals, the most important aspect of the written program in terms of MSDSs is to ensure that someone is responsible for obtaining and maintaining the MSDSs for every hazardous chemical in the workplace. The list of hazardous chemicals required to be maintained as

part of the written program will serve as an inventory. As new chemicals are purchased, the list should be updated.


### **C) Employee Information and Training**

👍 Each employee who may be "exposed" to hazardous chemicals when working must be provided information and trained prior to initial assignment to work with a hazardous chemical, and whenever the hazard changes. "Exposure" or "exposed" under this Standard means that "an employee is subjected to a hazardous chemical in the course of employment through any route of entry (inhalation, ingestion, skin contact or absorption, etc.) and includes potential (e.g., accidental or possible) exposure." Information and training may be done either by individual chemical, or by categories of hazards (such as flammability or carcinogenicity). If there are only a few chemicals in the workplace, then you may want to discuss each one individually.

A properly conducted training program will ensure comprehension and understanding. It is not sufficient to either just read material to the workers, or simply hand them material to read. It is important to create a climate where workers feel free to ask questions. This will help you to ensure that the information is understood. You must always remember that the underlying purpose of the HCS is to reduce the incidence of chemical source illnesses and injuries. This will be accomplished by modifying behavior through the provision of hazard information and information about protective measures. If the program works, both employer and employees will better understand the chemical hazards within the workplace, and thereby reduce the risks posed during exposure to such hazards.


In reviewing the written program with regard to information and training, the following items need to be considered:

1. Designation of person(s) responsible for conducting training;
2. Format of the program to be used (audiovisuals, classroom instruction, etc.);
3. Elements (contents) of the training program; and,
4. Procedure to train new employees at the time of their initial assignment to work with a hazardous chemical, and to train employees when a new hazard is introduced into the workplace.

 In general, the most important aspects of training under the HCS are to ensure that employees are aware that they are exposed to hazardous chemicals, that they know how to read and use labels and material safety data sheets, and that, as a consequence of learning this information, they are following the appropriate protective measures established by the employer. OSHA compliance officers will be talking to employees to determine if they have received training, if they know they are exposed to hazardous chemicals, and if they know where to obtain substance-specific information on labels and MSDSs.

This Standard does not require employers to maintain records of employee training, but many employers choose to do so. This may help you monitor your own program to ensure that all employees are appropriately trained. If you already have a training program, you may simply have to supplement it with whatever additional information is required under the HCS. For example, a funeral director already in compliance with the training required

for bloodborne pathogens, may chose to include training in the HCS at the same time.

 It is important to note that while records of trainings for toxic or hazardous substances do not need to be kept, records of trainings for bloodborne pathogens (discussed in Chapter 3) must be maintained for three years from the date of the training. We strongly recommend keeping records of all employee trainings.

An employer can provide employees information and training through whatever means are found appropriate and protective. Although there would always have to be some training on-site (such as informing employees of the location and availability of the written program and MSDSs), employee training may be satisfied in part by trade associations, unions, colleges, and professional schools. Regardless of the method relied upon, however, the employer is always ultimately responsible for ensuring that employees are adequately trained. If the OSHA compliance officer finds that the training is deficient, the employer will be cited for the deficiency regardless of who actually provided the training on behalf of the employer.

#### **D) Other Requirements**

In addition to the specific items noted above, compliance officers will also be asking the following questions in assessing the adequacy of the program:

Does a list of the hazardous chemicals exist in each work area or at a central location?

Are methods the employer will use to inform employees of the hazards of non-routine tasks outlined?

Are employees informed of the hazards associated with chemicals contained in unlabeled pipes in their work areas?

On multi-employer worksites, has the employer provided other employers with information about labeling systems and precautionary measures where the other employers have employees exposed to the initial employer's chemicals?

Is the written program made available to employees and their designated representatives?

If your program adequately addresses the means of communicating information to employees in your workplace, and provides answers to the basic questions outlined above, it will be found to be in compliance with the rule.

## 5. Checklist for Compliance

The following checklist will help to ensure you are in compliance with this Standard:

- Obtained a copy of the Standard \_\_\_\_\_
- Read and understood the requirements \_\_\_\_\_
- Assigned responsibility for tasks \_\_\_\_\_
- Prepared an inventory of chemicals \_\_\_\_\_
- Ensured containers are labeled \_\_\_\_\_
- Obtained MSDS for each chemical \_\_\_\_\_
- Prepared written program \_\_\_\_\_
- Made MSDSs available to workers \_\_\_\_\_
- Conducted training of workers \_\_\_\_\_
- Established procedures to maintain current program \_\_\_\_\_
- Established procedures to evaluate effectiveness \_\_\_\_\_

Keep in mind that an OSHA compliance officer may also request a copy of the Exposure Control Plan for your business, which relates to biological hazards (e.g., Bloodborne Pathogens). This is covered in Chapter 3.

## Chapter 3

### The Bloodborne Pathogens Standard

Bloodborne pathogens are microorganisms that are present in human blood and can cause disease in humans. While this OSHA standard primarily focuses on the Hepatitis B Virus (HBV) and the Human Immunodeficiency Virus (HIV), bloodborne pathogens include other viruses, and certain bacteria (those which can cause tuberculosis, for example).

While the title of this chapter suggests that the only focus is microorganisms found in the blood, this Standard does address the fact that other human body fluids are also potentially infectious materials. These include: semen, vaginal secretions, cerebrospinal fluid, synovial fluid, pleural fluid, pericardial fluid, peritoneal fluid, amniotic fluid, saliva in dental procedures, any body fluid that is visibly contaminated with blood, and all body fluids in situations where it is difficult or impossible to differentiate between body fluids.

While the focus of this course is not to serve as a primer for disease, it is nevertheless worth noting some information about both viral hepatitis and HIV.

When health professionals refer to viral hepatitis, they are usually referring to a disease caused by the hepatitis A, hepatitis B, or hepatitis C virus. Any form of hepatitis means that there is an inflammation of the liver, which can also stem from medication, alcohol, or other sources. Symptoms usually associated with hepatitis include fatigue, malaise, loss of appetite, low-grade fever, sore muscles and joints, and digestive disorders.

HIV (Human Immunodeficiency Virus) is the pathogen that causes AIDS (Acquired Immune Deficiency Syndrome). There is often confusion between

these two terms. If someone has contracted HIV, that means he or she is HIV Positive. It does not mean the individual has AIDS, which is a diagnosis made by a physician using certain medical criteria. Because there are a number of AIDS indicator illnesses (e.g., Kaposi's Sarcoma), symptoms may vary from person to person. Nevertheless, swollen lymph glands, thrush (a white coating on the tongue), or significant weight loss may be indicators of the disease.

It is readily apparent that this Standard has great importance to the funeral industry, when we consider that a "source individual" means anyone, living or dead, whose blood or other potentially infectious materials may be a source of occupational exposure to the employee.

### **Exposure Control Plan**

👍 This is required of all employers who have workers at risk for exposure to bloodborne pathogens. It must be updated at least annually, and be available to both employees and OSHA, upon request. It should be designed to eliminate or minimize the risks inherent in such work. Numbers 1 through 5, below, are some of the elements that should be written into the Plan:


**1) Exposure Determination:** A list based on job classification and associated tasks and procedures, without regard to the use of Personal Protective Equipment (PPE)

**2) Descriptions of Methods of Compliance:**

- a. Universal Precautions are mandated. These precautions require that all potentially infectious body fluids or other materials be treated as if they are known to be infected with pathogens.



- b. Equipment and method for proper hand washing. The proper procedure for washing hands is to wet hands with running water; apply an FDA listed antimicrobial liquid hand soap in the middle of wet hands; lather well; use friction by vigorously rubbing hands together, paying special attention to areas beneath tips of nails, nail beds, and the valleys where fingers meet the hand; rinse hands thoroughly but leave water running; pat hands dry with paper towel; turn off water with the paper towel still in your hand.
- c. Procedures for minimizing needlesticks, splashing/spraying of blood. These include, but are not limited to, avoiding the recapping of needles; placing needles and other "sharps" in properly labeled or color coded, closable, puncture-resistant containers with leak-proof sides and bottom.
- d. Containment and disposal of regulated wastes, including proper labeling and packaging for storage, washing, decontamination, storage or shipping purposes.


 Regulated Waste is defined by OSHA as any liquid or semi-liquid blood or other potentially infectious materials; contaminated items that would release blood or other potentially infectious materials in a liquid or semi-liquid state if compressed; items that are caked with dried blood or other potentially infectious materials and are capable of releasing these materials during handling; contaminated sharps; and pathological and microbiological wastes containing blood or other potentially infectious materials.

- e. The prohibition of eating, drinking, smoking, applying cosmetics of lip balm, and handling contact lens in work areas where there is a reasonable likelihood of occupational exposure.

- f. Guidelines for the provision and use of PPE: The employer must require workers to use appropriate PPE, which must be provided and maintained/replaced at no cost to workers.

Remember to always wear PPE in exposure situations, remove and replace any PPE that is torn, punctured, or otherwise has lost its ability to function as a barrier to pathogens, and remove PPE before leaving the work area.

- g. Housekeeping: the Standard requires a written schedule for cleaning and method of decontamination to be used following contact with potentially infectious materials. Generally, all surfaces, tools, equipment and any other objects that come in contact with potentially infectious materials must be decontaminated and sanitized as soon as possible.

 Housekeeping Tips: Embalming instruments, or any other instruments used to prepare bodies, are best disinfected by using an autoclave. Any surfaces that may be subject to potentially infectious fluids or materials should be non-porous and easily washable. The greatest disinfectant protection is achieved by using any product approved for this purpose by the Environmental Protection Agency. Look for the EPA registration number on the label and follow instructions. The embalming machine should be cleaned with a non-chlorine disinfectant. Never mix formaldehyde and chlorine. Ammonia may be used to neutralize formaldehyde. Guidelines apply to removal vehicles and related materials. Removal personnel should be trained in proper removal techniques and use of PPE; removal vehicles should have a supply of PPE. With regard to laundry, appropriate PPE should be used when handling linen contaminated with potentially infectious matter. Soiled linen should be bagged or placed in containers, and transported in a way that will prevent leakage.

### 3) Information Regarding Hepatitis B Vaccination and Post-Exposure Evaluation and Follow-Up:

- a. 👍 Vaccinations should be made available to all employees having occupational exposure to blood within 10 days of work assignment. The vaccine must be made available at no cost, at a reasonable place and time, under the supervision of a licensed physician/healthcare professional, according to the latest recommendations of the U.S. Public Health Service. Pre-screening may not be required as a condition of receiving the vaccine.
- b. Employees must sign a declination form (**see below**) if they choose not to be vaccinated, but must receive the vaccine for free if they later change their mind.

Regulations (Standards - 29 CFR)


#### **Hepatitis B Vaccine Declination (Mandatory) –**

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- Part Number: 1910
  - Part Title: Occupational Safety and Health Standards
  - Subpart: Z
  - Subpart Title: Toxic and Hazardous Substances
  - Standard Number: 1910.1030 App A
  - Title: Hepatitis B Vaccine Declination (Mandatory)
-

I understand that due to my occupational exposure to blood or other potentially infectious materials I may be at risk of acquiring hepatitis B virus (HBV) infection. I have been given the opportunity to be vaccinated with hepatitis B vaccine, at no charge to myself. However, I decline hepatitis B vaccination at this time. I understand that by declining this vaccine, I continue to be at risk of acquiring hepatitis B, a serious disease. If in the future I continue to have occupational exposure to blood or other potentially infectious materials and I want to be vaccinated with hepatitis B vaccine, I can receive the vaccination series at no charge to me.

- c. Specific procedures are to be made available to all employees who have had an exposure incident, plus any laboratory tests must be conducted by an accredited laboratory at no cost to the employee.
- d. Follow-up must include a confidential medical evaluation documenting the circumstances of exposure, identifying and testing the source individual, if feasible, testing the exposed employee's blood if he/she consents, post-exposure prophylaxis, counseling and evaluation of reported illness.
- e. Healthcare professionals must be provided specified information to facilitate the evaluation and their written opinion on the need for Hepatitis B vaccinations following the exposure, and if the employee has received such a vaccine.

- f.  The employer must obtain and provide the employee with a copy of the evaluating healthcare professional's written opinion within 15 days of the completion of the evaluation. That report must be limited to whether the Hepatitis B vaccine is indicated for an employee, and if the employee has received such vaccination.
- g. The healthcare professional's written opinion for post-exposure evaluation and follow-up must be limited to the following information: that the employee has been informed of the results, and has been told about any medical conditions resulting from exposure to blood or other potentially infectious materials which require further evaluation or treatment.
- h. All other findings or diagnosis must remain confidential, and are not to be included in the written report.

#### **4) Information Regarding Bio-Hazard Communication**

-  Orange or orange-red biohazard symbols should be pictured on warning labels affixed to containers of regulated waste, refrigerators and freezers, and other containers which are used to store or transport blood or other potentially infectious materials. Labels should be affixed in a manner that prevents their loss or unintentional removal. Red bags or red containers may be substituted for labels.
-  Training in the OSHA Bloodborne Pathogen Standard should be completed at the time of the worker's initial assignment to tasks where occupational exposure may take place, and at least annually thereafter. Additional training should be provided when tasks or procedures have been modified or

added. These trainings must be provided during work hours and at no cost to workers. The person conducting the training must be knowledgeable in the subject matter as it relates to the workplace the training will address.

Trainings must include, at a minimum, the following information:

- a. An accessible copy of the regulatory text of this Standard and an explanation of its contents
- b. A general explanation of the epidemiology and symptoms of bloodborne diseases
- c. An explanation of the employer's Exposure Control Plan, and the means by which the employee can obtain a copy of the written plan
- d. An explanation of the appropriate methods for recognizing tasks and other activities that may involve exposure to blood and other potentially infectious materials
- e. Explanations of the use and limitations of methods that will prevent or reduce exposure, including appropriate engineering controls, work practices, and personal protective equipment
- f. Information on the types, proper use, location, removal, handling, decontamination and disposal of PPE
- g. An explanation of the basis for selection of PPE
- h. Information on the Hepatitis B vaccine
- i. Appropriate actions to take and persons to contact in an emergency involving blood or other potentially infectious materials
- j. Procedures to follow if an exposure incident occurs
- k. Information on post-exposure follow-up
- l. Explanations of warning signs and labels
- m. An opportunity for interactive questions and answers with the trainer

## 5) Recordkeeping Information

- a. 👍 Medical Records: These are to be kept for each employee with occupational exposure for the duration of employment plus 30 years. They must include name and social security number; Hepatitis B vaccination status; results of any examination, medical testing and follow-up procedures, a copy of the healthcare professional's written opinion; and a copy of information provided to the healthcare professional (including a copy of the Bloodborne Pathogen Standard). The employer must ensure that these medical records are kept confidential, and not disclosed without the employee's written consent, except as required by law.
- b. 👍 Training Records: These must include the dates of the training sessions, contents or a summary of session; names and qualifications of persons conducting the training; names and job titles of all persons attending the training. These are to be kept for three years from the date of training.
- c. Transfer of Records: If an employer plans to close his or her business, and there will be no successor to maintain records, OSHA must be notified at least three months prior to the planned disposal of records, and the records must be sent to OSHA if so required, within that three month period.

## Chapter 4

### Resources for Review and Reference

CDC Hotline (Centers for Disease Control and Prevention):

1-800-342-2437 English


1-800-344-7432 Spanish

👍 If you believe you have been infected with a bloodborne pathogen (e.g., HIV), through blood, body fluids, or potentially infectious materials from any source, you should immediately go to the closest emergency room for evaluation.

The CDC Hotline may then be a resource for further information.

After a physician has evaluated you, the physician or other clinician may then contact the PEPline for further advice or recommendations.

PEPline: 1-888-448-4911      24 Hours – 7 Days a Week

  
**The National Clinicians' Post-Exposure Prophylaxis  
Hotline**

Exposure to blood-borne pathogens can present serious risks to health care providers. Prompt post-exposure treatment for HIV and hepatitis B virus can be effective, but because each exposure case is unique, determining who should receive prophylaxis and which drugs are most appropriate is not always easy.



The National Clinicians' Post-Exposure Prophylaxis Hotline (PEPline) offers treating clinicians up-to-the-minute advice on managing occupational exposures (i. e., needlesticks, splashes, etc.) to HIV, hepatitis and other blood-borne pathogens.

**PEPline clinicians will respond to your call 24 hours a day, 7 days a week.**

Emergency calls made during evening, weekend, and holiday hours are forwarded to on-call clinicians. Non-emergency calls will be returned during business hours.

Clinicians will help assess the risk of the exposure, discuss the most recent post-exposure prophylaxis protocols, and review specific treatment and follow-up options. Written materials supporting the telephone discussion are sent by mail or fax whenever needed.

## **OSHA (Occupational Safety and Health Administration)**

**Phone Number: 1-800-321-6742**

OSHA has provided a simple summary of the HCS in a pamphlet entitled "Chemical Hazard Communication," OSHA Publication Number 3084. A copy may be obtained from your local OSHA Area Office, or by contacting the OSHA 800 number.

If you have a question regarding compliance with the HCS, you should contact your local OSHA Area Office for assistance. Free consultation services are also available to assist employers, and information regarding

these services can be obtained through the Area and Regional offices as well.

More information regarding appropriate training can be found in OSHA Publication No. 2254 which contains voluntary training guidelines prepared by OSHA's Training Institute. A copy of this document is available from OSHA.

The telephone number for the OSHA office closest to you should be listed in your local telephone directory. If you are not able to obtain this information, you may contact OSHA's 800 number for further assistance in identifying the appropriate contacts.

### **OSHCON (Occupational Safety and Health Consultation Service)**

The OSHCON program is a free service designed to help small, private-sector employers understand and comply with OSHA standards. Their professional consultants do not fine or cite employers for safety or health hazards at worksites. Instead they offer solutions to correct workplace safety and health issues. Written safety and accident prevention programs will be reviewed. Any other complimentary programs will be evaluated, such as hazard communication and MSDS. Recordkeeping will also be reviewed in areas such as training. Contact OSHA at the 800# listed above for contact information about the OSHCON program in your state.

### **NIOSH (National Institute for Occupational Safety and Health): 1-800-356-4674**

Callers may inquire about NIOSH activities, order NIOSH publications, or request information about any aspect of occupational safety and health. It is

NOT a hotline for medical emergencies. This 800 number is part of the Centers for Disease Control and Prevention (CDC) automated voice/fax system. It combines recorded and fax information, with direct access to NIOSH technical information staff and the NIOSH Publications Office. The automated system operates 24 hours a day, seven days a week. It provides voice or fax information on a variety of topics that callers can access by selecting the options. Callers may speak directly with a technical information specialist or publications representative from 9:00 a.m. until 4 p.m. (Eastern Standard Time), Monday through Friday. Publications will be sent free of charge.

**Internet Access Addresses for Information or Publications Related to Chemical Hazards and Hazard Communication (HAZCOM):**

2000 Emergency Response Guidebook:

<http://hazmat.dot.gov/guidebook.htm>

ACGIH: <http://www.acgih.org/>

Center for Environmental and Regulatory Services:

<http://www.ceris.purdue.edu>

EPA Publications: <http://www.epa.gov/epahome/publications.htm>

IARC List of Carcinogens: <http://monographs.iarc.fr//>

MSDSOnline.com ([www.msdsonline.com](http://www.msdsonline.com))

MSDSSearch.com. ([msdssearch.com](http://msdssearch.com))

National Safety council: <http://www.nsc.org/>

NIOSH Documents: <http://www.cdc.gov/niosh/homepage.html>

NIOSH Pocket Guide to Chemical Hazards:

<http://www.cdc.gov/niosh/npg/npg.html>

NLM Data Bases: <http://sis.nlm.nih.gov/Chem/ChemMain.html>

NTP Annual Report of Carcinogens:

<http://ntp-server.niehs.nih.gov/NewHomeRoc/AboutRoC.html>

OSHA: <http://www.osha.gov>

Sigma Aldrich MSDSs: <http://www.sigmaaldrich.com/>

Society for Chemical Hazard Communication: <http://www.schc.org>.

TOXTUTOR: <http://sis.nlm.nih.gov/toxframe.htm>

U. Kentucky MSDS Locator: <http://www.ilpi.com/msds/index.html>

#### **Trade Associations:**

American Chemistry Council (ACC). Arlington, VA.

<http://www.americanchemistry.com>.

Chemical Producers and Distributors Association, Alexandria, VA.

<http://www.cpda.com>.

## **Concluding Comments**

We hope that you have enjoyed this course, and learned important new information. What you have read is an overview of some of the essential information needed to comply with OSHA Standards regarding the use of formaldehyde, managing the risks associated with bloodborne pathogens, and hazard communication necessary for each. In addition, information was provided on what to expect if an OSHA compliance officer visits your workplace. We sincerely hope that you will never deal with an emergency related to these topics, and we believe that knowledge of appropriate precautions and procedures is the best way to avoid such risks.

As this course is introductory, be sure to contact OSHA or other appropriate regulatory agencies if you have additional questions. We also recommend that you contact the Occupational Safety and Health Consultation Service (OSHCON), which provides a free service designed to help small, private-sector employers understand and comply with OSHA standards.