



Formaldehyde Best Management Practices

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More than 15 years ago, NFDA issued Environmental Best Practices, which were designed to assist members in meeting the high standards of the funeral profession by providing guidelines for protecting the health and safety of the public; the environment in the community in which funeral directors live and work; themselves, their employees and families. Four years ago, NFDA issued the Best Environmental Safety and Health Poster, to be placed on the door of preparation rooms in funeral homes throughout the United States as a reminder of these important principles.

NFDA issues these Formaldehyde Best Management Practices (BMPs) at a time when there are new appraisals about the health hazards associated with formaldehyde. The National Cancer Institute is reassessing the cancer risk from formaldehyde exposure to funeral directors and others, and domestic and international agencies are reconsidering the health and safety risks associated with formaldehyde. The U.S. Congress is investigating the health effects from the formaldehyde exposure of Hurricane Katrina trailer residents. Thus, in the face of formaldehyde's new scrutiny and the absence of definitive and conclusive scientific results, NFDA believes it is important to protect its members by keeping them informed about formaldehyde and its potential risks and to provide members with tools to protect their employees and themselves. NFDA intends that these Formaldehyde Best Management Practices will serve that purpose.

The Formaldehyde Best Management Practices is a working document. It may be updated or modified as important new information about formaldehyde becomes available.

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- 1.0 Ensure adequate and effective ventilation in the preparation room.**
- 2.0 Select and use the proper embalming product in considering the environmental, health and safety characteristics of the product and the condition of the remains.**
- 3.0 Take precautions in the preparation room to limit formaldehyde exposure and emissions during routine embalmings.**
- 4.0 Observe special precautions to limit formaldehyde exposure and emissions when embalming organ procurement cases and autopsied remains, as such embalmings may increase the embalmer's formaldehyde risk.**
- 5.0 Be familiar with and follow federal, state and local environmental, OSHA and health requirements that apply when embalming is performed.**

1.0 **Ensure adequate and effective ventilation in the preparation room.**

Preparation room ventilation is the single most important factor in reducing health risks associated with formaldehyde exposure. Make sure that the ventilation system in your funeral home's preparation room is properly designed and operating effectively. Consult an HVAC professional to assess the ventilation system, and the heating and cooling needs of the work area.

1.1 **Have no fewer than 10 to 15 air changes per hour supplied to the preparation room for each active embalming table.**

This recommendation of the New Jersey State Funeral Directors Association and the New Jersey Department of Health, Occupational Health Service, is based on the National Mechanical Code of Building Officials and Code Administrators and the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) standards for autopsy rooms. ASHRAE recommends 12 air changes hourly.¹

1.2 **Provide a source of fresh, clean air that prevents excessive negative pressure and improves air quality in the preparation room.**

Air introduced into the space should be equal to or greater than the volume of air exhausted from the space and drawn from a source free of contaminants. Embalming room air should never be recycled or re-used.

1.3 **Establish a standard operating procedure for ventilation system activation whenever an individual is in the preparation room.**

To ensure use of the ventilation system, wire the ventilation system's activation to the preparation room's light switch.

1.4 **Vent waste air from the preparation room HVAC system to the outdoors.**

The ventilation discharge should be located above ground level, away from human receptors and free of any obstruction that would impede the airflow. Because formaldehyde is heavier than air, locate the discharge vent below and away from the breathing zone of the embalmer.

1.5 **Monitor the effectiveness of the preparation room HVAC system no less than annually.**

A properly functioning HVAC system is key to eliminating the risk of formaldehyde exposure in the workplace. To ensure that formaldehyde exposure does not exceed acceptable limits, conduct and document exposure monitoring annually, more frequently than OSHA requirements,² through the use of a formaldehyde exposure level monitoring device. Consult an HVAC professional regularly to ensure effective working of the funeral home's ventilation system.

1.6 **Do not use ozone generators.**

Scientific studies show that at concentrations below public health standards, ozone generators do not remove or even reduce formaldehyde. The U.S. EPA has issued a warning based on peer-reviewed, scientifically supported findings against the use of ozone generators because ozone, like formaldehyde, may cause serious health effects.

2.0 Select and use the proper embalming product considering the condition of the remains.

2.1 Make a practice of using the least concentrated solution and reserving the most highly concentrated solution for the most difficult cases.

The art and science of embalming requires selection of the proper product in view of the condition of the remains.

2.2 Substitute environmentally friendly products for traditional embalming products.

Discuss product options with the funeral home's chemical supplier. Funeral service suppliers might be able to provide environmentally friendly, less toxic embalming products to funeral service professionals. Consider using formaldehyde-free products.

2.3 When mixing embalming solutions, always add arterial fluids to water.

Studies indicate that bursts of formaldehyde from mixing solutions pose risk for the embalmer. Do not add water to arterial solution. This simple change in procedure will greatly reduce the embalmer's exposure to emissions from products containing formaldehyde. Start with the smallest amount of arterial fluid in the embalming solution product; more arterial fluid can be added later.

3.0 Take precautions in the preparation room to limit formaldehyde exposure and emissions during routine embalmings.

3.1 Institute work practices to avoid formaldehyde spills, and if spills occur, clean spills of formaldehyde immediately.

Spills of formaldehyde have been shown to be a significant source of formaldehyde emissions in the preparation room. Chemical pillows and other chemicals are commercially available from industry suppliers for spill response. Ammonia serves as an inexpensive and effective neutralizer to formaldehyde. However, be sure to use a product containing a material that either permanently absorbs or destroys the formaldehyde.

3.2 Always keep the lid on the embalming machine.

The embalming machine lid should be removed only when water and embalming fluids are added to the machine. The lid is designed to reduce emissions from the embalming solution in the machine.

3.3 If embalming wastewater is discharged into a sink, always use a sink cover to limit splashing and exposure.

Covering an embalming waste sink with Plexiglas or other appropriate material will prevent splashes and aerosols from entering the embalmer's work area.

3.4 Use all appropriate personal protective equipment to avoid skin and eye contact with formaldehyde-containing products (and any chemical products of any type).

Make the switch from latex gloves to nitrile gloves. Nitrile has high chemical resistance against formaldehyde without the failure rate of latex.

3.5 Limit exposure to formaldehyde and bloodborne pathogens through the use of a drain tube.

Run the drain tube from the remains to the end of the embalming table, away from the embalmer, into the sink or discharge opening.

3.6 Follow the funeral home’s written 30-day cleaning, decontamination and inspection schedule to ensure proper functioning of eyewash stations and emergency drench showers.

Emergency equipment must be tested to ensure that it will function properly when it is needed. Prepare a written policy that establishes a routine inspection procedure implemented every 30 days to test the functioning of eye wash stations and emergency showers.

4.0 Observe special precautions to limit formaldehyde exposure and emissions when embalming organ procurement cases and autopsied remains, as such embalmings may increase the embalmer’s formaldehyde exposure risk.

4.1 Employ a local exhaust ventilation (LEV) system for added capture of formaldehyde emissions.

LEV systems are commonly used in a wide variety of industrial settings, typically at low cost, to enhance room ventilation systems. A LEV system, to be effective in a preparation room, must capture formaldehyde emissions before those emissions enter the breathing zone of the embalmer. The National Institute for Occupational Safety and Health (NIOSH) suggested a LEV system in 1998 (www.cdc.gov/hiosh/hc26.html). A LEV system may be appropriate for any funeral home that engages in osmotic embalming for cases with poor circulation, organ and tissue procurement cases, and autopsied remains.

4.2 Employees may elect to use a properly fitted respirator even when measured exposure limits do not exceed OSHA standards.

Employees may elect to use a respirator even when exposure limits do not exceed OSHA standards. If this is the case, the funeral home must obtain a medical evaluation of each employee who wishes to use a respirator, even though a full OSHA-mandated respiratory program is not required.³

4.3 Carefully monitor and restrict the use, to the greatest extent possible, of the most highly concentrated formaldehyde products, such as osmotic gels, hardening compounds and disinfecting sprays.

Studies have indicated that the use of compounds containing high concentrations of formaldehyde contribute significant amounts of formaldehyde to preparation room air. For that reason, the use of these compounds should be limited and other alternatives investigated.

5.0 Be familiar with and follow all federal, state and local environmental, OSHA and health requirements that apply when embalming is performed.

Various environmental, OSHA and health requirements apply when an embalming is performed. Often, product selection will govern the application of these requirements. Periodically review and re-evaluate the products used in the preparation of remains. Know the constituents of the products and the requirements that these constituents make applicable.

Footnotes

- 1 Please refer to www.state.nj.us/health/surv/documents/fuhomevent.pdf for information on calculating and confirming air changes per hour in your preparation room.
- 2 Be sure to follow OSHA formaldehyde exposure monitoring requirements, which necessitate monitoring anytime there is a significant change in the preparation room, such as the installation of new equipment, a change in the ventilation system itself, a renovation of the preparation room, the introduction of a new chemical product containing formaldehyde, the introduction of new procedures, an increase in the number of preparations conducted or when a new embalmer is assigned and begins work in the preparation room.
- 3 If a respirator must be used when OSHA exposure limits are exceeded, be sure to institute a full written respirator protection program that includes a medical evaluation and clearance of all individuals required to use the respirator.

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