

Principal Investigator: _____

Date Approved: _____

This Chemical Safety Protocol (CSP) covers basic for formaldehyde, formalin, and paraformaldehyde and supplements the laboratory Chemical Hygiene Plan as appropriate. Additional lab-specific safety operating procedures for formaldehyde, formalin, and paraformaldehyde may also be required. The use of formaldehyde, formalin, and paraformaldehyde is subject to pre-approval by the Principal Investigator (PI) and/or the designated Laboratory Responsible Safety Person. DO NOT USE FORMALDEHYDE, FORMALIN, OR PARAFORMALDEHYDE UNTIL YOU HAVE OBTAINED THE NECESSARY PRE-APPROVAL AND TRAINING.

Formaldehyde, Formalin, and Paraformaldehyde

Formaldehyde is a toxic, flammable gas known to cause cancer. It is also a sensitizer and produces eye irritation at concentrations ≥ 0.3 ppm.

Formalin is a solution of formaldehyde and methanol in water which is commonly used as a preservative for biological samples.

Paraformaldehyde is a white, crystalline solid resulting from the polymerization of formaldehyde. It can decompose to formaldehyde gas by dry heating and to formaldehyde solution by dissolving it in water in the presence of acid or heat.



Personal Protective Equipment & Personnel Monitoring

**Lab Coat**

Flame-resistant lab coat.

**Gloves**

Nitrile, chloroprene, or natural rubber gloves.

**Eye Protection**

ANSI Z87.1-compliant safety glasses or safety goggles if a splash hazard is present.

Labeling & Storage

Store in secondary containment, in a well-ventilated area, away from heat, flame and from other materials that are not particularly hazardous or which may be chemically incompatible. Each container's label must include appropriate pictograms and identify the material as carcinogenic, sensitizing, toxic, and an irritant. Containers of pure formaldehyde or paraformaldehyde, or flammable mixtures of formaldehyde, must also be labeled as flammable. Containers of these materials must be stored in leak-proof secondary containment within a Designated Area. The secondary container's label must include appropriate pictograms and identify the same hazards as the primary container. Also, if not plainly visible (e.g., through a cabinet window), labelling must be applied to storage locations where these are stored to avoid an inadvertent encounter.

Engineering Controls, Equipment & Materials

Fume Hood

Use a fume hood to keep exposure to Formaldehyde as low as possible. If your protocol does not permit the handling of such materials in a fume hood, contact the

Department of Environmental Health, Safety and Sustainability (EHSS) to perform an exposure assessment to determine whether alternative engineering controls or additional respiratory protection is necessary to keep exposures below the action level of 0.5 ppm. NOTE: The odor threshold for formaldehyde is 0.8 ppm.

Housekeeping

Releases

Notify others in the area of the spill, including your PI/Responsible Safety Person. If it is a **small spill** that you can easily handle, use the contents of your lab spill kit to clean it up.

If it is a **large spill**, then evacuate the area where the spill occurred. Call Vanderbilt University Public Safety (VUPS) at 615-421-1911 or use the VandySafe app on your smart phone.

Report any exposure through Risk and Insurance Management's Origami portal and mark that it occurred in research when prompted. Both VUPS and the Origami system will notify EHS of the incident. Remain on site at a safe distance to provide detailed information to first responders.

Decontamination

Decontaminate work space with 70-75% ethanol. Wash hands and arms with soap and water after finished. Contaminated items and gloves should be discarded as hazardous waste.

Waste

Refer to the laboratory *Chemical Hygiene Plan* (Section 6.7) for information on proper chemical waste disposal procedures.

First Aid & Emergencies

Skin or Eye Contact

Remove contaminated clothing and accessories; flush affected area with water. If symptoms persist, get medical attention.

Inhalation

Move person into fresh air. If symptoms persist, get medical attention.

Ingestion

Rinse mouth with water. If symptoms persist, get medical attention.

Name	Signature	Date