Laboratory Standard Operating Procedure: Specimen Preservatives

I.	THIS STANDARD OPERATING PROCEDURE (SOP) IS FOR A:

☒ **Specific laboratory procedure or experiment**
Examples: Formalin, Formaldehyde, Caro-Safe, Alcohol.

☐ **Generic laboratory procedure that covers several chemicals**
Examples: distillation, chromatography, etc.

☐ **Generic use of specific chemical or class of chemicals with similar hazards**
Examples: organic azides, mineral acids, etc.

This standard operating procedure (SOP) is intended to provide general guidance on how to safely work with specimen preservatives during laboratory classes. This general use SOP only addresses the environmental health effect of preservatives, and additional SOPs will be essential to compile a complete safety setting. Consider other more significant chemical hazards in addition to this SOP. If you have questions concerning the applicability of any item listed in this procedure contact the Principal Investigator/Laboratory Supervisor of your laboratory or the Chemical Environmental Health and Safety Coordinator [CEHSC] at (813) 842-3528.

II. CLASS OF HAZARDOUS CHEMICALS

The commonly encountered preservatives at UT include Formalin, Formaldehyde, and Isopropanol. These chemicals are common irritants that can cause reversible inflammatory effects on living tissue by chemical action at the site of contact. A wide variety of organic and inorganic compounds are irritants; thus, skin contact should be avoided. Obviously, older specimens preserved in formaldehyde pose more hazards due to the potential carcinogenic properties of this agent.

III. GENERAL HAZARD CONTROL

Handling processes should be designed to minimize the potential for splash, splatter, or other likely scenarios for accidental contact. In addition, .it is essential to have good room ventilation that enables the escaping vapors to be minimized, especially in the breathing zone.

IV. ENGINEERING & VENTILATION CONTROLS

Use a properly functioning lab fume hood when handling irritant mists, fumes, gases or vapors. If the process does not permit the handing of such materials in a fume hood, contact the CEHSC at (813) 842-3528 for reviewing the adequacy of room ventilation standards.

Follow Safe Fume Hood Practices:

1. Ensure the fume hood's certification date is within a one-year period. Verify sufficient inward airflow before using a hood by checking the hood's airflow indicator. Report any problems to PI/Lab Supervisor and the CEHSC.
2. Maintain hood sash at or below the maximum height indicated by an arrow on the side of the fume hood.
3. Close the hood sash when not working in the hood.
4. Avoid rapid movements at the face of the hood to avoid creating competing air currents that reduce the ability of the hood to contain air contaminants.
5. Equipment used in hoods should be placed securely on blocks to allow air to flow under and around the equipment.
6. Keep chemical sources and equipment at least six inches away from the face or rear of the hood.
7. Minimize equipment and chemical storage placed in the hood to avoid dead air spaces or eddies and to prevent blocking back baffles.

V. PERSONAL PROTECTIVE EQUIPMENT

☒ Lab Coat ☒Long pants ☒Close-toed shoes ☒Safety glasses

☒ Disposable Chemical Resistant Gloves [specific to the type of preservative in use]

The above listed personal protective equipment should be worn when handling specimen preservatives. Additional protection may be required based upon each chemical agent.

Check all personal protective equipment [PPE] prior to use to ensure good undamaged condition. At a minimum:

1. When handling chemicals or contacting potentially contaminated surfaces, protective gloves are to be worn. For proper selection of glove material, review **chemical Safety Data Sheet [SDS]** and **glove selection guidance**.
2. Goggles (not safety glasses) are appropriate for general processes, but where a splash or spray potential exists a face shield is also recommended.
3. Additional protective clothing (i.e., face shield, apron, and oversleeves) is appropriate for chemicals that are toxic via skin contact and the potential for contact is possible.

VI. SPECIAL HANDLING PROCEDURES AND STORAGE REQUIREMENTS

Ensure secondary containment and segregation of incompatible chemicals per guidance within the **UT Chemical Hygiene Plan**. Also, follow any substance-specific storage guidance provided in SDS documentation.

VII. DESIGNATED AREA

Select the most hazardous class of the chemical to designate work area limits. A designated area can be the entire laboratory, a specific laboratory workbench, or a laboratory hood. Designated areas must be clearly marked with signs that identify the chemical hazard and include an appropriate warning.

VIII. EMERGENCY SPILL AND ACCIDENT PROCEDURES

Health-Threatening Emergencies Examples: Fire, explosion, health-threatening hazardous	1. **Call 911** 2. Alert people in the vicinity to evacuate 3. Activate the local alarm systems 4. Call Campus Security at 813-257-7777 or xtn. 7777 5. Remain nearby to provide arriving emergency responders

material spill or other Immediate Danger.	information about chemicals 6. Once personal safety is established, call the CEHSC at (813) 842-3528
Personnel Injury or Exposure	1. Remove the injured/exposed individual from the area if it is safe to do so because of the medical condition of the victim or the potential hazard to rescuers. 2. **Call 911** 3. Administer first aid as appropriate. 4. Flush contamination from eyes/skin using the nearest emergency eyewash/shower for a minimum of 15 minutes. 5. Remove any contaminated clothing to prevent contaminants from continuing to absorb onto skin. 6. Give medical responders copies of SDSs for all chemicals the victim was exposed to. 7. Report the exposure to the CESHC
Non-Health Threatening Emergencies	Call Security at 813-257-7777 or xtn. 7777 to report incident
Small Spill Clean-Up	**Note: Only minor spills or releases can be cleaned up by knowledgeable personnel using readily available equipment:** 1. Notify personnel in the area and restrict access. Eliminate all sources of ignition. 2. Review the SDS for the spilled material, or use your knowledge of the hazards of the material to determine the appropriate level of protection. 3. Wear gloves and protective eyewear. Clean up using absorbent. Put the contaminated absorbent in a labeled hazardous waste container. 4. If greater than 30 ml, or if it will take longer than 15 minutes for you to clean-up, immediately call Security (813) 257-7777 or xtn. 7777 to report the spill, and notify your supervisor. 5. Submit waste pickup request to the CEHSC.
Incident Reporting	1. Report all occupational injuries or illness to laboratory supervisor as soon as practical. 2. Laboratory personnel are encouraged to report "near misses" as they are considered a precursor to actual incidents. 3. Laboratory supervisor is to conduct (or coordinate) an investigation of all incidents and "near misses." The goal of the investigation is to identify and address any deficiencies that may have contributed

	to the incident.
Medical Consultation	Laboratory personnel who work with hazardous chemicals are to be provided the opportunity to receive medical attention/consultation when: 1. A spill, leak, explosion or other occurrence results in a hazardous exposure (potential overexposure). 2. Symptoms or signs of exposure to a hazardous chemical develop.

IX.	**WASTE DISPOSAL**

Many specimen preservatives intended for disposal may be considered hazardous waste. Please call the CEHSC at (813) 842-3528 to Describe the quantities of waste you anticipate generating and appropriate waste disposal procedures. Include any special handling or storage requirements for your waste.

X.	**DECONTAMINATION PROCEDURES**

PERSONNEL	If immediate medical attention is required, call 911. Remove any contaminated clothing, and IMMEDIATELY flush contaminated skin with water for at least 15 minutes following any skin contact. For eye exposures, IMMEDIATELY flush eyes with water for at least 15 minutes. Consult SDS for guidance on appropriate first aid. Where medical attention is required, ensure to bring along SDS(s) of chemical(s) to aid medical staff in proper diagnosis and treatment. All incidents involving exposure to hydrofluoric acid, phenol, or other severe skin contact hazards require immediate medical attention. Additionally seek medical attention if pain, numbness, redness, irritation or other health symptoms are apparent. Check the SDS to see if any delayed effects should be expected.

AREA	1. Decontamination procedures vary depending on the material being handled; consult the SDS. 2. Some materials can be neutralized with other reagents. 3. All surfaces should be wiped with the appropriate cleaning agent following dispensing or handling. *Note: Waste materials generated should be treated as a hazardous waste.*
EQUIPMENT	Decontaminate laboratory apparatus or other contaminated equipment (glassware) before removing them from the designated area.

XI. TRAINING REQUIREMENTS

General Training *(check all that apply):*

- ☑ General Safety & Emergency Preparedness – Annual Orientation Training
- ☑ Review of SDS for other chemicals involved in process/experiment
- ☑ Review of this SOP
- ☐ Other: _____

The University may require additional safety training depending on the hazardous materials and laboratory-specific processes – consult the PI for more information.