

Standard Operating Procedure (SOP)			
FORMALDEHYDE FOR GROSS ANATOMY LABORATORY			
<i>Approved by:</i>		<i>Effective Date:</i>	3/10/08
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		<i>Section:</i>	CHEM

PURPOSE

Establish standard laboratory use for Formaldehyde.

SCOPE

Research use of Formaldehyde in the Gross Anatomy laboratory environment.

HEALTH, SAFETY, ENVIRONMENTAL INFORMATION

1. Process

Use of Carolina's Perfect Solution™ Concentrate with Phenol which contains phenol and formaldehyde in a learning laboratory environment.

2. Biological Hazards

Transmissible Spongiform Encephalopathies (TSE)

Potential risk may be associated with exposures e.g., cuts, while dissecting high infectivity tissues such as the brain, spinal cord or eyes. Tissues with low infectivity include kidney, liver, lung, lymph nodes, spleen and placenta.

3. Physical Hazards

Formaldehyde

- Colorless liquid, with a pungent odor.
- It is a moderate fire and explosion hazard when exposed to heat or flame.
- Incompatibilities and Reactivities: nitrogen dioxide, nitromethane, perchloric acid and aniline, or peroxyformic acid yields explosive compounds.

Phenol

- Colorless to light-pink, crystalline solid with a sweet, acrid odor. (Note: Phenol liquefies by mixing with about 8% water.)
- Combustible solid.
- Incompatibilities and Reactivities: acids, aluminum chloride, calcium hypochlorite and strong oxidizers.

4. Health Hazards

Formaldehyde

- Studies indicate that formaldehyde is a potential human carcinogen.
- Airborne concentrations above 0.1 ppm (parts 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.
- Reproductive effects such as menstrual disorder and pregnancy problems have been reported in women workers exposed to formaldehyde. Evidence shows that no increase in the number of spontaneous abortions have occurred from exposure to formaldehyde.

Phenol

- Typical exposure routes for phenol include inhalation, skin absorption, skin and/or eye contact.
- Effects of overexposure include:
 - Irritation of the eyes, nose, throat.
 - Anorexia and weight loss.
 - Weakness, muscle ache, pain.
 - Dark urine.
 - Cyanosis.
 - Liver and kidney damage.
 - Skin burns.
 - Dermatitis.
 - Ochronosis.
 - Tremor.
 - Convulsions and twitching.

5. Personal Protective Equipment

- Eye Protection
 - Safety goggles shall be worn when operating any type of saw for cutting bones.
 - Contact lenses shall not be worn when working with the cadavers. Prescription glasses shall be worn instead.
- Hand Protection
 - Safeskin™ Purple Nitrile Xtra Exam Gloves which are available through Fisher Scientific, catalog #19-149-863 shall be used when working with the cadavers.
- Lab Coats, etc.
 - Lab coats, closed toed shoes and long sleeved clothing shall be worn when handling/ working with the cadaver. Protective clothing shall be worn to prevent any possibility of skin contact with formaldehyde or phenol.

- Students shall wear Sage P²®, Personal Protection Gowns, catalog # 8576 from McKesson.
- Safety Shower/Eyewash
 - Where the eyes or body of any person may be exposed to Anatomical Solution, suitable facilities for quick drench or flushing of the eyes and body shall be provided within the work area for immediate emergency use.
 - Bottle type eyewash stations are not acceptable.

6. Designated Area for Use and Containment Devices

- Specimens preserved in formaldehyde must be stored in ventilated cabinets.
- Downdraft tables shall be used for all dissections.
- The laboratory door shall be marked as follows:

DANGER

Formaldehyde

Irritant and Potential Cancer Hazard

Authorized Personnel Only

7. Waste Disposal

- Trash (Uncontaminated Waste)
 - Uncontaminated waste consists of disposable plastic gowns, gloves and paper.
 - This waste will be disposed of in the trash cans located throughout the gross anatomy laboratory.

- Biological Waste

No anatomical materials of any kind shall leave the laboratory.

- Sharps
 - Sharps consist of scalpel blades, needles and other sharp items.
 - All sharps shall be placed in the sharps disposal containers located on the wall at each workstation.

- The sharp containers will be labeled, manifested and disposed of according to WFUHS EH&S BioWaste Management Program.
- Human Tissue/Waste (Solid Waste)
 - The human tissue/waste removed from the cadaver shall be disposed into the small white biohazard waste buckets located at each workstation marked with the biohazard symbol label.
 - Wipe ups from fluid or grease spills should be disposed into the small white biohazard waste bucket.
 - The gross anatomy staff will empty the small white biohazard waste buckets into a larger biohazard waste container supplied by WFUHS EH&S.
 - The biohazard waste buckets will be labeled, manifested and disposed of according to WFUHS EH&S BioWaste Management Program.

□ Chemical Waste

- The formaldehyde from the cadavers will be collected in a covered stainless steel bucket which is located beneath the down-draft table.
- The gross anatomy staff will empty the covered stainless steel buckets daily into a 30 or 55 gallon plastic lined drum.
- The drum will be labeled, manifested and disposed of according to WFUHS EH&S Hazardous Waste Program.

8. Special Handling Procedures and Storage Requirements

- Store away from strong oxidizing agents and bases.
- Store with compatible materials.
- Keep containers tightly closed.
- Alde-X™ Aldehyde Management System Neutralizer which is available through Lab Safety Supply, Catalogue # 2BD-18248 must be available in the event of a liquid spill less than 300 cc.

9. Decontamination of Equipment and Area

Contact WFUHS EH&S at 716-1221 for decontamination information.

10. Spill and Accident Procedures

In the event of liquid spills greater than 300 cc, immediately vacate and secure the area. Contact WFUBMC Security at 716-9111.

If an exposure occurs, regardless of specimen source, wash the area with soap and water.

Report to Employee Health for evaluation and follow-up.