Laboratory-Specific Standard Operating Procedures

TITLE: SOP for the safe use of Diaminobenzidine (DAB)

Date: **6/21/18** Review Date: Revised:

Principal Investigator:

Authors (Names):

Department, Building, Room(s):

Contact Phone Number:

This SOP must be kept on file for all laboratory employee training and review.

Section 1: (Check One)
There are three methods that can be used to write SOPs. They are: by process (distillation, synthesis, chromatography, etc.); by individual hazardous chemical (benzene, phenol, arsenic, etc.); and by hazardous chemical class (flammable, corrosive, oxidizer, etc.).

_____ Process ___**X**__ Chemical _____ Hazard Chemical Class

Section 2: Describe Process, Hazardous Chemical or Hazard Class
This SOP presents guidelines and procedures for the safe use of 3,3'-Diaminobenzidine. In addition to use of this SOP, persons working with all forms of Diaminobenzidine should be thoroughly familiar with general guidelines for high hazard chemicals identified in EHS 200.09, High Hazard Chemical Policy and all other applicable LSUHSC chemical safety policies. Observe all lab-specific safety procedures as well as guidance provided by the chemical supplier. The current chemical-specific Safety Data Sheet (SDS) must be available and reviewed prior to use.

Diaminobenzidine (CAS ID # 91-95-2) is a red-to-brown hygroscopic solid that comes in various forms. It is widely used in immunohistochemistry procedures as a precipitating substrate for the detection of peroxidase activity. It produces an intense brown stain that is easily observed in cell and tissue specimens. Synonyms include DAB, 3,3',4,4'-Biphenyltetramine, 3,3',4,4'-Tetraaminobiphenyl.

Section 3: Potential Hazards
- Physical Hazards
  - Combustible (produces toxic fumes and nitrogen oxides).
  - Reacts with strong oxidants.

- Health Hazards
    - Toxic if swallowed.
    - May cause cancer.
    - Harmful to aquatic life with long lasting effects.

Section 4: Personal Protective Equipment
Identify the required PPE. If a respirator is required, contact EH&S before using. Protective clothing and equipment is not a substitute for adequate engineering controls. PPE must be selected on the basis of the hazards present, the type of materials used, and the manner in which they will be handled. Always consult with the PI and lab-specific SOP to determine task appropriate PPE before carrying out any procedures. The basic laboratory PPE must be worn when working with Diaminobenzidine. For more information about general PPE requirements, refer to EHS-400.03, Personal Protective Equipment.

Nitrile rubber gloves are appropriate for handling Diaminobenzidine.

Section 5: Engineering Controls
Describe engineering controls that will be used to prevent or reduce employee exposure to hazardous chemicals.

All work with Diaminobenzidine must be handled within a fume hood.

Section 6: Special Handling and Storage Requirements
List storage requirements for hazardous chemicals involved with the SOP, including specific area, and policies regarding access to chemicals. Special procedures such as dating peroxide formers are appropriate here. Is a special "designated area" required?

- Handling Precautions
    - Do not get in eyes, on skin, or on clothing.
    - Avoid dust formation.
    - Know the location of the nearest emergency safety shower and eyewash station.
    - Always wash hands immediately after work is complete or when gloves are removed.
- Storage Precautions
    - Store tightly closed containers in a dry, cool, and well-ventilated space.
    - Keep refrigerated.
    - Keep away from direct sunlight.
    - Store separately from incompatible chemicals.

Section 7: Spill and Accident Procedures
Indicate how spills or accidental release will be handled. List the location of appropriate emergency equipment. Any special requirements for protection of personnel from exposure should be identified here.

- For Accidents:
    - In the event of a fire, suitable fire extinguishing media includes use of water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

    - Skin contact - Thoroughly rinse affected areas in emergency shower with water for 15 minutes. Remove all contaminated clothing.
    - Eye contact – Flush using the emergency eye wash station for 15 minutes.
    - DO NOT perform mouth to mouth CPR for individuals with inhalation exposure, to prevent the rescuer from becoming exposed.
    - In the event of personal contamination, call campus police (568-8999) and immediately seek medical attention.
- For Spills:
    - Avoid dust formation and aerosols. If appropriate, moisten first to prevent dusting.
    - Sweep up spillage and collect in suitable container for disposal.
    - Follow decontamination procedures specified in Section 8.
    - General procedures for chemical spills are addressed in EHS-200.02, Chemical Spill Response Policy and Procedures.

Incident and accident reporting must be done electronically via the on-line fillable forms located on the EHS website. For more information about appropriate form selection, refer to EHS-400.06, Incident and Accident Reporting and Investigation Policy.

Section 8: Decontamination Procedures
Specify decontamination procedures to be used for equipment, glassware, and clothing: including equipment such as hoods, lab benches, and controlled (special "designated area") areas within the lab.

- Solvent wash all contaminated surfaces with acetone followed by washing with a soap and water solution.
- Dispose of contaminated materials (gloves, wipes, etc.) as hazardous waste.

Section 9: Waste disposal Procedures
Diaminobenzidine must be disposed of as hazardous waste and in accordance with EHS-200.04, Chemical Waste Management Procedures.

- Do not let this chemical enter the environment.
- Label chemical wastes "HAZARDOUS WASTE" with the chemical constituents, and the date the waste was generated.
- To request a pickup of chemical waste, authorized individuals must use the Facility Services online service request work order system.