# STANDARD OPERATING PROCEDURES FOR HAZARDOUS AND PARTICULARLY HAZARDOUS CHEMICALS

For

## Barium Hydroxide

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| 1. PROCEDURE /  PROCES | Barium Hydroxide is used in **Building, Room.** **Insert procedure here:** |
| 2. CHEMICAL NAME(S) and associated  PHYSICAL and  HEALTH HAZARDS | **Barium Hydroxide,** **CAS # 17194-00-2,** also known as Ba(OH)2. It is an odorless, white solid. Barium hydroxide monohydrate (CAS# 22326-55-2) is the commercial form.* **Highly CORROSIVE chemical. May be corrosive to metals.**
* **Causes severe skin burns and eye damage. The amount of tissue damage depends on length of contact.**
* **May be absorbed through the skin.**
* **Can affect you when inhaled, damaging the nose, throat and lungs.**
* **Toxic through ingestion.**

 Signal Word: **DANGER**Exposure Limits:**DOSH:** TWA: 0.5 mg/m3; STEL: 1.5 mg/m3**NIOSH:** TWA: 0.5 mg/m3 **ACGIH:** TWA: 0.5 mg/m3 Toxicological Data:**ORAL (LD50):** 550 mg/kg [Rat]. \***Always refer to the Safety Data Sheet for the most detailed information**\* |
| 3. NAME OF TRAINER /  RESOURCE PERSON | **Principal Investigator Name, Building, Room, Phone Number****Secondary contact Name, Building, Room, Phone Number** |
| 1. LOCATION OF

 HEALTH & SAFETY  INFORMATION | The Safety Data Sheet (SDS) for barium hydroxide is located in the Laboratory Safety Manual located in **Building, Room**.Labeling: In addition to the standard label that identifies contents, hazards, precautionary measures, and emergency contact information, containers should also be marked as a highly corrosive. |
| 5. PROTECTIVE  EQUIPMENT | Wear nitrile, butyl, neoprene, polyvinyl chloride (PVC), or Viton gloves, chemical splash goggles, and a fully buttoned lab coat while handling, dispensing, or during experimental use of barium hydroxide. (Note: Always check the manufacturer’s glove compatibility chart for proper glove selection.) Use of a face shield in addition to chemical goggles is recommended. Always work within the confines of a properly functioning, certified laboratory chemical fume hood. An emergency eyewash unit must be within fifty feet and ten seconds of chemical usage area when working with this substance. An emergency shower may also be necessary if potential exists for large areas of the body to be exposed to this substance.  |
| 1. WASTE DISPOSAL

 PROCEDURES | **Waste barium hydroxide** must be managed as Dangerous Waste if the solution has a pH of 9 or higher. Collect solution in a compatible container with a vented lid designed for the storage of acids and bases. The container should be stored away from incompatible materials such as strong acids, strong oxidizing and reducing agents, flammable materials, metals, and water. A completed Dangerous Waste label should be attached when waste is first added to the container. When container is full or no longer being used complete a Chemical Collection Request Form, and deliver to the Waste Accumulation Area Operator at **Building, Room, Phone Number.**  If the solution has a pH between 5 and 9 it may be drained discharge.  |
| 7. DESIGNATED AREA  INFORMATION | Barium hydroxide is stored and used in **Building, Room**. **Barium hydroxide is used within a properly functioning, certified laboratory chemical fume hood.** The designated area(s) should be shown on the floor plan in Laboratories Chemical Hygiene Plan. |
| 8. DECONTAMINATION  PROCEDURES | Upon Accidental Exposure: In case of **eye contact**, flush eyes with copious amounts of water at an emergency eyewash station for at least 15 minutes and immediately seek medical attention. In case of **skin contact**, flush skin with copious amounts of water for 15 minutes and seek medical attention. For exposure over a large portion of the body, remove clothing and shoes and rinse gently but thoroughly in an emergency shower for at least 15 minutes. Seek medical attention immediately. In case of **inhalation**, move person to fresh air and immediately seek medical attention. **WARNING**: It may be hazardous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled material is toxic, infectious or corrosive.In case of **ingestion**, immediately seek medical attention and follow instructions on SDS. Upon Accidental Release: **Large Spill:** If a large amount of barium hydroxide is released outside the fume hood, immediately evacuate, secure the area and call 911.**Small Spill:** If a small amount is released (it can be cleaned up in 10 minutes) and you are appropriately trained to clean up the spill, you may do so. Use appropriate PPE including nitrile, butyl, neoprene, polyvinyl chloride (PVC), or Viton gloves (Note: Always check the manufacturer’s glove compatibility chart for proper glove selection), chemical splash goggles, fully buttoned lab coat and a half mask or powered air purifying respirator equipped with organic vapor cartridges and a high efficiency dust/mist filter. (NOTE: You **must** medically cleared, fit tested and enrolled in WSU’s respiratory protection program to wear a respirator). If it is necessary to use a respirator and personnel are not cleared to wear a respirator and not trained to appropriately clean up the spill, the employee should immediately evacuate, secure area, and call 911 to contact EH&S. Use appropriate tool to clean up the spilled material. Clean the area and place cleanup materials in appropriate containers, and dispose of as dangerous waste (see above WASTE DISPOSAL PROCEDURES). Avoid dust formation. Prevent entry into sewers, basements or confined areas; dike if needed. Please do not use a neutralizer to clean up spill.As with all accidents, report any exposure as soon as possible to your Principal Investigator or Supervisor. Additional health and safety information on barium hydroxide can be obtained by referring to the SDS or by calling the EH&S Office (335-3041). |
| 1. SPECIAL STORAGE

 AND HANDLING  PROCEDURES | Keep secured and store in a tightly closed, dry container in a cool, dry, ventilated area away from sources of heat, ignition, water, moisture or combustibles. This material is strongly hygroscopic (readily absorbs moisture). Never add water to this material. Generates large amounts of heat when in contact with water and may steam and splatter* Keep away from incompatibles such as strong acids, strong oxidizing and reducing agents, flammable materials, metals, and water.
* Absorbs carbon dioxide to form barium carbonate.
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**Certification of Hazard Assessment**

Is this document a certification of Hazard Assessment for the processes identified within? ***Yes No***

If yes, provide the name of the person certifying the Hazard Assessment and the date it was performed:

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Name Date

The location of the Hazard Assessment is indicated in the document preceding this form.

**Certificate of Employee Training**

Name of person providing training for employees working with this process:

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The following employees have been trained in when, where and how to use selected PPE, the maintenance, limitations and disposal of the PPE selected, and have demonstrated the correct use of the PPE selected on the reverse of this certification.

**Name**  **Date Trained**

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