**THIS IS A TEMPLATE/BASIC STARTING POINT. CUSTOMIZE THIS TEMPLATE WITH INFORMATION PERTINENT TO YOUR SETUP AND THE PROCEDURE YOU WILL BE USING/YOUR GROUP’S PERSONAL USE.**

STANDARD OPERATING PROCEDURE

|  |  |
| --- | --- |
| **Procedure Title:** | Sodium Hydroxide Base Bath for Cleaning Glassware |
|  |  |
| **Dept:** |  |  | **Bldg/Rm:** |  |  | **Supervisor:** |  |

**Procedure Overview:**

The procedure describes the process of preparing, maintaining, and safely using a base bath to clean glassware.

**Health and safety information for materials used:**

Always read and understand the safety data sheet (SDS) for a chemical before use or storage.

The solution in the base bath is extremely corrosive and can cause serious burns.

The solution is flammable. Keep away from heat sources.

**Hazard Control Measures:**

(Lab coat, eye and hand protection, and fully enclosed shoes must be selected as required by Section D of the ISU Laboratory Safety Manual.)

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| --- | --- | --- | --- | --- | --- | --- | --- |
| [ ]  | Latex gloves | [ ]  | Insulated gloves | [ ]  | Face shield | [ ]  | Respirator |
| [ ]  | Nitrile gloves | [ ]  | Safety glasses | [x]  | Lab coat | [ ]  | Fume hood |
| [x]  | Neoprene gloves | [ ]  | Vented goggles | [x]  | Apron | [ ]  | Biosafety cabinet |
| [ ]  | Vinyl gloves | [x]  | Splash goggles | [ ]  | Dust mask | [ ]  | Glove box |
| [x]  | Fully enclosed shoes | [ ]  | Flame resistant lab coat |

**Pre-washing soiled glassware:**

1. Before using the base bath, all soiled glassware should be prewashed with appropriate solvents to get the glassware as clean as possible, being sure to collect the solvents and then put them into the appropriate waste container.
2. Wash the glassware with detergent and by rinse with distilled water.

**Preparation of Base Bath:**

1. Place approximately X liters of isopropanol and X liters of water in a plastic bucket that has a tight fitting lid.
2. To the isopropanol solution, carefully add about 1 kg potassium hydroxide – add this slowly, over a period of several hours, as it will become hot and you do not want it to boil or splash.

**Using the base bath:**

1. Before working with the base bath, be sure that your elbow-length, acid-resistant gloves are in good condition. Replace them if you have any doubt as to their condition.
2. Don all appropriate personal protective equipment – long pants, fully enclosed shoes, lab coat, apron, splash goggles, gloves, and face shield.
3. Lower the pre-washed glassware gently into the base bath allowing the solution to completely fill the glassware.
4. Allow the glassware to remain in the solution several hours or overnight.
5. Remove glassware from the base bath allowing as much of the solution to drain back into the bucket as is possible.
6. Rinse the solution from the glass with tap water.
7. Rinse with distilled water.
8. Rinse with acetone and place on the drying rack.
9. After 15 min. the glassware may be placed in a drying oven.

**Cautions:**

* Glassware can be etched from prolonged exposure to the basic solution. Quartz glassware is too expensive to routinely expose to this risk. It should not be cleaned with a base bath.
* Base bath will enlarge the pore size of glass frits and should only be used on fritted glassware as a last resort.

**Maintenance:**

Base baths should be disposed of as hazardous waste, through EH&S, and replaced with new

solutions as the cleaning ability decreases; normally the base bath is useable for several months.

**Waste Disposal Procedures:**

Handle and store as a strongly corrosive base while awaiting chemical waste pickup. Waste must be disposed of following the [Waste and Recycling Guidelines.](https://publications.ehs.iastate.edu/warg/)

**First Aid Procedures:**

**Eye Contact:**

Check for and remove any contact lenses. Immediately flush eyes with running water for at least 15 minutes, keeping eyelids open. Cold water may be used. Get medical attention immediately. Finish by rinsing thoroughly with running water to avoid a possible infection.

**Skin Contact:**

In case of contact, immediately flush skin with water for at least 15 minutes while removing contaminated clothing and shoes. Wash with soap and water. Seek medical treatment for burned skin.

**Inhalation:**

If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.

**Ingestion:**

If swallowed, do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately.

**All accidents and injuries occurring at work or in the course of employment must be reported to the employee's supervisor as soon as possible (even if no medical attention is required). Report all incidents and exposures here:** <https://www.ehs.iastate.edu/services/occupational/accidents-injuries>

**Spill/Release Containment, Decontamination, and Clean Up Procedures:**

Clean up: Keep unnecessary people away; isolate hazard area and deny entry. Stay upwind, out of low areas, and ventilate closed spaces before entering. Keep out of waterways and bodies of water. Be cautious of vapors collecting in small enclosed spaces: sewers, low lying areas, confined spaces, etc.

Small spills: Neutralize the base using an appropriate material (e.g. citric acid). Take up with sand, earth or other absorbent material. Sweep up the absorbent and place into waste container with orange tag – request EH&S pickup.

Large spills: contact EH&S 294-5359 for advise and assistance.

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| **Written By:** |  |  | **Date:** |  |
|  |  |  |  |  |
| **Approved By:** |  |  | **Date:** |  |

 (PI or Lab Supervisor)

**HAZARD ASSESSMENT**

Use the hierarchy of controls to document the hazards and the

corresponding control measure(s) involved in each step of the procedure.

Consider *elimination or substitution* of hazards, if possible.

*Engineering Control(s):* items used to isolate the hazard from the user (i.e. fume hood, biosafety cabinet).

*Administrative Control(s):* policies/programs to limit the exposure to the hazard (i.e. authorizations, designated areas, time restrictions, training).

*Required PPE*: indicate PPE including specific material requirements if applicable (i.e. flame resistant lab coat, type of respirator or cartridge).

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| **Hazard** | **Engineering Control(s)** | **Administrative Control(s)** | **Required PPE**  |
| Corrosive – burns to skin and eyes | Use in a fume hood if possible | Complete safety training on proper preparation and use of base baths | Long pants, lab coat, apron, splash goggles, elbow-length, acid-resistant gloves, fully enclosed shoes, face shield.  |
|  Flammable | Use in a fume hood if possible | Keep away from heat sources |   |
| **INSERT SPECIFIC HAZARDS/CONTROLS HERE** |  |  |  |
| **Contamination of base bath by xxx materials** |  |  |  |
| **Health effects from inhalation -**  |  |  |  |
|  |  |  |  |

 **Training Record**

Use the following table to record the training associated with this Standard Operating Procedure.

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| --- | --- | --- |
| **Print Name** | **Signature** | **Date** |
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