



<b>Acid/Base Preparation</b>	<b>Identifier: BPR - 0003</b> <b>Revisions: 0</b> <b>Page: 1 of 2</b>
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ISU Biological Sciences	Stockroom Procedure	Effective Date: 03/18/2021
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## 1. INTRODUCTION

This procedure guides the preparation of acid and base solutions in the ISU Biology Stockroom

## 2. PRECAUTIONS AND LIMITATIONS

- 2.1. Add acid or base to water
- 2.2. Wear proper protective equipment (PPE)

## 3. APARATUS AND MATERIALS

- 3.1. Beaker large enough to hold the total volume of solution to be prepared
- 3.2. Magnetic stir bar
- 3.3. Hot stir plate
- 3.4. Graduated cylinder
- 3.5. Ice bath (for preparation of bases from solids)
- 3.6. Fume hood
- 3.7. Gloves
  - 3.7.1. Nitrile for common acids and bases
  - 3.7.2. Heavy/Butyl rubber gloves for sulfuric acid

## 4. REAGENTS

- 4.1. Sodium bicarbonate, 5% for spills and cleanup

## 5. INSTRUCTIONS

- 5.1. Determine amount of water and acid or base needed
  - 5.1.1. Measure water needed with a graduated cylinder of an appropriate size
  - 5.1.2. Pour measured water into a beaker of an appropriate size to hold the total volume of solution
  - 5.1.3. Add a magnetic stir bar



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5.2. For **Bases from solution and Acids:**

- 5.2.1. Measure the acid required into a graduated cylinder of appropriate size
- 5.2.2. Place beaker on stir plate
  - 5.2.2.1. Set stirrer high enough to create complete mixing
- 5.2.3. Slowly add acid or base to the water in the beaker
- 5.2.4. Stir for 5 minutes

5.3 For **Bases from solids:**

- 5.3.1. Measure solid base into a weighing boat/dish
- 5.3.2. Place an ice bath onto a magnetic stirrer
- 5.3.3. Place beaker from 5.1.2 into the ice bath
- 5.3.4. Set stirrer high enough to create complete mixing
- 5.3.5. Slowly add the solid base

**Note:** Add solid base in increments that will allow the material to completely dissolve before adding more.

- 5.3.6. Stir for 5 minutes after last addition of base has dissolved

**6. CLEANUP**

- 6.1. Neutralize any spills or residues on the counter or in the hood with 5% sodium bicarbonate
- 6.2. Neutralize any remnants left in beakers or graduated cylinders with 5% sodium bicarbonate
- 6.3. Clean glassware following glassware washing procedure