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| ISU Chemistry Department | Stockroom Procedure | Effective Date: 05/01/2020 |

# INTRODUCTION

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

# PRECAUTIONS AND LIMITATIONS

* 1. Add acid or base to water.
  2. Wear proper protective equipment.

# APPARATUS AND MATERIALS

* 1. Beaker large enough to hold the total volume of solution to be prepared
  2. Magnetic stir bar
  3. Magnetic stirrer
  4. Graduated cylinder
  5. Ice bath (for preparation of bases from solids)
  6. Gloves
     1. Nitrile for common acids and bases
     2. Heavy/Butyl rubber gloves for sulfuric acid or NoChromix solution

# REAGENTS

* 1. Sodium bicarbonate, 5% for spills and cleanup.

# INSTRUCTIONS

* 1. Determine amount of water and acid or base needed.
     1. Measure water needed with a graduated cylinder of an appropriate size.
     2. Pour measured water into a beaker of an appropriate size to hold the total volume of solution.
     3. Add a magnetic stir bar.

# For Bases from solution and Acids:

* + 1. Measure the acid required into a graduated cylinder of appropriate size.
    2. Place beaker on magnetic stirrer.
       1. Set stirrer high enough to create complete mixing.
    3. Slowly add acid or base to the water in the beaker.
    4. Stir for 5 minutes.

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# For Bases from solids:

* + 1. Measure solid base into a weighing boat/dish.
    2. Place an ice bath onto a magnetic stirrer.
    3. Place beaker from 5.1.2 into the ice bath.
    4. Set stirrer high enough to create complete mixing.
    5. Slowly add the solid base.

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

* + 1. Stir for 5 minutes after last addition of base has dissolved.

# Cleanup

* 1. Neutralize any spills or residues on the counter or in the hood with 5% sodium bicarbonate
  2. Neutralize any remnants left in beakers or graduated cylinders with 5% sodium bicarbonate.
  3. Clean glassware following glassware washing procedure.