Idaho State University

Chemistry Department Stockroom

Acid/Base Neutralization	**Identifier:** CSP-0001 **Revision:** 1 **Page:** 1 of 2

ISU Chemistry Department	Stockroom Procedure	Effective Date: 06/16/2020

1. INTRODUCTION

This procedure guides in the neutralization of acids and bases in the ISU Chemistry Stockroom.

2. PRECAUTIONS AND LIMITATIONS

2.1. Add acid or base to water or a dilute bicarbonate solution.

2.2. Wear proper personal protective equipment (PPE).

3. APPARATUS AND MATERIALS

3.1. 4L or larger plastic container

3.2. Stir bar retriever

3.3. pH paper

3.4. Gloves

3.4.1. Nitrile for common acids and bases

3.4.2. Heavy/Butyl rubber gloves for sulfuric acid or NoChromix solution

4. REAGENTS

4.1. Baking soda

5. INSTRUCTIONS

5.1. Add approximately 500 mL of water to a 4L container.

5.2. Add 1/3 Cup of baking soda to the water in the 4L container.

5.2.1. Mix to dissolve.

5.3. Slowly add acid/base to the baking soda solution and stir.

5.4. For **Acids**:

5.4.1. When solution stops fizzing, check pH with pH paper

5.4.1.1. If pH is between 4 and 10:

5.4.1.1.1. The solution may be poured down the drain.

5.4.1.2. If pH is not between 4 and 10:

5.4.1.2.1. Add more baking soda and stir.

5.4.1.2.2. Return to step 5.4.1.

NOTE: *For high concentrations of acids, a dilute base may be added slowly in 10-20 mL increments. Use caution as the solution will get hot & may flash boil. Perform work in a fume hood.*

5.5. For **Bases**:

5.5.1. Add approximately 1 L of the base to be neutralized into the baking soda solution from step 5.2.

5.5.2. Add any "Used acids" available to further neutralize the solution down to pH 10 or under.

5.5.3. If pH is less than 10:

5.5.3.1. The solution may be poured down the drain.

5.5.4. If pH is more than 10:

5.5.4.1. Add more acid and recheck pH

5.5.4.1.1. Return to step 5.5.2

Note: *If no "Used acids" are available, use 1M HCl.*

6. Cleanup

6.1. Rinse "Used Acid/Used Base" bottles with 5% sodium bicarbonate solution followed by deionized water.

6.2. Return the labeled "Used Acid/Used Base" bottles to storage area.