

SOP

Concentrated Strong Acids & Bases (not hydrofluoric acid)

Purdue University
Applicable rooms:

Physics Department
All PRIME Lab areas

PRIME Lab

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INTRODUCTION

Concentrated acids and bases are very corrosive and dangerous chemicals that are frequently found in the laboratory. Examples include hydrochloric acid (32%), sulfuric acid (95%), and sodium hydroxide (solid or concentrated solutions).

HAZARDS

- May be fatal if inhaled or ingested
- Can cause severe burns to skin and eyes
- Can cause severe respiratory and digestive tract burns
- Can cause deterioration of metal surfaces
- Contact with other materials may cause a fire
- Some acids have additional hazards, for example nitric acid is also an oxidizer

PROCEDURES

- 1 Read and understand the MSDS or SDS for any chemicals to be used before starting work.
- 2 Containers and equipment used for storage and processing of corrosive materials should be corrosion resistant.
- 3 Appropriate PPE and engineering controls must be used
- 4 When mixing concentrated acids (caustics) with water, add the acid (caustic) slowly to water. Never add water to acid (caustic).

MINIMUM PPE REQUIREMENTS

- 1 There must be a working safety shower and eye wash station in the work area
- 2 Work with unshielded concentrated acids & bases must be performed in a hood
- 3 Skin cover to throat/wrists/ankles including required lab coat
- 4 Closed shoes
- 5 Chemical resistant gloves appropriate for the material used
- 6 Splash goggles or safety glasses with side shields and face shield
- 7 Any additional requirements of hazard certification in room where work is done

STORAGE

- 1 Acids and bases should be stored separately from each other.
- 2 Organic acids should be stored with flammable materials, separate from oxidizers and oxidizing acids.
- 3 Acids must also be segregated from chemicals where a toxic gas would be generated upon contact
- 4 Segregation may be achieved by distance or secondary containment

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DISPOSAL

- 1 All chemical waste must be handled as specified in chapter 7 of the CHP
- 2 All hazardous chemical waste must be placed in appropriate closed containers
- 3 Containers must be properly labeled immediately
- 4 Concentrated acids or bases may not be disposed of in the sink
- 5 REM will provide for disposal of all waste chemicals

EMERGENCY PROCEDURES

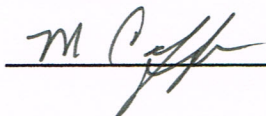
- 1 Spills should be handled as specified in chapter 8 of the CHP and the MSDS of SDS
- 2 Skin or eye contact should be washed with water immediately using an emergency shower or eye wash for at least 15 minutes unless otherwise indicated in MSDS or SDS.
- 3 Skin or eye contact should continue to be treated as specified in the MSDS or SDS
- 4 For any eye injury or significant other injuries Purdue EMS should be called immediately.
- 5 All injuries must be treated as specified in section 6.7 of the CHP

APPROVAL

PI

Marc Caffee

Signature:



Date:

6/17/2014