***Risk Assessment – St Patrick’s Day Themed Lesson***

**School:**

**Department:** Chemistry

**Member of Staff:**

**Date:**

**Part A: Preparation of Material for Lesson**

**Risk Category (Very High, High, Medium, Low):**

High

**Description of Procedure:**

Prepare dilute solutions of 0.1 M NaOH, 0.1 M HCl from concentrated precursors and prepare phenolphthalein solution indicator.

**Hazard Summary**

|  |  |  |  |
| --- | --- | --- | --- |
| **Reagent** | **Quantity** | **MSDS Hazard Summary** | **Waste disposal** |
| Phenolphthalein (pure) | 0.01 g | Carcinogenicity (category 1B)  Mutagen (category 2)  Reproductive Toxicity (category 2) | Burn in a chemical incinerator |
| Ethanol (96%) | 10 mL | Highly flammable  Skin irritant |  |
| NaOH conc. | Depends on molarity used by school | Corrosive  Causes severe skin burns and eye damage | Dilute then wash down sink |
| HCl conc. | Depends on molarity used by school | Corrosive  Causes severe skin burns and eye damage  May cause respiratory irritation | Dilute then wash down sink |

**Safety Precaution:**

* Wear lab coat and eye protection
* Prepare all dilutions in a well ventilated fume hood, isolate and clear up any spills immediately.
* Encourage cuts to bleed and wash any spills on skin for 20 minutes with cold running water.
* Immediately wash any spills in eyes for 20 minutes with cold water.

**Part B: Student Activities during Lesson**

**Risk Category (Very High, High, Medium, Low):**

Low

**Description of Procedure:**

Performing an alkali (0.1 M NaOH) titration to work out the concentration of acid in lemon juice/ vinegar (phenolphthalein indicator)

Performing an acid (0.1 M HCl) titration to work out the amount of sodium carbonate in washing soda (phenolphthalein indicator)

Reacting lemon juice/ vinegar with sodium carbonate/ washing soda to generate CO2

**Hazard Summary**

|  |  |  |  |
| --- | --- | --- | --- |
| **Reagent** | **Quantity** | **MSDS Hazard Summary** | **Waste disposal** |
| Lemon Juice | ~ 15 mL | - | Aqueous waste |
| Vinegar | ~ 15 mL | - | Aqueous waste |
| Sodium carbonate | ~ 2 g | Causes serious eye irritation | Solid waste |
| Washing soda | ~ 5 g | - | Solid waste |
| NaOH 0.1 M | ~ 75 mL | Not a hazardous substance | Aqueous waste |
| HCl 0.1 M | ~ 75 mL | Not a hazardous Substance | Aqueous waste |
| Phenolphthalein Indicator (solution of ethanol and water) | ~ 2 mL | Flammable  May cause genetic defects  carcinogen | Burn in a chemical incinerator |
| trisodium citrate (product solution) | ~ 2g in water solution | Not a hazardous substance | Aqueous waste |
| Sodium Acetate (product solution) | ~ 2g in water solution | Not a hazardous substance | Aqueous waste |

**Safety Precautions**

* Wear eye protection and lab coat, clean any spills.
* Immediately wash any spills in eyes for 20 minutes with cold water.
* Encourage cuts to bleed and wash any spills on skin for 20 minutes with cold running water.

Teacher Signature: Date: