Mom's Saline Solution

Lab Prep Instructions

***GENERAL INFORMATION***

Experiment Day/Date:

Instructions: Write any calculations in the space provided, and check with the lab instructor if you have any questions. Check off each item as you prepare it.

Quantity: Amounts indicated are for 1 lab section of 16 students working in pairs (amounts have been over-estimated to guarantee extra is available). Prepare enough for 2 sections of CH 106.

***SOLUTIONS***

€ 2.0 L of 0.1 M HNO3 (nitric acid) **(this will be used as the solvent for all solutions in this experiment)**

-look to see if we have any 0.1 M before making from more concentrate

-prepare solution with DDW and divide between two labeled bottles



- **please round volume of 0.1M HNO3 needed to match the nearest volumetric flask volume** available (i.e. to the nearest 500mL or 1L). Amount of 0.1M HNO3 to prepare:\_\_\_\_\_\_\_\_L 0.1M HNO3



- This calculation must be repeated for each flask size used to prepare the total volume of 0.1M HNO3 (i.e. if you must prepare 3L total, repeat this calculation for a 2L volumetric and a 1L volumetric=total 3L.)

-If you are diluting from concentrated HNO3, perform this dilution in the hood in an ice bath. It is helpful if this reaction is performed in a large Erlenmeyer flask, with the acid added to the water, and then transferred to the volumetric and filled to the line when it has cooled to room temperature. Be sure

you add less water to the Erlenmeyer than the total amount needed to fill the volumetric.

**Week 1– Determination of Wavelength:**

€ \*125 mL of 0.200 M Fe(NO3)3 · 9H2O (iron III nitrate nonanhydrate)

**-use HNO3 as the solvent**

- divide between two labeled bottles, *label concentration to 3 sig. fig.*

 -**please round volume of 0.200M Fe(NO3)3 needed to match the nearest volumetric flask volume** available (i.e. to the nearest 500mL or 1L). Amount of 0.200  to prepare:\_\_\_\_\_\_\_\_L 

 -This calculation must be repeated for each flask size used to prepare the total volume of 0.200M  (i.e. if you must prepare 3L total, repeat this calculation for a 2L volumetric and a 1L volumetric=total 3L.)

€ 100 mL of 0.00200 M KSCN (potassium thiocyanate)

**-use HNO3 as the solvent**

- divide between two labeled bottles, *label concentration to 3 sig. fig.*

 -**please round volume of 0.00200M KSCN needed to match the nearest volumetric flask volume** available (i.e. to the nearest 500mL or 1L). Amount of 0.00200M KSCN to prepare:\_\_\_\_\_\_\_\_L KSCN

 -This calculation must be repeated for each flask size used to prepare the total volume of 0.00200M KSCN (i.e. if you must prepare 3L total, repeat this calculation for a 2L volumetric and a 1L volumetric=total 3L.)

€ 125 mL 0.00200 M Fe(NO3)3 · 9H2O (iron III nitrate nonahydrate)

**-use HNO3 as the solvent**

- divide between two labeled bottles, *label concentration to 3 sig. fig.*

 -**please round volume of 0.00200M Fe(NO3)3 needed to match the nearest volumetric flask volume** available (i.e. to the nearest 500mL or 1L). Amount of 0.00200 M to prepare:\_\_\_\_\_\_\_\_L  -This calculation must be repeated for each flask size used to prepare the total volume of 0.00200M  (i.e. if you must prepare 3L total, repeat this calculation for a 2L volumetric and a 1L volumetric=total 3L.)

**NOTE: Not absolutely essential all solutions made fresh, Can make week 2 solutions all at beginning of week if desired**

**Week 2 – Solutions to Determine Equilibrium Constant, K:**

€ \*250 mL of 0.200 M Fe(NO3)3 · 9H2O (iron III nitrate nonanhydrate)

(**FRESHLY PREPARED FROM SOLID**)

-mass (20.19g) of solid into labeled bottles for each section

- label 250 mL volumetric (*3 sig. fig.*) for use

**-use HNO3 as the solvent and prepare in 250mL volumetric flask** **day of experiment**

€ \*250 mL of 0.00200 M KSCN (potassium thiocyanate)

**(FRESHLY PREPARED FROM SOLID)**

-Pre-weigh (0.04859 g) and put in labeled vial

- label 250 mL volumetric (*3 sig. fig.*) for use

**-use HNO3 as the solvent and prepare in 250mL volumetric flask** **day of experiment**

€ \*250 mL 0.00200 M Fe(NO3)3 · 9H2O (iron III nitrate nonahydrate)

(**FRESHLY PREPARED FROM SOLID**)

-mass (0.2019g) of solid into labeled bottles for each section

- label 250 mL volumetric (*3 sig. fig.*) for use

**-use HNO3 as the solvent and prepare in 250mL volumetric flask** **day of experiment**

***EQUIPMENT & GLASSWARE***

**In Lab Bins:** **In Dana 201:**

€ 50 or 100 mL beakers (10) € Spec-20 (8)

€ 125 mL Erlenmeyer flask (1) € labeling tape (2 tape dispensers on bench tops)

€ 1 large waste beaker € assemble 8 burettes total (using burette clamps &

€ 1000mL micropipet (1) ringstands) Test burettes for leaks!

€ cuvettes (10) € label each burette (8 total):

-0.00200 M Fe(NO3)3 (2)

-0.200 M Fe(NO3)3 (2)

-0.00200 M KSCN (2)

-0.1 M HNO3 (2)

€ include a funnel, a 50 mL labeled beaker, and a waste beaker for each burette

€ box of transfer pipets

€ micropipet tips

***WASTE DISPOSAL CONTAINERS***

Large 4 L plastic waste bottles (x 1)

€ Building: Dana

€ Room #: 201

€ Waste Accumulation Start Date: date

€ Date Container Filled: leave blank

€ Date moved to MAA: leave blank

€ Physical State(s): liquid

€ Chemical Waste Composition: iron(III) nitrate (<1%), potassium thiocyanate (<1%), nitric acid (<1%),

water (~99%)

€ Hazards: toxic, corrosive, heavy metals