How Can I Make My Campfire Burn Faster?

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: The amounts given below are for one section. Prepare enough for 8 sections. For solutions that must be prepared **fresh** (\*sodium thiosulfate, ammonium persulfate, starch), please weigh out the solid into a small labeled bottle one per section so they can be made fresh the day of.

***SOLUTIONS***

□ \*250 mL of 0.4 M Na2S2O3 (sodium thiosulfate) (**FRESHLY PREPARED FROM SOLID**)

-this solution must be made the day of the experiment

 -in advance, mass 24.818 g ± 0.004 g of solid into labeled bottle for each section

 -label two 250 mL volumetric flasks

 -instructor will add water, transfer, and prepare volumetric solution of 250 mL for each section

□ \*1 L of 0.2 M (NH4)2S2O8 (ammonium persulfate) (**FRESHLY PREPARED FROM SOLID**)

 -this solution must be made the day of the experiment

 -in advance, mass 45.642 g ± 0.004 g of solid into labeled bottle for each section

 - label two 1000 mL volumetric flasks

 -instructor will add water, transfer, and prepare volumetric solution of 1 L for each section

□ 1.5 L of 0.2 M KNO3 (potassium nitrate)

 -prepare solution as normal and divide between two bottles

 -**please round volume of 0.2M KNO3 needed to match the nearest volumetric flask volume** available (i.e. to the nearest 500mL or 1L). Amount of 0.2M KNO3 to prepare:\_\_\_\_\_\_\_\_L 0.2M KNO3



 -This calculation must be repeated for each flask size used to prepare the total volume of 0.2M KNO3 (i.e. if you must prepare 3L total, repeat this calculation for a 2L volumetric and a 1L volumetric=total 3L.)

□ 1 L of 0.2 M KI  **(**potassium iodide)

 -prepare solution as normal and divide between two bottles (dark plastic or glass)



 -**please round volume of 0.2M KI needed to match the nearest volumetric flask volume** available (i.e. to the nearest 500mL or 1L). Amount of 0.2M KI to prepare:\_\_\_\_\_\_\_\_L 0.2M KI



 -This calculation must be repeated for each flask size used to prepare the total volume of 0.2M KI (i.e. if you must prepare 3L total, repeat this calculation for a 2L volumetric and a 1L volumetric=total 3L.)

□ \*100 mL of 1% **boiled** starch solution (**FRESHLY PREPARED FROM SOLID**)

-this solution must be made the day of the experiment

 -in advance, mass 1 gram of solid into labeled bottle, this is enough for two sections, prepare 5 vials

 -instructor or student worker will 100 mL add water, transfer, and prepare solution (boil for 2 minutes)

□ 10 mL of 0.1 M Na2H2EDTA (disodium ethylenediaminetetraacetic acid) WE SHOULD HAVE THIS ALREADY

 -divide evenly between 4 plastic eye-dropper bottles

 -**please round volume of 0.1M Na2H2EDTA needed to match the nearest volumetric flask volume** available (i.e. to the nearest 50mL or 100mL). Amount of 0.1 M Na2H2EDTA to prepare:\_\_\_\_\_\_\_\_L 0.1 M Na2H2EDTA



 -This calculation must be repeated for each flask size used to prepare the total volume of 0.1 M Na2H2EDTA (i.e. if you must prepare 3L total, repeat this calculation for a 2L volumetric and a 1L volumetric=total 3L.)

***EQUIPMENT & GLASSWARE***

**In Lab Bins:(8 bins for 202 & 6 bins for 201)**

□ 250 mL Erlenmeyer flask (4)

□ micropipette, 1000 μl

□ 100 mL beaker (1)

□ stopwatch (1)

□ stirbar (1)

□ 50 mL beaker (1)

**In Dana 202 & 201:**

□ assemble 6 burettes total (using burette clamps &

 ringstands); test burettes for leaks

□ label each burette (6 total):

-0.2 M KNO3 (2)

 -0.2 M KI (2)

 -0.2 M (NH4)2S2O8 (2)

□ include a funnel and labeled beaker for chemical for each burette and waste beakers

□ small stir plates, one at each station (8 in 202 & 6 in 201)

□ box of 1000 µL pipette tips at each bench top

□ hot plates across back bench for drying (4),

***SPECIAL INSTRUCTIONS***

**Instructions for testing the reaction:**

1) Prepare solutions of Na2S2O3 and (NH4)2S2O8 at 1/10 volume using same lots of chemicals as massed in bottles. Also prepare a convenient amount of starch solution.

2) Perform reaction using directions for solution 1 and record results. Use a micropipette to add Na2S2O3 .

***WASTE DISPOSAL CONTAINERS***

Large 4 L plastic waste bottles

€ Building: Dana

€ Room #: 201

€ Waste Accumulation Start Date: 9/26/2013

€ Date Container Filled: leave blank

€ Date moved to MAA: leave blank

€ Physical State(s): liquid & gas

€ Chemical Waste Composition: sodium thiosulfate (<1%), ammonium peroxydisulfate (<1%), potassium

 nitrate (<1%), potassium iodide (<1%), starch (<1%), iodine (<1%), disodium ethylenediaminetetraacetic acid (<1%), water (~99%)

€ Hazards: toxic, oxidizer, corrosive