

INQUIRY LAB B

MOLAR MASS DETERMINATION OF AN EVAPORATED SOLVENT

PURPOSE:

What you are going to do? Determine the unknown molar mass of a liquid that will be evaporated into a gas.

How are you going to do it? Well, that is the entire purpose of the lab, isn't it?

THEORY:

You will be given a sample of an unknown solvent with a boiling point lower than that of water. You will design an experimental apparatus using the materials below that will provide you with the measurements needed for molar mass determination.

EQUIPMENT/MATERIALS PROVIDED:

eudiometer tube	thermometer	crucibles	laboratory tongs
beaker tongs	beakers	test tube clamps	ring stand
metal ring	flasks	evaporating dish	well plates
rubber stoppers (solid)	rubber tubing	hose clamps	rubber stoppers (1 hole)
centrifuge	Test tubes	pipettes	pipetter
stirring rods	milligram balance	aspirator flask	Buchner funnel
filter paper	drying oven	mortar/pestle	graduated cylinders
scupula	spatula	Petri dishes	distilled water
burets	distillation column	separatory funnel	plastic funnels
boiling water bath		steel needle	aluminum foil
large cylinder of water for pressure equilibration			

PREPARATION WEEK:

You will be given this document one week prior to the week of 2/25/13 through 3/1/13 (LAB B). Take this time to get together with your lab partners and create a plan to address the problem outlined above.

WEEK 1 (2/25/13 through 3/1/13):

Report to 5206 this week for lab. Here you will present your tentative procedure to your instructor. This will be somewhat of a rough draft *but it should be **typed for legibility***. Do not write your finalized procedure for Week 2 in your lab notebook until it is completely done and completely vetted. In lab this week you will receive suggestions to better meet your goals and to fine-tune your procedure.

WEEK 2 (4/22/13 through 4/26/13):

Come to lab with a finalized and formal purpose, illustrated procedure and data table for your experiment. Perform your experiment. Find out the actual molar mass of the solvent and finish your lab (conclusion, % Error, error analysis, discussion of theory).

POST LAB QUESTIONS:

1. If you were able to perform this lab again, what is the largest change you would make to your procedure? Justify your answer.
2. What equipment could you use to improve your experiment that was not available on the list? Justify your choice.
3. Do you think that you benefited from the opportunity of designing and performing this lab? Was it worth a 2 week commitment?