CPC Data Template

Chemical and Physical Changes

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It is important to note that **PDFs are the only acceptable file type** for file upload questions. Before uploading your Presentation of Data to the Post-Lab, you must convert this file to a PDF file type. For additional help on how to convert a Word file type to a PDF, visit the 'Useful Resources' module on Carmen.

Presentation of Data

Transfer your observations from your lab notebook into the space provided. Be sure to include all portions and not add additional information that was not recorded in your lab notebook.

Station A

What do you observe happening in the flask being heated?

I observe a light blue solution boiling in the heated flask.

What do you observe in the condenser?

I observe a clear liquid condensing in the condenser.

What do you observe happening in the receiving flask?

I observe a clear liquid collecting in the receiving flask.

What is the temperature of the gas or gases at the top of the condenser? Include units. (Hint: read the thermometer attached to the apparatus.)

97 degrees Celsius

Based on the temperature, what do you infer is happening at each point in the apparatus? In other words, how do you explain your observations? In your analysis, use these terms: mixture, substance, phase, and compound.

In the heated flask, the substance H20 is changing phases from liquid to gas, boiling out of the mixture of compounds H202 and H20, the boiled water then condenses in the condenser, and then the H20 passes through the condenser, and collects in the receiving flask.

Models of H_2O_2 and H_2O have been provided for you at the station. Figure 1.4 shows a diagram of a simple distillation apparatus. Region 1 is the flask being heated. Region2, the area around the bulb of the thermometer, is located near the top of the condenser. The condenser connects Region 3, the receiving flask on the right, to the flask being heated on the left. Use the models to help you draw a particle representation (like Figure 1.1) for Regions 1, 2, and 3 below. Label the temperature on the thermometer.

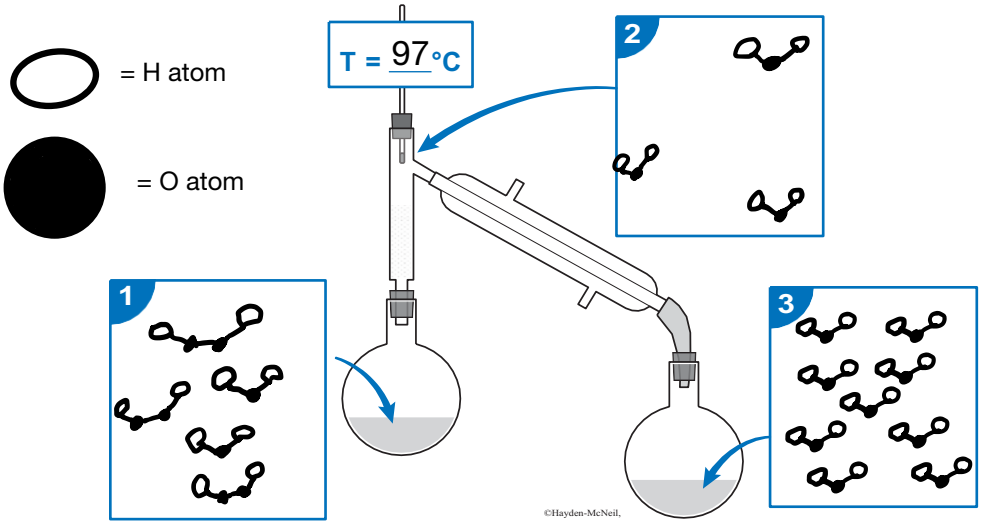

Figure 1.4 A simple distillation apparatus.

The distillation setup we have provided will run for 3 hours. Will the composition of R egion 1 change during this time? If so, how?

Over time more and more H20 will evaporate from region 1 until region 1 is only composed of H202.

Station B

Create your own data table below to present your Data to Collect section for Station B. Make sure your table includes the masses of the individual components, the price of each component, percent composition of each component by mass, and the monetary value of the mixture. Units and correct significant figures will also be necessary!

	Small Spheres	Medium spheres	Large Spheres
# of spheres	76	37	19
Mass of 250 ml beaker	114.2161g		
Mass of spheres	45.78g	156.66g	188.15g
Value of spheres	$121	$66	$239
Total value of spheres	$436		
Total Weight of spheres	390.59g		
% composition by mass	%11.72	%40.109	%48.171

Station C

Initial Observations of KI/I_2 solution	Initial Observations of $Na_2S_2O_3$ solid
Solution is light yellow, clear with a water like viscosity.	Solid is a white semi-clear crystal.

Observations before shaking the test tube

The KI/I2 solution around the Na2S2O3 solid has gone from yellow to clear

Observations after the test tube is shaken

After shaking, the entire solution became clear, and the size of the crystal decreased.

How do your results compare to the results of your group members? Be specific.

All our members had similar results, with the KI/I2 solution becoming clear, the time it took for the solution to become clear varied.

Was this a chemical or physical change? Support your answer with evidence.

This was a chemical change because we witnessed a color change in the KI/I2 solution when the crystal was added.

Station D

Initial Observations of $KMnO_4$ solution	Initial Observations of $NaNO_2$ solution
Solution is a dark, opaque, purple solution with a water like viscosity.	NaNO2 is a clear, light yellow.

Observations as the $KMnO_4$ solution is added to $NaNO_2$ solution
The KMnO4 solution immediately disappeared into the NaNO2, the NaNO2 appeared the same.

Observations of the distilled water rinse in the test tube	Observations as the rinse solution is added to the $NaNO_2$ solution
Rinsed solution is a clear light pink with water like viscosity.	The rinse solution completely disappeared into the NaNO2, the NaNO2 solution appeared the same

How do your results compare to the results of your group members? Be specific.
All members got similar results, with the KMnO4 solution losing all color when added to the NaNO2.

Was this a chemical or physical change? Support your answer with evidence.
This was a chemical change because the KMnO4 solution completely changed color when added to the NaNO2.