

Concentrate On Your Soda Application

Problem:

What is the molarity of carbon dioxide gas and of sugar (sucrose) in "7-Up"?

Materials:

"7-Up" (the Uncola)
balance
graduated cylinders
beakers
flasks
hot plates

Hazard Warnings:

Wear safety goggles for the entire experiment.

Procedure:

Probably one of the most common chemical solutions consumed on a daily basis is soda. Soda has relatively simple composition: water, sugar, and carbon dioxide. Your mission is to analyze this solution.

You will first need to determine a method of "dissecting" your sample of soda. Before beginning, prepare a data table in which to record the important information. When ready, obtain a volume of "The Uncola" from your instructor and experimentally determine the molarity of carbon dioxide (CO_2) and sugar ($\text{C}_{12}\text{H}_{22}\text{O}_{11}$) in your sample.

Calculate the molarity of CO_2 and the molarity of sugar ($\text{C}_{12}\text{H}_{22}\text{O}_{11}$) in "7-Up". Show all of your calculations.

Summing Up:

1. Describe how you went about removing the CO_2 from your Uncola.
2. Using your data, determine the masses of CO_2 and sugar in a two liter bottle of "7-Up". Be sure to show your calculations.
3. Do you think your CO_2 calculation is truly representative of the actual mass of CO_2 in the solution? Explain.