

CONCENTRATE ON YOUR SODA!

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

Procedure:

Probably one of the most common chemical solutions consumed on a daily basis is soda. Soda has a 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 carbon dioxide and the molarity of sugar in 7-Up. Show all your calculations.

Summing up:

1. Describe how you went about removing the carbon dioxide from your Uncola.
2. Using your data, determine the masses of carbon dioxide and sugar in a two liter bottle of 7-Up. Be sure to show your calculations!
3. Do you think your carbon dioxide calculation is truly representative of the actual mass of carbon dioxide in the solution? (In other words, how reliable do you think your numbers are?) Explain.