

Concentrate On Your Soda

Probably the most common chemical solutions consumed on a daily basis are carbonated beverages (Soda). Soda has relatively simple composition: water, sugar, and carbon dioxide.

Your mission is to analyze this solution.



Problem:

- What is the molarity of carbon dioxide gas and
- the molarity of sugar (sucrose) in “7-UP”?
- What is the density of the “7-UP”?

Materials: “7-UP” (the Uncola), balances, graduated cylinders, beakers, flasks, hot plates, pipets, and anything else you decide is needed (that we have).

Hazard Warnings: *Wear safety goggles for the entire experiment.*

You will first need to determine a method of “dissecting” your sample of soda. Plan carefully because you will only receive ONE CAN of soda! Before beginning, **prepare a data table** in which to record the important information. When ready, obtain a can of “The Uncola” from your instructor and experimentally determine the density of the mixture and the molarity of both the carbon dioxide and the sugar ($C_{12}H_{22}O_{11}$) in the can.

Show all of your calculations.

Summing Up Questions:

1. Using your data, calculate the masses of CO_2 ; and sugar in a two-liter bottle of “7-UP”. Be sure to show your calculations.
2. Do you think your CO_2 calculation is truly representative of the mass of CO_2 in the actual solution? Explain.
3. Explain how accurate you think the density is that you determined. What possible sources of error would affect this density determination and how would they affect its calculated value (make it more or less)?

Report: On your own paper with this page stapled onto the front as the cover page.

- Data table
- Your Procedure Explained
- Calculations Shown
- Summing UP Questions answered

