



**Dr. Anderson's
Favorite Uses for Diet Coke**

- 1. Density Experiments**
- 2. Diet Coke + Mentos ° Sticky Fun!**

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CH204 Experiment 2

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Separation and Recovery of the Components of a Mixture

The background of the slide is a composite image. On the left, there are several test tubes containing liquids of different colors (yellow, orange, and dark brown). On the right, there is a chromatogram showing a single sharp peak on a baseline.

Experiment 1 Post-Game Show

**We learned pipette,
burette, deionized water,
intensive properties,
interpolation, experimental error.**

Question your results!

A quick note on the accuracy of glassware.



Experiment 1 Post-Game Show continued...

**Another question:
Isn't there some error in the
density we determined in Part 2?**

We going to Jamaica, mon!

Experiment 2 Overview

Separate a mixture of salt, sand, and chalk dust based on differences in their physical and chemical properties.

Add water to dissolve NaCl.

Add acid to dissolve CaCO_3 .

SiO_2 is left behind in the beaker.



Part 1: Removal of NaCl

Removal is E-Z - just add water and stir.

Make sure you turn the STIR knob, not the HEAT knob.

Don't use excessive amounts of water to dissolve and transfer your sample.



Separating the salt

Pour the liquid through a funnel lined with filter paper.

Not all of the liquid will pour through the funnel - the final mL will refuse to drip through.



“Quantitative transfer”

Pour the salt solution into your large evaporating dish and use disposable pipettes to rinse the beaker.

Be careful with that heat setting.

While the water is evaporating, start on Part 2.

Part 2: “Tiny Bubbles...!”



Add HCl dropwise into the stirring mixture of sand and chalk to dissolve the chalk:





“I can’t decant.”

Don’t worry about a few grains of sand.

“Remove the beaker from the hot plate and let it cool to room temperature.”

But please DO NOT put hot items on the white lab bench surface!

Add K_2CO_3 slowly.

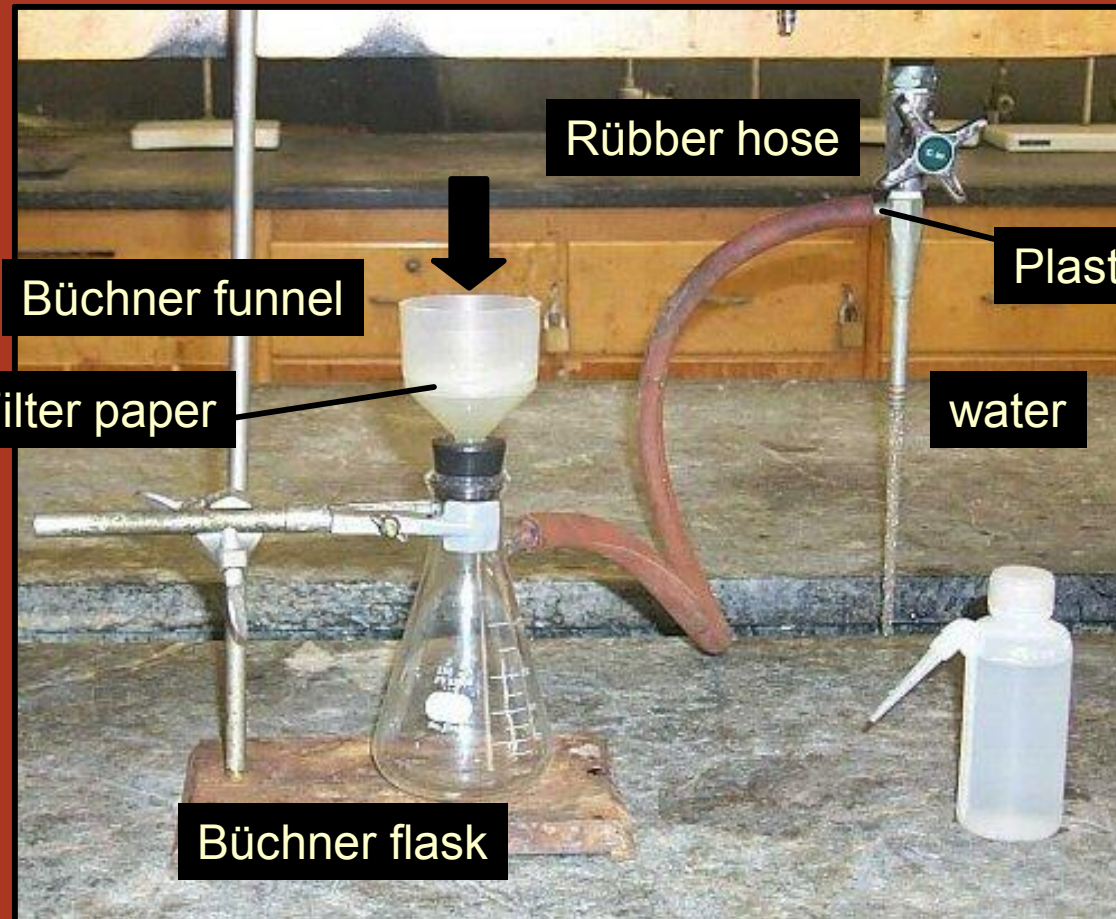


Part 3: Recovering the CaCO_3

Suction filtering is the trickiest part of the whole experiment.

Did he say “Byookner?”

No, I said “Büchner.”





Almost finished

After filtering, dry the CaCO_3 for 20 minutes in the small evaporating dish on a hot plate.

Evaporate NaCl slowly in the large evaporating dish.

Dry the SiO_2 in the beaker.

Weigh each component.



And when you're done...

Enter your name into the spreadsheet.

Enter your starting mass and the masses of recovered NaCl, CaCO₃, and SiO₂.

Do you feel lucky?

You have the option of reporting your own data or the average results of everyone who had the same unknown as you.

You can Q-Test outlying data points, but you cannot arbitrarily keep or reject data based on hunches, Tarot deck readings, or having “a really bad feeling about this one.”



How's that Q-test work again?

Let's go see.

Unknown Summary Sheets

Some of the experiments we do will require you to identify a chemical unknown in some way :

- ❖ **Determine the identity the unknown or**
- ❖ **Determine its concentration or**
- ❖ **Determine its composition**

In addition to your normal lab report, you will turn in an Unknown Summary Sheet for these experiments.

Unknown Summary Sheets can be found on the small wooden shelves next to the stockroom or can be downloaded from the class web site at

<http://courses.cm.utexas.edu/banderson/ch204/uss.html>

Quiz time!

Quizzes make up 30% of your course grade.

Each individual quiz is only about 3%, and you can drop the lowest score.