

CO2 COLUMN EXPERIMENT

Ver05.8

Startup:

- Make sure that there is sodium hydroxide solution in the feed tank. If there is not enough, contact the lab T. A.
- Now log onto a Bailey screen. (Click [here](#) to learn how to run the Bailey Controls)
- Go to group displays and bring up the CO2 Column.
- Make sure that the power is off, and put the water feed in auto-mode.
- Select the column that you want to use (in this case, we will use the white column) and then select the column level.
- If the column level is in manual, switch to auto-control. (A good column level would be 75%.) If you look at the column, the very bottom of the column is the 0 level and the 100 level is at the flange, where it would begin to flood. The gases would go directly into the liquid, flooding the air entrance.
- On the bailey, page down to the gas flow rates. The air flow rate is 0L/min and the CO2 rate is 0L/min. (These are good values.)
- Go back to the column and open the CO2 tank all the way and then back a quarter turn. A second valve should always be open. If it is not open, open it all the way and then back a quarter turn.
- Go back to the bailey terminal and turn on the main power. You might hear the column switching from one to the other based on the selection you made.
- Turn on the water. Open the valve with the **green** center and open all the way. Then there is a ball valve with a **blue** handle and turn it a quarter turn.



- You can control the flow with the bailey controls. The white column has water flowing in it and it is climbing. (We overshot the set point of 75% and it again overshot on its way back down.) As long as the level stays between the top and the bottom, the gases won't escape through the drain.
- Page down to the gas set points and set the air flow rate and CO2 flow rate. (We picked 90L/min of air and 10L/min of CO2 to get a combined flow of 100L/min and a CO2 concentration of 10L/min.)
- Start pumping sodium hydroxide. You can complete runs and adjust flow rates and concentrations.

Shutdown:

- Page down to the gas flow rates.
- Turn off the CO₂ and air flow rates.
- Turn off the sodium hydroxide before the water. (0mL/min.)
- When turning off the water, turn the blue handle first and then the green valve.
- Close the CO₂ cylinder.
- Turn off the main power.