

9.6 - GC Operation Guide

Overview:

In 5.301 we will use a state-of-the-art HP 5890 Series II Gas Chromatograph equipped with an HP 7673 Automatic Sampler and an HP 18576 Bar Code Reader, all controlled by an HP 3365 Chemstation. This simply means that you are using great equipment that is easy to operate.

Preparing a Sample for the Autosampler:

Unlike most research labs, in 5.301 we will not manually inject our samples onto the GC column. Fortunately, you can let the autosampler do all of the necessary syringe work. So, all you have to do to run the GC is to transfer your sample into a special autosampler vial.

- 1) Using the special dispenser, affix a bar code label to an autosampler vial. (Record this number in your notebook so that you don't later become confused about which number corresponds to which sample.) Check the diagram on the dispenser to make sure the vial is oriented correctly. Check to ensure the entire label is sticking to the vial.
- 2) Pipet about 1 mL of your GC sample (prepared using the GC Sample Prep. Guide) into the vial. It is properly filled if the solvent level is just below the bar code - avoid over or under filling the vial.
- 3) Using the crimper, affix a crimp cap to the vial. Do not over-crimp - moderate pressure should be adequate. Check to make sure that the crimp cap cannot be turned by hand, that there are no metal folds around the neck of the vial, and that the septum is flat and *centered*. If there are any defects, do not use this vial - the syringe could easily become damaged. Instead, remove the defective cap with wire cutters and replace it with an acceptable cap.
- 4) When all of your vials are ready and acceptable, get the TA who will instruct you on the operation of the instrument.

GC Operation Instructions¹

1. Open valves for hydrogen, air and helium
2. Turn on computer and printer
3. Open hydrogen, air and helium on GC left side front
4. Turn on GC from lower right side
5. Set up solvent wash bottles near needle
6. Allow machine time to warm up
7. Open top and blow out hydrogen block with air
8. Press hydrogen ignition button
9. Set up all vials to be run with bar codes
10. Select Method Experiment
11. Select Sequence from computer
12. Edit sequence table
13. Type in From 1 to # of samples you have loaded
14. Say OK
15. Select Run Control
16. Select run sequence
17. Message will appear answer OK
18. Once first run has ran use cursor to pull down screen
19. Continue this process until all samples have ran
20. Click upper left corner dash to shut down computer
21. Turn off GC
22. Turn off printer and computer
23. Shut off air, hydrogen and helium gas valves
24. Shut off air, hydrogen, and helium knobs on left side front top corner of GC.
25. Clean area and dump all sample tubes into white Bucket below GC.

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