

Instructions for the HP 5890 Gas Chromatograph

GC Startup Procedure

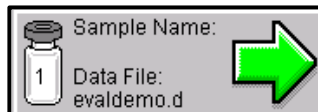
1. Turn on all three gas tanks. Open the main valve. Do not adjust the secondary valves.
 - Tank pressure to the GC: air = 50 psi; helium = 52 psi; hydrogen = 20 psi
2. Turn on GC. Power switch is on the right hand side.
 - Always turn on the GC before starting the HP ChemStation software.
3. Light the detector.
 - Press FID igniter button (hold it in for 2-3 seconds) then release the FID igniter button.
 - Check if the detector is lit.
 - Hold a watchglass over it to see if there is condensation...
 - Or press the Sig 1 button (on the front panel of the GC) twice. If lit, the signal will be at ~3-5. If not lit the signal will be at ~0.2
 - If you cannot light it with the FID igniter button, then use the BBQ lighter. Ignite the lighter, bring it close to the detector and hold down the FID igniter button. Check that the detector is now lit.

Setting Up The Software

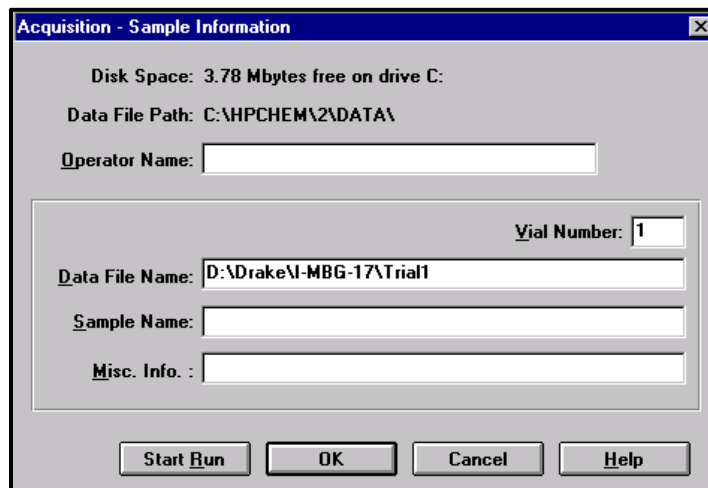
4. Make a file folder to save your data.
 - My Computer → System (D:) → Drake
 - Make a new folder in the group folder. Name it as your notebook number.

5. In ChemStation, set up a file.

- Click the “Sample Name:” button.



- You can leave **Operator Name:**, **Sample Name:**, and **Misc. Info:** blank.
- In **Data File Name:** delete what is there and enter the full **Data File Path** of your folder from step 4. At the end of the file path, include the individual sample name.
- For example: D:\Drake\folder name (I-MBG-17)\sample name (trial1)

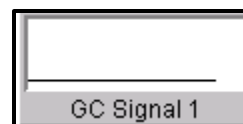
A screenshot of a software dialog box titled 'Acquisition - Sample Information'. The dialog box has a blue title bar and a grey body. It contains several fields and buttons. At the top, it says 'Disk Space: 3.78 Mbytes free on drive C:'. Below that is 'Data File Path: C:\HPCHEM\2\DATA\'. There is an empty text box for 'Operator Name:'. Below that is a section with a 'Vial Number: 1' label and a text box containing 'D:\Drake\I-MBG-17\Trial1' for 'Data File Name:'. Below that are empty text boxes for 'Sample Name:' and 'Misc. Info:'. At the bottom are four buttons: 'Start Run', 'OK', 'Cancel', and 'Help'.

6. Then click **Start Run** 

7. Then click **Override** as long as the GC oven and injector is up to the desired temperature and the detector temperature is close.



8. Inject your sample and press start on the GC front panel.
• View your GC chromatogram in real time by clicking the “GC Signal 1” button in ChemStation.



9. Rinse the syringe with water followed by acetone.
To properly rinse the Hamilton CR-700-20 syringe:
a. Place the needle in the rinse water and pull up the plunger all the way.
b. Remove the syringe from the rinse water. While holding the syringe over a paper towel, release the plunger and press the button. Repeat for acetone.

Analyze & Integrate The Data

10. On the desktop open “HP 5890 GC Analysis”.

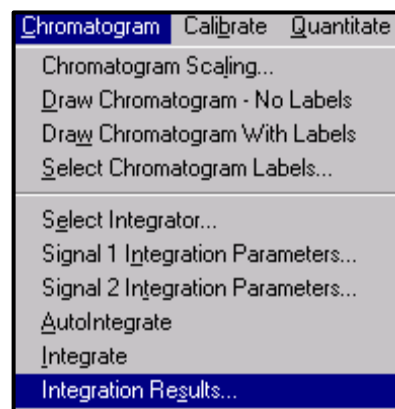
11. Click **File** → **Load Data File...** → find your folder → click on specific file → **OK**



12. Before integrating, zoom peaks of interest.
• To zoom, left click and drag to define an area.
• To un-zoom, double left click.
• To integrate, right click on the bottom/baseline of the peak. Click-hold-drag to the other side of the peak, connecting one base of the peak to the other.
• Repeat integration process for all peaks of interest.

13. To get the retention times and peak areas, go to **Chromatogram** → **Integration Results...**

14. To tabulate integration results, go to **Start** → **Programs** → **Accessories** → **Notepad**.
• From the Integration Results window, choose Copy.
• Go to notepad that you just opened and paste (Ctrl-v).



15. To inject more samples:

- Click the “Sample Name:” button in ChemStation.
- In the **Data File Name:** do not retype the full **Data File Path**, just give a new sample name.

Acquisition - Sample Information

Disk Space: 976.53 Mbytes free on drive D:

Data File Path: D:\DRAKE\I-MBG-17\

Operator Name:

Vial Number:

Data File Name:

Sample Name:

Misc. Info. :

Start Run OK Cancel Help

- Press **Start Run** → **Override**.

GC Shutdown Procedure

16. On the computer, exit all programs, but DO NOT TURN OFF THE COMPUTER!

17. On the GC:

- a. Turn the power off.
- b. Close the main valve on the air and hydrogen tanks.
- c. Open the GC oven door, and allow it to cool.
- d. After 20-30 minutes come back and close the main valve on the helium tank.