

Operation of the GOWMAC Series 350 Gas Chromatograph

1. Turn on the chart recorder. Turn the "DET POWER" switch to the on position, and turn the "CURRENT" knob fully clockwise. The remainder of the setup will have been done by the lab staff.
2. Turn the "ATTENUATOR" knob on the gc to "4", and use the "ZERO" knob on the chart recorder to place the pen where you want your baseline. One inch (2.5 cm) from the right hand edge of the paper is recommended.
3. Balance the detector circuitry by turning the "ATTENUATION" knob to 1, and use the "ZERO" control on the gc to bring the pen back to the baseline. To keep the pen on scale, you may need to adjust the "ZERO" knob before the attenuation reaches 1.
4. You are now ready to inject your compound. Decide which of the two methods below will provide better results for your analysis.

Injection of neat samples:

This method provides better results when the material being analyzed has a low boiling point, or the components of the mixture are easily resolved.

5. Turn the chart recorder on with a chart speed of 1" or 1 cm per minute. Lower the pen onto the chart paper. Set the "ATTENUATION" knob to 8, or the value recommended in your lab manual.
6. If necessary, you may clean the syringe by filling and emptying it with your sample two or three times.
7. Fill the syringe with your sample. About 1 :L is recommended at first. Ensure that you do have some material in the syringe! Inject the sample into the appropriate column, making sure that you do not bend the needle.
8. Remove the syringe from the injection port, and mark the injection point on the paper., It is from the injection point that you will measure your retention times.
9. When your peaks are all out of the instrument, you may continue with another injection.
10. You may need to adjust either the injection volume or the attenuation knob to produce an acceptable chromatogram. The largest peak on the chromatogram should be a minimum of 6" from the baseline.
11. If you are finished with the gc, and no one is waiting for the instrument, you should turn the "DET POWER" switch to off, and turn the "CURRENT" knob fully counterclockwise.

Injection of samples in solution:

This method provides better results when the material being analyzed has a high boiling point, or the components of the mixture are not well resolved.

5. Prepare your sample by dissolving one drop (liquid) or 20 mg (solid) of the material to be analyzed in about 1 mL of ether in a clean vial. Also add about 2 mL of ether to a second vial to be used for cleaning the syringe.
6. Turn the chart recorder on with a chart speed of 1" or 1 cm per minute. Lower the pen onto the chart paper. Set the "ATTENUATION" knob to 64.
7. If necessary, you may clean the syringe by filling and emptying it with pure ether 3 or 4 (or more!) times.
8. Fill the syringe with your sample. About 1 μ L is recommended at first. Ensure that you do have some material in the syringe! Inject the sample into the appropriate column, making sure that you do not bend the needle.
9. Remove the syringe from the injection port, and mark the injection point on the paper. It is from the injection point that you will measure your retention times.
10. The first peak out of the instrument will be due to the ether solvent. When the pen is almost back to the baseline, turn the "ATTENUATION" knob to 4. This will enable you to see the peaks due to your compounds. It is not unusual for the pen to "jump" from the baseline at this point.
11. When your peaks are all out of the instrument, you may continue with another injection. Don't forget to turn the "ATTENUATION" knob back to 64 before starting another injection. Also don't forget to clean out your syringe.
12. You may need to adjust either the injection volume or the attenuation knob to produce an acceptable chromatogram. The largest peak on the chromatogram should be a minimum of 6" from the baseline.
13. If you are finished with the gc, and no one is waiting for the instrument, you should turn the "DET POWER" switch to off, and turn the "CURRENT" knob fully counterclockwise.