

GC/MS Instrument Management

Faculty Supervisor: Xuan Zhao (xzhao1@memphis.edu) ext: -2939

Student Supervisor: Heather Fleming (hlflemng@memphis.edu) ext: -4426

Student supervisor responsibilities

The student supervisor will notify Dr. Zhao of any malfunctions or irregularities.

1. Monday: Visit the instrument and make sure it is working.
2. Check the He cylinder, pump oil level, and septum count, Record the He pressure and oil level in the weekly maintenance form. Replace He tank, change/add pump oil if necessary.
3. Check the notebook to see users' entries are there.
4. Tune the detector every two weeks: Click Maintenance - System Verification - HP-5 - OK - Tune - OK
4. Make sure printer paper is available.

Student supervisor training

The student supervisor will know how to tune the instrument and how to run the sample. Also, the student supervisor will know how to change vacuum oil, how to replace helium cylinder, change septum and change column.

Faculty-in-charge responsibilities

1. Supervise and train student supervisor
2. Annually have training class for routine experiments.
3. Troubleshoot and fix problems consulting with instrument documentation and vendor engineer
4. Advise Department Chair and Facilities Committee on the necessity of instrument replacement or repair by vendor

User Training on Instrument

1. Because many groups use MS, most users should obtain training for routine use while observing members of their group.
2. Otherwise routine training will be administered once a year during the summer.

User Guidelines and Scheduling

1. Sign in the log book **before** you begin using the instrument.
2. If you are using the MS and have not signed the log book, anyone can sign in, stop your experiment and log you out.
3. Do not use the instrument unless you have been trained.
4. Make a note in the log book and report to the student supervisor and/or the Faculty in-charge of any unusual behavior of the instrument.
5. Instructional courses have priority; no other user may use the instrument during the class period; The lab instructor should notify the student supervisor and/or the Faculty-in-charge of reserving the time-slot needed for the lab period in advance.
6. Repeated failure to conform to these procedures will result in loss of user privileges.

Instructions on how to use GC/MS

Please report problems with this instrument to Jayne Cox (jaynecox@memphis.edu, 901-678-4426-office) and/or Xuan Zhao (xzhaol@memphis.edu, 901-678-2939)

To prepare the sample

1. Dissolve sample in clean solvent to a concentration of about 3-5mg/mL
2. Using a microliter syringe, draw up 1-3 microliters of solution

To prepare the instrument for a run

Before beginning, **sign the logbook**

1. Turn on the monitor
2. Navigate to the GCD Application
Start>Programs>GCD
3. Open method menu, select edit
4. Check the “split injection” radio button, and save.
5. Open “Acquire Data” menu and choose “one sample”
6. Enter a file name, using appropriate subdirectories
7. To run method, click “Yes”
8. While the controller is preparing the instrument, the red, “Not Ready” light on the instrument will illuminate. When the instrument reaches the controller defined set-points, the red light should turn off, leaving only the green light illuminated. The machine is now ready.
9. Inject sample
10. Immediately press “Enter” on the controller (computer) keyboard
Data collection will commence.
11. Review data

To shut down

1. Before leaving the instrument, return it to splitless operation (failure to do so will allow carrier gas to continue flowing.)
2. Open “Load” menu and load “shutdown.m”
3. Open “Acquire Data” menu and select “one sample”
4. Select “Run Method”
5. Immediately stop the run by selecting “Stop Run”
6. On the GC control panel (on instrument), set the flow rate to 0.5mL/min (press “Flow”, enter 0.5, press “Enter”)
7. Exit the GCD application
8. Turn off the monitor
9. **Review the logbook** entry and add any problems encountered

GC/MS Weekly Maintenance Record

Dates Scheduled	Helium Pressure	Pump Oil Level	Dates Checked	Comments
03/08/10				
03/15/10				
03/22/10				
03/29/10				
04/05/10				
04/12/10				
04/19/10				
04/26/10				
05/03/10				
05/10/10				
05/17/10				
05/24/10				
05/31/10				