

How to Run the CASPIE Gas Chromatograph



A gas chromatograph (GC) is used to separate and quantify complex mixtures. You will use the CASPIE GC to quantify Fatty Acid Methyl Esters (FAME) in food samples.

You must have already created and saved a batch file before you run the GC. (Instructions for this are provided in a different document.)

Please Note:

DO NOT make any changes to the instrument that are not instructed in this document. Others will use the instrument after you. Be courteous to your fellow students and leave them a usable instrument!



Load the CASPiE Instrument Site



- To open the GC control software launch your web browser and navigate to the CASPiE instrument website at <https://instruments.caspie.org>.
- Enter your account information to login.

The screenshot shows the CASPiE Instrument Access login interface. At the top, the CASPiE logo and the text "Instrument Access" are displayed. Below this, a grey login box contains the following elements:

- Text: "Welcome CASPiE Users"
- Text: "Login to access your CASPiE resources."
- Form field: "User name:" with the text "jmsmith" entered.
- Form field: "Password:" with a masked password represented by eight dots.
- Button: "Log On"

Below the login box, a message reads: "Please enter your account credentials then click Log On to get access to your reserved instrument time. If you have trouble logging in, contact Debora Steffen by [email](#) or phone (765-494-4959)."

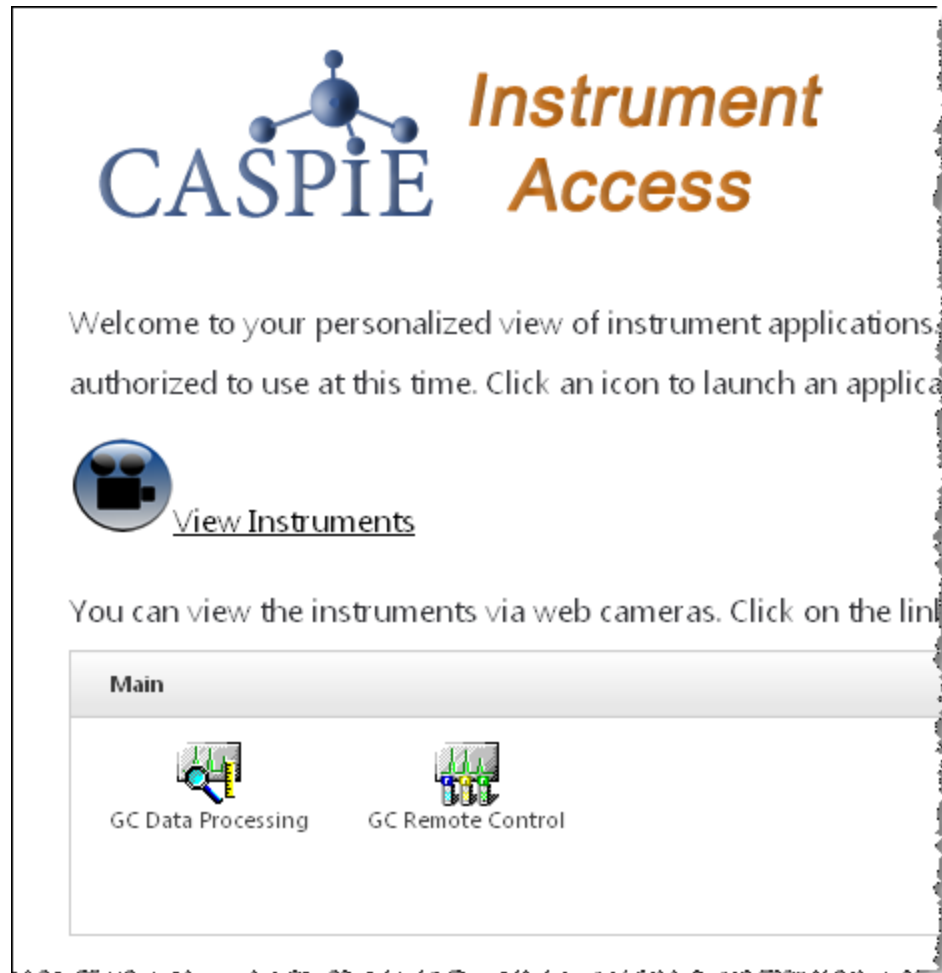
The GC Control Software



The software used to control the GC instrument is called 'GC Remote Control'.

You will only have access to the GC instrument for remote control during your scheduled hours.

You will also see the icon for GC data processing. You will always have access to the GC data processing software during a CASPIE module.

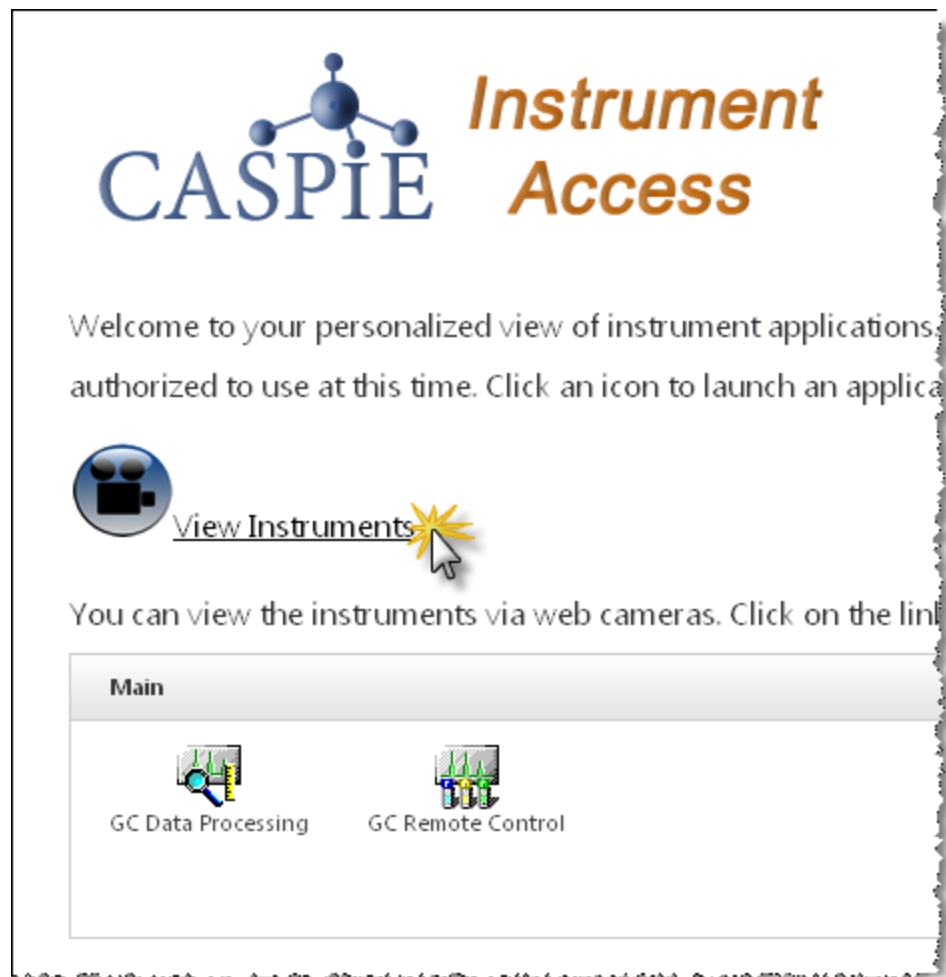


The GC Camera

While you are using the GC you can view the actual instrument live via an internet camera. (Note that Java is required for loading the camera image.)

The camera is accessed via the link labeled 'View Instruments' next to the camera icon.

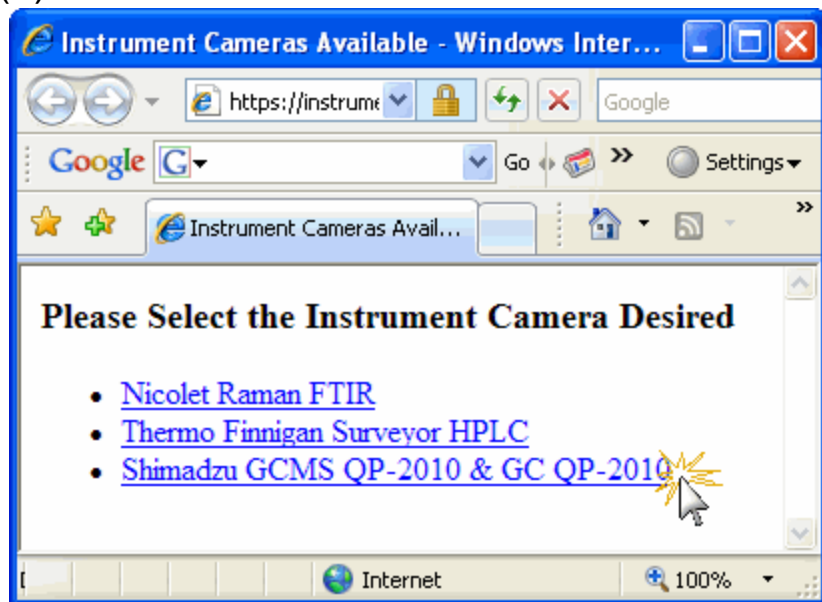
When you click the link another browser window will open.

A screenshot of the CASPIE Instrument Access web interface. At the top left is the CASPIE logo. To its right, the text "Instrument Access" is displayed in a large, orange, sans-serif font. Below this, a welcome message reads: "Welcome to your personalized view of instrument applications, authorized to use at this time. Click an icon to launch an application." A blue circular icon containing a black camera symbol is positioned to the left of the text "View Instruments", which is underlined. A yellow mouse cursor is hovering over the underlined text. Below the welcome message, another line of text says: "You can view the instruments via web cameras. Click on the link". At the bottom, there is a grey header bar labeled "Main". Underneath, two application icons are shown: "GC Data Processing" (with a magnifying glass over a chromatogram) and "GC Remote Control" (with a control panel icon).

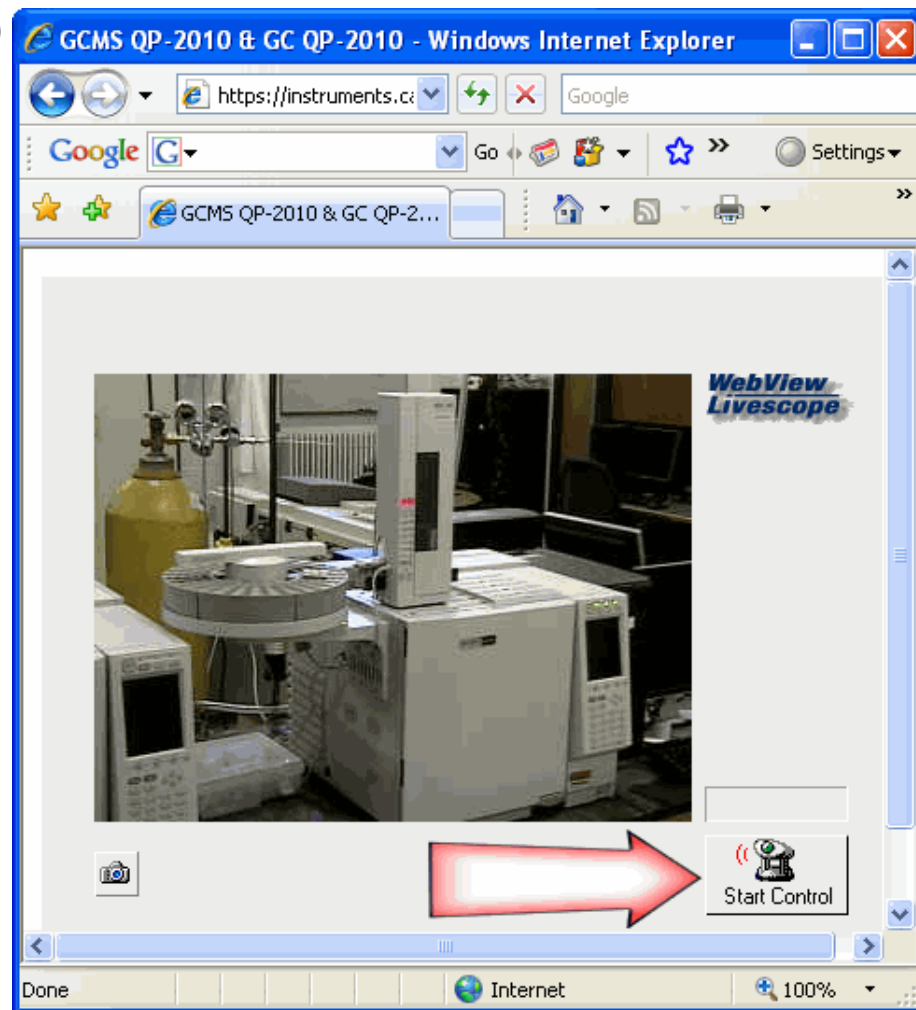
The GC Camera

- In the 'Instrument Cameras Available' browser window (a) click on the 'Shimadzu GCMS QP-2010 & GC QP-2010' link to load the camera image.
- Note that the same camera is used for two different instruments.
- To control the camera position click on the 'Start Control' button (b). You may have to click it twice.

(a)

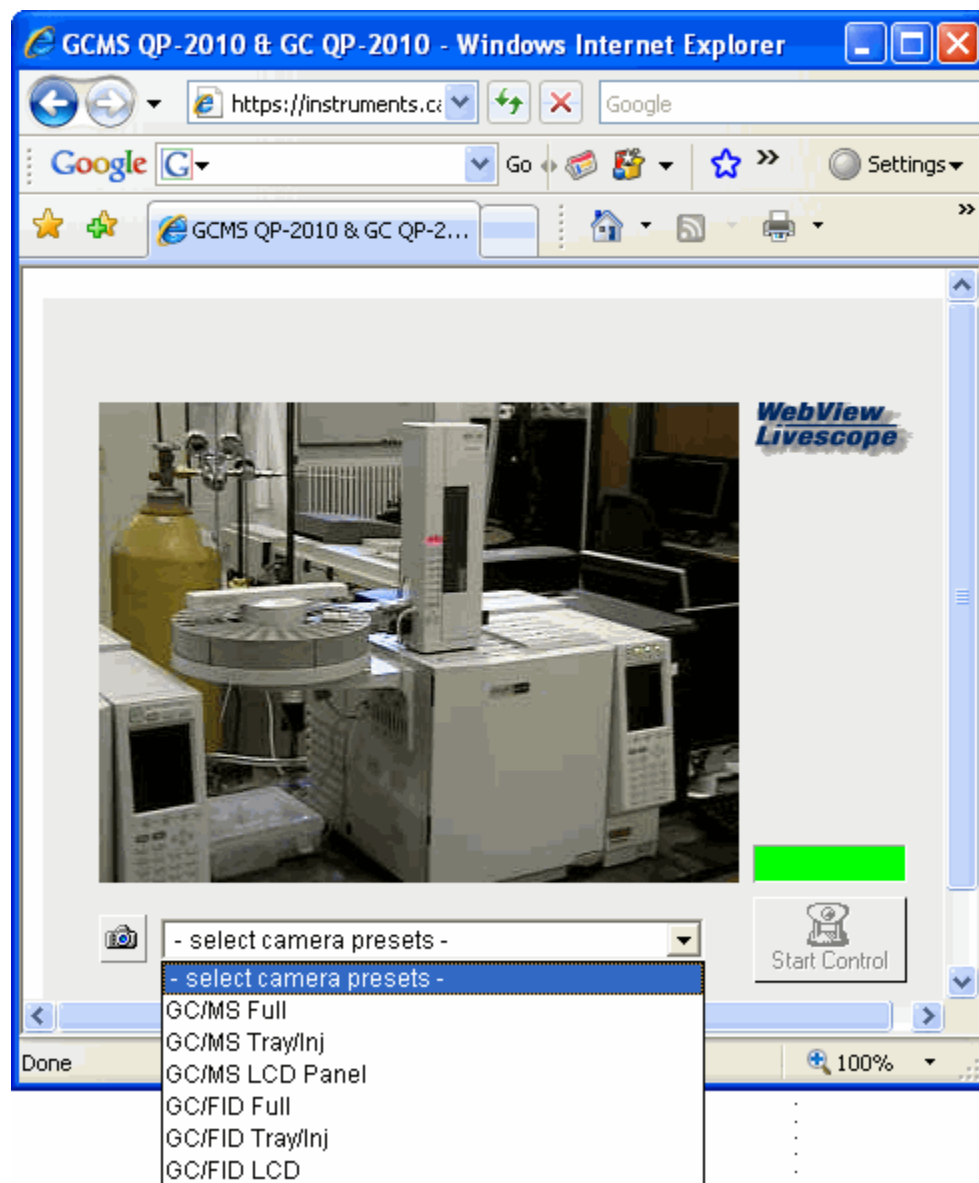


(b)



The GC Camera Presets

- When you have control of the camera there will be a green countdown clock above the 'Start Control' button.
- Click on the '- select camera presets' drop down and select one of the presets to move the camera to a different position.
- Only preset positions are available for viewing.
- The 'GCMS' presets are for the GCMS instrument. The 'GC/FID' presets are the ones you can use to view the CASPIE GC.



Launch the GC Remote Control Software

- To launch the GC control software go back to the CASPiE Web Interface browser window (a) and click once on the 'GC Remote Control' icon.
- A login window will appear (b). Use the user ID 'Student.' No password is required.

(a)



Welcome to your personalized view of instrument applications. You are authorized to use at this time. Click an icon to launch an application.



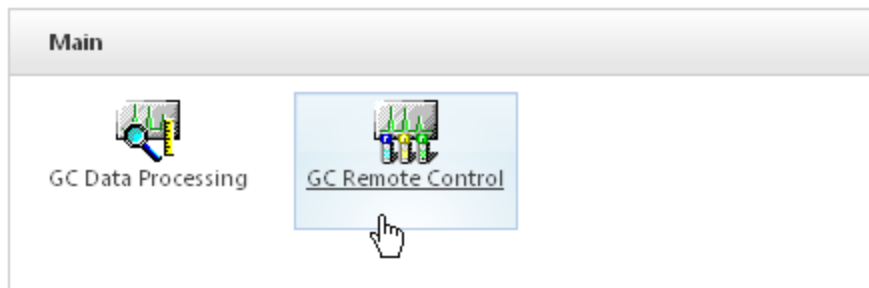
[View Instruments](#)

You can view the instruments via web cameras. Click on the link.

Main

GC Data Processing

GC Remote Control



(b)

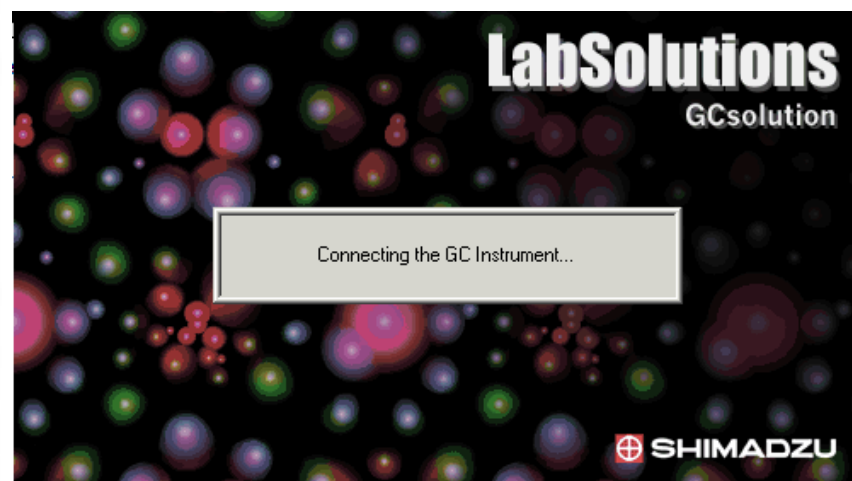


LabSolutions
GCsolution

User ID:

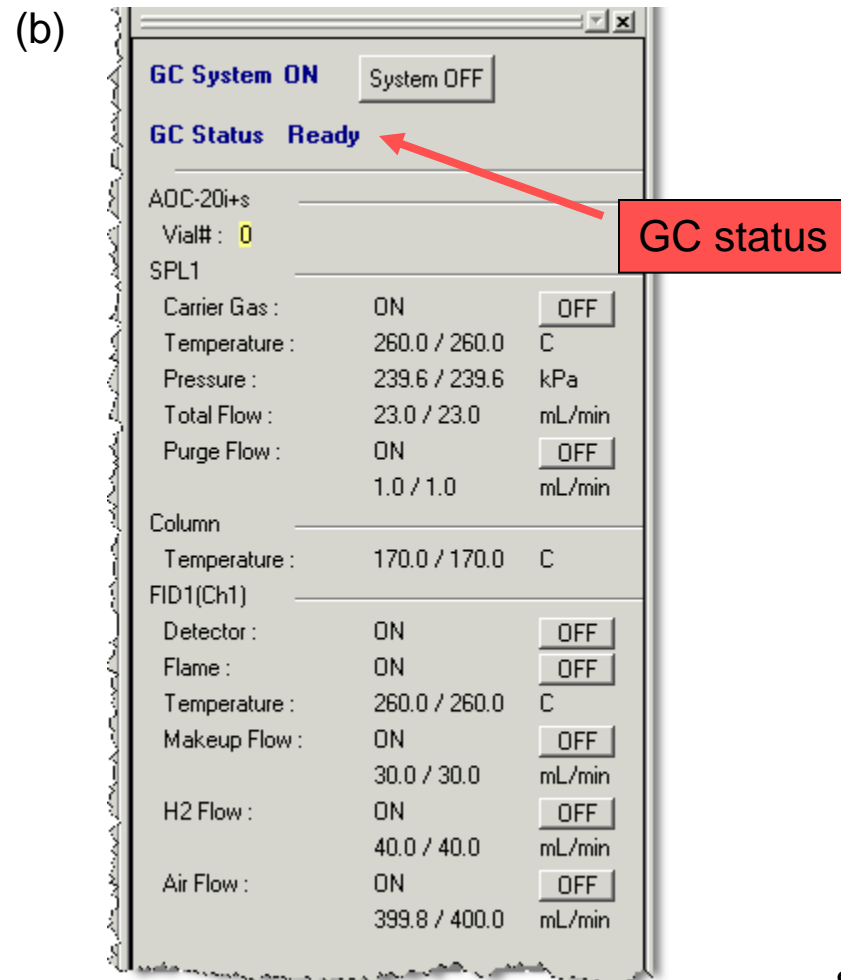
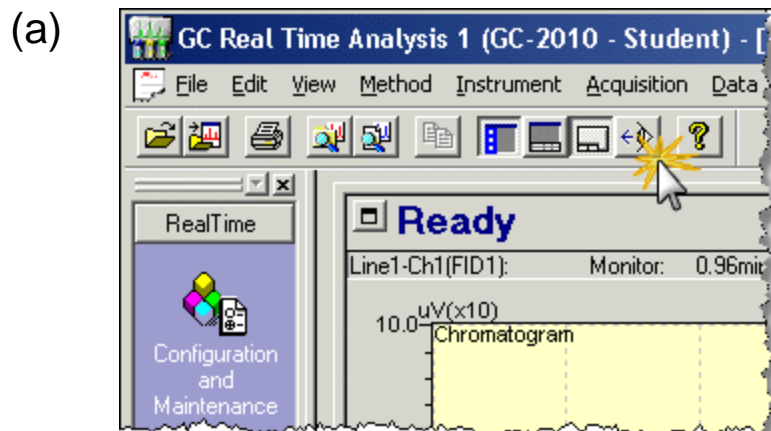
Password:

OK Cancel Help



Open Instrument Monitor

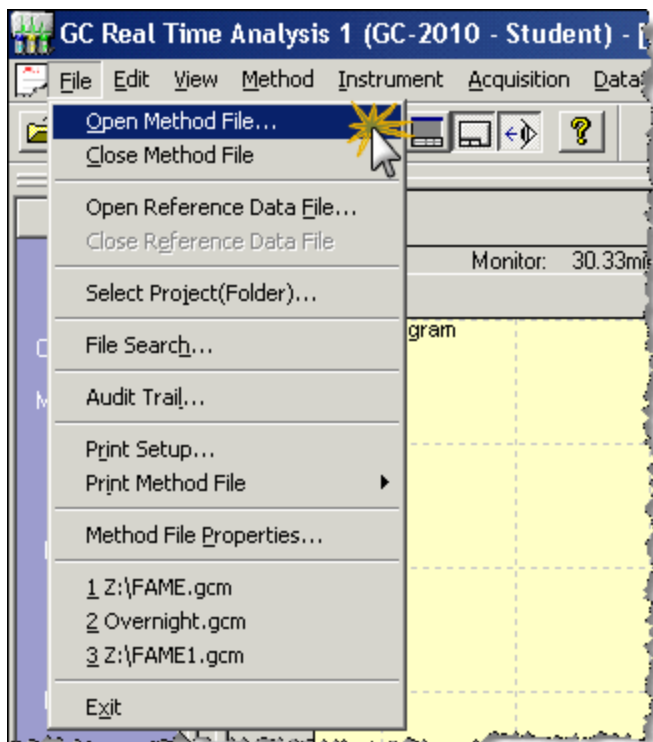
- The status of the instrument can be viewed by opening the instrument monitor. Click on the eyeball icon (a) at the top of the 'GC Real Time Analysis 1' window to open the instrument monitor.
- The monitor window will open on the right side of the screen (b).
- The status of the GC should read 'Ready'.



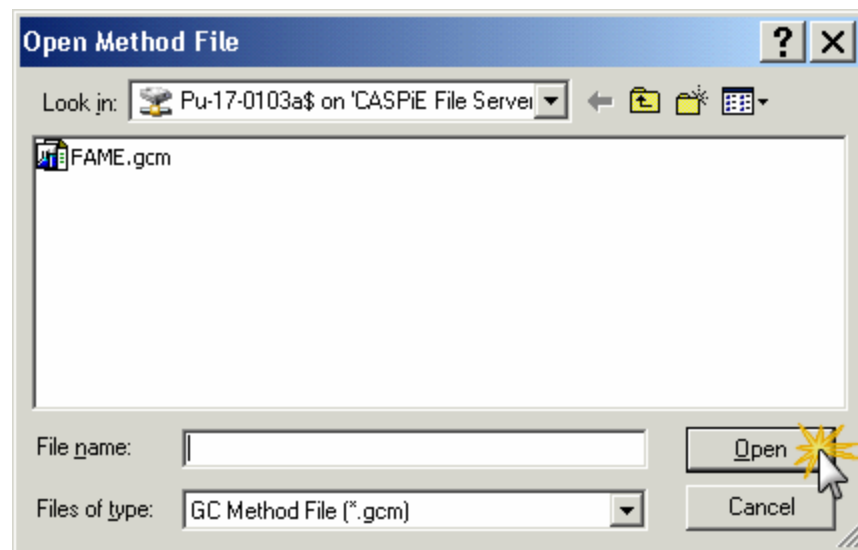
Open Method File

- Open the method file by selecting File | Open Method File (a).
- Select the 'FAME.gcm' file and open it (b).

(a)

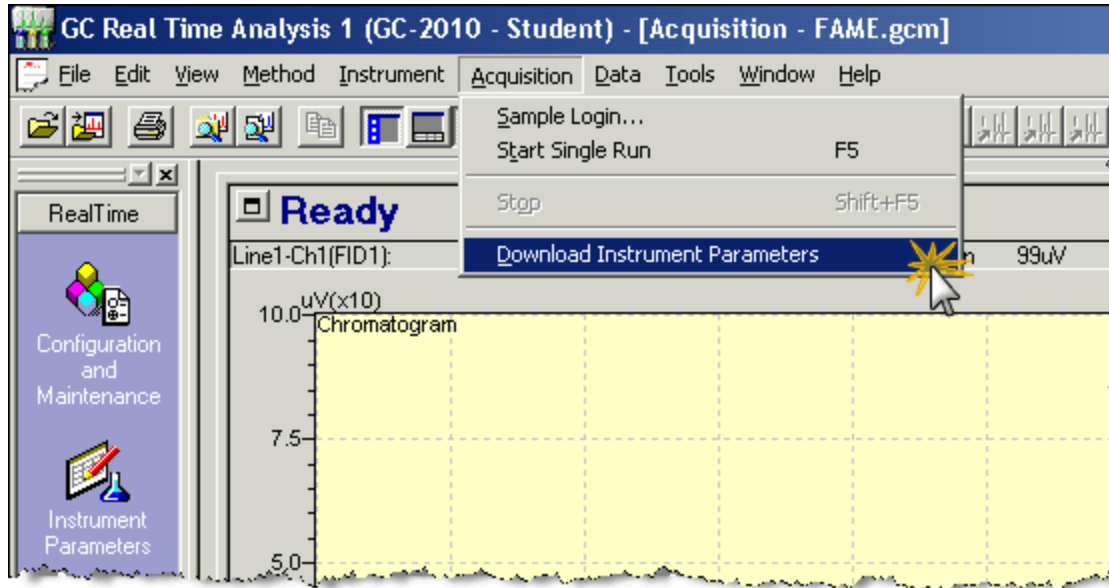


(b)



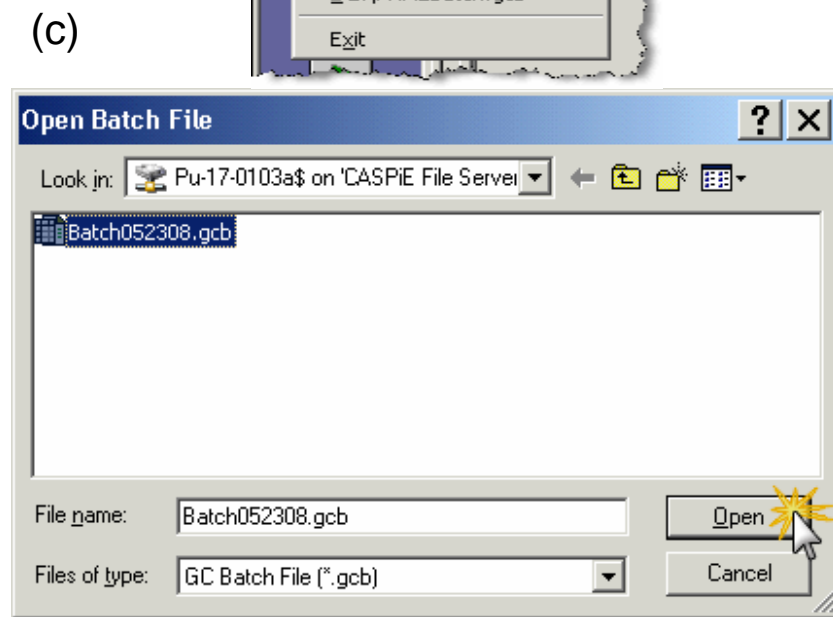
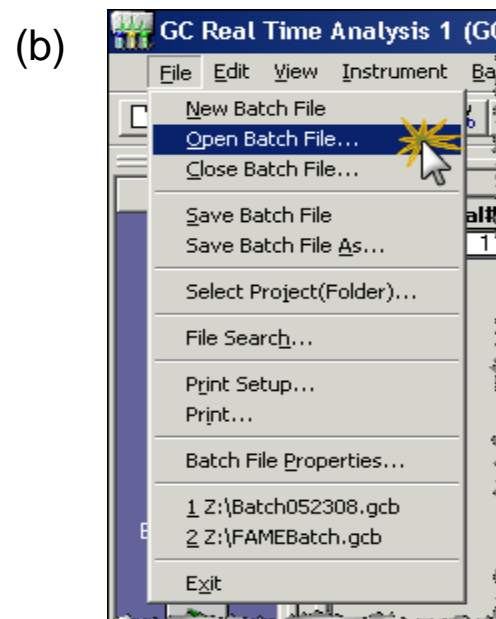
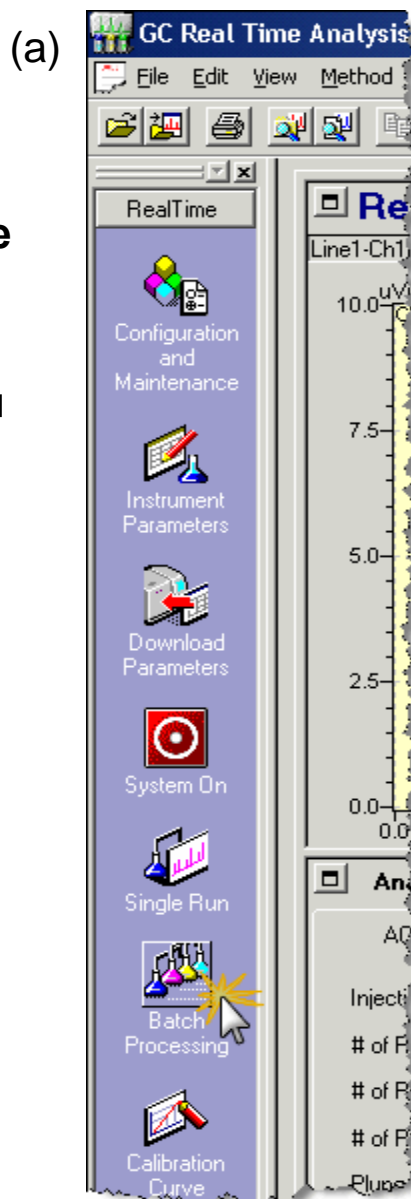
Download Instrument Parameters

- Download the information in the method to the instrument by selecting Acquisition | Download Instrument Parameters.



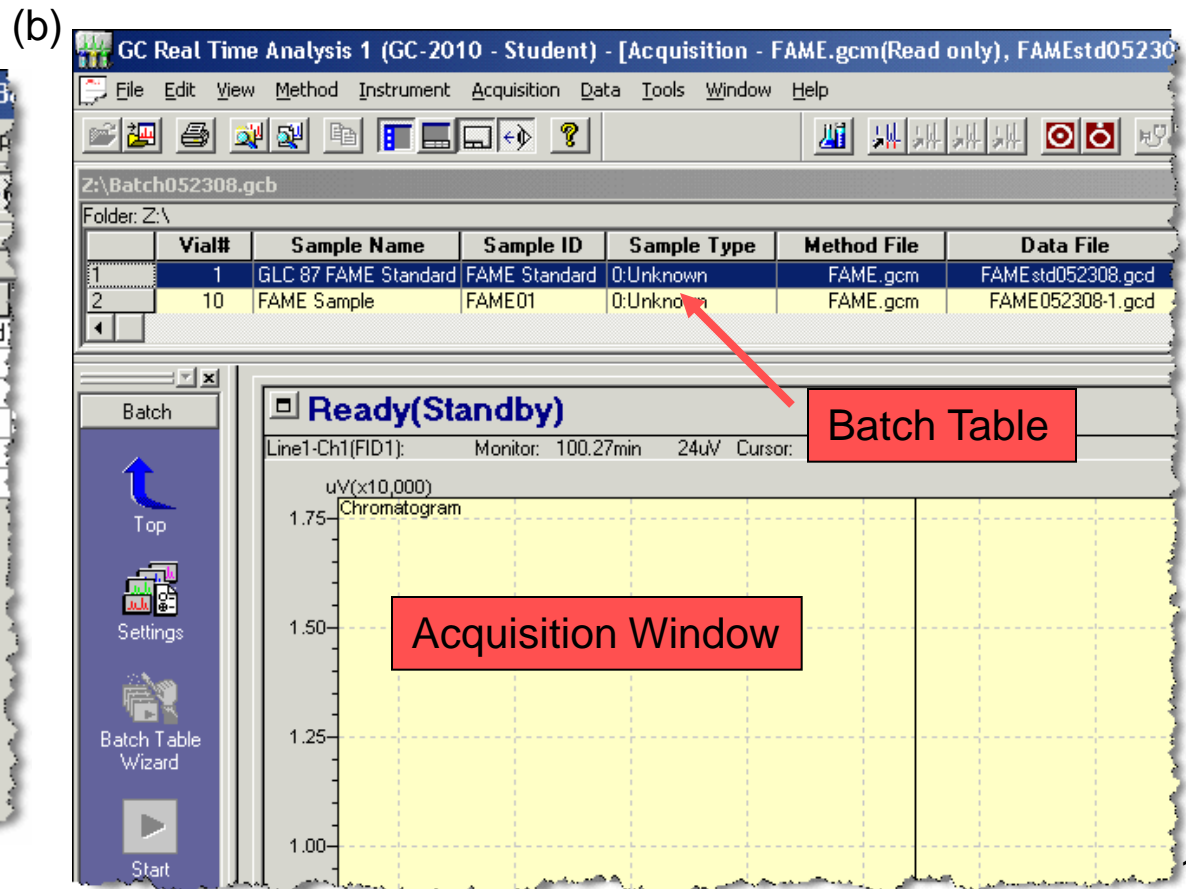
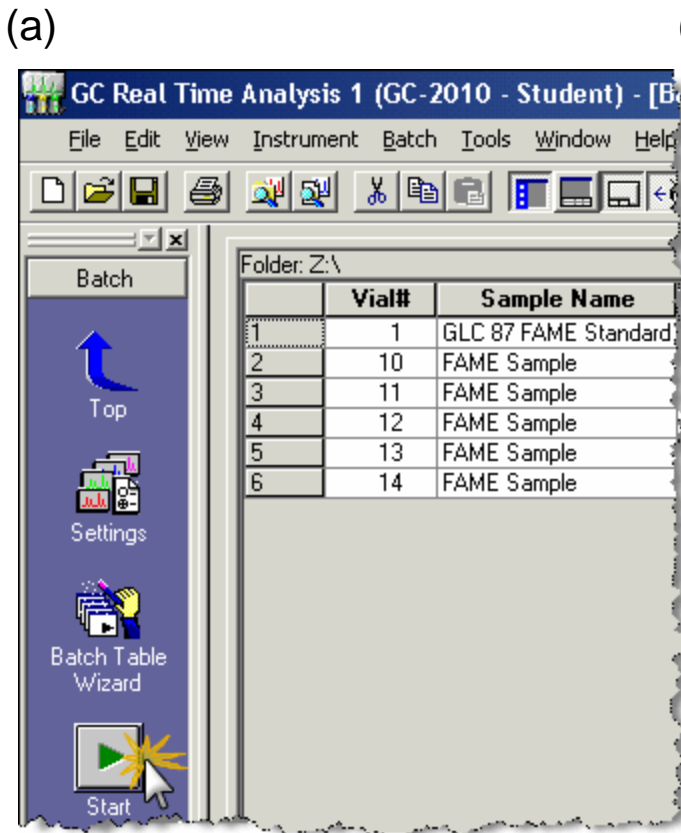
Open Batch File

- Open the Batch Processing window by clicking on the 'Batch Processing' icon on the left side of the window (a).
- Open the batch file you created previously. To do this select File | Open Batch File (b).
- Select your batch file and click Open (c).



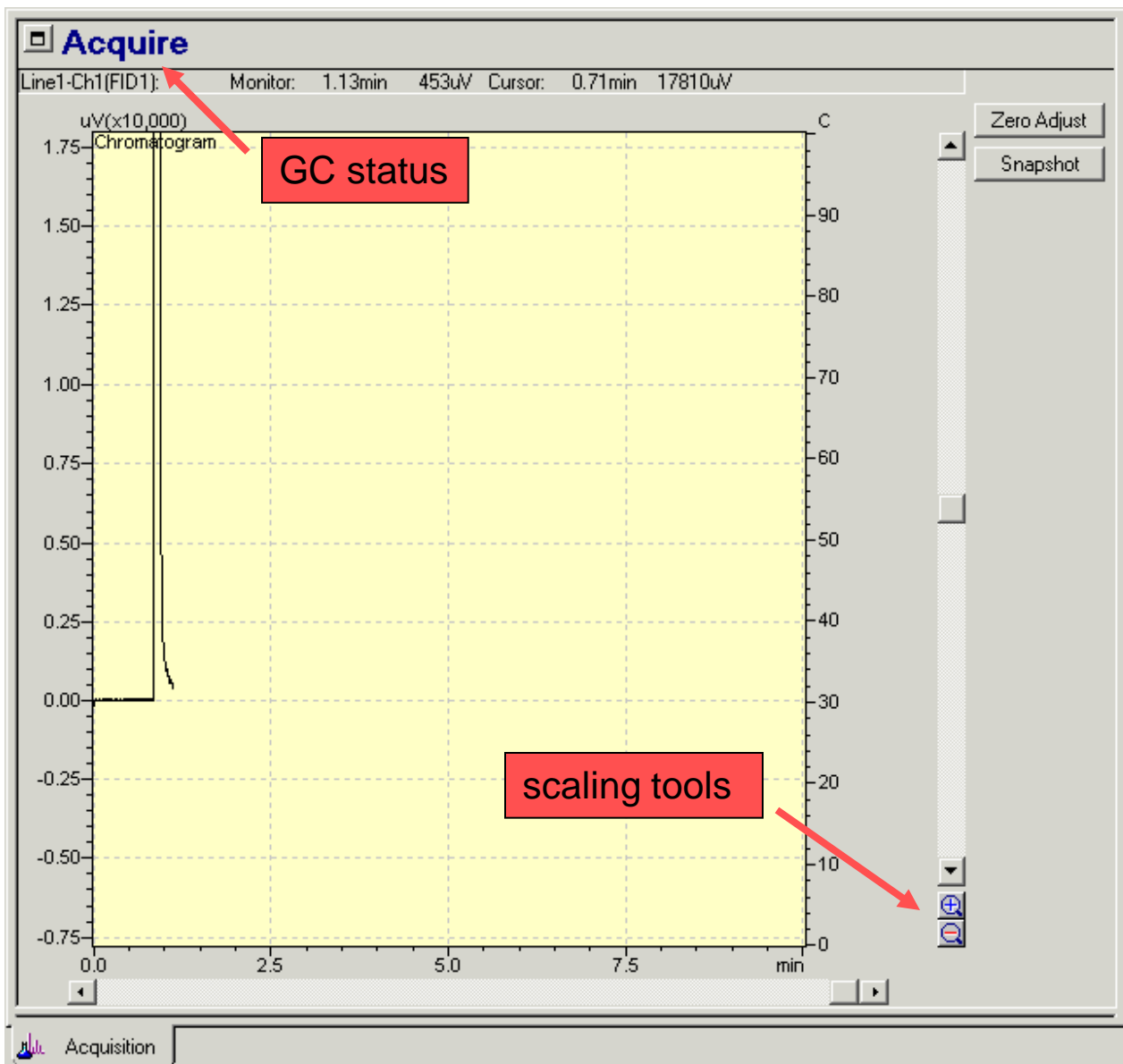
Start Batch Run

- Check your batch table to make sure it is correct.
- Click on the green 'Start' button located on the left side of the window (a) to initiate the batch run.
- The chromatogram/acquisition window will appear (b). The batch table will be displayed above the chromatogram window.



Acquisition Window

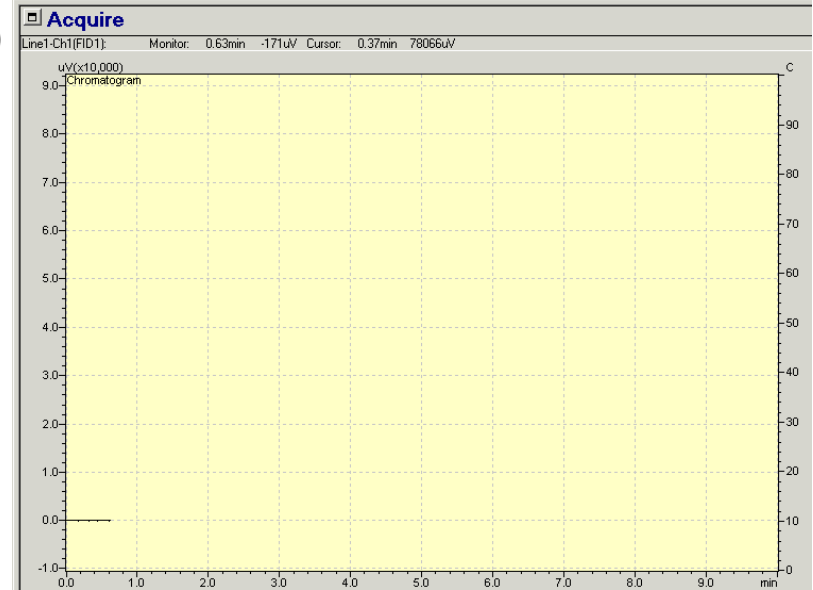
- At the start of the run the instrument will take a few seconds to get the sample ready.
- After the sample is injected the GC status will show 'Acquire'.
- The acquisition window displays the progress of the run.
- You can scale the chromatogram by using the scaling tools shown.



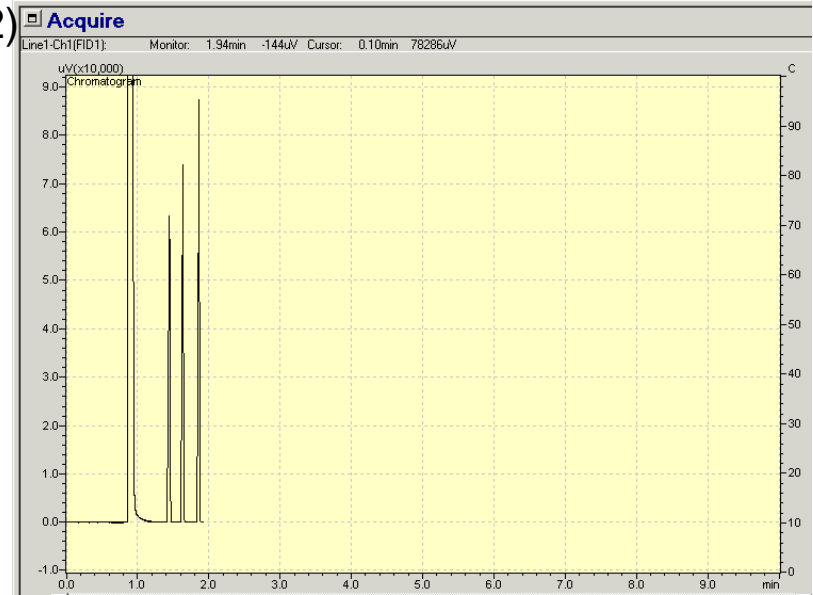
Data Collection

- It will take 7 minutes to collect each chromatogram.
- After each sample run, the GC is returned to initial temperature conditions. This will take a couple of minutes.
- An example chromatogram collection is shown here.

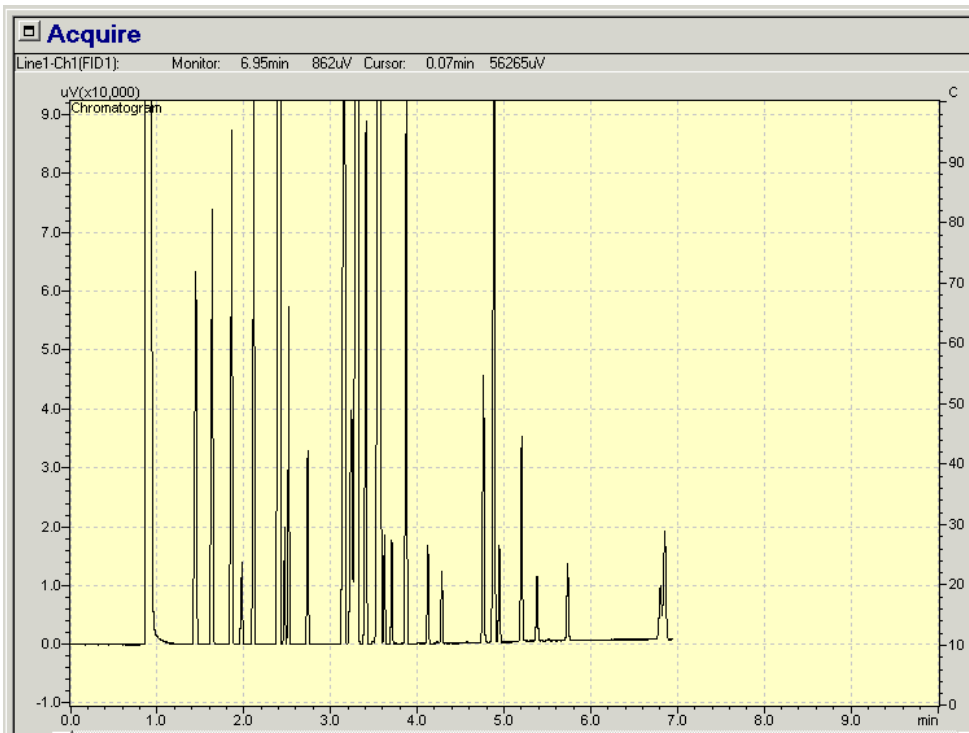
(1)



(2)



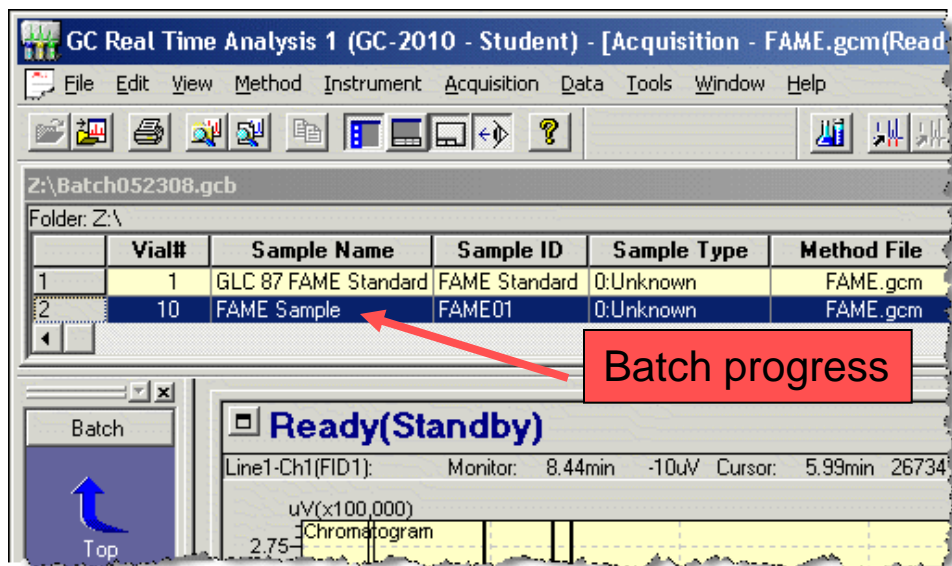
(3)



Batch Run Progress

- Monitor the progress of the run by noting the highlighted row in the batch window (a).
- The instrument will automatically proceed down the list of samples in the batch file.
- The vial number of the current run is also displayed on the GC injector tower. You can view the injector tower with the camera (b).

(a)



GC Real Time Analysis 1 (GC-2010 - Student) - [Acquisition - FAME.gcm(Read

File Edit View Method Instrument Acquisition Data Tools Window Help

Z:\Batch052308.gcb

Folder: Z:\

	Vial#	Sample Name	Sample ID	Sample Type	Method File
1	1	GLC 87 FAME Standard	FAME Standard	0:Unknown	FAME.gcm
2	10	FAME Sample	FAME01	0:Unknown	FAME.gcm

Batch progress

Ready(Standby)

Line1-Ch1(FID1): Monitor: 8.44min -10uV Cursor: 5.99min 26734

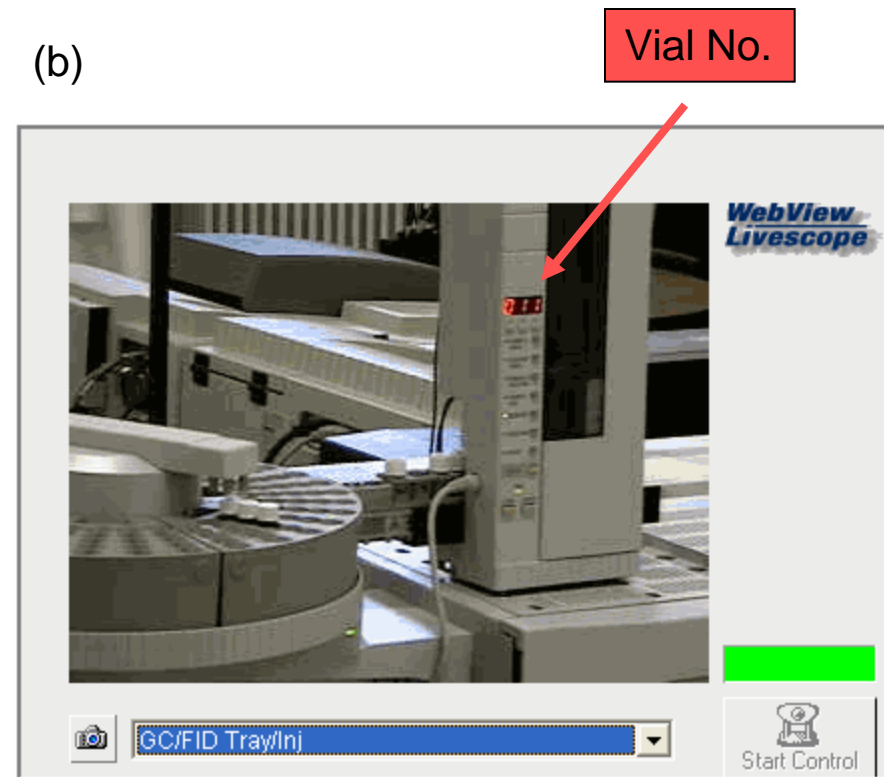
uv(x100,000)
Chromatogram

2.75

Batch

Top

(b)



Vial No.

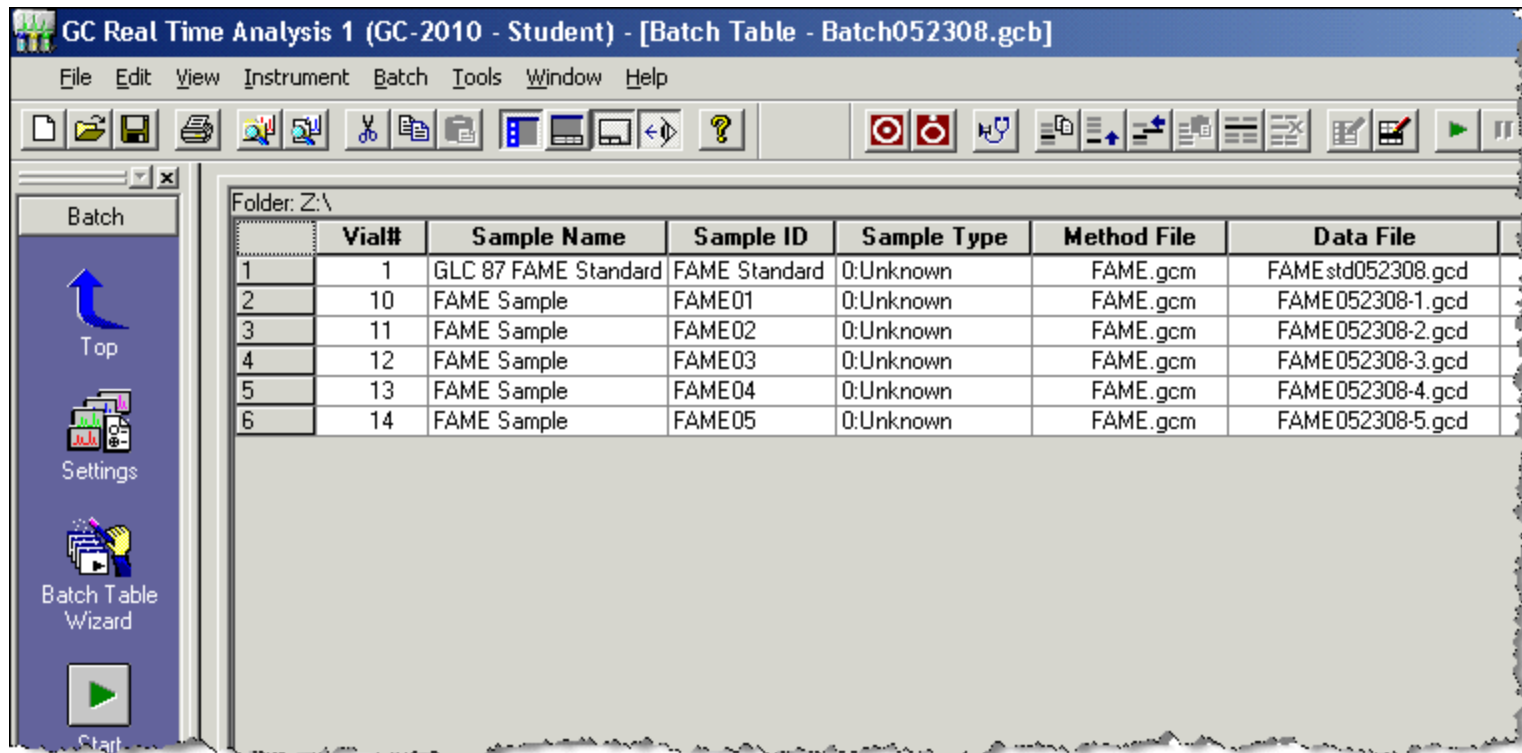
WebView
Livescope

GC/FID Tray/Inj

Start Control

Batch Run Finished

- When the batch is finished and chromatograms are collected for all your samples the chromatogram/acquisition window will disappear.
- You are now finished collecting data and can exit the program.



The screenshot shows the 'GC Real Time Analysis 1 (GC-2010 - Student) - [Batch Table - Batch052308.gcb]' window. The interface includes a menu bar (File, Edit, View, Instrument, Batch, Tools, Window, Help), a toolbar with various icons, and a sidebar with 'Batch', 'Top', 'Settings', 'Batch Table Wizard', and 'Start' buttons. The main area displays a table for 'Folder: Z:\' with the following data:

	Vial#	Sample Name	Sample ID	Sample Type	Method File	Data File
1	1	GLC 87 FAME Standard	FAME Standard	0:Unknown	FAME.gcm	FAMEstd052308.gcd
2	10	FAME Sample	FAME01	0:Unknown	FAME.gcm	FAME052308-1.gcd
3	11	FAME Sample	FAME02	0:Unknown	FAME.gcm	FAME052308-2.gcd
4	12	FAME Sample	FAME03	0:Unknown	FAME.gcm	FAME052308-3.gcd
5	13	FAME Sample	FAME04	0:Unknown	FAME.gcm	FAME052308-4.gcd
6	14	FAME Sample	FAME05	0:Unknown	FAME.gcm	FAME052308-5.gcd

Close Application

- Remember, DO NOT make any changes to the instrument.
- Exit the GC Real Time Analysis software.

